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## WAVELET BASED CROSS-CORRELATION ANALYSIS OF ROMANIAN BET INDEX WITH DAX AND FTSE INDICES

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**Abstract:** *We analyze the relationship between the dynamics of Romanian BET index with two of the main indices of stock markets, DAX and FTSE. We use wavelet decomposition on daily returns starting between 2001 and 2010. Based on the wavelet decomposition we analyze the cross-correlations and reveal the connections between the stock markets at different scale based on a lead/lag reports.*

**JEL Classification:** C22, C32, E44.

**Keywords:** stock markets, wavelets, nonlinear techniques.

### 1. Introduction

The wavelet approach to decomposing time series is relatively new, as it dates back to the last two decades. Originally, the technique emerged in the context of signal processing. However, especially during the last decade, this approach started to be applied also in the field of economics and finance. The contributions focused especially on the stock market due to the necessity of high frequency data, like Vuorenmaa (2005), or Vacha and Vosvrda (2007), although some contributions were also made on macroeconomic data, for example on the link between the macro-dynamics and the dynamics of stock markets, see Gallegati and Gallegati (2007), or on the analysis of business cycles, like Yogo (2008).

In this paper we focus on the interrelationships between stock markets, in other words, of the co-movements of stock market returns. The topic is important within the context of the topic of international portfolio diversification. The more recent research, see Brooks and Del Negro (2004) or Kyzis and Pierdzioch (2009), pointed that there was increasing international movement of stock returns since the middle 90's between the most important industrialized economies.

This topic can be studied through the use of wavelet analysis. Some of the more significant contributions are those by Sharkasi et al. (2005) or Rua and Nunes (2009). Sharkasi et al. (2004) found evidence of intra-European stock market co-movements and of an increased in importance of international spillover effects since the mid '90's. Rua and Nunes (2009) also proposed the use of wavelets in studying the co-movements of stock market returns in key countries, Germany, Japan, UK and US. They considered the use of both sectoral and aggregate data. They found that the co-movements essentially depend on the frequency of data, with stronger links for low frequency data.

### 2. Methodology

We present here in the intuitive manner the fundamentals of the wavelets approach. More complete descriptions, within the context of economic applications, can be found in either Gencay, Selcuk and Whitcher (2002), or in the paper by Crowley (2005).

The major advantage of the wavelet approach is that it allows for decomposing the time series into components at different frequencies. There are two fundamental types of wavelets, the mother

wavelet and the father wavelet. The high frequency components of a given time series, also known as details, are modeled using the mother wavelet, while the low frequency elements, the smooth component, is modeled using the father wavelet.

Formally, we can describe the mother and the father wavelet as follows. The mother wavelet  $\psi$  integrates to zero:

$$\int \psi(t)dt = 0$$

While the father wavelet has the property that it integrates to one:

$$\int \phi(t)dt = 1$$

The empirical analysis uses different types of wavelets, also known as wavelet families, in modeling of the time series. The literature distinguishes between different families of wavelets: Haar wavelets, Daubechey Wavelets, Symmetric Wavelets, Coiflets. We shortly describe the Daubechey family of wavelets which will be used throughout the paper.

The Daubechey wavelets are orthogonal, and are of discrete type. They are characterized by having the highest number of vanishing moments. We will be using the D4 wavelet which has two vanishing moments.

Since our main interest is to analyze the periodic behavior of the data to see if they show some significant cycles (weekly, monthly, or at any other frequency), we may analyze the data using wavelet variance, wavelet covariance and wavelet cross-correlation function functions. The wavelet covariance is the covariance between the scale  $\lambda_j$  wavelet coefficients from a bivariate time series and the wavelet correlation is the correlation between the scale  $\lambda_j$  wavelet coefficients from a bivariate time series. The wavelet coefficients are obtained from applying the wavelet transform to each process, in our case to the returns of the indices. The *wavelet covariance* of  $x_{1,t}$  and  $x_{2,t}$  is defined as:

$$\gamma_x(\lambda_j) = \frac{1}{2\lambda_j} \text{Cov}(\omega_{1,j,t}, \omega_{2,j,t})$$

The wavelet covariance decomposes the covariance of the two returns series on a scale-by-scale basis. If there is a lag  $\tau$  between the two series then we will obtain the *wavelet cross-covariance* and wavelet cross-correlation. Then the wavelet cross-covariance is defined as:

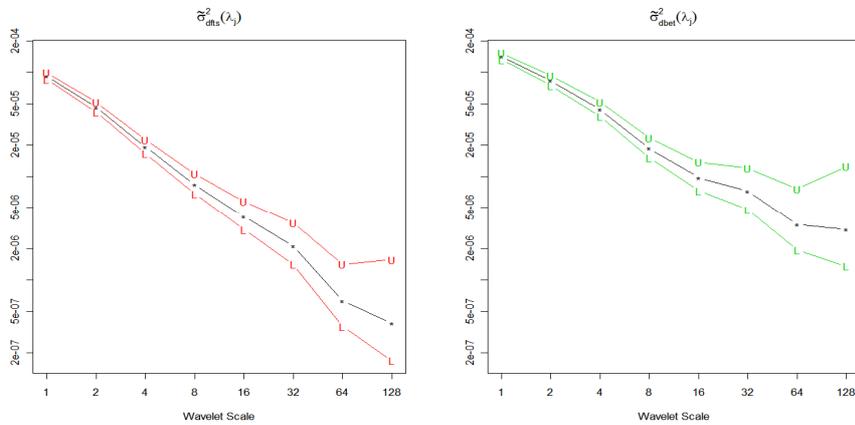
$$\gamma_{x,\tau}(\lambda_j) = \frac{1}{2\lambda_j} \text{Cov}(\omega_{1,j,t}, \omega_{2,j,t+\tau})$$

### 3. Data and results

The wavelet variance (Percival, 1995) sometimes called wavelet spectrum is a tool to decompose the variance for a stationary process, returns series of FTSE100, DAX and BET time series denominated in USD in our analysis, into different component each associated with a particular scale (Gabbannini, 2004). The wavelet variance is the average of the squared wavelet coefficients for every scale.

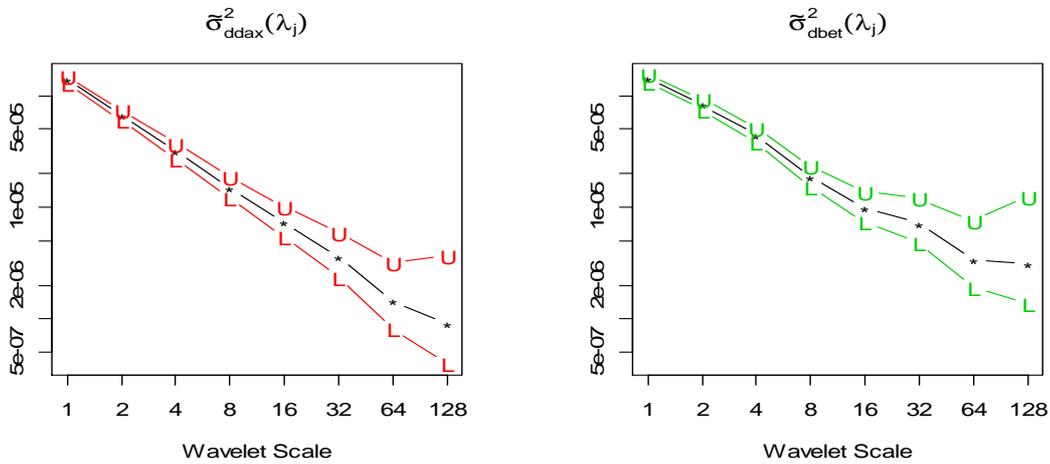
The wavelet variance for FTSE and BET indices is plotted in figure 1 on a log scale with approximate 95% confidence intervals. We have chosen **D4** in order to ensure stationary wavelet coefficients for all level. We relaxed the required dyadic sample size from DWT and using the partial MODWT of order  $j_p < \log_2(N)$  and although we could have gone up to level 11, but we have chosen level 8 for an yearly lead/lag interpretation of the co-movements.

The dashed lines with characters L and U indicate the lower and upper bounds of the approximate confidence interval. The figure of the wavelet variance may help us to represent the dynamics of variance at every scale. We can see that the variance of FTSE is declining at higher scale while the BET's variance is declining lower meaning that the volatility of BET is higher that is synonym with the fact that emerging market are more volatile. We found similar result comparing



DAX's variance with BET's variance.

**Figure nr. 1: Wavelet variance for FTSE 100 and BET indices between 2001 and-2010**



**Figure nr. 2 Wavelet variance for DAX and BET indices between 2001 and-2010**

For the wavelet cross-correlation we have used MOWDT, which is a nondecimated version of the discrete wavelet transform (DWT). The decomposition was taken up to level  $j=8$ , which is  $2^8=256$  meaning almost 1 year, because there are usually 252 trading days in one year. Therefore we are able to study the components of the signal for any period up to 1 year, namely up to 2 days

(j=1), 2-4 days (j=2), 4-8 days (j=3), at 8-16 days (j=4), monthly for periods between 16 to 32 days (j=5), quarterly (j=6), semi-annually (j=7) and yearly (j=8).

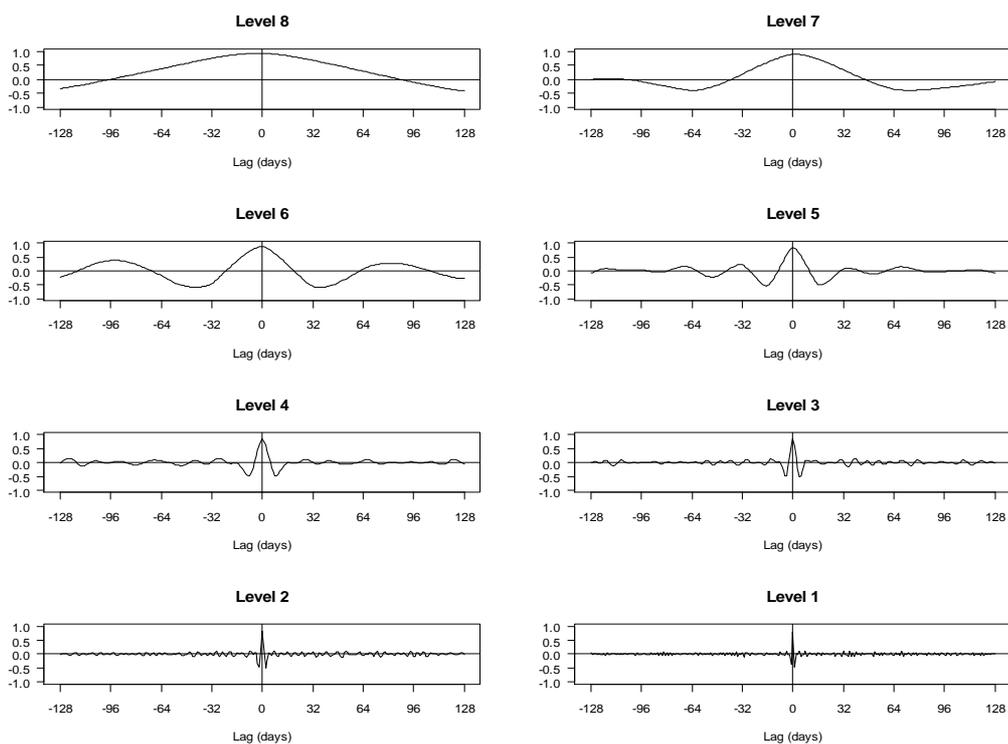
By taking the decomposition up to the level 8 and calculating wavelet cross-correlation between two return series, we are able to generate a lead/lag report between them. The wavelet correlation is defined as:

$$\rho_x(\lambda_j) = \frac{\gamma_x(\lambda_j)}{\sigma_1(\lambda_j)\sigma_2(\lambda_j)}$$

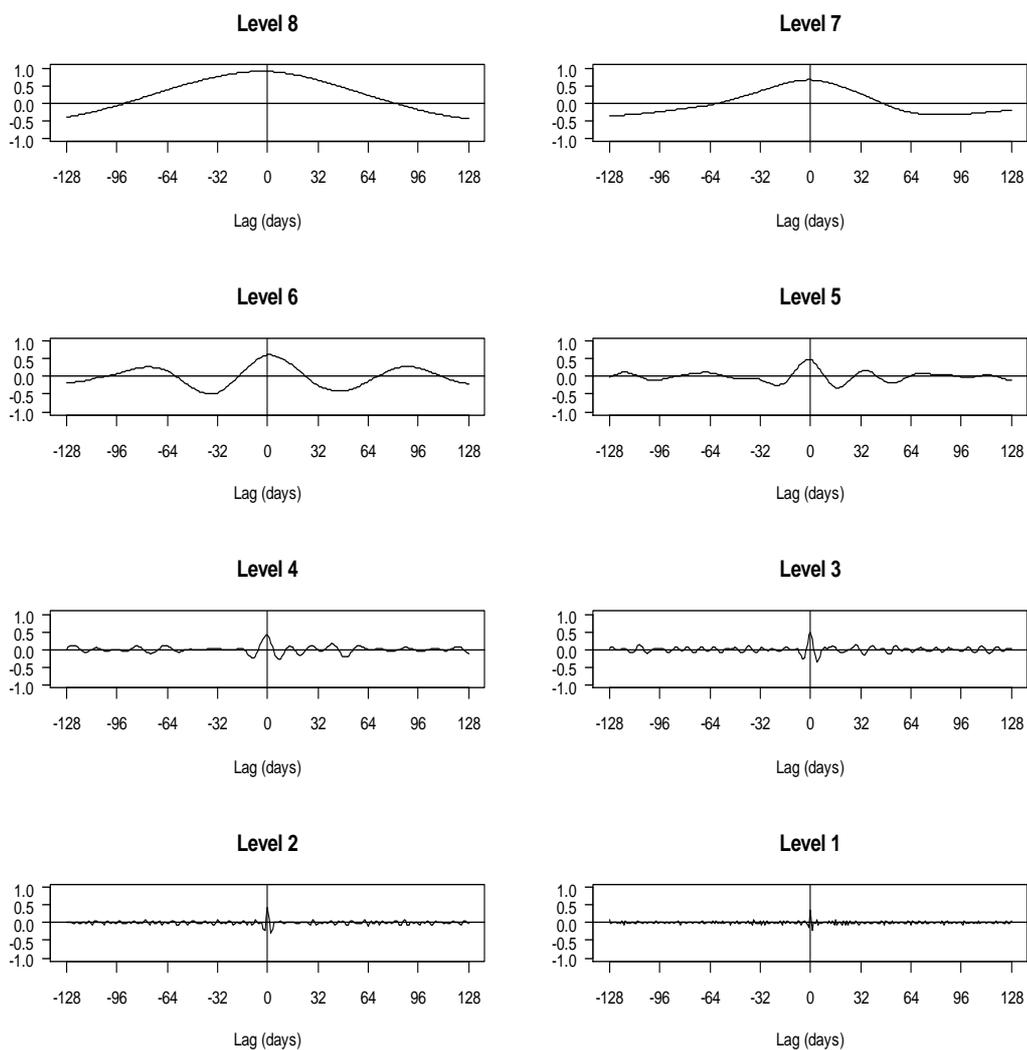
The wavelet correlation is similar with the Fourier equivalent, the complex coherency. If we allow the two returns series to differ by an integer lag theta, we define wavelet cross-correlation as:

$$\rho_{x,\tau}(\lambda_j) = \frac{\gamma_{x,\tau}(\lambda_j)}{\sigma_1(\lambda_j)\sigma_2(\lambda_j)}$$

Unlike the classic cross-correlation analysis, we use wavelet cross-correlation to provide a lead/lag analysis on every scale, from two days to one year. We can see that there is a significant correlation at all scales between FTSE and DAX indices, with no lag between them, indicating a mechanism of immediate volatility transmission between the two indices. There is a strong cross-correlation for all scales and the cross-correlation is significant different from zero. The cross-correlation decays rapidly suggesting that stock prices adjust quickly to new information available on the other market.



**Figure nr. 2 Wavelet cross-correlations between FTSE and DAX indices**

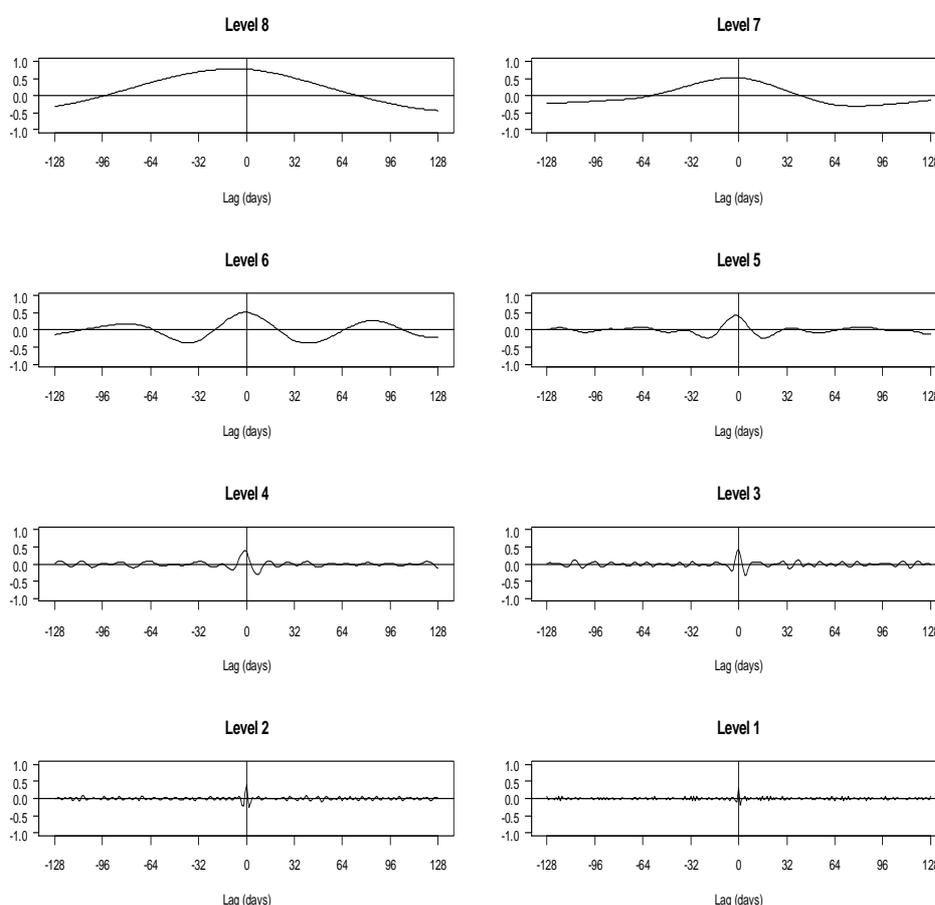


**Figure nr. 3 Wavelet cross-correlations between FTSE and BET indices**

The black line represents sample cross-correlation coefficients. In figure 3 it is represented the wavelet cross-correlation between FTSE and BET indices. We can see that there is correlation between them on a scale-by-scale basis, but the correlation up to level 6 is not significant, being under 0.5 value. From the quarterly level ( $j= 6$ ) up to yearly level, there is significant but not strong correlation between FTSE and DAX, except the yearly level, where the correlation is at its best. Also there is no lag between them

The wavelet cross-correlations between DAX and BET index' volatilities are the same as between FTSE and DAX. The wavelet cross-correlation between the three indices suggest that while FTSE and DAX indices are strongly daily correlated and there is no lag between them, there is no correlation between them and BET index up to the quarterly level and there is no lag between them.

**Figure nr. 4 Wavelet cross-correlations between DAX and BET indices**



#### 4. Conclusion

Employing wavelet variance we may see that the variance of FTSE is declining at higher scale while the BET's variance is declining lower meaning that the volatility of BET is higher, which may imply that Romania's capital market is more volatile, being an emerging market.

Since our goal is to analyze if there are patterns of periodic behavior of the data of volatility transmission between two international European indices and Romanian BET index, by using wavelet cross-correlation between them we were able to see that while FTSE and DAX indices are strongly correlated and there is no lag between them and that there is no correlation between them and BET index up the quarterly level. From the quarterly level ( $j= 6$ ) up to yearly level, there is

significant but not strong correlation between FTSE , DAX, and BET except the yearly level, where the correlation is strong and significant.

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## LEASE MARKET AND FINANCIAL CRISIS IN ROMANIA

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**Abstract:** *The Romanian lease market, despite its early debut (approx. 12 years ago), recorded an unprecedented growth during the latter years. In the context of the international crisis also felt in Romania starting with the second half of 2008, the financing of investments through lease operations decreased in importance and Romanian lease, for the first time, recorded a descendant trend since at the end of 2008. This mutation in the volume of lease operations occurs in the context of the fiscal policies intended to increase financial incomes' such as VAT, revenue etc. This paper analyses the statistics concerning the evolution of lease operations on the background of the present crisis and suggests ways of reviving this area of great importance in the revival of national economy as a whole.*

**Keywords:** lease market, crisis, statistics, fiscal policy

**JEL classification:** G31, G32, H32

### 1. Introduction

Lease is defined as “the operation through which a party, called lessor, responds to the request of a lessee of ensuring the possession or use of an item, be it bought or made by the lessor, in exchange for residuals and, at the end of the period of use decided upon, to enable the lessee to purchase the respective item for a residual value, to extend the lease, or to terminate the contract (D.Clocotici & Gh.Gheorghiu, 2000 :15). Another definition states that „ lease is a modern and advantageous financing instrument for items with long term use, favoring the expansion of activity, the development of a competitive market through re-technologization and an efficient resource management”. (<http://www.btlease.ro>)

In the context of a contemporary technical-scientific revolution, when the renewal and moral usage of products occurs rapidly, lease is the best alternative for obtaining expensive items. Lease operations recorded in Romania an unprecedented upheaval, primarily due to the development of national market economy. In Romania, lease was regulated for the first time in 1997 and ever since, lease operations present an unprecedented growth.

The actions taken for harmonizing the specific requirements of the m\national lease market with the stipulation of the European Union and The International Accounting Standards, led to the creation of an economic-legislative framework that facilitated the development of lease market. The volume of the Romanian lease market increased continuously during the latter years. This growth also triggered the increase in the complexity of the relations and operations between lessees and lessors. Thus, we may state that lease became a financing instrument, indispensable for ensuring a real economic growth.

Under the circumstances in which the competitive environment became more and more brutal, the reaction speed of companies to the changes of the economic milieu grew in importance. Lease,

through its efficiency, satisfies, in a short period of time, the financing requirements of companies' investments. Moreover, through lease, companies avoid the complicated procedures of bank loans, procedures that imply blocking certain items from the company's or from private inventory in order to form collaterals.

Nevertheless, due to the present financial crisis and, respectively, in the context of the latest fiscal regulations, Romanian lease market breaks off since 2008 from its ascending tendency, recording the first decrease in the volume of financing contracts. This situation justifies the necessity of analyzing the evolution of Romanian lease market, as well as the identification of the perturbing factors, which had a negative impact on the lease market.

## **2. The economic and legal background of lease operations in Romania. Evolutionary overview.**

When the first lease service company, Romlease, was founded in Romania in 1994, this functioned as a joint company, with Romanian and international financial institutions as shareholders. Shortly after the emergence of this company, new lease companies were founded. Together with this new economic terminology, the first laws regarding lease operations were created.

►The first legislative norms regarding lease in Romania were published under Ordinance no.51/1997 regarding lease operations and lease companies, published in The Official Gazette no. 224 / 30.08.1997, modified in 1999 (Law no. 99/1999, published in The Official Gazette no.9 / 12.01.2000) and in 2006 (Law no. 287/2006, published in The Official Gazette no. 606 / 13.07.2006), resulting from the requirements of the respective market. The Ordinance no. 51/1997 defines lease operation, regulates lease contract and its minimal elements, determines the responsibilities and obligations of parties and the general issues related to the organization and functioning of lease companies. Moreover, this was the first ordinance regarding the lease operations in our country and represented only the beginning of the required framework for the performance of lease operations.

►From the beginning, this normative act presented a number of irregularities, thus requiring its revision during the following year. This was presented in another normative act, Law no. 99/1999. The main advantage of this new law consisted of the clear definition of operational lease and financial lease. This law also defined the specific terminology for lease, as well as the residual value, entry value, lease rate etc.

►Since the adoption of Law no. 287/2006 for modifying and completing ordinance no. 51/1997 regarding lease operations and lease companies, a new full legislative framework linked to the system of BNR regulations and norms.

Through the changes brought to this law, there was pursued the bringing closer of Romanian legislation to the international practice. This new form of legislation regarding lease and lease operations presented new lease concepts and forms, already in use in developed markets.

The notion of "sublease" is introduced (a notion already in use internationally), defined as the situation in which "the lessor/lessee of an item, object of a lease contract, closes with another lessor/lessee, called end lessor/lessee, a lease contract with the same item as object. The lease contract with the end lessor/lessee will be drawn after the preliminary written consent of the initial lessee and the performance by the lessee of the lease companies requirements. Under these circumstances, if the initial lessor/lessee of any reason loses the ownership right, this will result in the closure of the lease contract between the latter one and the final lessee" (Law no. 287/2006, art. 1, pt. 2). Moreover, there is introduced the notion of *lease supplier*, thus enabling, with respect to the legal stipulations, the accumulation of the quality of supplier with that of lessor (Law no. 287/2006, art. 1, pt 21).

Another novelty is represented by the notion of *buy-back* : “it is also enabled the redemption of the item object of a lease contract by the supplier from the lessor ” (Law no. 287/2006, art. 1, pt. 25) while the *lease-back* concept was extended also to individuals.

There were also modified the definitions of certain basic terminology of the field, such as: residual value, lease ratio, insurance of the item, as well as the required elements of a lease contract. Thus, residual value represents “the value that, after the lessee pays all the lease ratios stipulated by the contract, as well as all the other due amounts, there occurs the transfer of the ownership right of the item to the lessee and is determined by the parties” (Law no. 287/2006, art. 1, pt. 4). The lease ratio is defined according to the operation type: “- in the case of financial lease, the ratio from the entry value of the item and the lease interest, determined according to the interest rate the parties agreed upon”.

Another important change is represented by the conceptual differentiation between the two types of lease operation: financial and operational. Thus, there is stated the fact that, within a lease contract, there has to be mentioned the provision according to which the contract is defined as financial or operational. Other significant changes occur in the case of the determination of the minimum share capital, subscribed and fully deposited in cash, equal to the equivalent in RON of the amount of 200,000 Eur, at the founding of the lease company.

► Law no. 266/2006 for approving Ordinance no. 28/2006 presents a definition of „the non-banking financial institution” with crediting as major object of activity. The law acknowledges the financial lease institution as a *non-banking financial institution* that provides loans just like any other similar institution (consumption credits, factoring, collateral funds). This kind of acknowledgement makes The National Bank of Romania the qualified authority for authorizing, supervising and verifying financial lease companies and other activities defined as non-banking financial institutions. As a result, Law no. 266/2006 imposes to The National Bank of Romania the obligation to issue a secondary legislation, required for the authorization and observation of this specific market of non-banking services, in order to create a business milieu based on healthy prudential principles. BNR issued a series of specific norms, ordinances and regulations for completing Law no. 226/2006.

► As a consequence of the above, since April 2009 there was formulated Law 93/2009 regarding non-banking financing institution that presents a series of clarifications regarding the activities performed by non-banking financial institutions.

► Government Ordinance no.50/2010 regarding the consummators agreements, the lease operation being in the non bank and financial institution area.

### **3. Fiscal framework of lease operations in Romania**

A very important background for the unfolding of lease operations is the fiscal one. In order to present this background, we will mention several elements, such as: revenue tax; VAT; customs duties.

#### **A. Revenue tax**

Lease operations are subject to the present regulations regarding revenue tax, meaning Law no. 571/2003 with subsequent modifications and Ordinance no. 34/2009 regarding budget rectification for 2009 and the settlement of certain financial-fiscal measures.

##### *a) Expenses with lease items liquidation*

If, in the case of finance lease the lessee is considered as owner from a fiscal point of view, in the case of operational lease, this role is held by the lessor. In the case of finance lease, the depreciation of the item object of a lease contract is made by the lessee, while in the case of operational lease by the lessor (Law no. 571/2003, updated through Ordinance no. 106/2007, art 25, pt. 1).

Regarding the calculation and deduction of lease assets depreciation, there are different regulations, according to the two lease categories:

✓ *In the case of finance lease*, expenses with assets depreciation are deductible, to the extent stipulated by the law (Law no. 571/2003, updated through Ordinance no. 106/2007, art. 24). In this case, assets' depreciation is made for the regular life span, by using the three depreciation methods (linear, digressive and accelerated) (Law no. 571/2003, updated through Ordinance no. 106/2007, art. 24, pt. 6).

- in the case of buildings, there is used the linear depreciation method;
- in the case of equipment, respectively vehicles, tools and plants, as well as in the case of PCs and their peripheric equipments, the tax payer has the possibility of choosing between the linear, digressive and accelerated methods;
- in the case of any deductible capital assets, the tax payer may chose between the linear or the digressive methods.

✓ *In the case of operational lease*, the expenses with assets' depreciation were deductible to the extent stipulated by Law no. 15/1994 regarding the depreciation of fixed capital in tangible and intangible assets, published in Official Gazette no. 80 of 29/03/1994. Thus, the lessor has the possibility of depreciating the entire value of the capital asset, less its residual value described in the lease contract, during the duration of the contract, but no less than three years (Law no. 149/2000, regarding the approving of Ordinance nr. 5.2000 for completing Law no. 15.1994 regarding the depreciation of fixed capital in tangible and intangible assets, published in Official Gazette no. 354/28.07.2000), after 1<sup>st</sup> of January 2007 (when the Fiscal Code approved through Law no. 571/2003 became valid), the stipulations of Law no. 571/2003, updated through Ordinance no. 106/2007, art. 24. pt. 22). Regarding the deduction of expenses with the depreciation of assets object of an operational lease contract, there are no special remarks. In this case there are applied the three depreciation methods (linear, digressive and accelerated) mentioned in the general stipulations regarding depreciation (Law no. 571/2003, updated through Ordinance no. 106/2007, art. 24, pt. 12).

Ordinance no. 34/2009 does not bring any changes regarding the deduction of expenses with the depreciation of lease items. Irrespective of the position of the driver, as long as there are not several cars designated to the individuals with leading positions, the expense is deductible (according to art. 32, pt 2 of Ordinance 34).

b) *Expenses with interests corresponding to the finance lease contract*

In the case of the finance lease contract, the lessee deducts interest (Law no. 571/2003, updated through Ordinance no. 106/2007, art. 25, pt 2). This interest is aligned up, from a fiscal point of view, with the interests of authorized credit institutions and are treated as such (Law no. 571/2003, updated through Ordinance no. 106/2007, art. 23, pt. 1 and 2).

✓ Expenses with interests are fully deductible in the case in which capital's leverage degree is lower or equal to three.

✓ In the case in which capital's leverage degree is higher than three, expenses with interests and with net loss resulting from foreign currency exchange rates are not deductible. These are referred to the next period, under the same circumstances, until to their complete deduction.

Under the circumstances in which the expenses resulting from the foreign exchange differences of the tax payer surpass incomes from foreign exchange rates differences, the difference shall be treated as an expense with interest, deducted according to the stipulations above. The expenses with foreign exchange rate differences referred to are those corresponding to the loans taking into account in determining capital's leverage degree.

Capital's leverage degree is determined (Law no. 571/2003, updated through Ordinance no. 106/2007, art. 23, pt. 1) as a relation between borrowed capital with one year reimbursement due

time and own capital, as an average of the existing values at the beginning of the year and end of the period for which revenue tax is calculated. By borrowed capital we understand the total loans and credits with reimbursement due time over one year, according to contractual provisions. Leverage degree = Borrowed capital/Own capital. Ordinance 34.2009 does not bring any changes regarding the deduction of lease interest.

*c) Expenses with lease rent*

The rent (lease rate) can be fully deducted in the case of operational lease (Law no. 571/2003, updated through Ordinance no. 106/2007, art. 25, pt. 2). Ordinance 34.2009 does not bring any changes regarding the deduction of the lease rent in the case of operational lease.

*d) Expenses with insurance premiums*

In Romania, the party of a lease contract that has to pay insurance amounts may deduct (during the period of the contract) the expenses related to the insurance of the item object of the lease contract. Ordinance 34/2009 does not bring any changes regarding the deduction of insurance premiums.

*e) Expenses with fuel*

Up to Ordinance 34/2009, there were no limitations regarding the deduction of expenses with fuel for road vehicles. On the background of the budgetary rectifications made by the Government during the adoption of financial crisis policies, the respective regulation stipulates that, during 1 May 2009 and 31 December 2010, the deduction of expenses with fuel for road vehicles (used exclusively for passenger road transportation, with a maximum authorized weight of as much as 3.500 kg. and with maximum 9 passenger seats, including the driver's seat) owned or used (leased, rented) of the tax payer, was annulled, excepting the case in which the vehicles belonged to any of the following categories:

- ✓ Vehicles used exclusively for intervention, reparations, security and protection, messengers, transportation of individuals to and from their work place, as well as the vehicles specially adapted to be used as news caravans, vehicles used by sales persons and by recruitment agents;
- ✓ Vehicles used for transporting passengers for a fee, including taxi services;
- ✓ Vehicles used to be rented by other persons, including for driving school activities.

The regulation limits the deduction of expenses with fuel in the case of vehicles used by managers, employees, in other words, in the cases in which these vehicles are used for other purposes than those representing their main activity purpose. There will be deducted only those expenses with fuel that are triggered by the performance of services „with a fee”, as called by the respective law. Ordinance 34/2009 does not bring changes regarding the deduction of insurance premiums.

*f) Expenses with functioning, maintenance and repairs (exchange parts, consumables, tyres, check ups, reparations etc.)*

Ordinance 34/2009 does not bring changes regarding their deduction. Irrespective of the position held by the driver, as long as there are not several cars distributed to the individuals holding leadership positions, the expense is deductible (according to art. 32, pt. 2 of Ordinance 34).

**B. VAT**

Lease operations are subject to VAT (Law no. 571/2003 with subsequent changes). Referring to the generating factor and VAT exigibility, these intervene as follows (Law no. 571/2003, updated through Ordinance no. 106/2007, art. 135):

- in the case of an intracommunity acquisitions of goods, the generating fact intervened on the date when the generating fact for the supply of similar goods would intervene, in the country where the acquisition is made;

- in the case of an intracommunity acquisitions of goods, VAT exigibility intervenes on the 15<sup>th</sup> day of the month following the one during which the generating fact occurred;
- as an exception from the stipulations above, VAT exigibility intervenes on the date when there is issued the receipt required by the legislation of another member country for the article equivalent to art. 155, par. (1), if this is issued before the 15<sup>th</sup> day of the month following the month during which the generating fact occurred.

For the goods introduced in the country by Romanian lease companies, according to Ordinance 51/1997 regarding lease operations and lease companies, the VAT is applied according to the valid regulations in force at the date of the contracts. This means that VAT will not be paid at the customs, but it will appear in the monthly VAT reimbursement, both as deducted tax as well as collected tax.

All the lease contracts are considered, as far as VAT is concerned, as contracts for services. As a result, the lessor will continue to apply the VAT on each due date of each lease rate, but both for the capital element, as well as for interest, in the case of contracts dating after 1 January 2007. Since 1 January 2007, the VAT tax base also has included the interests corresponding to the lease contract (Law no. 571/2003, updated through Ordinance no. 106/2007, art. 137, pt. 1, let. a). The tax base includes:

- Taxation and taxes (excepting VAT);
- Related expenses (commissions, transportation, insurance etc.)

The expenses charged by the supplier or by the service provider to the buyer, representing the object of a separate contract and related to goods or services supply, are considered to be related expenses.

From a general point of view, the treatment of lease contracts is not evenly regulated in the member countries of The European Union. Romania, as other member countries, considers lease contract, irrespective of their type, as contracts of service. Other countries view finance lease as goods delivery as a result, there occurs the obligation of the lessor to apply VAT to the entire value of the item at the beginning of the lease contract and not to each lease rate.

Ordinance 34/2009 stipulates for the period 1 May 2009 – 31 December 2010 significant changes also in the case of VAT deduction for *purchased* transportation vehicles (with maximum 9 passengers and maximum 3500 kg), as well as in the case of fuel purchase. Thus it is taken into account VAT deduction only for the vehicles that perform, by their transportation activity, services for a fee, of the type mentioned above. This includes renting, driving, school, passenger transportation, including taxi, lease.

Ordinance 34/2009 stipulates the fact that the limitation of the right to deduct VAT applies only in the case of purchases defined by the norm (according to art. 32, pt. 10 of Ordinance 34) as *purchase of cars* from Romania, *intracommunity imports or purchases*. Since lease is considered according to Romanian norms as contracts of service (according to art. 129, par. (3), let a) of the Fiscal Code) and not goods delivery. In the case of lease contracts there is no limitation regarding VAT deduction. Thus, the VAT mentioned in the lease rate receipts may be deducted by the companies using goods under lease contracts. However, since in the case of lease there is considered that the transfer of ownership right is made at the last rate (which usually is represented by the residual value). The VAT of this last rate can be deducted by the lessees.

The VAT rules introduced by OG 34/2009 brought changes in leasing, making this more advantageous than bank loan, since the VAT is applied only to the residual value of the purchased item. We may conclude that the new implementation of the VAT to lease operations makes it more advantageous for the beneficiary, without implying major changes in the unfolding of lease operations.

In the context of enforcement measures to counter the effects of economic crisis, since July First 2010 The Government has proceeded to increase the VAT by 5% from 19% to 24% by adopting OUG no. 58/2010- Amendments to Law no. 571/2003 regarding the Fiscal Code and other fiscal measures.

**C. Custom taxes**

Before Romania joining The European Union, in the case of tangible goods imported in the base of lease contracts, the custom tax (30%) corresponding to the respective item was paid by the lessee at the end of the lease contract and was calculated for the residual value of the item, minimum 20%. If the item remained at the lessor, the tax was paid by him.

After Romania joining The European Union, according to The Fiscal Code, tangible assets imported before the date of the adherence are subject to the regulations in force on the date of the contract, the goods imported since 01 January 2007 are subject to the new regulations, as follows:

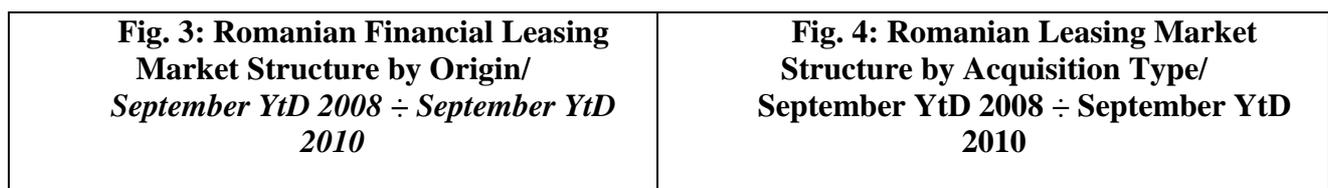
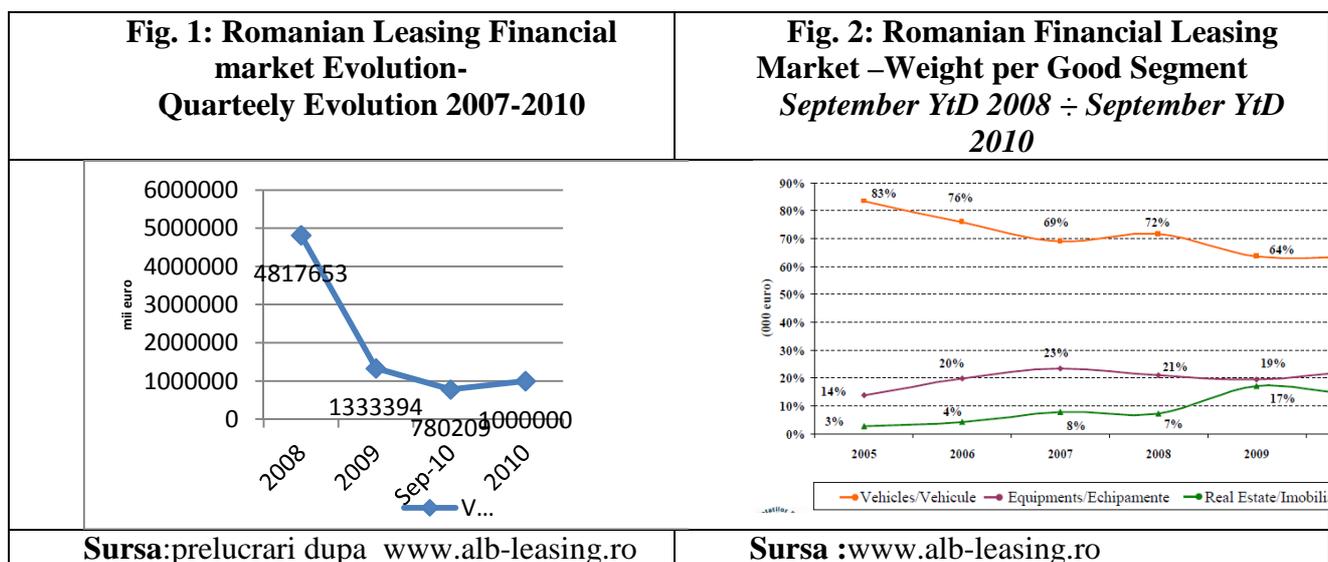
- for the goods imported from outside The European Union, custom taxes (10%) are paid at their receipt value, irrespective of the moment of payment (closing of custom). Moreover, if they are paid at the end of the lease or during the lease, there are applied monthly penalties of 3% from the value of the custom tax.

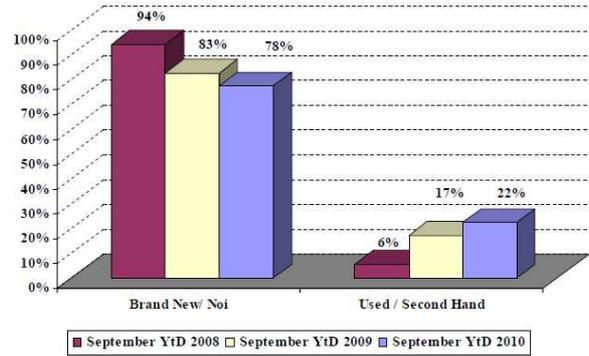
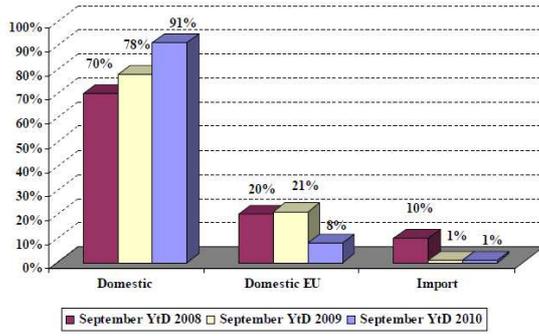
- for goods imported from The European Union there are no custom fees.

Intracommunity acquisition of goods from suppliers from countries members of EU, is subject to VAT in Romania. The lessor has to apply VAT according to the tax base, that is to record both the deductible VAT and collected VAT, with no impact on the cash flow.

**4. Lease market evolution in Romania in the context of financial crisis.**

Here are some developments and structures of the leasing market in Romania between 2008 and September 2010 are as follows

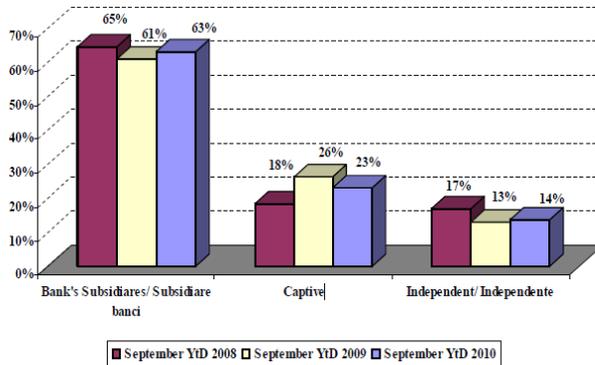




Sursa: [www.alb-leasing.ro](http://www.alb-leasing.ro)

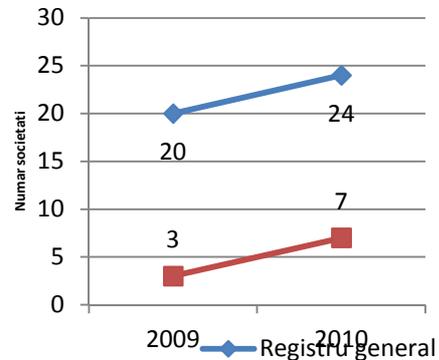
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**Fig. 5: Romanian Financial Leasing Market Structure by Type of Lessor/ September YtD 2008 ÷ September YtD 2010**



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**Fig. 6: The evolution of erased companies from the Registers of Romanian National Bank**



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As can be seen in the graphs above, the Romanian economy registered economic downturn in 2009 and 2010 has spread to the financial leasing market, causing changes in both volume and structure.

After a dramatic decline by 72% financial leasing market in Romania in 2009, compared to 2008, its **evolution** in the first nine months of 2010 continued the downward trend of a drop of 27.6% compared to same period last year (Fig. No. 1).

Compared to the total value of the leasing market in Romania recorded in 2008 of 4.82 billion euros, this fell to 1.33 billion euros in 2009, reaching 780.2 million euros at the end of the semester in March 2010, estimating a 1 billion euro for the end of 2010 (according to Association of Financial Companies - ALB Romania) (Fig. no. 1).

Also in 2010, business sector was strongly affected by the VAT increase, figures from those of T2/2010 T3/2010 indicating a decrease of over 21%. (Fig. no.1).

On the structure of the financial leasing market by **category of goods**, in January-September 2010, the portfolio of financial leasing market in Romania was formed at a rate of 64% of the car, 22% of equipment and 14% of real estate. (Fig. no. 2)

Regarding the **origin of goods** in 2008 found that if funded, 70% were of domestic origin, in 2010 this proportion rose to 91%, mainly due to the carmaker Dacia. (Fig. No. 3)

The leasing market by **type of acquisition** reflects the fact that Romania's economy registered economic downturn in 2009 and 2010 produced changes in the structure of assets acquired through financial leasing in the sense that a low share in total financing vehicle financing, while the share Used financing for purchases of 6% in September 2008 to 17% in September 2009 and then to 22% in September 2010. (No Fig. 4)

Regarding **the structure** of the leasing market by category leasing companies can be concluded that the companies subsidiary banks have maintained a majority share of total funding, while captive leasing companies recorded a slight increase in the deceleration of the companies market share independent. (Fig. No. 5)

Compressing leasing market in the period analyzed and had the effect of reducing the number of companies active in the market, several non-banking financial company interrupting its activity, being removed from the records NBR Thus the total number of companies removed from the records NBR increased from 23 in 2009 to 31 in 2010, especially among companies registered in the General Register (Fig. No. 6)

## 5. Conclusions

Romania was not inevitable financial crisis, so that the economic downturn of economic growth in Romania in 2009 and 2010 and has spread to the leasing market. The Romanian lease market decreased during 2010 with aprox. 30 % as compared to 2009.

Common factors affecting the hottest leasing market decline in all countries were: Decrease of consumption; Fear of the future, uncertainty regarding job stability and future revenues; Increased interest rates, due to credit risk rise and to liquidity issues; Tightened granting rules on banks' side

But in Romania, the drop of consumption is stronger and the recovery of consumer credit market will be longer :

- The economic crisis is particularly severe and is lasting (GDP : -7.1% in 2009 and -1.3% in 2010);

- VAT has increase from 19 % to 24 % which resulted in increased costs of financing the acquisition through the financing of increased VAT;

- The pre-crisis consumer credit growth has been too fast, leading to excessive indebtedness on long credit durations

- Increase of unemployment rate up to 7.4%;

- Consumption decrease (-2.3%) & reducing of revenues;

- Long-lasting credit risk issues, limiting interest rates decrease and release in granting rules;

- The collapse of the leasing focused economic sectors: real-estate (-12%), automotive (-40%), services (- 2.2%) etc.

- Lack of confidence of consumers towards consumer credit, fostered by indebtedness situation and public debate about OUG 50/2010;

- Incoherent & abusive tax collection practice ( VAT, custom duties, road tax, fines)

Besides the lack of a well structured legal framework, there can be identified other problems that lease companies face, among which constant changes of The Fiscal Code, the lack of information of potential customers on lease, unstable politic milieu, the present state of national economy and the reduced efficiency of companies, the high country risk, high inflation level, reduced level of foreign investments, as well as the decreased buying capacity.

The revival of the field depends, especially on the general direction of the economy. Lease exists to support the investment effort of companies, but these have to be stimulated to develop through measures regarding economy as a whole (unblocking of constructions market by initiating projects of improving infrastructure, stimulation of agriculture, trade, tourism etc., payment of debts to/by the state, a bearable fiscal system, providing higher facilities for goods production companies etc.).

The real development of these areas depends not only on the opening of lessors but, especially, on strategies etc. Leaseback can also represent a valid alternative in 2009 for real estate leasing in Romania. This represents an efficient source of working capital for the companies with liquidity problems, in a moment in which bank loans are expensive or inaccessible. Lease-back enables the transformation of a short term loan (difficult to pay under crisis conditions) in a long term loan, through a real estate. It may represent an option not only for companies holding real estate assets, but also for the developers that own well positioned properties with secure long term market value.

Under the present crisis circumstances, lease companies took measures for decreasing its effects by reducing internal costs, process function, recovery of accounts payable, finding solutions of distributions and innovative communications, turning account of recovered goods, securization of financing sources and insuring business stability. The approach of projects is oriented towards prudence, service quality, customer management and administration of profit and loss account.

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## CONCLUSIONS ON THE STOCK MARKET RISK IN ROMANIA

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**Abstract:** *The whole economy has gone through a period of economic instability for several years. Investors are becoming more cautious in making investments in the stock market, which is why the authors have planned to analyze the stock market in comparison with the neighbour countries, in order to identify the risk for the Romanian market. The conclusions reached by the authors are based in the paper.*

**Key words:** stock market, stock exchange, risk, RiskGrades, VaR

**JEL classification:** G15, G32

### Introduction

In the economic literature, the stock exchange is often characterized as being a true "engine" of the economic life, which stimulates business activity and allows the development of large-scale investment projects. Through its existence and operation, the stock markets provide liquidity for financial assets, enabling the sale of securities previously purchased, thus turning them to money. The fact that the investor has a market where it can turn into cash to purchase securities (in which he placed the funds) is a guarantee that the money advanced to him will be recovered, of course, at the market value. As a consequence, the stock market as financial market controls the funds in the economy, acting as a mechanism through which funds are shifted from those who have the financial resources to those who need these resources to finance economic activities. In this way, the stock market generally ensures the economic circuit and serves as a control system for the real economy.

Therefore, the stock market represents a "barometer" of the economic and financial life in a country or worldwide, an indicator of world business and economic prospects. Through its role, the stock market becomes a symbol of the market economy and the object of interest not only in business circles, but for the whole community. The stock market movement - reflected by the indexes - can show an upward direction or, conversely, a downward direction and trends shaping the daily movement of the stock market has echoed throughout the life of business quickly. Interpretation of the stock market as a part of the business world must take into account its imperfections as economic indicator; in certain circumstances, the stock market may reflect an unfounded optimism, a false promise of success, leading to the separation of the economic trend real exchange or even open opposition of the financial and real economy.

Economic and financial crisis that has monopolized economies worldwide in recent years has had a negative impact on the development of stock markets. Thus, stock prices of large companies listed on stock exchanges fell dramatically, the liquidity of stock markets fell heavily, and on this basis, the transaction volume decreased due to the reduction of interest shown by investors and speculators. Indexes saw an overall decrease and a distortion of information provided to potential investors because of "interference" occurred in the structure of the companies participating in their training.

### 1. The impact of the crisis on stock market

The international financial crisis that burst out in mid-2007 has spread quickly to the real economy, and although authorities have taken various monetary instruments or budgetary effects of the crisis will most likely continue to occur for a longer period of time.

In accordance with the theory of business cycles, financial and economic crises are recurring and primarily happen due to credit expansion, driven by a fractional reserve banking system. The most serious consequence of granting loans without their voluntary savings have adequate coverage in this way is that investment projects are encouraged to start when starting the crisis are beginning to confront the problem of funding. The crisis and the economic recession highlight the fact that a significant number of investment projects financed with new loans created by banks are not profitable because it does not correspond to the real desires of consumers. Therefore, many investment projects fail, which carries, finally, a profound effect on the entire banking system, which is extremely reluctant to continue financing the economy, including viable investment projects. In this context, even in countries where the financial system focuses primarily on bank lending, capital markets may start to become an option that a company should consider whether trying to ensure funding of projects already started or new projects.

The main challenge for the management of stock operators, in a time of financial crisis that started in 2007, should consist in identifying the elements that motivate the local and foreign owners of capital to invest in financial instruments traded in the stock market that they control. Since the national modern economies are now integrated at the international level, credit growth processes tend to be triggered simultaneously, and the effects are spreading rapidly on all financial markets across all its segments. In this context, the local stock markets will try to be open to the outside and to attract a substantial part of financial flows that circulate globally or regionally. Waiver of barriers restricting the entry of new financial intermediaries in the trading system of a stock market is mandatory though, whether there are administrative, legal or technical barriers. It should also try to remove all local peculiarities as regards the whole chain of operations, rules and technical procedures which contribute to the initiation, development and completion of a stock transaction. The "exotic" character of the trading systems, of the organization of the system of accounts used to record holdings of ordinary shares or absence of mechanisms developed capital markets inhibit the willingness of international investors to be present and become active in the local stock market.

Another challenge that can be turned into an opportunity by a stock operator arises from the consequences of the government programs, which started to support the real economy to balance the public budget. In their attempt to preserve an income level that allows further public investment programs, governments could be forced to consider the option to initiate the privatization and selling stakes in the companies they audit. The stock markets ensure the transparency of such processes of privatization and perhaps the main difficulty for the management of a stock exchange operator will be to convince governments that there is no need to seek a dual listing or selling stocks on a foreign stock market.

As often happens, the crisis and economic recession highlight weaknesses and vulnerabilities that would have remained hidden on a normal or "boom" economy. The fragmentation of the stock market through parallel operation of two or more stock in an economic area with potential, however limited, which offers the same range of services, represents such a disability that will become even more evident when the crisis will continue to manifest. Therefore, strengthening the domestic stock market operators and then achieving regional or international alliances to achieve economies of scope and scale could prove to be not only an option but a necessity.

## **2. Performance evaluation using stock market indices**

In essence, the indices express the value of a portfolio of stocks and other securities at a certain point, more or less diversified. By their very nature, stock market indices are tools that aim

to meet the requirements of investors to take a synthetic view on a stock market as a whole, or only on a sector or market segment, i.e. to perform a descriptive function.

The stock market indices meet their *descriptive function* in that:

- have the ability to express the stock market performances as a whole, or only for a specific economic sector, represented by the Stock Exchange;
- act as the basic foundation of decisions on investment portfolio;
- can be used as benchmark for the performances of the investment portfolios management;
- provide important clues to economic prospects.

Expressing the overall performance of the stock market or just a sector of the market, the indexes provide the investors with the opportunity to conduct analysis on yields of transactions performed or the investment opportunities that may arise in the future. The existence of indexes makes the analysis of various stock markets easier, even though different methodologies for calculating the indices to some extent affect the accuracy of comparisons. Regardless of the stock market that enables an investor, stock market indices represent a benchmark when assessing the quality of portfolio management. Since in many cases the long-term individual performances fail to exceed the growth rate of the indices, among investors and fund managers in particular occurred the temptation to build their own portfolios on the structure and composition of indices.

By their evolution, stock market indices are able to provide clues on the economic outlook whereas in countries with developed financial markets, leading companies have almost without exception status of listed companies. By constantly searching for investors to find the titles that will now bring the most important future benefits, stock quotes of those actions will tend to increase somewhat in anticipation of economic development or even a whole sector of the real economy as a whole. Because of this feature, indexes can be by themselves true barometer of economic development or may be included in the calculation of aggregate economic indicators, with a high degree of complexity.

### 3. Risk assessment indices

Stock markets investors constantly face the risks associated with them, which is why researchers have focused their concerns on issues related to developing risk management improved models of assessment and management. Among the latest methods used in economic practice in assessing risk in financial markets the method *Value at Risk (VaR)* is required.

VaR is a methodology that is designed to determine the total risk of a portfolio of financial assets and to synthesize it into a single number. In short, VaR is a statistical estimation which measures, for a given confidence interval (usually between 90 and 99%, but more often 95%), the amount of one currency amount in which a portfolio or an organization may lose a certain period of time due to changed market price for the assets concerned. The time horizon may be a day for the most trading positions, a month or more for the portfolio investments. VaR has become increasingly used by corporate treasurers, investment fund managers, and all financial institutions in general. The success of VaR was also due to the importance assigned on *The Report of the Group of 30* in 1993 and in the amendment of the *Basel Agreement* in 1996, which recommended that central banks should use VaR as a measure for determining the minimum capital required of a commercial bank to cover the market risk to which it is exposed.

The popularity of the VaR model among the institutional investors led the originators (Risk Metrics Department of JP Morgan) to try to develop risk assessment models that can be easily used by another class of investors who have become increasingly active in capital markets: the individual investors. Thus, RiskMetrics has developed a methodology for calculating a new indicator, RiskGrades, which aims to provide a summary of the financial risk associated with a particular security, portfolio or index. This new way of measuring volatility is based on exactly the same data and analysis as VaR, while making it also possible to translate it in VaR terms. Furthermore, RiskGrades methodology is intended to be more intuitive and easier to use than VaR. The defining characteristics of RiskGrades are:

- RiskGrades varies over time, being a dynamic method of measurement which is adjusted to the market conditions.
- RiskGrades allows comparisons between different investment classes, regions and different areas, is a standardized method of volatility measurement. For example there can be compared New York Stock Exchange shares on the local securities. Furthermore, allows comparisons between different markets.

The formula for calculating the RiskGrades indicator for the financial asset  $i$  is as follows: where:

$$(1) RiskGrades_{(i)} = \frac{\sigma_i}{\sigma_{base}} \times 100$$

$\sigma_i$  the volatility of the financial asset “ $i$ ”  
 $\sigma_{base}$  the base volatility

RiskGrades is a risk indicator whose calculation method is based on the volatility of returns: as higher the volatility of returns is, as higher the RiskGrades for that financial asset is. To ensure the comparability of the RiskGrades values calculated for different categories of financial assets, the calculation methodology of RiskGrades involves using a scaling factor. The value of scaling factor is 100 for a basic annualized volatility of 20%. Under these conditions, the RiskGrades formula for calculating the financial asset  $i$  will become:

For the RiskGrades methodology, the volatility is determined using the exponential

$$(2) RiskGrades_{(i)} = \frac{\sigma_i \times \sqrt{252}}{0,2} \times 100$$

weighted mobile average; the formula has the advantage of giving a higher relative importance to the most recent observed values. Thus, the values calculated for the volatility react more quickly to changes that occur in the range of the prices taken into consideration, as a result of events with significant impact on the market. After the disappearance of the turbulences that caused large oscillations of the stock markets, the volatility calculated decreases exponentially. The exponential weighted volatility for the financial asset “ $i$ ” when “ $t$ ” is determined using the following formula:

$$(3) \sigma_{i,t} = \sqrt{(1-\lambda) \sum_{j=0}^{\infty} \lambda^j r_{i,t-j}^2}$$

where:

$\lambda$  decay factor

$r_{i,t}$  return on financial asset “ $i$ ” when “ $t$ ”. It is calculated as in  $\ln(P_{i,t} / P_{i,t-1})$ , where  $P_{i,t}$  is the price of asset “ $i$ ” when “ $t$ ”.

As for any financial asset the price series we have is not infinite, the RiskMetrics methodology involves assuming a maximum threshold to calculate the volatility. The criterion for determining this threshold is necessary to have sufficient records “ $n$ ” so that the information contained in an infinite series is approximated by a probability of 99%. The number of records we need is determined by the formula  $n = \ln(0,1)/\ln(\lambda)$ . Therefore, the number of observations used in

$$(4) \sigma_{i,t} = \sqrt{\frac{(1-\lambda)}{(1-\lambda^n)} \sum_{j=0}^n \lambda^j r_{i,t-j}^2}$$

calculating the volatility depends on the decay factor  $\lambda$ , and the higher it is, the higher the number of observations required is.

RiskGrades values can be calculated for a wide range of investments, which may be individual shares, bonds, mutual funds, currencies and indices. For the purposes of this work, the

RiskGrades application involves the calculation of this indicator for the BSE indices and comparisons with representative indices calculated for other international stock markets. We will get such an insight into the relative risk of the stock market in Romania in comparison with those of major international and regional stock markets.

*Determination of RiskGrades for BSE index. Capital market risk in Romania - Comparative Analysis*

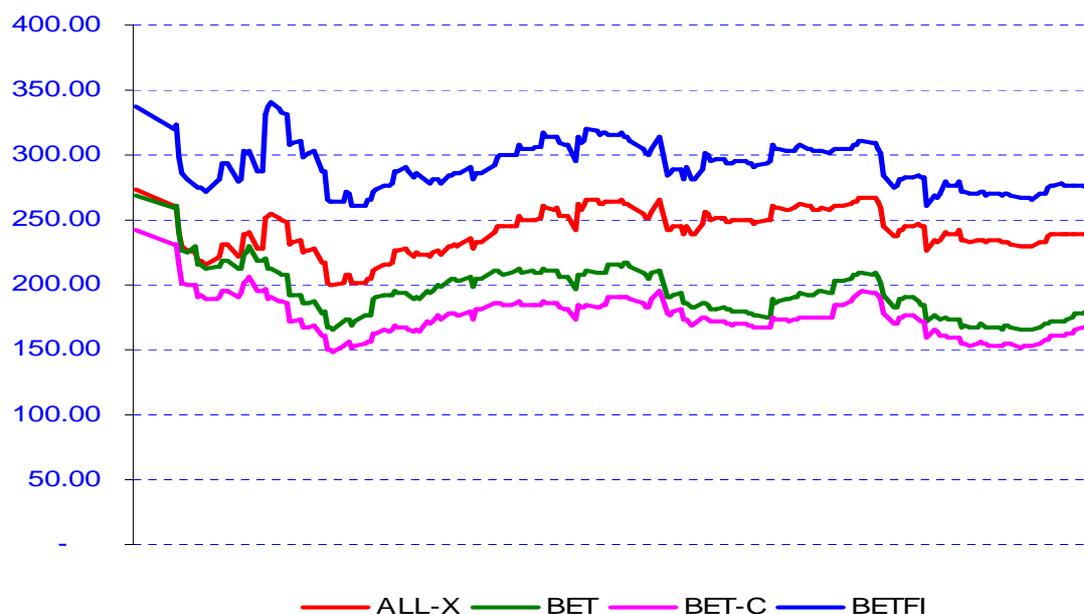
To determine the RiskGrades values associated to the main indices calculated by the BSE (BET, BET-FI, BET-C) it will be considered a decay factor  $\lambda = 0.98$ , which corresponds to a minimum number of records  $n = \ln(0.1)/\ln(\lambda)$  of 113. The series of values for indexes is 1 January 2008 to 31 March 2010, and the index used as reference for determining the Dow Jones Industrial Average (DJIA) is  $\sigma_{base}$ .

**Figure 1: DJIA evolution between 1 January 2006 and 31 March 2010**



We can notice in the above chart the negative effects of the financial crisis that occurred on the DJIA mainly by early 2009, when the North American stock market indexes registered multi-minimum (on 9 March 2009, the DJIA was calculated for 6547 points). Choosing the interval 1 January 2008 to 31 March 2010 for the series of values RiskGrades indices used in the calculation took into account to cover both a pronounced downward trend of the DJIA index and increasing the profile described by the index after March 9 2009.

**Figure 2: Values for indices BSE RiskGrades between 21 May 2009 and 31 March 2010**



If a decay factor  $\lambda = 0,96$  was chosen, the minimum number of records that we need is 228, sufficient for proposed purpose: to compare the risk associated with the capital market in Romania with those determined for other international stock markets or within the region.

**Figure 3: RiskGrades values for the main indexes in the region between 21 May 2009 and 31 March 2010**



Source: Farmache S (2010)

Somewhat surprisingly, the RiskGrades values calculated for the main indexes in the Central and Eastern Europe do not show major differences. Although constantly the RiskGrades values are above those associated with the WIG20 index, BUX and PX, however, the difference is very small.

#### 4. Conclusions

RiskGrades values determined for the BSE indices confirm that the domestic capital market is more risky than the North American market.

However, analyzing the RiskGrades values obtained for all indexes in the region we notice that they are very close and shows that the investors are not picking up the capital market in Romania as an excessively risky relative to other exchanges in the region. It confirms the hypothesis that the main problems of the capital market in Romania are not related to demand, but derive primarily from an inadequate supply.

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## OTC DERIVATIVES MARKETS IN CENTRAL AND EASTERN EUROPE. DEVELOPMENTS AND CHALLENGES

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**Abstract:** *Nowadays a particular emphasis is given to the growth of derivatives trading volume in emerging economies. The paper focuses on the evolution of derivatives traded on OTC market in Bulgaria, Czech Republic, Hungary, Poland and Romania. The results indicate that the most developed OTC derivatives market is the Polish one, followed by the Hungarian one. The main instruments traded on these markets are the foreign exchange derivatives, more precisely FX swaps.*

**Key words:** Over-the-Counter market, derivatives, Central and Eastern Europe, financial risk management.

**JEL classification:** G13, G15, O16.

### 1. Introduction

The transition economies of Central and Eastern Europe are trying to construct viable modern financial markets. Sound, efficient and liquid financial markets are essential for all market participants and for economic growth. The role of capital markets is not only to finance the economy and, consequently to promote economic growth, but also to provide instruments to manage financial risks.

In Central and Eastern European countries, the financial instruments, including financial derivatives, have emerged in the '90s, after the changes in political and economic system. In these circumstances, the financial system had to start almost from scratch.

In this paper we analyze the evolution of derivatives traded on the OTC in emerging markets in Central and Eastern Europe, by describing and analyzing statistical data. The analyzed states are members of the European Union, but outside the euro area, namely: Bulgaria, Czech Republic, Hungary, Poland and Romania. The source of data we used is Triennial Central Bank Survey of OTC derivatives market activity.

### 2. Literature Review

In literature there are numerous studies regarding derivatives markets in some countries or regions, on different time intervals and with different objectives.

Efficiency of developed derivatives markets is widely debated in the literature. Brunetti and Torricelli (2005) studied the efficiency of options market in Italy, highlighting the following results: the Mibo arbitrage opportunities have decreased, while the market efficiency has increased. These considerations are due to the introduction of Euro and the new trading platform. Yu W et al (2010) investigated the efficiency of stock index options traded on over-the-counter (OTC) and exchanges in Hong Kong and Japan. Comparing the two markets, the results suggested that the OTC market is more efficient than the exchanges in Japan, while the opposite is true in Hong Kong.

Lien and Zhang (2008) conducted a study on the evolution of emerging derivatives markets,

pointing out that both financial and commodity derivatives markets have increased in recent years, even if their sizes are smaller compared to the ones in developed countries. In order to develop their derivatives markets, emerging economies should register sound macroeconomic fundamentals, updated financial policies and regulations and gradual development schemes adapted to the market. Also, Mihaljek and Packer (2010) have confirmed that emerging markets derivatives have grown at a faster pace than developed ones. The above-mentioned authors found that turnover of derivatives in emerging markets is positively related to trade, financial activity and per capita income.

Strouhal et al. (2010) conducted an analysis of derivatives markets in Romania and the Czech Republic, results highlighting the information asymmetry from which could benefit some players in this market. The low level of information reported on derivatives transactions could signal an alarming situation regarding the characteristics of accounting information.

However, to our knowledge, there is no study regarding the development of OTC derivatives market in Central and Eastern European countries.

### 3. Derivatives Markets in Central and Eastern Europe

The Central and Eastern European OTC market covered in this paper are offering the main instruments: FX swaps and forwards, FX options, FRAs, interest rate swaps (IRS) and interest rate options. In the table 1 we showed the derivatives traded in the OTC markets.

After several years of rapid growth, the development of derivatives markets has stopped and started a downward trend since 2008. In the following we analyze the evolution of OTC derivatives market in five countries: Bulgaria, Czech Republic, Hungary, Poland and Romania.

**Table 1: CEE-5: Availability of OTC Derivatives 2010**

Country	OTC						
	FX Swaps	FX Forwards	Currency Swaps	FX Options	FRAs	Interest Rate Swaps	Interest Rate Options
Bulgaria	X	X	X	X	-	X	X
Czech Rep.	X	X	X	X	X	X	X
Hungary	X	X	-	X	X	X	-
Poland	X	X	X	X	X	X	X
Romania	X	X	-	X	-	X	-

Sources: (Bank for International Settlements; World Federation of Exchanges)

#### 3.1. The OTC Derivatives Market in Bulgaria

In Bulgaria the financial derivatives are traded only on OTC market, the most used underlying being the foreign exchange rate and interest rate.

Foreign exchange derivatives are the most traded derivatives in Bulgaria, but the relative share of interest rate derivatives has doubled in period June 2007 - June 2010. Other financial derivatives, such as equity contracts and credit default swaps, have a relative share lower than 1% (see table 2).

From foreign exchange derivatives the largest market share is owned by FX swaps. In 2010 they met increased growth in OTC derivatives on interest rates, which doubled compared to 2007. Forwards and currency swap instruments have a relatively low rate compared with the mentioned instruments.

**Table 2: Notional principal amounts outstanding by instrument (million USD)**

	2007		2010	
	Total	Relative share (%)	Total	Relative share (%)
<b>Foreign exchange contracts</b>	2 145	76,5	1 916	58,2
<b>Interest rate contracts</b>	629	22,2	1 357	41,2
<b>Equity contracts</b>	4	0,1	17	0,5
<b>Credit default swaps</b>	55	0,9	-	-
<b>Other</b>	3	0,1	74	0,2
<b>Total</b>	2 836	100	3 364	100

Source: (Triennial Survey of Foreign Exchange and Derivatives Market Activity in Bulgaria, 2010)

So, in Bulgaria FX and interest rate forwards and swaps make up 88.0% of the notional amounts outstanding in derivatives contracts, down from 94.4% in June 2007. As in most European emerging markets, foreign exchange derivatives have the greatest importance (those denominated in euros), although they recorded a slight fall in 2010. This fact is due to the decrease of contracts denominated in national currency, its share being 12.20% in 2007 compared to 24% of the total open positions on currency. On the other hand, interest rate derivatives increased due to continued downward trend in interest rates that had started in early 2010.

Although yields of derivatives have increased in 2010 compared to 2007, their market in Bulgaria is underdeveloped, the number of instruments used during this period being the same. This segment of the derivatives will start to grow once new instruments will be placed on a regulated market, in the Bulgarian Stock Exchange-Sofia.

### 3.2. The OTC Derivatives Market in Czech Republic

Foreign banks in the Czech market (operating via branches or by mergers with and acquisitions of existing Czech commercial banks) started to offer derivatives instruments to residents. The development of the derivatives market in the Czech Republic over the past years has been remarkable. Derivatives' trading was initially concentrated in the banking sector, the prevailing form being OTC derivatives. The birth of the derivatives market in the Czech Republic was connected with currency instruments, currency forwards and currency swaps without interest payments. The OTC derivatives market in the Czech Republic is presented in table 3.

The development of derivatives was due to the fact that the Czech banks offered such contracts to investors. The mergers and acquisitions made by foreign banks and the changes in hedge accounting have accelerated the development of these financial instruments on the Czech market. The main categories of contracts traded on the OTC market are forwards and swaps, while options played a minor role.

**Table 3: OTC turnover in Czech Republic (million USD)**

	2007	2010
<b>FX Swap</b>	53, 347	85, 942
<b>OTC FX Options</b>	1,4 59	74 6
<b>Outright Option</b>	17, 632	4,1 72
<b>Currency swap</b>	174	72 6

<b>FRAs</b>	9,6 48	3,1 56
<b>Swap</b>	4,4 04	4,3 24
<b>OTC Option</b>	61	22

Sources: (Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity, 2007, 2010)

On this segment the influence of the global financial crisis was not felt until 2009, because they have not invested in U.S. securities, being mainly focused on the Czech market. The demand for derivatives instruments at national level has accelerated in 2007 and 2008, focusing on foreign exchange derivatives. The most important derivatives are those based on currency, because in 2004-2008 Czech Korunas has appreciated. In order to avoid exchange rate risk due to currency appreciation, investors covered their positions through futures contracts and currency swaps. Also, an important role in the development of this market was played by the major exporting companies, which were hedging the foreign exchange risk by the use of these contracts (e.g. Skoda Auto, Dairies, and CEZ). In 2009 and 2010, Czech financial market was vulnerable because of financial crisis. However, as the Czech national currency has depreciated against the euro, the rising tendency of derivate products was kept during this period. The biggest increases were in the case of foreign exchange swaps and Forward Rate Agreements contracts. They have seen a sharp increase further due to the lower interest rates since late 2008 and continuing until mid-2010, after their growth rate stagnated at a value of 0.75%.

### 3.3.The OTC Derivatives Market in Hungary

The OTC market in Hungary is smaller than the OTC market from Poland and the highest weight is owned by foreign exchange derivatives, as is shown in table 4.

**Table 4: OTC derivatives market turnover in Hungary (billion USD)**

	2007	2010
<b>Foreign exchange derivatives</b>	5	3
<b>Interest rate derivatives</b>	1	0

Source: (Triennial Central Bank Survey, Report on global foreign exchange market activity in 2010, 2010)

In the OTC Hungarian derivatives market the biggest segment is represented by foreign exchange derivatives, while interest rate derivatives own a very small share from the entire OTC derivative market. From FX market the main position is owned by FX swap, whose market share is about 90%, the main investors being big banks, investment funds and insurance companies. The recent crisis has dented the growth of OTC derivatives markets. In Hungary, the derivatives market was seriously affected by the contraction of cross-border financing during the crisis. So, Hungary experienced decreases in FX derivatives turnover ranging from 15 to 30% between 2007 and 2010. As demand for major currencies in the onshore cash markets and short-term credit markets surged in October 2008, the Hungarian banks have had major difficulties exchanging euros and Swiss francs for domestic currency in foreign currency swap markets. This prompted several central banks to step in as counterparties in swap transactions and to lend euros to local banks. Since mid-2009, local FX swap markets have gradually recovered.

### 3.4.The OTC Derivatives Market in Poland

The Polish OTC market of financial derivative instruments has had a rapid growth in 2004-2010 periods and played a very important role in the financial system, as we can observe from table 5. Due to the decentralized nature of this market, banks are major participants here. The analysis of domestic banks' gross positions by nominal values of individual instruments confirms that the interest rate derivatives segment was the most developed one in Poland and banks have focused their activities on instruments denominated in zloty.

The main factors explaining the importance and development of this segment of the financial system are: increased transactions made by Polish banks to manage currency risk and interest rate risk and the increase of CIRS (Currency Interest Rate Swap).

**Table 5: Average daily turnover on the OTC derivatives market in Poland (million USD)**

	2 007	2 010
<b>Foreign exchange derivatives</b>	6 ,819	5 ,893
<b>CIRS (currency swap)</b>	6 8	7 9
<b>Options</b>	3	1
<b>Outright-forwards</b>	43 5	28 3
<b>FX swaps</b>	27 5 ,881	18 5 ,368
<b>Interest rate derivatives</b>	2 ,681	1 ,561
<b>FRAs</b>	1	7
<b>IRS</b>	,435	75
<b>Options</b>	1 ,240 6	7 86 0

Source: (Turnover in the Polish Foreign Exchange and OTC Derivatives Markets in April 2007 and April 2010).

The average daily net turnover in the outright-forward market decreased compared to 2007 and in April 2010 amounted to USD 318 million. This situation is due to the decrease in domestic corporations' demand for foreign exchange derivatives, because of the reluctance of some entities to enter transactions which brought about significant losses in 2008-2009, and because of the increasing requirements by banks regarding their counterparties' creditworthiness and collaterals.

FX swaps remained the most liquid instrument of the domestic foreign exchange market and of the OTC market in Poland. In April 2010 the average daily net turnover in the FX swap market amounted to USD 5,368 million (compared to 2007 a decrease of 9% at current rates), of which USD 3,970 million represented transactions involving the Polish zloty. The decrease of activity in this instruments originated in the financial market turmoil. As an increased risk aversion and a confidence crisis, foreign and domestic banks contracted the size of mutual credit limits, so the value of resident-non-resident operations significantly declined.

The increase of CIRS transactions in 2010 was due to the considerable rise in the number of transactions concluded by domestic banks in order to hedge the market risk, mainly in the Swiss franc and the euro.

The decrease of average daily net turnover in the currency options market in 2010 was due to losses of some non-financial companies born in 2008-2009 on option strategies and due to the

strategy employed by many banks operating in Poland, which consisted in hedging currency risk resulting from option strategies by concluding opposite transactions in the interbank market.

In terms of OTC interest rate derivatives market from Poland, the average daily net turnover in these instruments in April 2010 amounted to USD 1,561 million and was over 40% lower than in April 2007. This decrease is due to the global financial crisis which resulted in increased risk aversion and the decreasing of mutual credit limits of banks. The significant decrease of liquidity of FRAs and Interest Rate Swaps (IRSs) was mainly the result of a weakening speculative activity. The interest rate options market remained the least developed segment of the domestic OTC interest rate derivatives market. None of the surveyed banks concluded such transactions in April 2010.

### 3.5. The OTC Derivatives Market in Romania

On the development of OTC derivatives market in Romania, stands growing interest of commercial banks to offer customers financial derivatives to protect against currency risk and interest rate risk. The trend of Romanian OTC derivatives in the last few years is an increasing one, except 2008 (because of financial crisis), in 2010 total OTC foreign exchange was counting 3 billion USD compared with 2 billion USD, in 2007.

Compared with other countries from Central and Eastern Europe, the level of these transactions is very low in terms of both volume and weight of these transactions in the banking system's total assets. The main instruments traded in this segment of the financial system are foreign exchange derivatives, interest rate derivatives accounting for a much lower share of as first ones. The structure of foreign exchange derivatives transactions in 2010 is presented in Table 6.

**Table 6: The structure of OTC foreign exchange turnover in Romania (million USD), 2010**

Outright forwards	95
FX swaps	1,774
Currency swaps	4
Options and other	33
Total	1,906

Source: (Triennial Central Bank Survey, Report on global foreign exchange market activity in 2010, 2010)

The share of average daily turnover of FX derivatives is about 60% from the total foreign exchange (includes the spot market) both in April 2007 and 2010. This value is small compared with other markets in the region, which shows that this currency hedging solutions are less used. From FX derivatives about 90% are represented by FX swaps and only 5% is represented by forward contracts in both periods. In 2007 60% of OTC foreign exchange turnover denominated in euro was represented by EUR/RON exchange rate and 33% of this was EUR/USD exchange rate. In 2010 the situation is different, in the sense that about 77% of OTC foreign exchange turnover denominated in euro is represented by EUR/USD and only about 17% by the EUR/USD pair. This fact is due to the financial crisis, more precisely due to the devaluation and significant volatility of USD. The increase of OTC foreign exchange derivatives market in the last years is due high volatility of the local currency.

Over 70% of OTC derivatives transactions are done by foreign banks active in Romania. The local dealers represent only 10% of OTC derivatives transactions. This fact is a result of the high performance in risk management and of the important role in bad loans reduction. Limitations, as the maturity and the high value of the contract determine that these instruments are not available to everyone. So, those who need them, like SMEs, cannot easily use these in international transactions.

Even if the Romanian derivatives market registered remarkable progress in the last years, it is still underdeveloped. First, this is a response to the lack of banks to the market and to the existence of a small number of companies that uses these products.

#### 4. Conclusions

In the last decade, the derivatives markets of Central and Eastern European countries appeared to be very dynamic, but still very small compared to the western markets. Unlike in advanced economies, FX derivatives are still the most traded derivatives in EMEs (50% of total turnover), while interest rate derivatives remain underdeveloped.

The most developed OTC derivatives market is the Polish one, followed by the Hungarian one. The main instruments traded on this market are the foreign exchange derivatives, more precisely FX swaps. This market share is representative for all the analyzed markets. The recent crisis has dented the growth of OTC derivatives markets in these five countries, which was seriously affected by the contraction of cross-border financing during the crisis. This states experienced decreases in FX derivatives turnover ranging between 2007 and 2010. However, since mid-2009, local FX swap markets have gradually recovered, but with the exception of Poland they are not likely to return to pre-crisis levels of activity in the near term.

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## INTERNATIONAL REGULATION OF BANKS: BASEL III OR GLASS-STEAGALL ACT II?

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**Abstract:** *The global financial crisis highlighted several weaknesses in the banking regulation and supervision, which raised the question of reforming the current regulatory framework in order to enhance financial and banking stability. Starting from this premise, the paper underlines: stages in the banking regulation; reform measures of the regulatory system of banking activities within the Basel Committee framework (Basel III); the Glass Steagall II approach as a solution to enhancing financial stability.*

**Key words:** banking regulation, deregulation, Basel III approach, Glass Steagall II approach

**JEL classification:** G15, G21

### 1. Introduction

The global financial crisis has raised many questions about the future of banking, given that deregulation or financial innovation called securitization were some of the factors that led to the sub prime lending crisis, which later turned into a global crisis. In this context, currently, there are efforts to improve the regulatory and supervisory framework of banking in order to increase banking stability.

The Basel Committee is one of the international institutions that have made an important contribution in this respect. The package of measures initiated by the Basel Committee, known as Basel III, includes a number of innovations compared with previous arrangements. These measures have both a micro-prudential dimension, as they aim at strengthening the resilience of each bank and a macro-prudential dimension aiming at the risks existing at the level of the whole banking system.

The opponents of the principles developed within the Basel Committee believe that a solution for increasing bank stability is returning to the principles of Glass Steagall Act, namely the separation of commercial banking activities from investment banking.

### 2. Stages in banking regulation

In terms of regulation and financial stability, the financial system's recent history can be divided into two parts, namely from the 1940s up to the 1970s and from the 1970s up to the present. The first stage was characterized by strict regulation, intervention and stability, while the last stage, with financial liberalization, was characterized by increased instability (Vives, Xavier, 2010).

A milestone in setting the rules that governed banking until the 1980s in many countries has been the Great Depression. Assuming that financial stability and protecting depositors could be assured by limiting the risks assumed by banks, namely by reducing competition, have been adopted worldwide legislative packages designed to hinder competition in the banking system. Although these regulations differed from country to country, in principle, they consisted of imposing restrictions on: the geographical area in which banks operate; the interest rate applied to deposits and loans; the volume of loans; the type of products and services that could be provided; the granting of new operating licenses, including for foreign banks; financial flows.

A significant example of banking restrictions that have governed the banking system was in the United States. Following the disastrous consequences of the economic crisis of the 1930s, the U.S.

adopted a series of regulations that fundamentally restructured the U.S. financial system. The aim of these measures was to prevent a new outbreak of financial crises. Since it was considered that most of the blame for the economic and financial disaster was the growing competition between banks, which led them to undertake risky and speculative financial markets, the U.S. authorities adopted a package of legislation (Glass-Steagall Act, 1933) designed to achieve a strict separation between the activity of commercial banks and investment banks. The main provisions of this document were:

- Commercial banks are forbidden from conducting transactions with securities and buying shares in other companies. Instead, they could only provide short term loans to small businesses and had a monopoly in terms of current accounts;
- Banks were not allowed to pay rates of interest on savings accounts that exceeded a strict ceiling;
- Interest payments on sight deposits were prohibited;
- Banks were only allowed to establish branches within the home state;
- The local needs and demands have to be considered before a bank license is granted (Busch, 2009, p.40 - 41).

At the same time, to prevent panic and to reinforce public confidence in the banking system, a deposit insurance scheme was introduced and the Federal Deposit Insurance Corporation has been established. Similar provisions were adopted in Italy by the 1936 banking law which remained in force until 1994.

The strict regulations stated above were the basis for banking activity conducted by the 1980s, when starting with the U.S. and the Great Britain, the process of deregulation, namely the elimination of rigid regulations governing banking activity, had started. As a result, financial institutions have gained greater freedom in their activities. Subsequently, the U.S. and British example was followed by other developed countries, and later extended to the ex-socialist countries, or the less developed ones. The main cause which led to the deregulation process has been the gradual change of attitude towards competition within the banking system, which has been increasingly perceived as an important factor for increased efficiency. Deregulation was also boosted by other factors among which growth capital needs both domestically and internationally, as well as rising inflation and development of technology, were very important. A special factor was the political one that has allowed the development of comprehensive reform programs in some parts of the world (see for example reforms in financial and banking systems of the countries of Central and Eastern Europe).

In this context, although with different intensities, regulators in many countries have proceeded gradually to the abolition of restrictions that affected the financial and banking systems, i.e.: ceilings on interest rates on deposits and loans have been eliminated; ceilings on loans have been removed; restrictions on products and services offered by banks and the geographical area in which they operate were disposed of; entry in the banking sector was liberalized; foreign banks and financial institutions were allowed to operate in the territory of different states; restrictions on currency exchanges and capital movements were removed; the traditional boundaries separating different activities of financial institutions have been diluted by cancellation.

Until the outbreak of the global financial crisis, in most countries, banking regulation was based on three basic components: (1) prudential supervision of the capital adequacy indicator, (2) deposit insurance schemes and (3) the rules on competition among banks (Franklin, Gersbach, Krahn, Santomero, 2001).

In addition to the benefits it brought, deregulation has raised several challenges to the regulators. It is widely recognized that a fundamental cause behind the financial crisis that erupted in the 1980s in many countries was the deregulation that allowed banks to take new risks. As Busch mentions, „the transition from heavily regulated and almost exclusively national markets to the internationally oriented, relatively open financial systems of the last thirty years has therefore posed a significant challenge to the ability of bank regulators ability to achieve their stated aims” (Busch, 2009, p. 31). The insufficient and inefficient work of regulators and supervisors, who did not know and did not have the necessary expertise to monitor the activities of banks in the new context, is

another cause of the mentioned crisis. The most recent example is the global financial crisis that began in 2007, which highlighted the problems arising from the intertwining of commercial banking activities with investment banking activities, in the context of the deregulation process.

### **3. Reform measures of the regulatory system of the banking activity. Basel III**

In 2009, the Basel Committee advanced a document meant to improve the current regulatory system of the banking activity. The document, entitled “Strengthening the resilience of the banking sector” comprises provisions meant to surmount a series of flaws revealed by the global financial crisis. At the end of the consultative process (in April 2010), and as consequence of the suggestions and comments made by the banking and academic community, in July 2010 the Group of Central Bank Governors and Heads of Supervision – GHOS (the oversight body of the Basel Committee) approved the main elements of the reform programme. The July 2010 Accord was reconfirmed in Switzerland on September 12, 2010.

The measures proposed by the Basel Committee have both a micro-prudential dimension, as they aim at strengthening the resilience of each bank and a macro-prudential dimension aiming at the risks existing at the level of the whole banking system.

The main reform measures comprised in these documents have in view:

1) raising the quality, consistency and transparency of the capital base. This measure is based on the fact that banks can better absorb the losses if the elements composing the banking capital are qualitatively superior, and the level of capitalization is high. To this purpose, the new package reform introduces a new definition of capital;

2) better risk capture (especially the risks concerning the capital markets activities);

3) the introduction of a leverage ratio. The purpose of this measure is to contain the build up of excessive leverage in the banking system;

4) the introduction of measures meant to build up capital buffers in good times, to be drawn upon in periods of stress;

5) the introduction of a global minimum liquidity standard for internationally active banks. This measure was taken starting from the premise that besides the minimum capital requirements, international financial stability can be provided also by adequate requirements regarding the credit institutions liquidity.

According to the provisions established by the Basel Committee, these standards will be gradually introduced, over a long period of time until the year 2018, so that banks may acquire the capacity to comply with the new measures.

The reform programme established within the Basel Committee constitutes only one important facet of the more ample measures that must be taken for strengthening the financial stability at a global level. For that purpose, the Financial Stability Board is very important, as it has the role of coordinating the global reform programme. Besides the improvement of prudential regulation, financial stability can be promoted taking into account other dimensions as well: the macro-economic policies (both monetary and fiscal); the market discipline and the financial sector itself (banks, shareholders, investors, other operators). The financial crisis highlighted a series of flaws regarding the governance, the risk management, due diligence, etc., that must be remedied by the private sector. In order to have the expected effect, these measures imply cooperation and international acceptance (Caruana, Jaime, 2010).

### **4. The Glass Steagall II – solution to enhance financial stability?**

One of the solutions proposed to increase financial stability is to return to the principles of the Glass-Steagall Act: the demarcation between the commercial banks' activities and investment banks' activities. Assuming that financial markets have the capacity to generate bubbles and crashes, De Grauwe (2008) considers that the approach developed within the Basel Committee should be abandoned:

“This approach at managing bank risks does not work and will never do so because it assumes efficiency of financial markets; an assumption that must be rejected. Banks that fully participate in

the financial markets subject themselves to the endemic occurrence of bubbles and crashes. These lead to large-tail risks that with our present knowledge cannot be quantified. In addition, when a liquidity crisis erupts, usually triggered by solvency problems in one or more banks, the interaction between liquidity and solvency crises is set in motion. No minimum capital ratio can stop such a spiral...The Basel approach must be abandoned” (De Grauwe, 2008, p. 10).

In this context, the author's vision of the principles that should underpin the banking regulation are:

- the strict separation between commercial banks and investment banks;
- only commercial banks are allowed to attract deposits, and therefore, should be subject to strict regulation;
- commercial banks benefit from the lender-of-last resort facility and the deposit insurance schemes;
- commercial banks are not longer allowed to securitise their loan portfolio.

## 5. Conclusions

Like other financial crises with international impact, the most recent global financial crisis highlighted several lessons, both for financial regulation and macroeconomic policy. One of the most important causes that led to the outbreak of the crisis was the policy practiced in banking regulation that was not properly adapted to the mutations appearing on the international financial and banking markets in the last three decades. The process of deregulation and financial innovation has allowed commercial banks to take on ever greater risks, thus creating the potential to enhance financial system instability.

In these circumstances, the issue of reforming the banking system was made with greater acuity, so as to prevent the outbreak of new financial crises. The Basel Committee is one of international organizations that has made an important contribution to reforming the regulatory framework for banking activities by developing a comprehensive package of measures designed to strengthen the regulation, supervision and risk management of the banking system.

On the other hand, another approach considers that the regulatory principles established within the Basel Committee can not ensure stability of the banking system since financial markets are not efficient, and therefore, generate bubbles and crashes. In this context, the solution is to return to the principles of the Glass Steagall Act, namely the separation of commercial banking activities from investment banking activities, which would ensure the financial stability that characterized the period 1940-1970.

The answer to this question is difficult to give and probably only further developments will determine which approach is best in improving the stability of the banking system, both nationally and internationally.

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## ROMANIAN ORGANIZATION IN THE NEW ECONOMY

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**Abstract :** *In development economics the term globalization has become a topic widely debated with the advantages and disadvantages perceived by active participants in economic life. Even if this process of globalization has been and it is still considered a step in the development of business, it is assigned a major role in the international economic crisis. A possible solution to this phenomenon could be a better use of resources used so far incomplete or unknown. This article comes as an answer for utility or innutlity of rethinking the role and position of evidence of the intangible assets in the new global economic environment. For this to see we have to analyze the Romanian business environment through accounting elements known as intangible assets. It is hoped that better knowledge of their influence in the organization will lead to a rethinking of the business process with the goal of maximizing profits.*

**Key words:** knowledge, socio-economic globalization, intangible assets, intangible investment, evaluation.

**JEL classification:** M41 - Accounting

### **1. Intangible assets. Romanian perspective Vs. European perspective**

Anticipating the future economic trend, in a speech by Winston Churchill at Harvard University in 1943 he stated that "the empires of the future will be empires of the mind"(Suciu, 2008, p.13). If we add this element and the rest of the intangible nature of existing elements in the economic life of the organization (research and development expenditure, patents, trade names, goodwill, etc.) we can very well characterize contemporary economic environment. The latter along with the new knowledge society organizations may become a key to competitiveness, adapting in the same time to new trends. Contemporary business environment is based on the assumptions under which the basis for further development of society is that in addition to elements of tangible nature are those immaterial and intangible. Given the recent crisis, the economic field had to reconsider it's processes of recognition, evaluation and registration of the constituent components. In these conditions, the role of intangible assets increased characterizing the new knowledge-based society.

Member of the community our country makes efforts to align with the new trends of the economy. Given the recent crisis, it is required that Romanian accounting system aligns to the new accounting trends. The process is quite difficult, and elements of difficulty consist mainly of differences in the way of recognition and valuation of intangible assets (Bănaçu, 2006, p.27- 35). We take into consideration legislative differences between the accounting approach in Romania and in the international environment, and current state of knowledge society in Europe versus Romania. Romania's economic success still relies on the argument that the economic future of the organization is a combination of present factors and uncertain elements (in the future, but with the chance to occur). That brings added value to business and society as a whole.

Considering the strict definition of the Romanian legislation (Order no. 3055/2009), an item of intangible fixed asset is a good, identifiable non-monetary, non-material support and held for use in the production or supply of goods or services, for rental to others, or for administrative purposes. From this perspective this category of elements is viewed of quantitative capture only. The essence

that can be evaluated in monetary terms at one time well established, but today the independent vision is replaced by another which tries to create a better and economically correct vision of the organizations in the current context. Therefore, in the current Romanian accounting systems the concept of intangible fixed asset is viewed from the perspective of financial accounting, on the one hand, and from management accounting perspective, on the other hand. Double analytical approach (Rusu, A.; Gordon, S., 2008, p. 244- 246) creates a better understanding of the role and place these elements within organizations. Also it provides a better distribution of costs and benefits attached to their default. Costs and benefits are clear attributable from the point of view of the Romanian legislation in the design elements which are well identified by the entity. We speak, therefore, obviously, about a way of recognizing these factors (Stan, S., 2010). From the legal point of view it states that the intangible asset will generate economic benefits for the entity (as the income from the sale of products or services, savings or other expenses benefits) and will restrict access of others to those benefits. This ability to control can result from either legal rights or the obligations imposed by the company. We can identify in this aspect or in these provisions, at least two of the nine principles (Accounting Law no. 82/1991) republished as the principles of accounting and business continuity and at the over form. Moreover, by harmonizing the Romanian legislation with the International Accounting Standards IAS / IFRS (IAS 38 - Intangible Assets), this process not only comes to confirm the place and role of intangible assets within firms, but in the same time with it comes with a common mode of recognition assessment and reporting. This process of harmonization the Romanian accounting system with de European approach is a welcoming case for the Romanian economy. Regarding the recognition and measurement of these elements, the assessment of intangible asset takes into consideration two situations which will determine the costs: acquisition cost if purchased goods or production cost (including all phases of development that good). It can be seen easily that, according to the latest standards the concept of intangible assets, the way they are recognised is defined by more analytical mode and subsequently recording the assessment is merely to facilitate the work of the field by clear specifications of the costs attributable to them. In the same time referring to methods like identification, evaluation and amortization these are difficult to apply by the accounting specialists even when there are laws and implementing rules. As the Romanian and international accounting rules do not require mandatory disclosure in the title of financial statements of these types of assets, reporting their presence is quite short. In addition to this aspect of representation, another aspect to remember is the specialist task in determining the amortization period. Moreover the accounting and tax accounting often creates problems. Practical way to translate into economic life standards organizations makes us sustain in their favor but with doubts as to whether their adoption regarding uniformity and totality (at the national accounting system) is until now impossible.

## **2. Place and role of intangible fixed assets in the current society**

Economic way of looking at the past accounting system and therefore organizations as independent elements tend not to exist today. In the process of globalization, opening markets to others under thousands of miles away, the concept of business location (we refer here to identify the geographical and economic) business can be easily replaced by the relocation, internationalization, and why not globalization.

Socio-economic globalization is a well known phenomenon when discussing, but most important is to try to understand the influences and the ways in which it intervenes in the economic life of the society. If we were to talk about visions, the Americans point of view on the concept of globalization (Dreher, A.; Gaston, N.; Martens, P., 2008, p. 89-93) has long passed a simple manifestation of distance business. Specialists are speaking today about global organizations, institutions whom main goal is that of following the business practices associated with global development and new ways of extending this concept on other countries more reluctant to this change. In this context dominated by change on all levels the capacity of organizations of becoming more competitive, is paradoxically based on one category of resource that is able to

create value-added, namely knowledge (Grosu, C.; Almasan, A., 2006, p.79). This concept is considered as one which best defines the present development of organizations. Whether we speak of technical, social, economic or managerial knowledge, all manifestations of information are significant in this context of globalization. Important aspects to be mentioned here that should be taken into account in the use of knowledge are the reliability, comparability and quality of information, the role and the significance for the organization, users and management factors in the decisions they make.

These changes were easy to predict, as it had long circulated the idea that a nation's resources are limited and the needs are almost endless. The development of a company is due to the demand of customers for goods and services. This last concept the supply of goods and services tends to expand is due to the discovery of new sources of knowledge. Whether we speak of knowledge in sociology, in philosophy, communication sciences or economics all of these categories can be retained as resource areas. Is interesting, especially the economic approach of estimating the current accounting standard for this kind of monetary resources. Under this approach knowledge and general all intangible assets, tend to be accounted for, the economy gains new meanings through the process, more often we can talk about the concept of intangible economy. Need to shift from one type of economy that characterizes the traditionalist Romanian system (where the goods are identifiable, independent) to one based on intangible fixed assets is a consequence of the need for organizations to be competitive. Competitive advantage is resulting from the combination of diverse resources as a company has. Here is the most important part how resources such as material and immaterial nature are recognised, and how their intervention in the organization determines the complexity of the typology under which they occur. Whether we're talking about research and development expenses, patents, knowledge, brands, or better reputation (goodwill), all these elements concur to the intangible economy ( Suciu, M. C. , 2008, p.15).

The problem arises, however when quantifying the intangible resources in terms of accounting so that it may determine the role, position and influence in the organization. In this regard there are interesting classification methods made by accounting researchers and professional accountants which leave the freedom to choose one of them, namely the direct intellectual capital method (identifying the elements of intangible fixed assets), market capitalization method (the difference between capitalization the market capital of companies and shareholders), the method returns and asset recovery rates and the method Scorecard. Given the novelty of these methods, they fail to being used and are still being replaced by old accounting rules such as recording the historical cost (purchase price), followed by possible adjustments due to depreciation or amortization.

We agree and tend to believe that the latter procedure was inspired from a particular point of view. This is mainly due to the fact that in the new conjuncture of global economic crisis tends to increase investors' interest to those organizations that can guarantee short-term profit-drive (Nagarajan, R., 2011). On the other hand the concept of expected future profits from these intangible assets is considered a likely target, with little chance of realization. Precisely because of this role significant changes increased the importance of profit and loss balance sheet expense. If you look at it strictly from the perspective of investors, of their desire to profit in the short term is fully justified to ensure the financial stability, on short term perspective, but it is better to think that long term perspective should be appropriated to give importance to the financial statements of the company (whether for balance sheet or the accompanying notes). It is also regarded as particularly timely and interesting presentation of financial statements within multinational firms. This perspective should be taken into account by each organization, whether domestic or international standardization process so as to be fully accounting.

### **3. The future is more than knowledge**

The new economy will be an intangible that will be the maximum exploitation of resources without physical consistency. From all of these, the intellectual capital available to organizations

will create competitive advantage necessary to obtain benefits in the future. Moreover this category tends to diversify and develop intellectual capital structure so that we can speak again of human capital, the relational and structural capital form (Suciu, M.C., 2008, p.25). If you include references to human capital skills, qualifications and skills of employees, the other two types of capital refer to the mark, established relationships with customers and other third party organization. The latter two types of capital will be a key to future development of society. Moreover the concept of globalization and economic relations between organizations, personal terms such as goodwill, reputation and goodwill and professional goodwill celebrity will appear increasingly more often in the life companies in Romania (Covlea, M., 2010). The role of intangible assets will be diversified, and for professionals in the field definition, identification, assessment and sharing of goodwill related to the profession's personality, reputation and fame of a person will become very important. If the process of identification and the definition should not raise great difficulties for specialists, we stand completely different when assessing the accounting classification of the items referring to the intangible assets and goodwill (Stoica, M.; Ionita, I., 2011). It can be considered in accounting classification of these items related factors like functioning period, the nature and trend of earnings which is expected to be obtained as well as some aspects of the contract (provided under the contract for purchase of the lease or the sale). It remains so, at the discretion of the professional accountant in determining and classifying these heritage items within the organization taking into account several legislative constrains (legal provisions in the field of accounting) coming from the investors or the management and business partners.

#### 4. Conclusions

The key word used to describe the best current economic environment is changing more often after we talk about the new intangible economy. In this type of economy of intangible assets occupy an important place in the elements of an organization and contribute substantially to the achievement of economic performance. Regarding the latter aspect that companies are tempted to recognize these assets in the balance sheet intangible assets, even if not met all the criteria for recognition under the reporting framework. "Temptation" is derived from the special desire of investors to see the short and medium term results and reporting cases to the detriment of long-term. Therefore the recognition and registration of assets we could refer to differentiation in terms of accounting rules imposed by Romanian legislation and international law. Even though they form only elements of the definition of intangible fixed assets all of these "differences" should be taken into account in drawing up financial statements and hence the way in which these elements are in accordance with the law. The accuracy of the records and financial statements of reporting will benefit both investors (directly affected) and managers of companies, state institutions and by extension the entire society. Given current conditions in the context of globalization and the rarity and shortage of production factors, the importance of analytical accounting of all resources of a company has proved to be an essential and necessary condition for its existence on the national and international markets. These accounting procedures are proving their usefulness especially in the new economy that is increasingly referred. Researching, finding, accounting and disclosure in the financial statements of the elements of influence on organizations is a goal that many of the companies participating in international economic life to reach it was planned to ensure success.

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## ACCOUNTING LEGAL EXPERTISE – EVIDENCE IN THE RESOLUTION OF LITIGATION AND TAX IMPLICATIONS

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**Abstract:** *Among the extremely professionally accurate works of the accounting experts, there are the accounting expertises, which are evidence that can be used in solving cases that require strictly specialised knowledge from people that are considered accounting experts. In order to accomplish this, the accounting expert must reach high standards of professionalism and performance and he is bound to an adequate professional behaviour.*

**Key words:** accounting expertise, accounting services, reasoning, litigation

**JEL classification:** M49, K34

### **1. Introduction**

The accounting profession in Romania was reorganised in 1994, when the Government Ordinance no. 65 of August 1994 on the organisation of accounting expertise activity and of the authorised accountants entered into force, a normative act that set up The Body of Expert and Licensed Accountants of Romania, legal entity of public utility and autonomous, with attributions regarding the management of the expert accountants' and authorised accountants' activity. In the completion of the judicial and extrajudicial accounting expertise, accounting experts must respect the National Code for Ethics of Professional Accountants in Romania, "a document that institutes the rules of conduct for the accountant professionals and formulates the fundamental principles that should be respected by accountants professionals in Romania working in different entities and branches of the national economy as self-employed or as employees". The National Code for Ethics of Professional Accountants in Romania, approved by the Resolution no. 70/2006 of the Superior Council of the Body of Expert and Licensed Accountants in Romania (C.E.C.C.A.R.), revised, reclassified and renamed in accordance with the International code of ethics of professional accountants, as a result of the statutory obligations that arise for C.E.C.C.A.R. from its quality of member of I.F.A.C. The document is addressed to all accounting professionals defined as such and to all accounting employees from their professional associations, governed by C.E.C.C.A.R.

### **2. Rules of professional conduct specific to the accountant profession**

The fundamental objective of the accounting profession is that the works performed by the accounting service providers must meet high standards of professionalism and performance so that they can meet the public interest requests. This means that accountant professionals must have essential qualities: knowledge, competence and consciousness; independence of spirit and material disregard; morality, integrity and dignity. The accounting professional may get and maintain these essential qualities through a continuous accumulation of professional knowledge but also general culture knowledge, the only ones able to strengthen judgment.

Achieving the fundamental objective of the accounting profession, namely satisfying the public interest, requires the fulfilment of certain basic requirements such as: reliability regarding the content of the accounting information; the professionalism of the accounting expert, the quality of

services, namely their execution at the highest performance standard; gaining the confidence of users of accounting information in the services carried out.

In the missions regarding the accounting services, the accounting professional must respect the fundamental principles regarding the professional integrity, objectivity and prudence, confidentiality, professional behaviour, the respect for the technical and professional standards. Moreover, they must comply with the technical and professional standards issued by I.F.A.C., I.A.S.B., C.E.C.C.A.R. and C.A.F.R.

a) *Integrity* requires all professional accountants to be straight and honest in their professional and business relationships, which means correct and fair transactions. The accounting professional should dissociate when it is considered that certain reports, records, handouts or other information contain false or misleading statements that omit or hide information aiming to misguide.

b) In their activities, the accounting professionals can be faced with situations where their *objectivity* may be affected. The conflicts of interest or the influences from other people influence negatively the professional judgements of the accounting professional and may compromise their profession. For all their activities, accounting professionals should protect the integrity of the professional services and maintain objectivity in the professional reasoning.

c) *Professional competence and prudence* force accounting professionals on one hand to quality professional services that require a solid judgement in applying the professional knowledge and competencies and, on the other hand, to act with caution and seriousness in compliance with the technical and professional standards when they provide professional services.

d) *The principle of confidentiality* requires the accounting professionals' forbearance outside the economic entity they work for, except for the situations in which they were authorised to make public a particular information or if there is a legal or professional obligation to make that information public. Moreover, he should not use the acquired classified information to a personal advantage or to the advantage of a third party. It is worth mentioning that the confidentiality obligation continues after the end of the contractual relationship between the accounting professional and client or employer.

e) In the achievement of accounting services, accounting professionals must have an adequate professional behaviour, meaning that they have to comply with the relevant norms and regulations and to be honest and loyal. They should not engage in activities that might discredit the accounting profession, such as exaggerated demands for their services, as a result of their training and experience or provide compromising and irrelevant references regarding the work of other accounting professionals.

### **3. The accounting expert and the mission regarding the conduct of accounting expertises**

The accounting expert is the individual or legal entity that has acquired this status after passing an examination and holds the professional competence to carry out the following types of works for the individuals and legal entities: keeping the accountancy and preparing or verifying and signing the annual financial statements; providing assistance for the organisation and keeping of accountancy; making economic-financial analyses and patrimonial evaluations; making financial expertises requested by the legal institutions or by individuals or legal entities according to the legislation; conducting other administrative and information computer financial-accounting works; accomplishing, according to the law, the responsibilities of an auditor within commercial companies; providing specialised assistance for the establishment and reorganisation of commercial companies; providing professional services for individuals and legal entities that require accounting knowledge; activities of financial auditing and fiscal consultancy, in compliance with these activities' specific requirements.

Accounting expertises that are evidence used to solve certain cases require strictly specialised knowledge from people who are accounting experts. They are notified ex officio or accepted by the legal and/or research institution at the request of the parties in litigation, according to art. 201 and 202 from the Code for Civil Procedure: "When in order to clarify certain factual circumstances, the court considers it necessary to know the opinion of specialists, it shall appoint one or three experts,

establishing the matters upon which they shall rule. The experts shall be appointed by the court, if parties do not agree on their appointment...”

Depending on the main purpose of their solicitation, accounting expertises are divided into: a) legal accounting expertises, governed by: the Code for Civil Procedure; the Code for Criminal Procedure; other special laws; b) extra-judicial (friendly) accounting expertises, conducted outside a legal trial which are not considered evidence in court, but rather arguments for the parties to request the administration of evidence with the judicial accounting expertise or to solve certain litigation in a friendly manner.

The proceedings and conclusions of the accounting expertise are recorded in a written report that should include three compulsory chapters, whose structure should be respected: Chapter I. Introduction, Chapter II. The development of the accounting expertise and Chapter III. Conclusions.

#### **4. Study regarding the conclusions of an accounting expertise report from a commercial litigation**

The accounting expert notices that the claimer’s activity (individual or legal entity) has been part of a partial tax audit regarding the verification of the fiscal statements’ legality and compliance, the accuracy and fairness of fulfilling the obligations by the taxpayer, respecting the legal tax and accounting provisions, verifying and establishing, according to the case, the tax basis, establishing the differences, the payment obligations and their accessories, in compliance with the provisions of article 94, paragraph 1 of the Government’s Ordinance no. 92/2003 on the Code for Fiscal Procedure, republished.

The taxable person has performed, as seller, during 2007-2009, a number of 40 real estate transactions, signing with the real estate beneficiaries (individuals) a number of 40 purchase agreements, 7 pre-sale real estate contracts and the bilateral promise to sell of a land.

Following the control, tax inspectors have completed a Tax inspection report and issued a notice of assessment that settled for the claimer (the taxable person) an additional debt of 1.972.397 lei consisting of the additional value added tax in the amount of 1.136.663 lei and increases / delay interests in the amount of 835.734 lei. The claimer addressed the court, formulating the “Prior Complaint” against the Notice of Assessment and the Tax Inspection Report, according to the provisions of article 7 of Law no. 554/2004 on the Contentious Administrative Matters.

By conclusion of the hearing, the court approved the evidence with accounting expertise and determined that the expert would answer the following objective: “Establishing the taxable basis, the VAT owed by the claimer with the additional accessories for the purchase of real estate transactions according to the 40 contracts and 7 pre-contracts concluded as seller during 1.09.2007-31.12.2009”.

The accounting expertise was conducted based on the following documents:

- The Tax Inspection Report;
- The Notice of Assessment;
- Law no. 571/2003 on the Fiscal Code;
- GD. No. 44/2004 on the rules for applying Law no. 571/2003, on the Fiscal Code;
- OPFM (Ordinance of the Public Finances Ministry) no. 1040/2004 for approving the Methodological Norms on the organisation and conduct of simple entry bookkeeping;
- Real estate purchase contracts and pre-contracts;
- The Journal of purchases;
- The Journal of Sales;
- VAT returns.

The expert notes that the taxable person has made, as seller, during 2007-2009 a number of 40 real estate transactions, signing with the real estate beneficiaries (individuals) a number of 40 purchase agreements, 7 pre-sale real estate contracts and the bilateral promise to sell of a land. Prior to the conclusion of real estate purchase contracts, the taxable person has received in 2007 a number of 33 advances, which demonstrates his intention to redeem property, namely to carry out an

economic activity with the purpose of obtaining continuous income according to the provisions of point 66, paragraph 2 of the GD no. 44/2004 for approving the Methodological Norms on the application of Law no. 571/2003 on the Fiscal Code.

The accounting expert notes that the first advance in the amount of 188.000 lei was collected from the real estate buyers (individuals) on 04.06.2007, as resulting from the Purchase Agreement legalized on 17.08.2008 which states: “the purchase price agreed for the whole apartment described above is 188.000 lei, a price that the undersigned representative of the seller hereby declare that my mandatory, has received entirely in cash, at the date of signing the pre-sale real estate contract, namely on 04.06.2007, without any other claims from the buyer”. As a result of collecting the advance on 04.06.2007, in the amount of 188.000 lei, the accounting expert notes that the taxable person has exceeded the exemption limit of value added tax in the amount of 35.000 euro (119.000 lei – at the rate of exchange communicated by the NBR on Romania’s EU accession of 3,3817).

According to art. 152, paragraph 6 of Law no. 571/2003 on the Fiscal Code, the taxable person was required to ask the fiscal institution to register him as VAT payer within 10 days after achieving or exceeding the exemption limit which is considered to be the first day of the month following that in which the limit was exceeded, namely the 10<sup>th</sup> of July 2007. Therefore, the accounting expert considers that, according to art. 152, paragraph 1 of Law no. 571/2003 on the Fiscal Code, as amended, the taxable person had the obligation to request the territorial fiscal institution to register him as VAT payer from 01.08.2007. The registration for VAT purposes of the taxable person to the territorial fiscal institution was made only on 21.07.2008, the date of assigning the Tax Identification Code.

The accounting expert notices that the taxable person has not disputed the total amount of the collected value added tax additionally established in the Fiscal Inspection Report, but only a difference, with the accessories, resulting from the manner of determining the payment obligation, by applying the hundred increased method (19/119%) from the apartments’ selling price, as against the 19% percentage on the apartments’ selling price applied by the control institution.

#### **A. Determining the taxable base and VAT calculation**

The accounting expert finds that the control institution, in the Tax inspection report, determined the taxable base and the additional VAT of the purchase contracts and pre-contracts that the taxable person should have collected during the period from the date he had to request to be registered as VAT payer (01.08.2007) and the date he was registered as VAT payer (21.07.2008), using as tax base the price of selling stipulated in the purchase agreements whereby the taxable person transfers the right of ownership of the buildings. The control institution motivates its decision stating that “in the purchase agreements, the term of sale price is mentioned, without explicitly mentioning that the price also includes the value added tax, provided that these contracts are not accompanied by an addendum that stipulates that the price includes the VAT ...”

From the calculation made by the control institution in the annex to the Tax Inspection report, the accounting expertise notes that according to this one, with regard to the final price of sale stipulated in the real estate purchase agreements and pre-contracts with individuals, the 19% collected quota should have been applied, establishing a new price of sale that would also include the VAT (price of sale stipulated in the real estate purchase agreements and pre-contracts x 119%).

The control institution, in the annex to the Tax Inspection Report establishes as taxable base (for the determination of the amount of VAD collected) for the purchase agreements and pre-contracts of apartments, the final income collected by the taxable person after the sale of apartments to individuals (the price of sale stipulated in the purchase agreements and pre-contracts of apartments with individuals). Consequently, the control institution establishes a taxable base of 5.888.349 lei (which represent the final price of sale of the sold real estate) for which it calculates an additional collected VAT in the amount of 1.118.786 lei

The accounting expert believes that the sale price included in the purchase agreements and pre-contracts of apartment sales, completed with individuals is the final selling price, which includes the collected VAT, for the following reasons:

- The pre-contracts and contracts of sale, although they do not expressly stipulate that the sale price includes the collected VAT, they are concluded with individuals and for individuals, the sale price established in a contract is the final price of the asset, work of service, the individuals having no right to deduct the VAT;
- In all contracts, as determined also by the control institution, it is expressly stipulated that: “The purchase price agreed for the apartment described above is of ... and shall be paid as it follows ...”. The accounting expert considers that from this statement it is understood that it means the final sale price;
- According to the Explanatory Dictionary of the Romanian language, the price is: a) the amount of money that the buyer has to pay for the purchase of a product or service; b) in the expressions retail price: “the price for which food or non-food consumption goods are sold to the population; market price “the price that is formed on the market as a result of demand and offer fluctuation”;
- The specialised economic literature formulates definitions of the sale price (market price), as it follows: a) Sale price – The price of a product or service offered by the company for sale on the market. Examples: list price, retail price, prices with incentives and bonuses, promotional prices, single prices etc; Market price – the price at which a product is bought/sold on a market, the result of a direct confrontation of demand and supply offer.
- Article 4, paragraph 1 of the Law of competition no. 21/1996 republished, published in the Official Gazette no. 88 of the 30<sup>th</sup> of April 1996, as amended by the Government Emergency Ordinance no. 121/2003 (published in the Official Gazette 875/10.12.2003), approved through Law no. 184/17.05.2004 (published in the O.G. no. 461 of 24.05.2004) states: “Prices of good and services and works are freely determined by competition, based on the demand and offer. The prices and tariffs of certain activities of natural monopoly nature or of certain economic activities, established by law, shall be determined and adjusted by the Ministry of Public Finances, except those for which, according to special laws, other competencies are provided”.
- Point 23, paragraph 2 of the GD No. 44/2003, states: “The hundred increased method is applied to determine the amount of the tax, namely  $19 \times 100/119$  for the standard quota and  $9 \times 100/109$  or  $5 \times 100/105$  for the reduced quotas, if the sale price includes the tax. As a general rule, the price includes the tax for delivery of goods and/or services directly to the population for which the issue of invoices is not requested, according to art. 155, paragraph (7) of the fiscal code, as well as any other situation where, due to the nature of the operation or the contractual provisions, the price includes the tax, too”. Therefore, the accounting expert proposes the court to calculate the taxable base by applying the hundred increased method (19/119%) from the apartments’ sale price and the collected VAT of the real estate purchase agreements and pre-contracts.

Following the calculations for determining the taxable base, using the hundred increased method (19/119%) from the real estate sale price, the accounting expert establishes a taxable base for the period August 2007- October 2008 in total amount of 4 948 177 lei, thus obtaining a total amount of the value added tax additionally collected of 940 161 lei.

#### **B. Calculation of increases/interest for late payment associated to the value added tax established in addition**

The increases for late payment associated to the value added tax established in addition for the period 26.09.2007-30.06.2010 were calculated based on the provisions of art. 119, paragraph 1 of the GO no. 92/2003 on the Code for fiscal procedure, republished, which stipulates: “For the debtor’ non-payment on due date of the payment obligations, increases for late payment shall be paid after this date”. The same normative act stipulates at art. 120, paragraph 7, the amount of these increases: “The increase for late payment is of 0,1% for each day of delay and it can be modified through the annual budgetary laws”.

The interests for late payment associated to the supplementary established value added tax for the period 01.07.2010-19.07.2010 were calculated based on art. 119, paragraph 1 of the GO no.

92/2003 on the Code for fiscal procedure, republished, as amended and completed by GEO no. 39/2010, with effect since 01.07.2010 which states: "For the debtor's non-payment on due date of the payment obligations, interests and penalties for delay are due after this date". The same normative act, stipulates at art. 120, paragraph 7, the amount of these accessories: "The interest for late payment is of 0,05% for each day of delay and it can be modified through the annual budgetary laws". The total amount of increases/interests for late payment is 529 944 lei.

As a conclusion to the above stated, the accounting expert believes that the taxable person owes the state budget the total amount of 1.470.105 lei, consisting of: the additionally collected value added tax in the amount of 940.161 lei and increases/interests for late payment in the amount of 529.944 lei.

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**IMPLICATIONS ON REDUCING THE BUDGET DEFICIT TO 4.4% OF GDP FOR 2011**

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**Abstract:** *In this article we assumed that the target of the budgetary deficit for this year is an ambitious one and outlined some implications that deficits have. Firstly, we noted that the setting of the budgetary indicators is subject to risks and uncertainties. Secondly, we pointed out that pro-cyclical fiscal and budgetary policies caused two imbalances: internal (budget deficit and high inflation) and external: increased current account deficit. Further analysis addressed in this paper refers to the evolution of FDI, which declined in the year 2003 and the consequences arising from this aspect.*

**Key words:** financial system, foreign investment, economic growth, unemployment rate, budget deficit

**JEL classification:** G17, H12, H 63

**1. Considerations on the budget deficit, role, structure, objectives**

A budget deficit occurs when the normal expenses of an entity (a government) exceeds receipts. The opposite is surplus deficit. The budget deficit is the sum total of the structural deficit plus the cyclical deficit.

Theoretically, the budget deficit is high quality when it meets two mandatory conditions:

- the deficit reflects, in part, in investment spending and, in particular in the infrastructure;
- the deficit is covered with secure financial resources so as not to resort to inflationary

monetary issues.

It should be noted from the outset that in setting budgetary indicators there is a degree of uncertainty and risk due to the effects of certain policies that are difficult to quantify. Therefore, costs and future benefits may not be known with certainty, but still the decision maker must highlight all the possible outcomes and assign probabilities of achieving each of them. (Vacarel, 2007)

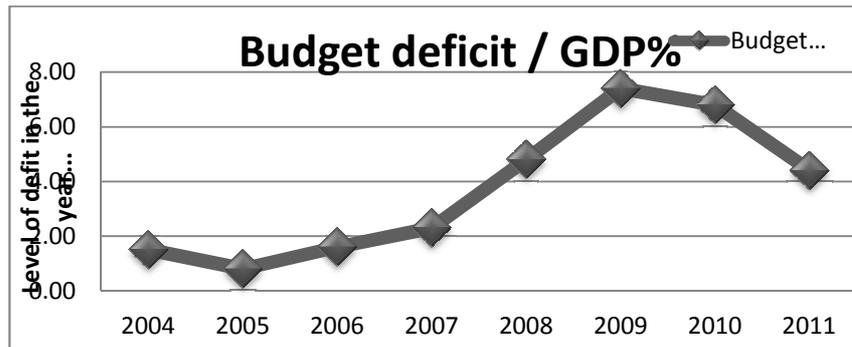
There are also situations where certain effects cannot be predicted. All these situations have required to find a way to incorporate risk and uncertainty in the decision making of investing in the public sector. One method of incorporating risk analysis is to calculate the expected value of the results. For example, if the advantages (benefits) in the first year of a project take the values B1, B2, B3, B4, B5, with the probabilities p1, p2, p3, p4, p5, then the expected value of the results in the same year is:

$$E(B1)=p1B1+p2B2+p3B3+p4B4=\sum_{i=1}^5 piBi$$

Equation(1)

To analyze the evolution of the budget deficit in Romania during 2004-2011 we have shown the chart below:

**Figure1: Budget deficit/GDP%**



Source: National Institute of Statistics, [www.insse.ro](http://www.insse.ro)

In this article we started from the premise that the budget deficit target is an ambitious one, and the new methodology that includes in the calculation of the target deficit the payment of state debt to firms gives confidence to the business environment. In Chapter 3 we made a correlation between unemployment and budget deficit, a correlation which needs to be strong, as it is in other countries. The first step is to reiterate the reasons that led to a pro-cyclical evolution of the policy makers and its repercussions. Academician Mugur Isarescu names two reasons for this negligence. The first was that the makers felt that "good times" came once and for all, which meant that spending growth might be permanent, and the second was the election year 2008, which boosted spending even more. The lax fiscal policy has laid in case the economy fall the foundation for an unintended expenditure tax contraction. At the end of 2008 it was intended that the economic program be centered on reducing the external deficit in both the public and the private sectors, on minimizing the recession swing, on the avoidance of an exchange rate crisis and on mitigating inflationary pressures. Achieving these goals required the design of adjustment measures in order to bring the economy on a sustainable direction while minimizing losses, even in terms of employment. (Isarescu, 2010)

Pro-cyclical fiscal policies and wage policies have caused two imbalances:

- internal - the budget deficit (from 1.5% in 2004 to 4.8% in 2008 and 7.4% in 2009) and high inflation
- external - current-account deficit (from 8.5% of GDP in 2004, equivalent to 5.1 billion euros from 13.6% of GDP in 2007 and 11.7% of GDP in 2008).

Returning to the current year and talking about the first internal imbalance, according to a press release issued by the Ministry of Finance "the programmed budget deficit for 2011 and approved within the financial package with the IMF and the European Union is 23953.3 million lei, or 4.4% of GDP.

Since investment is a major priority in budget policy, the budget expenditure breakdown by quarters in 2011, a recently concluded process, took into account a maximum availability of budgetary funds for investment in the first quarter of the year so the budget deficit this quarter was estimated at EUR 8.000 million.

Thus, for the first quarter of 2011, the Ministry of Finance announced the increase of the indicative issuance of government bonds on the domestic market from 13 to 15 billion lei from 15 to 17 billion lei. In this context the factors influencing the growth of public expenditure should be considered and analyzed individually. Thus we can identify: (Vacarel, 2007)

- demographic factors, which refers both to population growth, but also to the change in its structure by age and socio-professional categories. In Romania an increasingly problem is the increasing share of retirement and assisted people from the total employed persons.

- economic factors, which relate to the development of the economy and the degree of modernization of scientific research (which assumes in Romania the growth of allocation for this segment) as well the development of innovative new goods and services for the new economy materials.

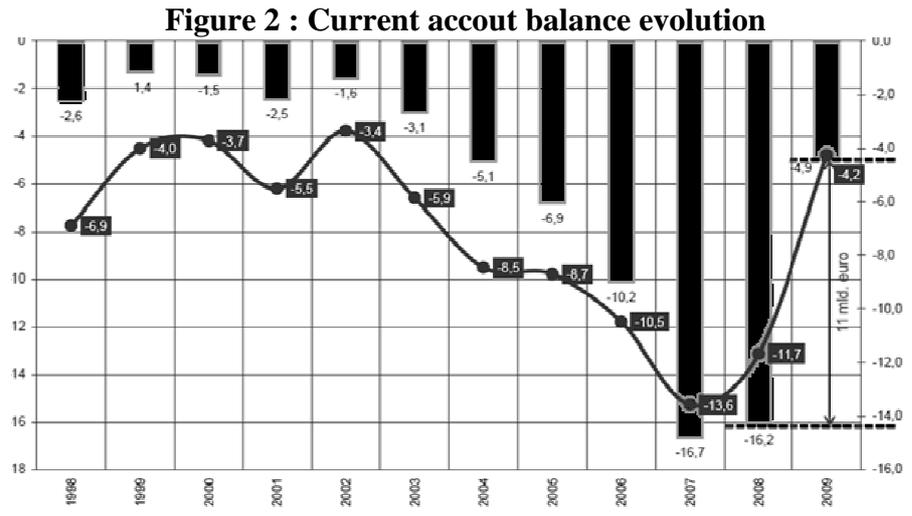
- social factors that cause the average net income grows in an economy to be adjusted accordingly to the amount of the pension point

- urbanization, leading to increased spending in the current co-financing structural funds to invest in much-needed transport infrastructure in our country.

- political factors, which will determine an increase in “electoral” expenses in 2011, directly or indirectly concerned with the preparation of 2012, election year

In this same area we need to project the evolution of incomes, which from our point of view will be influenced by all forms of tax evasion practiced in Romania and is still very attractive in view of the tax system and structure, but also higher tax rates applied to the declaration which do not stimulate their correct and complete declaration. However, one should take into account that the economy is still recovering and its recovery will be gradual, taking several years.

As far as the second external balance is concerned, we may observe the evolution of the current account balance over the 11 years shown in the graphic which presents the current account balance (billion euros) - left scale, and the current account balance (% GDP ) - right scale.



Source : INS Current account balance evolution

With regard to fiscal policies, at this point it is essential that all governments fully implement the consolidation plans in 2011. Where necessary, additional corrective measures must be implemented quickly to progress in achieving fiscal sustainability. After the year 2011, countries need to specify concrete measures for the multi-annual adjustment programs to bolster the credibility of fiscal consolidation targets. Experience shows that austerity in spending represents an important step towards achieving and maintaining fiscal soundness, especially if it is sanctioned by binding national fiscal policy rules. Such a commitment can help boost confidence in the sustainability of public finances, reduce risk premiums built into interest rates and improve conditions to ensure a sound and sustainable economic growth.

Implementation of credible policies is essential, given the ongoing pressures in financial markets. It requires the urgent implementation of comprehensive and substantial structural reforms, to complement the fiscal adjustment measures to improve prospects for entry to higher rates of economic growth, and those on job creation. Important reforms are needed especially in countries that have experienced loss of competitiveness or face high fiscal and external deficits. Intensifying competition in the goods and services market and labor market flexibility would further support the necessary adjustment processes in the economy. All these structural reforms should be supported by improving the banking sector. Solid balance sheets, effective risk management and transparent and viable business models are still fundamental conditions for strengthening banks against shocks and for ensuring appropriate access to finance, laying the foundation for sustainable economic growth and financial stability.

## 2. Implications on the budget deficit target of 4.4% of GDP for 2011

The budget deficit target agreed with International Monetary Fund for 2010 although it was complied, respectively 6.5% to 6.8% as was the agreed limit, the government has failed to comply with promises of payment debts to the companies, and required significant state corporate donations and decided to raise VAT to 24% at the end of the year so as to fit into the budget deficit target. So basically the target was exceeded although the original target for 2010 was 5.9%, after being regarded as unfeasible. From the release of the Ministry of Finance the budget deficit recorded last year was 33.3 billion lei, respectively 6.5% of GDP, below the limit agreed with the IMF, of 34.6 billion.

The budget deficit decreased compared to 2009 from 7.4% to 6.5% of GDP due to revenue growth, in terms of additional mandatory spending recorded interest, unemployment aid, payment of debts to companies, project financing of EU funding programs. Revenue from VAT, excise and non-tax revenues made the greatest contribution to increased revenues last year, advance tempered by lower revenues from income tax, corporation tax and social security contributions, according to

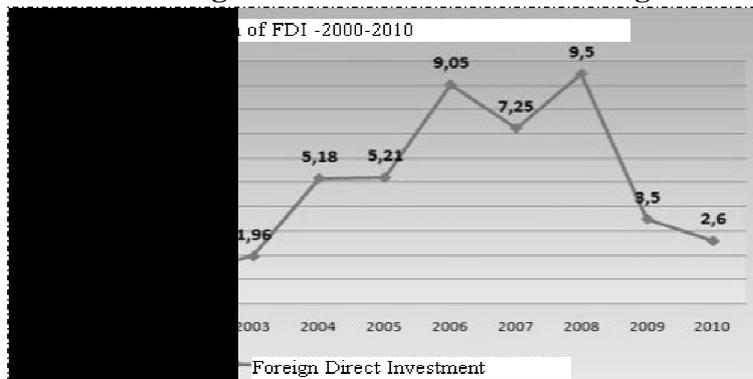
the same sources. VAT revenues expected by the Finance Ministry when writing the budget implies a 10% increase in the VAT revenues in 2011. The assumption is not a realistic one regarding the context in which consumption is still at a reduced level. Personnel expenses in 2010 remained below those recorded in the same period of the previous year, registering a 8.6% contraction. In this chapter we predict a continuation of the level allocated in 2010.

Given that the government proposes to increase the amount absorbed from the Structural Funds, which is really vital, then this means an increase of co-financing costs. Amounts received from the European Union on account of payments made in 2010 have increased by 181% over the same period last year, that is 5.4 billion from 1.9 billion lei. Also expenditure on goods and services increased by 5.2% as compared to 2009 mainly due to an increase in the budget expenditures of the single national fund health insurance for the payment of arrears. There are consultants and policy makers who say that not the size of the budget deficit is the problem, but the allocation of surplus spending. However, taking the example of 2010 when Emil Boc said that 20% of budgetary expenditure will be allocated to investments, implementation has shown that only half of this percentage was really allocated to investments. In this context the taxpayer confidence in the effectiveness and sustainability of the budget system decreases, a system having already a damaged credibility.

In this context Romania's demotion by international rating agencies at a lower category worsened the perception of foreign investors on local opportunities, and political tensions and frequent changes in the tax system have made foreigner investors, in some cases, to reconsider their investment decisions, even those who already had a tradition in the local market.

According to data published by the NBR and undertaken into an analysis of the website wall-street.ro the absence of economical increase in Romania will affect foreign investment which in 2010 fell to the level of 2.6 billion euros, amid recession, whereas two years ago it registered a record 9.5 billion euros.

**Figure 3: Evolution of FDI during 2000-2010**



Source : INS Current account balance evolution

In the market some experts do not see with good eyes the numerous agreements with the IMF on the measures they impose further, stating that there is even a magic formula or a successful one that the IMF may be able to apply to all emerging economies and to be able to recover in the same way. Several issues need to be considered, including customs, the typology of the people in that country and the potential where the growth may stem from.

For this year, the authorities aim to reduce the budget deficit to 4.4% of GDP, which is an ambitious target given that until now no effective measures have been taken to stimulate economic growth. In this context, we reiterate the view that revenue will fall in roughly the same margins and certain expenditures, as we have shown above, will increase.

In addition, in 2011 the budget deficit reporting is required to Government on the model used by the European Union, especially ESA 95, which includes state debt by firms and states is even more conclusive as the IMF representative in Romania, Mihai Tanasescu concludes.

In our opinion, our country must adopt modern methods of sizing budgetary indicators. Classical methods do not affect the efficiency of the actions which are to be taken with the help of budgetary means and they do not follow the correlation of expenses on the level of all the institutions that contribute to achieving a particular objective of state budget resources. In international practice there are two main types of structured methods: (Vacarel,2007)

- US-style methods “Programmed Planned Budgeting System”, “Management by Objectives” and “Zero Base Budgeting”

- French-inspired methods “La Rationalisation des Choix Budgetaires”

In conclusion, it should be noted that in order to build a competitive budget which may better reflect the sectors to which the resources need to be allocated, one must take into account the new trends in the European Union area for the construction of the EU budget over the next 20, or even 30 years. In this respect the studies that the EU is undertaking on the budget prove useful, namely “EU Spending Study Final Report”, study which presents an important question: what will the structure and EU budget allocations be in the future. This is not an easy question, but we will try to point out some aspects that should be noted. EU budget reform package will require action on: climate change and energy resources, knowledge and innovation, security policy and international affairs within the union. The trend suggests increased allocation and interest for the three packages listed above at an important level.

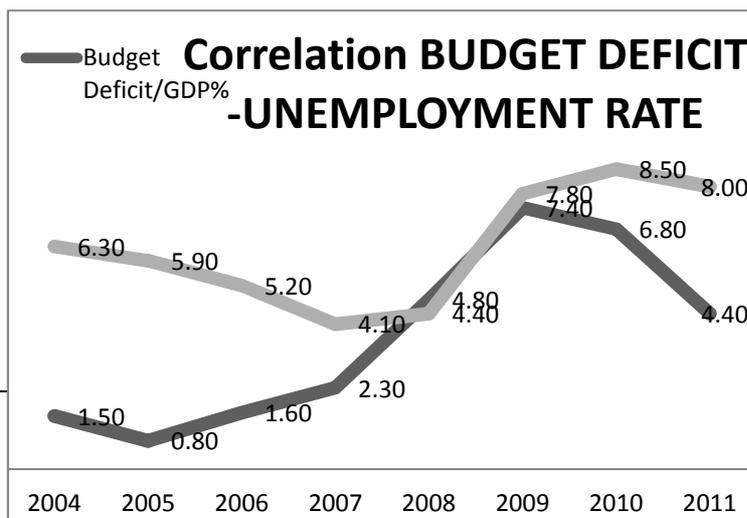
Another interesting aspect noted in the report concerns the Common Agricultural Policy, for which a declining interest is shown, in view of a future EU membership of Turkey, a country with an important agricultural sector.

### 3. Correlation Budget Deficit-Unemployment Rate in Romania

In this chapter we intend to carry out the correlation between the budget deficit and the unemployment rate, this analysis referring to Romania vs. USA. Starting from David N. Hyman, Public Finance, The Dryden Press, North Carolina State University, p. 375-395 whereby:

<<The standard level of the unemployment rate in an economy is 5-6%. At a given unemployment rate the budget deficit can be estimated. To this purpose the size of revenue and expenditure can be estimated corresponding to an employment rate of 94-95% from the active population. For the U.S. economy it was estimated, for example, that each percentage point increase in the unemployment rate increases the budget deficit to \$ 30 billion. This growth deficit is due to fluctuations in economic activity and the deficit is caused by the highest possible occupancy rate of the population, within a given budget year. After its removal, the remaining deficit reflects structural imbalance between revenues and government expenditures. A deficit caused by unemployment of more than 4% of GDP was recorded during the war and in times of economic downturn.>> (Vacarel, 2007)

In the chart below we presented the correlation between unemployment and the budget deficit declared in Romania according to data compiled by the Institute National Statistics and IMF.



**Figure 4: Correlation Budget Deficit- Unemployment Rate**

Source: National Institute of Statistics, [www.insse.ro](http://www.insse.ro)

So, we can conclude that the two variables are directly related. If unemployment falls, the budget deficit will decrease too and will not have to be covered by public debt. This requires the employment stimulation through various methods such as reducing social security contributions and thus all of the amounts allocated from budget for unemployment benefits would decrease.(Croitoru, 2010)

The chart presented shows the situation as rendered in the public information submitted by the INS, but in reality the unemployment rate is much higher than the data presented. This is because of not taking into account the people not included in the NEA statistics, and according to an analysis of ZF only in 2010 approximately one million unemployed were excluded from statistics for various reasons among which the most important are: the non-renewal of their application for a job for the unpaid unemployed, the non-renewal of their application for a job at the end of the compensation period, fixed-term employment, etc.

In Romania there are approximately 4.5 to 5 million employed persons from a population of 10 million people, so 5 million people are either engaged in subsistence agriculture or have become self-employed or have gone abroad undocumented. Therefore the real unemployment rates are higher than the one officially presented by the INS.(ZF, 2011)

In this context Lucian Croitoru, adviser to the BNR governor, draws the attention to an article in the ZF over the fact that even when the economy starts to increase the unemployment rate can remain constant as it is currently in the U.S. and pre-crisis can be reached only after long periods of time. The three factors mentioned in the article are:

1. necessary corrections in the budgetary system on wages should not cause a problem of public debt
2. structural problems in the labor market when job requests do not have the same structure with the job offers. The demand is for highly skilled people in export industries, while the supply comes from people with low or medium skills.
3. the perception of companies on the extent of the employee's workload, which has decreased because of the lower demand, but not possible to fire due to availability of labor law

All these issues put forward highlight the importance of specific measures of labor market flexibility and of employment growth in parallel with an increased retraining incentive policies.

#### **4. Moral nature deficit and opportunities concerning the resumption of economic growth in Romania**

Vosganian V. states “The issue of restitution or of just compensation is not only an economic problem but also one of a moral nature. Generally, in Romania, the subject of the ethical dimensions of the market economy is rather avoided. Economic crisis has, once again, ignored this dimension of economic development”.

Therefore, the economic crisis is certainly deepened by the moral crisis or by people’s mistrust either in state institutions or in the legal rigors imposed by the apparatus of justice and human rights, including the right to property.

Between 2007 - 2008 Romania has granted about 1.6 billion euros, in various forms, to persons entitled to compensation. Only in 2008 the National Authority for Property Restitution awarded shares of almost 3.6 billion lei (about 1 billion euros) to the Property Fund, to exchange for the

buildings which could not be restituted in kind. Well, in 2009 and the first eight months of 2010 the total compensation awarded will be at the level of 7-8% from 2007-2008

This happened under the conditions that all the requests submitted to ANRP rise to billions of euros and the ECHR may require Romania to resolve these cases urgently and without delay, which would increase budget spending.

### 5. Conclusions

As governor Mugur Isarescu said the return of the economy should be based on stimulating and encouraging SME's work together with a focus on exports. We agree with the Governor and Mr. Daniel Daianu's opinion that the true economic recovery must be based on attracting investment and EU funds, but with the addition that both investment and European money should be invested in sustainable businesses and projects that will further bring a plus value in a medium period of time, and not used only to stimulate on short periods of time certain projects.

Of the same opinion are leaders and economists of top 10 banks in the banking system, who raise the same importance of economic growth, but not in any circumstances or in the conditions prior to the crisis, when consumption on credit was greatly stimulated, and it was not covered by long-term viable business.

To these is added the risk that the measures outlined in Chapter IV of this work may not be taken in time, and the year 2012, an election year, which will increase public expenditure in the unsubstantiated attempt to reduce the unemployment rate, will increase public spending and, implicitly, public debt.

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## THE INTERNAL AUDIT – A GROWTH INSTRUMENT OF THE LIABILITY OF THE ENTITIES INVOLVED IN MANAGING THE PUBLIC FUNDS

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**Abstract:** *At this stage, when the public entities are promoting the efficiency criterion, any public entity leader is interested to operatively know how the available funds are being managed so as to achieve maximum results with lowest costs. This knowledge can not be achieved without the contribution of the internal audit, an activity that provides important information regarding the financial management and the heritage state, thereby contributing to achieving the objectives of the institution. The contribution of the internal public audit to the effort of streamlining the activity of the governmental entities is made through assurance and counseling missions provided to the leadership people for a better management of the revenue and of the public expenditure, through a continuous evaluation and improvement of the internal control and through the analysis and management of the risks.*

**Key words:** internal public audit, public funds, public entity

**JEL classification:** G29, O52

### 1. Introduction

The internal public audit activity has evolved differently from one country to another and within each country through sectors and entities, depending on the development level, on legislation, on the ability to communicate information and on other factors. During this period not only the internal audit's terminology was unstable, but also its content, objectives and its action scope, because they were not specified.

In this activity's evolution steps were taken in order to stabilize the terminology, to clarify the conceptual confusions and to embody practical progress into the standards, which were reflected in setting the foundation of this activity's profile.

The current concept of the activity was preceded by the appearance, the diversification and the consolidation of the control of the economical, administrative and financial activity, it was also preceded by specific ways of promoting efficiency and effectiveness in achieving the objectives and the results of the economical units, and also by other means of social and economic progress.

Thanks to the contribution of the internal public audit to the effort of streamlining the activity of the governmental entities, contribution made through assurance and counseling missions provided to the leadership people for a better management of the revenue and of the public expenditure, through a continuous evaluation and improvement of the internal control and through the analysis and management of the risks, I believe that *this type of audit is the main form of the public audit's activity performed by the public entities*. The internal audit activity represents therefore the key element in supporting the management of the entities, as it provides important sources of information necessary to conduct the activities.

Through the process of observing the reality, through early capturing and correcting the financial errors and irregularities, through identifying and establishing measures and recommendations for an efficient use of the budgetary appropriations, the internal audit helps solving the financial imbalances that may arise in the public institution.

The internal public audit is exercised over the activities developed inside a public institution, including over the subordinate activities, concerning:

- The raising and usage of the public funds;
- The administration of the public property, in accordance with the law, in terms of economy, efficiency, effectiveness, opportunity and regularity.

## 2. Conceptual dimensions regarding the internal public audit

Overtaking the conceptual confusions concerning the internal audit work and its differentiation from other activities within the public entities, such as the financial, the accounting, and the management activity, were later clarified and are reflected in the definitions of the internal audit given over time.

**The basic definition** of the internal audit, comprised in the international circuit, is given by the Professional Rules of Internal Auditing issued by the Institute of Internal Auditors (I.I.A) located in the U.S.A: *“Internal auditing is an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes.”*

This definition was commented by some experts who considered it “proactive” ( Vauris, L, The Audit Magazine, nr. 150.), because it shows more of what the internal audit should be than what it really is, hence we have, for a certain period of time, a probable disparity from the actual reality.

I appreciate that the main flaw of the definition consists in the fact that it is not stated that the internal audit is performed within an organization, which is a real fact.

In his book, “Theory and Practice of Internal Auditing”, Jacques Renard makes a critical review of the current definition given by the Institute of Internal Auditors because he uses the term “activity” instead of “function” when referring to the internal audit, because, he says, “an activity is more elementary than a function and places its officer on a subordinate position.”

I mention that, in the literature, the internal audit is looked upon as an *activity* or as a *function*. The activity is defined as being *a set of physical, intellectual and moral acts done to obtain a certain result* ( The Explanatory Dictionary of Romanian Language, 1998).

Also according to the Explanatory Dictionary of Romanian Language, the function is an *administrative activity performed by someone on a regular basis and organized in an institution, in exchange for a salary*. Given that in the Romanian vocabulary the concept of “function” is used for multiple domains and has multiple meanings, I consider using the word “activity” more appropriate, although the notion of “function” can also be used.

The definition is also broadly adopted in our country’s legislation through Law no. 672/2002 on internal public audit which defines the audit as being *“the functionally independent and objective activity, which gives assurance and advice to the leaders for a proper management of the revenues and of the public expenditure, improving the activities of the public entity; it also helps the public entity to meet its objectives through a systematic and methodical approach, which assesses and improves the efficiency and effectiveness of the leadership system based on the risk management, the control and on the administration processes.”*

According to the general rules of applying the internal public audit in Romania elaborated by the Central Harmonization Unit for Public Internal Audit, the internal public audit is defined as “a functionally independent and objective activity which provides assurance and consulting to the management on the good administration of public revenues and public expenses, improving the activity of the public institution.” From these norms and from the definition of the internal public audit mentioned above, I learned the following **features of the internal public audit**, namely:

- **The Internal Public Audit is an activity developed within the public institutions.** As an activity developed at the public administration’s sector level, it is regulated under the laws prepared by the Legislature and Regulations forum and under the regulations issued by the Ministry of Public Finance.

- **The Internal Public Audit is an independent activity.** The audit work should be independent and the internal auditors must be objective in carrying out their duties. These features also arise from the international auditing standards developed by the I.I.A and refer to the

organizational independence. This activity is carried out by persons who act as employees of the institution, but in order to ensure their independence they are organized at the level of a functional service directly subordinated to the highest level of management of the institution.

- **The Internal Public Audit is an objective activity.** To support its objectivity comes the Rule no. 1.120 – “The Individual Objectivity” showing that “internal auditors should have an impartial and unprejudiced attitude and avoid conflicts of interest.” (*Professional standards of the internal audit*, Ministry of Finance and Institute of Internal Audit and Control (IFAC) - Qualification Rules 2002, p.7). The organization of the internal audit under the authority of the highest hierarchical level is not sufficient; everyone should be objective while developing their activity, this is one of the fundamental principles of the ethics code.

- **The Internal Public Audit provides assurance and consulting to the management on the good administration of public revenues and public expenses.** The Internal Public Audit’s activity is mainly intended to provide the management a view to ways of improving the economic and financial activity of the institution. The internal auditor has an advisory role, he informs the leadership in order to correct the found deficiencies.

*Therefore it is the auditor’s job to advise and recommend but in no circumstances should he use coercive measures in order to remedy the deficiencies.*

In some specialty work (Crăciun, Ș., 2004, p. 237).the following features of the internal audit are highlighted:

- The Internal Audit is a component part of the economical and social activity’s control, of all its sides and moments;
- The Internal Audit is a comprehensive activity, of “covering” all the activity’s moments developed by any socio- economical entity.

### **3. Fundamental types of internal public audit and their characteristics**

According to the legal frame (Law no. 672/2002 regarding the internal public audit ), the internal public audit includes: regularity audit, performance audit and system audit. By using one of these types of internal public audit, the auditor brings its contribution to improving the management of public funds for an economical use, efficient and effective in terms of legality, as follows:

- **the regularity audit** – examines the legality and the regularity of the patrimonial transactions;
- **the system audit** – represents a deeper evaluation of the leadership and control systems;
- **the performance audit** – evaluates the inexpensiveness, the efficiency and the efficacy of the audited activities.

*In practice, in most public entities are being carried out mainly internal audit actions at a regular time, which are routine and inconclusive actions for the best management of public funds and assets, the system and the performance audit are generally neglected, although they can play a decisive role in ensuring the effective functioning of the audited activities.*

Sustained efforts are required to pass from the audit focused on verifying the compliance with the regularity of transactions, the compliance of the activities with the law, on protecting the assets, and in the system and performance audit’s case, through adding relevant analyses regarding the achievement of the objectives in terms of economy, efficiency and effectiveness.

In my opinion, in auditing the management systems of the internal audit we will not focus on issuing views concerning the strategic objectives of the institution’s leading, but on assessing the suitability of the decisions made by the officer with the purpose of realizing the entity's objectives. Perhaps, *this new dimension of the internal audit will represent the final stage in the development of this activity.* Of course, such an audit in the present stage in which the auditor is directly subordinated to the head of the public institution is hardly doable, but nominating an auditor from the upper structures that could achieve this mission would produce effects qualitatively.

### **4. The internal public audit’s contribution in increasing the accountability of the entities involved in managing the public funds**

At this stage when the public entities are promoting the efficiency criterion, any public entity leader is interested to operatively know how the available funds are being managed so as to achieve maximum results with lowest costs. This knowledge can not be achieved without the contribution of the internal audit, an activity that provides important information regarding the financial management and the heritage state, thereby contributing to achieving the objectives of the institution.

#### **4.1. Assurance and consulting in managing the good administration of the public revenues and public expenses**

The definition of the internal public audit (Law no. 672/2002 regarding the internal public audit ) as *“the activity...that provides assurance and consulting to the management on the good administration of public revenues and public expenses”*, allows us to state that, in essence, the internal public audit’s contribution to optimizing the entity’s activity is realized through the assurance and consulting activity given to the management.

The assurance activity represents an objective examination of evidence for the purpose of providing an independent assessment on governance, risk management, and control processes for the organization. (Glossary of terms - Professional standards of the internal auditing, Ministry of Finance and Institute of Internal Audit and Control (IFAC), 2002, p. 23).

In practice, the internal auditors cover a wide range of “to give assurance”, such as:

- gives assurance for the smooth running of the control process over the budget’s execution;
- gives assurance to complying to the human resource policies of the entity;
- gives assurance for a thorough check of the existing policies in the IT system;
- gives assurance for proper measurements of the efficiency and effectiveness of the public entity’s activity;

The aim of any internal audit mission is to provide assurance that the audited financial statements are complete, accurate and prepared in compliance with the legal and internal regulations in force. Assurance given as a result of the objective examination of the audit’s evidence is relative, because auditors can not examine all of the entity's operations and programs on the one hand, and on the other hand the internal audit has a periodical character.

Assurance is usually presented in the form of a firm statement about the state of the audited domain, thus emphasizing the responsibility of the internal auditors.

Regarding counseling, this is the activity developed by the internal auditors, designed to bring value and improve the management of the public entity, to manage risk and internal control, without the internal auditor having to assume managerial responsibilities.

Internal auditors often give advice at the public entity’s management request, embodied particularly in developing some analyses and formulating points of view over issues of interest for the leadership - especially in the financial accounting domain with the role to increase the added value brought by the internal audit to the counseled activities.

The counseling activities performed by the internal auditors within the internal audit’s departments take the following forms:

- consultancy, having, as purpose, the identification of any impediments for a normal operation of processes, establishing the causes, determining the consequences through presenting, furthermore, solutions for their elimination;
- facilitating acknowledgement designed for obtaining supplementary information for a total knowledge about the function of a system or of a normative provision, necessary to the personnel whose responsibility is to implement them;
- professional improvement and formation, designed to provide all the theoretical and practical knowledge concerning the financial-accounting domain, risk administration and internal control, through organizing courses and classes.

I believe that counseling work can act like a natural extension of the assurance activity and that the two activities are not mutually exclusive, but can interact or be complementary.

#### **4.2. Contributes to assessing and improving the internal control**

An important task of the internal audit is assessing the internal control for a continuous improvement of it.

An Anglo-Saxon principle on the need to control states that “people do the right thing to do when they know that they will be controlled.”

Starting from this principle, but also from other considerations, the internal control has and will be the focus of the managers from all the levels of organizations.

Over time the internal control has developed in relation with the degree of cultural evolution of the entities. As the volume of enterprises business developed and the activity centers have dispersed, the internal control has taken on new meanings both in concept and in content and objectives.

The internal control is represented by all the security measures that contribute to keeping the control over the public entity. The internal control aims on the one hand, to protect, to assure the heritage and the quality of information, and on the other hand, to apply the guidelines from the management and to favor improving the performances (Aslău T., 2001, p. 46).

Internal control is vital to ensure the proper management of resources and to maintain responsibility, it can provide a reasonable assurance, but not an absolute one because the assets are protected and the transactions are properly authorized and recorded in a manner that allows to identify and correct in time the clerical errors.

Internal Audit will be in this context, the essential pillar to support this assessment process, the audit should provide to the management an accurate picture of the way the resources are properly allocated to various objective categories and activities and also should make recommendations that would contribute to improving the activity of the public entity.

The assessment over the internal control is performed based on specific methods and techniques that are in compliance with the internal audit's standards governing this field. On the basis of the assessment conducted, the internal audit recommends measures to streamline the entire control system organized at public entity level.

#### **4.3. Contributes to assessing the risks within the public entity**

The administrative and financial decentralization process taking place in Romania in the current period involves a wide financial autonomy, increases the risk issues from the public entities. Controlling and reducing the risks to an acceptable level is not likely to be achieved without a systematic assessment of them by the internal audit, which requires developing modern techniques and methods adapted to the contemporary realities.

Risk assessment is a major concern for the internal auditors, which is performed in accordance with their professional standards and requires using quantitative and qualitative methods that are necessary to obtain information regarding the nature of the risk probability, and finally, estimating these probabilities with some degree of confidence.

Risk assessment is a part of the operational process and aims to identify and analyze the internal and external factors that could adversely affect the public entity's objectives. The internal factors may be, for example, the nature of the entity's activities, the qualified personnel, major changes in the way the entity is organized, and the external factors relate to changes in the economical conditions, legislative, etc.

Definition of internal audit states that it “helps the public entity to accomplish its objectives by a systematic and methodical approach meant to assess and improve the effectiveness, and efficiency of risk management of control and governance processes.”

Complying with the legal framework and the regulations for the Professional Practice of Internal Auditing requires that the internal auditors should bring a contribution in the risk management process.

*Managing the risk is the responsibility of the management, who for achieving the entity's objectives, should be aware of the possible risks associated with the activities and take measures for*

keeping them under control and mitigation, however, the internal audit is the one which through the issued recommendations, the identification and the risk analysis contributes to their ruling .

Therefore, *the role of the internal audit is to assist the management to ensure that the risks faced by the entity have been identified and that there are strong measures that would ensure that they will not materialize.*

## 5. Conclusions

➤ *The management of the public entities is not aware enough of the fact that the base, the essential contribution in the efficiency of the activities is represented by the internal audit.*

My opinion is that the internal audit, through its assurance and counseling missions supports the public entities in an effort to streamline their business. Through knowing the present reality, by capturing and timely correcting the errors and financial irregularities, by identifying and establishing measures and recommendations for an efficient use of the budgetary appropriations, the internal audit helps address the financial imbalances that may arise in the public entity.

➤ At this stage, at the level of the public entities there are still some confusions among the budget officers and even among the ones with attributions in the internal audit domain. This is because *the internal audit is considered to be a verifying operation, although in the current context, in which all the entities, including the public ones, are interested in performance, this activity is a good tool for streamlining the work of the public entities.* Through the assurance and counseling missions regarding the administration of public funds, by assessing the risk's management processes and the internal control, the *internal audit activity contributes to empowering the public entities in terms of managing the public money and, finally, increasing the financial administration's performance of the public entities.* Therefore the internal audit *is not an end in itself but a result of the need to improve the public entity's activity* and it needs to be treated as such.

➤ In the context of the increasing complexity of the public entity's tasks, of the permanent enhancing and modifying the legal framework, of decentralization of the management responsibility, *the risk tends to take up more and more of the focus of organizations.* For a long time, specialists in the field argue that *we live in a risk society*, and that the advantages of any action are proportional to the taken risk. Therefore, *decisive in having an efficient implementation of the activities of every public entity is represented by controlling the risks.* The entities are facing in practice a variety of risks, both internal and external, which can not be considered in their entirety. *This fundamental problem which the public entities are faced with profoundly involves the internal audit activity.*

➤ Managing risks is a problem faced by the public entities and falls under the responsibility of the management, which in order to achieve the objectives of the entity should focus on the risks at all levels and should take measures for keeping under control the risks.

In fact, *the internal audit's role is to assist the public entity's management, examining and evaluating the risk management processes implemented by the management and based on this to issue recommendations for their improvement.*

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## THE ORGANIZATION, MANAGEMENT AND GRANTING OF ACCOUNTING INFORMATION

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**Abstract:** *This research follows a summary of the main ways of organizing, managing and granting accounting information in order to obtain high quality information. To have a quality accounting information must be, first, a qualified "producer" (accountant, economist, accountant or a chartered accountant) that has some experience dealing with obtaining information. Quality increases if there are producers with a quality certificate and a guarantee offered by a financial auditor.*

*In this paper we highlight the importance of the accounting profession and auditing today in order to achieve a sound accounting information.*

**Key words:** accounting information, accountancy, accountant, auditor

**JEL clasification:** M41, M42

### 1. Introduction

The usefulness of such research is the need to respond to questions that could contribute to understanding the importance of accounting information quality. In this research, we relied on a theoretical approach using descriptive research in order to formulate hypotheses. The financial statements are prepared and presented to meet the common financial reporting requirements of a wide range of users: investors, managers, employees, customers, creditors, bankers, state, etc. Consistency of content and granting quality of financial situations, on the one hand, and granting referential accounting, on the other hand, is controlled by the management company and / or internal auditors and at a superior level, the state financial control bodies.

Subjective nature of this form of control in terms of ensuring their own information needs of investors, was the main emergence of professional institutions of independent auditors.

### 2. Accountancy – source of data and information

Accounting today is a practice carried out of professionals, which aims to provide useful information for decision making at the level of economic entities. The building of accounting information starts from observing an entity and its specific activities. Data processing in order to obtain information it is made operating with the language and means specific to accounting system, so these can respond to users needs.

Informational activities specific for accountancy domain are those involving the production and granting use of accounting information. These include actions that aim at the creation, collection, storage, processing and transmission of information. They require registering and calculation operations, like analysis, interpretation, grouping and using of information in taking decisions.

As a formalized language of business, accounting of the firm performed internal and granting external representation of the organization. Although it is not the only source of information, accountancy represents the informational system most adequate for the needs of the enterprise.

The importance and granting role of accounting information system for decision making are overwhelming because it makes the connection between business and policymakers.

To make a fair and effective decision the manager must determine the purpose, to identify means and options to achieve his option to choose the way considered optimal, implement and monitor its application, to analyze the results.

To provide qualitative information, which are the base for decision-making, accountancy, in turn, have to produce quality information. Where the accounting information comes from? Every word is said or written can even be an accounting information? Well, in our opinion, no. Firstly in accounting we work only with written information, but not in any way and not on anything.

Commercial companies, national companies, autonomous companies, national research and development institutes, cooperatives and other legal entities for profit, public institutions, associations and other legal entities, and non-profit and individuals authorized to conduct independent activities recorded economic and financial operations in their time of documents. (Mircea Boulescu, 2002).

Primary documents or justifying documents, as written evidence of the economic and financial facts, is usually the input "gate" of economic and financial information on accounting land so that it would be transformed into accounting information provided in annual or, why not, interim financial statements. But the transit of the information in the accounting system is not so simple, that is we do not get information directly from justifying document to the balance sheet.

Documents are prepared on printed forms by hand or by technical means, at a working place in which economic transactions occur.

Manual preparation of documents presents some disadvantages: high workload, does not provide full data accuracy, proper adequate efficiency and productivity, etc..

Preparation of documents with technical means largely eliminates the shortcomings of manual preparation of documents, instead it imposes certain limits on the size, content and format documents by technical features of equipment used.

Regardless of the method of preparation of accounting documents, it must be clear and complete, respecting all rules regarding content and form, conditioning the quality and accuracy of their accounting information.

The validity of elaborating accounting documents is given by the accomplishment of some conditions: the documents must be written clearly and legibly to avoid any possibility of interpretation, should not contain erasures or corrections, to be prepared in time, to be void-free lines, to contain accurate and real data, amounts to be written in numbers and letters.

Documents must be prepared in time to ensure the efficiency of accounting information. Between production of economic operations and paperwork, there must be a full compliance. All economic transactions should be documented. Moreover, the Accounting Law governs this: "Each patrimonial operation is recorded at the time it was made into a document which is the base of accounting records, obtaining the quality of justifying document". Thus, reflecting on the state of all economic transactions and movements of assets, the documents constitute the registration in accounting, affecting the accuracy and efficiency of accounting information.

After being completed documents must be submitted to processing.

The processing of documents is the sorting operation, expressed in monetary standard, cumulation of primary documents and getting summary documents, form verification, arithmetic and background on the legality, reality, opportunity, necessity and efficiency of operations documented, and finally recording into accounting.

After processing, the information in the documents are written in the books. The main accounting records used in accountancy are registry-journal, ledger and inventory book.

The books are used in close accordance with their intended use and presented in an orderly and thus completed, to allow, at any time, to identify and control economic operations performed.

Accounting records with supporting documents prepared in compliance with established norms, constitute the official accounting records for the execution of asset control operations carried out and may be admitted as evidence in legal proceedings with litigation unit property, bankruptcy, etc..

The registry-journal is mandatory accounting document, which recorded daily by accounting items in chronological order, property operations by keeping the sequence of documents after the date of completion or their input into the unit. Registry-journal form can be: general registry-journal, ledger subsidiary (sales journal, purchases journal, receipts journal, log payments, payroll journal, etc.)

Inventory book is also a mandatory accounting document, which records all assets and liabilities are grouped according to their nature as balance sheet items, according to legal norms inventory. Patrimonial elements registered in Inventory Book are based on inventory lists or other documents that justify the content of each post from the accountancy balance.

Ledger is a mandatory accounting document, which registers monthly and systematically, by regrouping the accounts, movement and existence of all patrimonial elements, at a certain time.

Based on the registries, the checking balance is made and this is the base of financial statements.

Besides the accounting registries, the economic agents are obliged to make and to submit statements, which helps to report to the Public Finance Ministry the debt situations towards the consolidated budget regarding income tax, payroll tax, contributions to social insurances, health insurances, unemployment, VAT situation.

Regarding the trimestrial income tax, the Fiscal registry records is also filled. Fiscal registry records also aims to enter all the information that formed the basis for determining taxable income and profits tax contained in the declaration on payment obligations to the general consolidated budget.

Tax information from the register will be recorded in chronological order and will correspond with data on fiscal operations and tax payment obligations of the statement on the consolidated general budget. Transactions recorded in the Register of Tax are up to the taxpayer, depending on the specific business needs and its own necessities. Tax Register is used in strict accordance with its destination and is completed to allow any time the identification and control of operations included in the profit tax payment obligations to the declaration of the consolidated budget. Income tax calculated and recorded in the Register will be identical to the tax declaration document on payment obligations to the general consolidated budget.

*All these records and tax information are data sources and information for users provided by accountancy.*

### **3. Measure criteria the quality of accounting information**

Accounting information can be considered a "mass" good consumer, used by a variety of users: from small and medium enterprises to large listed companies, from the tax to the great mass of citizens, as small savers and investors. ( N. Feleagă și I. Ionașcu , 2001).

Measuring the quality of accounting information assumes that accounting information tends to lose the absolute character becoming a merchandise that can be traded. This is because now, under new regulations, the production and communication of accounting information, the professional reasoning has a particular role. But whatever the purpose and manner of communication, the satisfaction of user needs must be continuously measured and assured. This raises the need for quality accounting information that satisfyies its "consumers". Consumer satisfaction is guaranteed by quality control system.

Like other fields of knowledge and human activity, accounting information do not escape from the motion of interconnection between broadcasters and its users. Thus becomes necessary a reflection on the means of continuous guarantee of quality in services for this domain. In companies, it is being redefined the relationship between accountancy and all other internal actors involved in management. You can talk, in this case, of structuring a management information

system in every economic entity. Increased exchange of computerized data, development of facilities management, multiplication of databases telematics services available to different categories of users are events that lead to the need for consumer confidence information and to carry out systematic checks on the reality of the knowledge gained.

Production and communication of accounting information can be understood as a service. Any service to be considered quality parameters must be characterized of objective and measurable parameters. These parameters are considered as quality criteria.

Measure criteria for quality in accountancy are: the true image and respectively, the true presentation. The financial statements present fairly the financial position, financial performance and change of financial position of an enterprise. Although this "framework" does not directly address such concepts, application of key quality characteristics and appropriate accounting standards results in financial statements, which generally reflect a true picture of the state of the enterprise.

The rules and the works of authors emphasize the importance of accounting quality measurement system. Mainly, it must allow:

- detect the satisfying degree of users exigencies in services put at their disposal;
- discovery and recording of non-compliances and failure in processes;
- quantifying the effect of corrective actions after the analysis of these deviations;
- monitoring improvement of results and efficiency of processes.

The main tool of quality management is its normalization. Intercession of enterprises for developing users trust in the offered product or service, in this case the accounting information, is expressed by defining the norms.

The main objective of normalization is represented, in essence, by improving the interpretation by external users of financial situations.

The field carrying a quality approach is part of a larger size, which is not currently covered, entirely, through normalization. Accounting quality assumes measuring the ability of an entity to supply to its clients services of a continuous quality, to supply the necessary service, but also to mention to which accounting element is applied the respective measure.

Quality certification of accounting information can be made through the mechanisms of self control, oriented towards permanent search of progress and improving performances, but also through a report conducted by a legally authorized person appointed auditor.

However, in certain circumstances, may be requested supplementary service operations, consisting of assumptions about the evaluation services.

So, that accounting information is useful it must be of quality, namely to present accurate image activity of the entity, something we highlighted in previous chapters.

#### **4. The quality guarantee of accounting information**

Each accounting information user wishes to have an information which reflects reality, a true information that is. Because the user wants to trust accountancy, this means the accounting information to be credible, it requires auditors of accounting information quality, which are safeguards for implementation and enforcement of accounting principles. (N. Feleagă and I. Ionașcu, 2001, p.241).

In our country, two types of accountans has a specific role of control in this domain: audit and auditors.

Audit represents "the critical exam of activities of an enterprise based on norms and technics established and recommended by a professional body". Audit form which is directly related to accounting is the financial audit, which means "examination by independent and competent professionals in order to express a reasoned opinion on:

- validation and correct application of internal procedures, established by the management of the enterprise (internal audit)
- true, clear and complete image of the patrimony, of the financial situation and of the results obtained by the enterprise (legal audit requested by the law and executed by the audit or the

contractual audit made at the request of the enterprise by the professional accountants, authorized accountants with higher education or commercial societies of accounting expertise)” (N. Feleagă and I. Ionașcu, 2001, p.242).

According to the law (Law no. 31/1990), companies (joint stock companies and limited liability companies) having more than 15 members, are required to have auditors. They must be at least three and as many alternates, if the article of association does not provide a higher number. In all cases, the number of audits must be uneven. Also, it must be mentioned that at least one of them has to be authorized accountant or accounting expert under the law conditions.

The auditors shall be elected initially by the constituent assembly and must be shareholders, excluding accounting auditors. The term of office is three years and they are forced to exercise personal mandate.

The auditors must be shareholders, except the accounting auditors.

They can not be auditors, and if elected, they are retrograded from their mandate:

- a) relatives up to fourth grade or administrator wives;
- b) people that receive, under any form, a salary or a remuneration from the administration or society for any other function except the auditor one;
- c) people who are denied of the administrator function because they can not be founders, according to the law;
- d) people who, while exercising the powers conferred by that capacity, have powers to control within the Finance Ministry and other public institutions, except as provided by law.

The auditors are paid a fixed allowance, as determined by the association or the general meeting which appointed them.

In case of death, physical or legal impediment, termination or waiver of the mandate of an auditor, the senior deputy replaces him.

If, in this way, the number of auditors can not be completed, the remaining censors point other people in vacant position, until the next general assembly meeting. In case no other censor fills the position, administrators will convene an emergency general meeting, which will proceed to appoint other auditors.

By law, auditors are required to:

- supervise the management company;
- check whether the financial statements are legally prepared and in accordance with statutory accounting records and if the latter are held regularly;
- to verify whether the patrimony evaluation was made according to rules established for balance sheet.

About all these and the proposals which they think necessary on the financial statements and the distribution of benefits, the auditors will make a detailed report for the General Assembly.

The General Assembly will not approve the financial statements unless they are accompanied by the auditors' report.

Also, auditors are required:

- a) to make each month and unexpectedly, home inspections and to determine whether securities or values exist which are owned by society or have been received in pledge, bond or deposit;
- b) to convene an ordinary or extraordinary meeting, it was not called by the directors;
- c) to take part in ordinary and extraordinary meetings, making possible to insert in the agenda proposals that they believe necessary;
- d) to determine the regular deposition of the guarantee from directors;
- e) to ensure that the law and the articles of association are performed by administrators and liquidators.

The auditors shall notify administrators about the irregularities in administration and law violations and the Articles of Incorporation which they discover, and most important cases will be brought to the meeting.

In addition to statutory audit carried out by the Audit Committee and specifically asked by the law, companies and RAs who are not subject to the statutory audit, may contract verification contracts and certification of balance sheets with expert accountants, the accounting practices, independent auditors, company or audit practices.

They exercise the audit contract, being entitled to verify the patrimony entity's financial statements. The financial audit is considered to be:

- *professional analysis* of economic, financial, accounting and tax information, for submission to responsible and independent opinions, by reference to a criterion or quality standard;

- *research*, in order to produce a reasoned and independent judgment, with reference to the valuation rules in assessing the reliability or effectiveness of the systems and procedures of a trader;

- an *objective examination* of an item, in order to issue an opinion or to obtain a conclusion on audited;

- a *credible contribution* to the economic information published by the asset unit, on the accounting statements. For people outside the economic agent, opinion or professional advice of an accountant on financial and accounting documents of the economic agent, it is the best indication of the degree of confidence that these documents can provide. The notification requires a thorough examination of financial documents and accounting records and is intended to show whether or not those documents present fairly the financial position of the agent of the entity and results of operations for the period specified. Without that certification of an independent auditor, the accounting documents can be questioned under real and legal aspect;

- *critical revisal* for the evaluation of financial, accounting and tax due statements;

- *evaluation* by a competent and independent professional, in order to express a motivated opinion on the validity and correct application of internal procedures established by the management unit property and the true, clear and comprehensive picture of the heritage, of the financial position and of the results obtained by the unit;

- *accreditation or certification* of documents and records of the accounting system as a whole.

For auditors, the continuous improvement of internal control system brings help to their clients and allows to reduce audit work, because it has the effect of increasing the quality of documents and accounting records. In terms of auditing, internal control system reduces the work routine, mechanical checks on the accuracy of the tabulation sheets and involves reasoning and justice, enhancing of the overall examination, analysis, evaluation and statistical survey.

## **5. Organization and management accounting**

We saw who ensure quality of the information supplied by the financial statements obtained as a result of companies conduct business. It is very important, further, to know who held accounts at companies and who is responsible for organization and management accounting? The answers to these questions are given by the accounting law.

According to regulations, commercial companies can organize and manage their accounts as follows:

- either separate department headed by a financial director, chief accountant or other person empowered to perform this function with a degree in economics;

- based on service contracts in accounting, legal agreements with individuals or authorized by law, members of the Body of Expert and Licensed Accountants of Romania.

Responsibility for the organization and management accounting is held by the manager, officer (in the case of public institutions) or other persons who have the obligation of management for that certain unit. Last amendment to the Accounting Law clarifies the issue by liability for breach of accounting regulations, liability that was probably the responsibility of the administrator until now. In this regard it is stated that "responsibility for the inappropriate application of accounting rules is held by chief financial officer, chief accounting officer or other person empowered to perform this function, together with his staff. In case accounting is led based on a services contract with natural or legal persons, authorized according to the law, members of Body of Expert and Licensed

Accountants of Romania, the responsibility for leading the accounting is held by those, according to the law and the contractual provisions.” (Law No 259/2007.)

The above-mentioned law repeals an article from the Law on accounting, which stated that "the legal entities that accounting is not organized into separate compartments, which have not qualified personnel by law or contracts for services in accounting, agreements with individuals or legal persons authorized under Government Ordinance no. 65/1994 and have made an annual turnover up to the equivalent in lei of 50,000 euro, responsibility for keeping accounts according to law it is for the manager or other person who shall manage the unit”.

In the case of a commercial society, was it normal to handle accounting organization a manager or other person without any specialized education, be it even with a turnover by up to 50,000 euros? What quality information could be provided by financial statements?

As a conclusion we can say that now things are much clearer meaning that the manager is responsible for organizing and managing accounting and chief financial officer, chief accountant, chartered accountant or certified accountant for the application of accounting regulations.

## 6. Conclusions

As we have shown in this research, accountancy and, especially, the information supplied by it, plays an important role in taking decisions by the managers and not only. We refer here to the wide variety of users (customers, suppliers, banks, employers, state etc..) that based on information obtained from financial statements are trying to find the best solutions for themselves and for the company.

All these users need a real information, meaning true and credible. Responsible for the organization and management accounting in the case of commercial societies, national societies / companies, autonomous institution, national institutions of research –development, cooperative societies and to other legal persons are the administrators, authorizing officers or other persons who are responsible for the management unit.

In general, companies need to organize and run their accounts in separate compartments, led by chief financial officer, chief accounting officer or other person empowered to perform this function. These persons should have higher economic studies and along with the staff, they are responsible for organization and management accounting, under the law.

Basically guaranteeing the quality of accounting information is provided by a range of accounting, auditing services and, why not tax advice. Each service is performed by a professional in the field as follows: accounting service is provided by professional accounting, financial audit service by professional auditor and the advice service by the professional tax consultant<sup>1</sup>.

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## GUIDELINES OF THE ROMANIAN BANKING SYSTEM

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**Abstract:** *This paper/project/document aims to describe the action of the Romanian banking system during the past three years, period in which worldwide was felt the greatest effects of financial-economic crisis - after the years 1929-1933. In the context of that period the Romanian banking system was faced with the maintaining of financial stability and the adaptation of strategies to the new situation created as part of the European banking system, and the international one. At the same time, this paper aims to present possible future quantitative and qualitative guidelines of the Romanian banking system.*

**Key words:** credit institutions, banking system, financial stability, credit risk.

**JEL Classification:** G21, G32, G34

### 1. Introduction

Global economic and financial environment has changed its positive trajectory, beginning in the United States since August 2007. General context being one of the processes of economic and financial globalization, the phenomenon has picked up speed in the most unexpected areas of the world. In 2009, global GDP (Gross Domestic Product) has decreased significantly from -0.6% after 30 years of continuous economic growth since 1980. At European level, the contraction of the Gross Domestic Product was more than -4% in 2009. The most affected were the developed countries, then in basis of the contagion effect, the crisis consisted of most other countries. The least affected countries were emerging on the Asian continent which felt only reduction of the economic growth; these ones reported an economic growth at 5.7% for the second semester of 2009 (ECB – Annual Report 2009).

Negative features of global economic and financial processes were found for the starting with the financial sector which later have spilled over to the real economy sector. At the financial level, the first victims were the capital markets and then banking systems. In banking system, rational limit culminated with bankruptcy of Lehman Brothers Bank (September 2008) and with the acquisition of Merrill Lynch Bank (September 2008) by Bank of America. These events have intensified the degree of uncertainty, distrust and global risk. Official's reaction at the public level was one of rapid mobilization and adoption of measures capable of reducing as quickly as possible the risk. Thus, were taken unprecedented measures in economic history: international financial aid, strategic changes in the fiscal and monetary policies, and fast measures of stability and financial supervision. Practical was used the resuscitation of processes to come back as soon as possible to the positive trend of global economic growth.

Countries in Central and Eastern Europe have been primarily affected by the feeling of mistrust of foreign investors to this area, including Romania, considered high-risk areas. Thus, the effects for these countries have resulted in increasing external funding and dynamics of exchange rates of currencies against the currencies of reference. In Romania, the first effects of the current global crisis occurred only starting with the second half of 2008. Gross Domestic Product has deteriorated dramatically reaching an economic decline of -7.1% in 2009, compared with a 7.3% growth achieved in 2008. Romania achieved a continuous growth from 2001 to 2008 (NBR – Annual Report, 2009). However the Romanian financial system was characterized by stability and solidity,

especially with regard to the banking system. Romanian officials at public level didn't have to support with public money banking system functioning during the current economic and financial turbulence. Here it should be noted the role of central bank - National Bank of Romania - which has continuously adopted proactive policies which had positive effects in the newly position created worldwide.

## 2. Financial System Configuration

Romanian financial system is relatively simple configured, the bank system occupies the most important place. On second place is situated capital market reflected through the activity of the participants at the Bucharest Stock Exchange and RASDAQ market. Then comes the shares of the insurance, funds open by investments, private pension funds, but also the non-bank financial institutions, which all together have a low share of Romanian financial system. Since 2007, when Romania joined the European Union, the financial system has strengthened its position. Empirical data shows that in 2007-2009, the number of credit institutions, insurance companies, pension funds, investment companies has remained relatively constant. A growing number of institutions has been achieved in the category of insurance broker, and non-bank financial institutions registered in the register administered by the National Bank of Romania (Table 1).

**Table 1. The number of active financial institutions in Romania**

<b>Institution types</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>Credit institutions</b>	42	44	44
<b>Insurance companies</b>	24	34	25
<b>Insurance Brokers</b>	382	459	510
<b>Pension funds</b>	25	23	25
<b>Investment trusts</b>	50	71	52
<b>Financial investment companies</b>	5	5	5
<b>Financial investment companies</b>	71	71	64
<b>Non-bank financial institutions (general register)</b>	218	238	228
<b>Non-bank financial institutions (evidence register)</b>	4282	4513	4802

Source: NBR, Financial Stability Report 2007-2010

The importance of the financial system comes from its role of attracting the availability of resources from those who have surplus money and redistributing them to those who exhibit the application for such monetary resources, for consumption or investment. This role is reflected in fact in the process of financial intermediation. Regarding the domestic financial system in 2009, financial intermediation, measured as a share of GDP has increased, although in smaller proportion than in previous years (with only 4.1% in nominal terms, compared to 2008).

**Table 2: Structure of financial system based on accumulated net assets (percentage of GDP)**

<b>Institution types</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
<b>Credit institutions</b>	5	6	6

	0,6	1,0	2,4
<b>Insurance companies</b>	2 ,5	3 ,0	3 ,0
<b>Pension funds</b>	-	-	0 ,2
<b>Investment trusts</b>	0 ,3	0 ,3	0 ,2
<b>Financial investment companies</b>	2 ,3	2 ,8	1 ,2
<b>Non-bank Financial Institutions</b>	4 ,7	7 ,2	8 ,4
<b>Total</b>	6 0,4	7 4,3	7 5,5

Source: NBR, Financial Stability Report 2007-2010

The data in Table 2 reflects the fact that credit institutions along with non-banking financial institutions have the largest share of net assets acquired as a share of GDP. In 2009, the two categories of financial institutions have accumulated over 90% of net assets of the financial sector, in contrast with pension funds which have the lowest share in the system. However, pension funds prove to be the most dynamic in the degree of accumulation of financial assets, because these have the benefit of potential flows that they receive ongoing contributions of participants. Even if the Romanian financial system is dominated by the banking sector, future development guidelines can come back significantly also from the market and insurance companies and capital markets, less developed in comparison with many similar components from other European Union countries. As for the risks facing the Romanian financial system, we mention that it manifests the risk of uncertainty and the increased credit risk. The risk of uncertainty could be fired if will be seen strong effect of the depreciation of real assets as collateral and not only, if there will be massive withdrawals of funds, payments or taking some equity losses. Also the risk of uncertainty is generated by the methods of financial asset-liability management of the group in terms of achievement. In this respect, the domestic financial system it is somehow uncovered because it is characterized by high levels of resources made on short terms and the realization of medium and long term investments. Credit risk is manifested in the case of credit institutions (at a manageable level), and non-bank financial institutions (on a scale more pronounced since they have the largest consumer credit exposures) (NBR – Financial Stability Report, 2010). The emerging of the national economy into recession, lower external demand in Romania's trading partners, lower household incomes, rising unemployment, mistrust of financial market participants have created aught imbalances in the financial system and hence increased credit risk. In this sense the future orientations of policy makers to maintain the stability in relation to credit risk will consider improving the prudential regulatory framework for proper management of risks associated with public borrowing, discourage foreign currency credit to certain components, changing policies guarantee real estate loans based on collateral, and improving the database managed by the Central of Banking risks from the National Bank of Romania.

However, the Romanian financial system is stable and solid, supported by the current capitalization of the credit institutions (the significant component of the financial system) and that the overall liquidity of the system was maintained at comfortable levels.

### 3. The image of banking system

As shown in previous paragraphs, the banking system is the main component of domestic financial system, and at the same time, the main impetus for economic growth of Romania.

Throughout history, the Romanian banking system has experienced significant fluctuations regress and progress.

This has generated both positive and negative effects on the current situation. Year 1929 represented the highest level of banking activity in Romania. In that year, operated 1122 credit institutions, which characterized the Romanian banking system as a system comparable to other developed banking systems of developed countries. The manifestation of the global financial and economic crisis in the years 1929-1933, and then the crossing of Romania to the centralized economic system in 1945, had "destroyed" the banking system. For example, in 1941 only 275 credit institutions were still operating in Romania, while in 1948 only three credit institutions remain (National Bank, Credit Bank for Investment and Savings House) (Turliuc, 2008). The transition to a market economy in 1990, generated automatically the reform in the banking system. So, based on legislative changes, the banking system "re-borned" and began to develop gradually.

At the end of 2009, in Romania there were 42 credit institutions, ranking among the 21 European Union countries in terms of number of credit institutions (EU Banking structures, September 2010). From 42 credit institutions: 2 are state-owned credit institutions or majority state (CEC Bank and Eximbank), four are national institutions with majority private capital (Carpathian Commercial Bank, Transilvania Bank, Libra Bank and Feroviara Bank) , a credit cooperative organizations - CREDITCOOP (Central Cooperative Bank with a network of 17 agencies and 50 cooperative), 10 branches of foreign credit institutions, and 25 are branches of foreign banks and financial groups. Also, the single European banking license, notified the National Bank of Romania a number of 207 EU credit institutions wishing to engage directly in financial services in Romania (192 banks, three non-bank financial institutions, 12 institutions issuing electronic currency) (NBR – Annual Report, 2009).

**Table 3: Specific quantitative indicators of the banking system**

Type of institution	2005	2006	2007	2008	2009
<b>Credit institution</b>	40	39	42	43	42
<b>Number of units / bank branches</b>	3,53 3	4,47 0	6,34 0	7,37 5	6,42 5
<b>Number of bank employees</b>	52,4 52	58,5 36	66,0 38	71,6 22	67,8 98
<b>Total banking assets (mln lei)</b>	128, 089.6	127, 297.1	250, 782.8	314, 441.5	330, 183.5
<b>Equity capital / endowment (mln lei)</b>	7,36 5.9	9,44 4.7	11,1 24.3	13,3 09.8	14,3 85.4
<b>Non-government credit (mln lei)</b>	59,8 03.3	92,9 24.3	148, 180.7	198, 055.7	199, 887.1
<b>Nominal GDP (mln lei)</b>	288, 954.6	344, 650.6	416, 006.8	514, 700.0	498, 007.5
<b>Real GDP(%)</b>	4,2	7,9	6,3	7,3	-7,1
<b>The degree of bank concentration (%)</b>	59,4	60,1	56,3	54,0	52,4
<b>The degree of financial intermediation (%) (Bank assets / GDP)</b>	44,3	50,5	60,4	61,8	67,2
<b>Indicator of capital adequacy</b>	21,1	18,1	13,7 8	13,7 6	14,6 7
<b>Credit risk ratio</b>	2,6	2,8	3,76	5,95	13,5 3
<b>Liquidity Indicator</b>	2,6	2,3	2,13	2,47	1,38
<b>ROA</b>	1,6	1,3	1,01	1,56	0,25
<b>ROE</b>	12,7	10,3	9,43	17,0 4	2,89

Source: NBR: Annual Reports 2005-2009, monthly newsletters from 2010 to 2011.

Data presented in table 3 presents the current banking system as a stable and solid one. In this respect we notice a good capitalization, an indicator of capital adequacy higher than the regulatory minimum (8% - the EU, and 10% - under the financial agreement signed with International Monetary Fund, European Union, World Bank and European Bank for Reconstruction and Development, 2009), and an indicator of liquidity than the minimum required level of 1%. These data reflect the fact that the financial crisis did not affect the major activity of banks in Romania. Indeed, thanks to its solid structure in recent years, the banking system did not require public financial support to withstand the crisis, as happened in other European countries (eg. Greece - 110 billion euro, Ireland - 85 billion euro , etc.) or on other continents (particularly the U.S.).

Factors that have contributed positively to the soundness of the banking turmoil in global financial situation were:

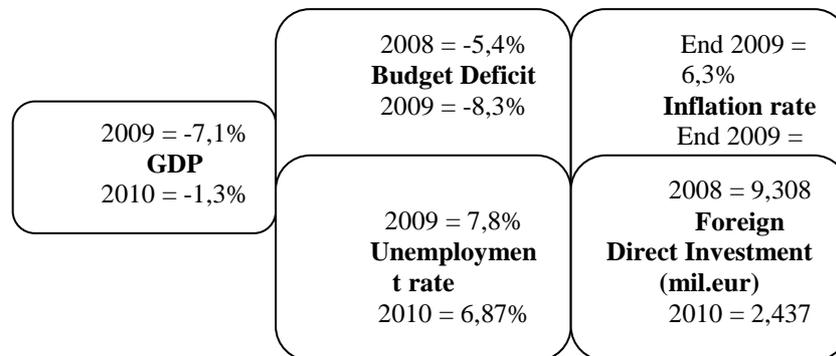
- Prudent activity of the central bank has acted proactively in adopting regulations relating to financial stability and prudential supervision of default of credit and non-bank financial institutions (made agreements and memoranda of stability with national authorities - CNVM, CSA, CSSPP, with authorities home country supervision of credit institutions with majority foreign private capital, with European specialized supervisors, etc.);

- Prudent activity of the central bank, which ended in 2009, nine agreements with foreign credit institutions that have the biggest exposure in Romania, to increase the share capital of subsidiaries in Romania to support their solvency and liquidity;

- Prudent activity of the central bank to use monetary policy tools to adjust the optimal level of liquidity in the market;
- Capital consolidation activity at the individual level, from each credit institution, by the contribution of their shareholders;
- Refocusing on attracting more intense internal resources for financing - funds from residents (individuals and legal entities);
- Attracting resources from the banks subordinated - parent home;
- Guideline credit institutions to increase exposure to the state, by purchasing securities with low risk;
- Increase provisions to cover specific risks, particularly credit risk;
- Conversion of part of bank profits achieved in 2008, in the legal reserve;
- Almost all traditional activity of credit institutions in Romania, promoting traditional banking products and services;
- Change the lending policies of credit institutions, by adopting restrictive strategies;
- Access to financial aid for nearly 19.95 billion euro from the Romanian government to the International Monetary Fund, European Union, World Bank and European Bank for Reconstruction and Development, in 2009. The objective of the agreement was the financial fiscal deficit, and the transmission of greater credibility of economic and financial policies, both internally and externally;

Factors that negatively influenced the soundness of the financial turmoil in the banking system was the non-correlation of the monetary policy with the macroeconomic policy mix pursued by the government, especially fiscal policy, which proved unsustainable and a pro-cyclical. On the other hand, the crisis situation greatly affected the real economy and social indicators. Here we note that income policy became restrictive and correlated with fiscal policy, which has negatively affected the population in aggregate demand for consumption and investment mortgages.

**Figure 1: Specific indicators economy**



Source: NBR: Monthly Bulletins 2010-2011.

At the same time, due to blockage of flow of trade and services, internally and externally, many companies have entered into an inability to continue activity, thus contributing to increased unemployment. In parallel, the uncertainty, banks have restricted access to finance for firms, promoting more prudent lending policies and restrictive (in the short or medium term and long term). Also, foreign investors with risk aversion towards emerging markets have seen in a negative way the situation in Romania, as evidenced by the reduction of direct foreign investments made in our country.

However, the Romanian banks were able to better manage its liquidity and capital adequacy to cover specific risks. This was confirmed by positive results of stress tests applied by the NBR on the banking sector on a regular basis.

#### 4. Guidelines of the banking system

In our opinion, the Romanian banking system will continue to be characterized by stability and solidity, at least in the short and medium term. Given that there will not be major changes,

negative; of internal and external economy in acting, specific quantitative indicators of the banking system will be appreciated gradually. It also it can be seen an increase in banking market competition due to liberalization of services and free entry to EU credit institutions on the domestic banking market (Dănilă, 2010). Thus, the banking sector will focus on reducing the concentration bank for the benefit of bank customers. Banks will increasingly focus on building market share by more careful approach to the qualitative aspects of lending in order to reduce credit risk, or at least maintain it at levels significantly lower risk.

Meanwhile, National Bank of Romania will continue to:

- play the role of "bank of banks" in all respects, especially in continuous alignment of the regulatory framework at the international and regional requirements, regularly adopted in the current context.
- working closely with foreign credit institutions that controls subsidiaries in Romania, to monitor the potential risks of contagion on the financial and banking activities of these groups can induce, indirectly, in the Romanian banking system.
- a correlation as high as possible degree of monetary and credit policy with economic policy promoted by the central government.
- supporting the financial integration of the Romanian banking system in the European banking system. In that regard, we note that during the financial turmoil relatively low degree of financial integration of the Romanian banks away from the negative effects of major tradable financial crisis.

## 5. Conclusions

The period ahead will be challenging for participants in the financial systems in terms of strategies to stimulate growth, sustainable development and strengthening the base. In the scientific world economic even put emphasis on changing attitudes and mindsets on these issues. Some economic scientist (Dinu, 2010) consider that the current economic rescue or support of financial systems are just the same measures / tools / methods used in the past, but of greater intensity to stimulate the rapid revival of the systems.

In these conditions the positive effects are short term or medium term at most. The recommendations made by them, come to support the idea of changing economic paradigms and theories underlying the functioning of financial systems, and not only to generate long term positive effects. If it is understood the necessity and usefulness of new ideas we will certainly see a reconfiguration and rethinking of the principles of action in international and regional financial area.

In this context, the Romanian banking system will be positioned in a situation to adopt new principles, and to witness a sustainable development, generating pulses to induce growth in Romania. Until now, the nature and direction of action of banks in Romania have demonstrated their ability to stimulate growth, even in periods of economic crisis, thanks to more endogenous factors of the system. Its role to stimulate economic growth, could be much higher if, in parallel, the Romanian government would mix of macroeconomic policies that converge with the financial and banking policies promoted.

Future trends of the banking system in Romania can be outlined only in conditions of uncertainty. If they would show the same economic climate of the last three years, we say with certainty that we have a viable banking system, with a high risk capital adequacy, liquidity management with a good, prudent and sound financial discipline that will further develop both quantitative (increasing the number of credit institutions, banking asset growth, development of regional networks, developing alternative distribution channels to promote products and services, etc.) and qualitative (improving credit policies based on sustainable, creating new banking products and services, increased bank-client relationship, etc.) Romanian Banking System. But since we live in a world where economic and financial processes are amplified exponentially, we can't say with certainty that all these will become true.

### **Acknowledgement**

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## THEORETICAL APPROACHES ON PUBLIC REVENUES' INDICATORS

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**Abstract:** *Public revenues attract the attention of many researchers for making international comparisons on a theoretical or empirical perspective. The first question is related to the comparability of various governmental statistical data on government revenues. Can be provided some revenues indicators as valid and reliable tools for international measurements? This paper aims to highlight some conceptual issues concerning the construction of public revenues' indicators and their defining features. The paper also contains a summary of indicators of public revenues provided by official databases worldwide.*

**Keywords:** public revenues' indicators, ax revenues, international financial database, international comparability of public revenues

**JEL Classification:** H 71, H 27

### 1. Introduction

When one or more aspects of an economic context is deteriorating, then the entire national economy incurs a shock. This shock dimensions should be correctly perceived to anticipate some different financial consequences in the near future. For the analysis of macroeconomic and financial evolution are used a series of indicators such as real gross domestic product growth, inflation, government budget balance as a percent of GDP, M2 monetary aggregate growth, public debt to GDP, the rate of taxation.

To develop a set of synthetic indicators is a complex statistical process, and of great responsibility. Calculations must be based on accurate, orderly and systematic primary data to obtain a system of macroeconomic aggregates. Often, the figures for economic development can be manipulated to prove anything. Public revenues attract the attention of many researchers for making international comparisons on a theoretical or empirical perspective. The first question is related to the comparability of various governmental statistical data on government revenues. Can be provided some revenues indicators as valid and reliable tools for international measurements?

This paper aims to highlight some conceptual issues concerning the construction of public revenues' indicators and their defining features. The paper also contains a summary of indicators of public revenues provided by official databases worldwide. The paper is structured on three main parts. The paper begins with a brief introduction to the topic, continues with the framing of public revenues' indicators in the category of economic indicators. The first part focuses on the most important requirements to be met in the conceptualization of international comparative analysis of public revenues' indicators. This part also includes a brief overview of indicators of level, structure and dynamics that can be computed in the field of public revenues. The second part of the paper consists in a list of public revenues' instruments available to those interested in provided by international entities, such as International Monetary Fund, World Bank, OECD, EUROSTAT, ICMA, FALR etc. The last part of the work materializes in a descriptive, schematical and structural analysis of public revenues in the EU-27.

### 2. Revenues' indicators as component of economic indicators

Improving revenue performance is an important objective of public sector reform in many developing countries. However, while the options and reform priorities for tax policy reform often

are clear and the necessary process to prepare changes in tax legislation is pre-determined, the development of a tax administration reform strategy often involves overcoming various serious bottlenecks simultaneously without a clear indication of priorities and limits.

For assessing the effectiveness of government management is necessary to adopt a set of economic and financial indicators. These are used to check how the objectives of financial policy are implemented and to analyse the access to credit and other funding sources nationwide. Economic and financial indicators are part of performance measurement system. Public administration indicators fall into three categories: indicators of revenues, indicators of spending and performance indicators.

The economic indicators system includes in a summary form: indicators of economic potential, indicators of results obtained in the national economy through the use of economic potential, indicators of efficiency, indicators of living standards, indicators of the degree of participation to international values circuit, monetary and financial indicators. (I. Capan, P. Wagner, Secareanu C., 1997, p. 14) Between financial and monetary indicators can be found the public budget indicators, namely indicators of budgetary revenues and spending indicators.

In literature, have been given many definitions to indicators. An indicator is a measurable information, an indicator is a key figure that contains information related to an event. The indicators fall into two categories. *Performance indicators* aimed at achieving a particular goal and, in turn, may be: socio-economic indicators of efficiency, quality indicators, indicators of efficiency. *Output indicators* are related to the analysis of activities and expected results. (Camp Basil, 2006, p. 65-66) Indicators of public revenues can be classified as outcome indicators.

Usually, a revenues indicator is pro-cyclic indicator because it moves in the direction of the economic movement (or cycle) of a country. This means that the movement of the revenue indicators is directly proportional to the trend of economic performance. If economies show a growing trend, the value of the pro-cyclic revenues indicators also increase.

An economic indicator should have a range of features including: **accuracy** (depends on the data collection and their collection, for example a questionnaire results and statistical reporting requirements), **actuality** (if the indicators is faster calculated and more used in analysis, then it is more important), **cyclecity** (refers to the time the indicator is released), **predictability** (few indicators are able to anticipate developments in a particular sector) and **the degree of interest** (it refers to the interest of the user to this indicator). (Bernard Baumohl, 2008, p. 11)

For establishing any indicator of the public revenues analysis should be met a number of **requirements**, as follows. An indicator should capture the essence of the problem and can be clearly expressed in legal terms. An indicator of public revenues must be expressed and statistically validated. A public revenues' indicator should measure the effects of government revenue policy. An indicator must be measured in several countries, so that the standards should be internationally applied. An indicator of revenues should be timely and may be subject to review when necessary. The measurement of revenues' indicators should not be difficult for different states or organizations. The portfolio public revenues; indicators must be balanced in terms of their different sizes. Indicators should be correlated with each other in terms of importance within a portfolio. Portfolio of indicators should be transparent and accessible to citizens. (Androniceanu Armenia, Oana Abalos, 2004, p. 28)

The most indicators of government revenues are built as reports of two variables standardized, leading to the following questions:

1. **"Counter"** - what kind of income we need to calculate the indicator? Should it be determined taking into account all government revenues or only a certain type of income or a combination thereof? (E.g. the public revenues including or excluding social contributions, tax revenues or non-tax revenues, revenues from direct taxes or revenues from indirect taxes etc.)

2. **"Denominator"** – revenues can be measured of what? For international studies have revenues to be denominated in U.S. dollars?

3. **How should be defined the case studies that we achieve?** While world governments collect public revenues in local currency, they do not have international comparability. So, for a

comparative analysis is essential to standardize them: either it should be denominated in dollars or in constant prices to the same base year. Also, it should be taken into account population size and the degree of development of countries under comparison, because it has no relevance to compare the level of public revenues in Germany with those in Burkina Faso.

In studies on international taxation it is usually opt for one of the following strategies: countries may report their income as a percentage of national income, states may report different government revenues as a percentage of total government revenues or total tax revenues, states report revenues as collected in their own currency and they use contextual interpretation of statistical data. (Evan Lieberman, 2002, p. 106) To assess the level, structure and dynamics of public revenues are used a series of statistical indicators. These provide an integrated view on financial resources of the state and guide the policy of public authorities in this field.

**Table 1: Public revenues' indicators**

<b>Indicator</b>	<b>Explication</b>
1. The volume of public revenues	Represents all government revenues.
Nominal public revenue	All government revenues expressed in current prices of year.
Real public revenues	All government revenues expressed in constant prices of a base period.
2. The share of public revenues in GDP	It expresses the gross domestic product a year to be allocated to meet public needs of society.
3. The average per capita public revenues	It expresses the amount resulted from the distribution of resources in the economy of each inhabitant.
4. The share of each category of revenue in total government revenue	It expresses the formation of total government revenue by source of origin of each category of revenue.
5. The absolute change in government revenue (nominal and real)	It expresses the amount by which the volume of public revenues changes from one period to another.
6. Relative change in government revenue (nominal and real)	It expresses the percentage with that the government revenue varies from one period to another.
3. The change in public revenue ratio to GDP	It expresses the change of GDP allocation to cover local needs.
4. The change in per capita revenues	It expresses the degree of change in allocation of public revenue per capita.
5. The change in the structure of public revenues	It express the mutations that occur in the income categories that make up total government revenue.
6. The indicator on the correlation between public revenues change and GDP change	It may take the following values: $k > 1$ , which means a quick change of government revenue than GDP change; $k = 1$ , which means a change with the same amount of government revenue and GDP; $k < 1$ , signifying a change in government revenue less GDP change.
7. Elasticity of public revenues to GDP	It expresses the percentage of change in government revenues by 1% change in GDP. The coefficient of elasticity and the correlation indicator must be located in the same part as compared to 1.

Source: Moşteanu Tatiana, 2008, p. 148-149

Analysis of public revenues is performed at different levels of administrative organization: federal, state, local. But attention must be paid to the unit of analysis, namely to the structure that represents the "state". First, we should know what includes the concept of state: the central authorities or the whole public sector, includes local authorities or not? Because in many countries local authorities have the right to impose taxes and collect them. Another challenge that brings the analysis of public revenues is related to how to choose the countries and time periods under comparison in a specific frame and by a single indicator. This can not be achieved without taking into account the degree of economic development of analyzed countries. Evolution of economic phenomena is characterized by what is common to them, i.e. the average revenues.

The following indicators can be determined for public revenues:

*i. Degree of public administration self-financing* is the coverage degree of total government expenditures by own revenues (tax and non-tax revenues). This indicator is influenced by the government's ability to generate their own income, the tax law and the share of transfers from the state budget.

*ii. The level of revenue collection* is the rapport between collected revenues in a certain period of time and the revenues expected to be collected and stated in the budget. When the value of this indicator tends to 100% we can estimate that the collection of own revenue is optimal. This indicator is influenced by tax base, by the procedures for identifying, establishing, tracking and collecting revenues, by the legislative instability, by the economic development, by the ability of taxpayers to fulfill their payment obligations. (Camp Basil, 2006, p. 70) It is an indicator used in the analysis of budget execution. This indicator may reflect an oversize of revenues program, low concern of authorities to collect revenues, a decrease of taxpayers' power to pay its obligations to the state.

*iii. The dependence of the local budget on the state budget* is measured as a ratio between the amounts received from the state budget and total revenues of local government. It reflects the dependence of territorial administrative units from the state budget. (Camp Basil, 2006, p. 70) In Romania in the category of revenues from the state budget are included amounts deducted from income tax and VAT, amounts to balance local budgets, transfers and subsidies.

To achieve more complex and multilateral tasks, the state uses public revenue system as an economic lever. The collection of financial resources at the central level, principles and forms of mobilization and use of these financial resources are subject to a number of factors. These factors determine the relation between private and public sector in the allocation of gross domestic product at each stage of national economic development. Revenues determine the capacity of a government to provide services. Important issues to consider in revenue analysis are growth, flexibility, elasticity, dependability, diversity, and administration. Under ideal conditions, revenues would be growing at a rate equal to or greater than the combined effects of inflation and expenditures. They would be sufficiently flexible (free from spending restrictions) to allow adjustments to changing conditions. (Groves and Valente, 1994, p.21) They would be balanced between elastic and inelastic in relation to inflation and the economic base.

### 3. Public revenues' indicators databases

Much of the revenues data cannot be found in regular financial statements. If the data can be found, often they are not presently organized in the correct format to calculate the indicators. Annually statistical data are provided globally by different international organizations and world governments, particularly through "Finance Statistics Yearbook" published by the International Monetary Fund, "World Development Report" and "World Development Indicators" of the World Bank, but and through a series of OECD publications, either printed or electronically. Starting from these primary indicators may be obtained a series of additional indicators by simple mathematical manipulation or combination with other economic or social indicators. So, the area of indicators for measuring public revenues, especially tax revenues, becomes rich. (Evan Lieberman, 2002, p. 95)

We always should have in mind a question: how credible are the government statistics, especially those coming from poorer countries.

An overview of different public revenues measurements will be presented below, these indicators can be found in international databases.

#### **a. International Monetary Fund**

The World Economic Outlook (WEO) presents the IMF staff's analysis and projections of economic developments at the global level, in major country groups and in many individual countries. It focuses on two public revenues' indicators: *general government revenue in national currency* and *general government revenue as percent of GDP*. All transactions that increase the net worth of the general government sector are classified as revenue in IMF perspective. Governments receive three major types of revenue from their fiscal operations: taxes, social contributions, and other revenue. For many governments, the revenue from these sources is supplemented by grants. (GFSM, 2001, p. 39) These data sets are offered for 182 countries during 1980-2010 by the website <http://www.imf.org/>.

The International Monetary Fund's *Government Finance Statistics* (GFS) is the best source for cross-country analysis of fiscal flows. It provides data with consistent definitions across countries and years. GFS series cover 18 annual, country-level indicators of fiscal decentralization. These indicators are based on central consolidated figures and the aggregated sub-national series (state-provincial and local). GFS revenues can be divided into the follow categories: tax and non-tax revenue, intergovernmental transfers and other grants.

A decentralization context supposes asking how much autonomy do sub-national governments have in raising revenues? How much is collected through common taxes versus locally determined taxes? Common taxes appear as sub-national revenue, although the sub-national government has no autonomy in determining the revenue base or rate. The list of public revenues' indicators of fiscal decentralization are: 1. *sub-national grants* as % of sub-national revenues (grants received from the national government); 2. *sub-national tax revenue* as % of sub-national revenues; 3. *sub-national nontax revenue* as % of sub-national revenues; 4. *sub-national own-source revenues as % of GDP*; 5. *sub-national own-source revenues* as % of total own-source revenues; 6. *sub-national tax revenues* as % of total tax revenues; 7. *sub-national property tax* as % of GDP; 8. *per capita sub-national revenues* (USD). Sub-national revenues include current revenues (tax and nontax), capital revenues and grants.

A special public revenues' indicator for determination of fiscal decentralization is vertical imbalance. Vertical imbalance is the degree to which sub-national governments rely on central government revenues to support their expenditures. Vertical imbalance can be measured by intergovernmental transfers as a share of sub-national expenditures. This measure does not distinguish what proportion of transfers is conditional versus general purpose. It is calculated as the total amount of grants paid to sub-national governments, divided by the sum of local and provincial total expenditure, excluding current and capital transfers to other levels of government.

#### **b. World Bank**

What do the world's governments to improve living standards of citizens and their access to basic services such as health, education, water, electricity, transport was an attraction for analysis and research. Thus, the World Bank annually publishes a internationally summary statistics, called World Development Indicators (<http://data.worldbank.org/>), that includes over 420 indicators for 200 countries for the period 1960-2009, which evaluates the performance of economic management, of structural policies, of public sector management etc.

Of these 420 indicators we focus on those indicators related to our research topic, namely the economic indicators with implications on taxation and government revenues. Thus, between the economic indicators published by the World Bank, we have the next public revenues' indicators: 1. *revenue, excluding grants* (current LCU and % of GDP); 2. *tax revenue* (current LCU and % of GDP); 3. *grants and other revenue* (current LCU and % of revenue); 4. *taxes on income, profits and capital gains* (current LCU and % of total taxes, % of revenue); 5. *social contributions* (current LCU and % of revenue); 6. *taxes on international trade* (current LCU and % of revenue); 7.

*customs and other import duties* (current LCU and % of tax revenue); 8. *taxes on exports* (current LCU and % of tax revenue); 9. *other taxes* (current LCU and % of revenue); 10. *interest payments as % of GDP*, 11. *highest marginal tax rate, corporate rate* (%); 12. *highest marginal tax rate, individual rate* (%); 13. *average number of times firms spent meetings with tax officials*; 14. *time to prepare and pay taxes* (hours); 15. *total tax rate as % of profit*; 16. *net taxes on products* (current US\$, current LCU, constant ).

#### c. Eurostat

Data are collected by Eurostat on the basis of the European System of Accounts (ESA 95) transmission programme. Main revenue items of the general government sector are notified by national authorities.

Eurostat public revenues' data are: 1. *total general government revenue* as % of GDP; 2. *taxes on production and imports* as % of GDP; 3. *current taxes on income, wealth, etc.* as % of GDP; 4. *social contributions* as % of GDP; 5. *implicit tax rate on labour* - Ratio of taxes and social security contributions on employed labour income to total compensation of employees; 6. *environmental and labour taxes* as % of total tax revenues; 7. *total taxes* (including and excluding SSC, as % of GDP and as % of total taxation); 8. *indirect taxes* (as % of GDP and as % of total taxation, VAT, excise duties and consumption taxes, other taxes on products); 9. *direct taxes* (as % of GDP, as % of total taxation, personal income taxes, corporate income tax); 10. *other social contributions* (as % of GDP, as % of total taxation, employers, employees, self-employed); 11. *taxes received by administrative level* (as % of GDP, as % of total taxation, central government, state government, local government, social security funds EU Institutions); 12. *taxes on consumption* (as % of GDP, as % of total taxation), 13. *taxes on labour* (as % of GDP, as % of total taxation); 14. *taxes on capital* (as % of GDP, as % of total taxation, capital and business income, income of corporations, income of households, income of self-employed, stocks of capital / wealth); 15. *environmental taxes* as % of GDP; 16. *energy taxes* as % of GDP. (European Commission, Taxation trends, 2010)

Data are presented in millions of Euro, millions of national currency units, Euro per inhabitant and percentages of GDP. Geographic coverage is EU and euro area, Norway, Switzerland and Iceland. The legal requirement is that all series should start in 1995, subject to country derogations. However, in practice the length of the series available varies widely from one country to another, usually 1998-2009 (<http://ec.europa.eu/eurostat>). General government sector includes all institutional units which are other non-market producers whose output is intended for individual and collective consumption, and mainly financed by compulsory payments made by units belonging to other sectors, and/or all institutional units principally engaged in the redistribution of national income and wealth.

#### d. OECD

OECD database is found at <http://stats.oecd.org/> and provide the following information on Member States public revenues: 1. *tax revenues* in national currency and in USD, 2. *tax revenues as percentage of GDP*, 3. *tax revenues by sector* as percentage of total taxation, 4. *tax revenues by country as percentage of OECD total*, 5. *tax revenues per capita* and 6. *growth rate of tax revenues*. The data provided by the international organization can be accessed for the period 1965 - 2009 for the 33 OECD member states at central government level, state government level, local government level and for social funds. Besides this indicators, OECD database offers two other indicators for the period 1998-2009 for the European community countries, namely VAT own resources of the European communities, customs duties collected on behalf of the EU.

#### e. Other sources

**The International City/County Management Association (ICMA)** developed a set of 36 indicators (Groves and Godsey-Valente, 1994) for evaluating the financial condition of cities and counties. These indicators are collectively known as the Financial Trend Monitoring System (FTMS) covering aspects as revenues, expenditures, operating position and debt structure. (Honadle Walter B., Costa J., Cigler B. A., 2004, p. 161) ICMA revenues indicators are: 1. *revenues per capita* (net operating revenues constant dollars/population), 2. *restricted revenues* (restricted

operating revenues/net operating revenues); 3. *intergovernmental revenues* (intergovernmental operating revenues/gross operating revenues); 4. *elastic tax revenues* (elastic operating revenues/net operating revenues); 5. *one time revenues* (one time operating revenues/net operating revenues); 6. *property tax revenues* (constant dollars); 7. *uncollected property taxes* (uncollected property taxes/net property tax levy); 8. *user charge coverage* (revenues from fees and user charges/expenditures for related services); 9. *revenues shortfalls* (revenues shortfalls/net operating revenues).

**Federation of Local Authorities in Romania**, with financial support from the World Bank Institute, has developed a base of financial indicators. The idea was to ensure transparency in local government and become a useful tool for local authorities in developing local policies. Revenues' indicators are indicators that reflect the ability to generate revenues, they show an adequate level of revenues and the extent to which local government has control over the local revenue. The indicators presented in this database are grouped into four categories relevant to assessing financial performance. The first four indicators refer to sources which fall under the control of local authorities and / or derived from local economic activity. The following indicators in this category refers to sources on which the authority exercising less control. If the percentage of the first three indicators is higher, then the degree of financial autonomy is better and the financial situation of a public local authority is better too.

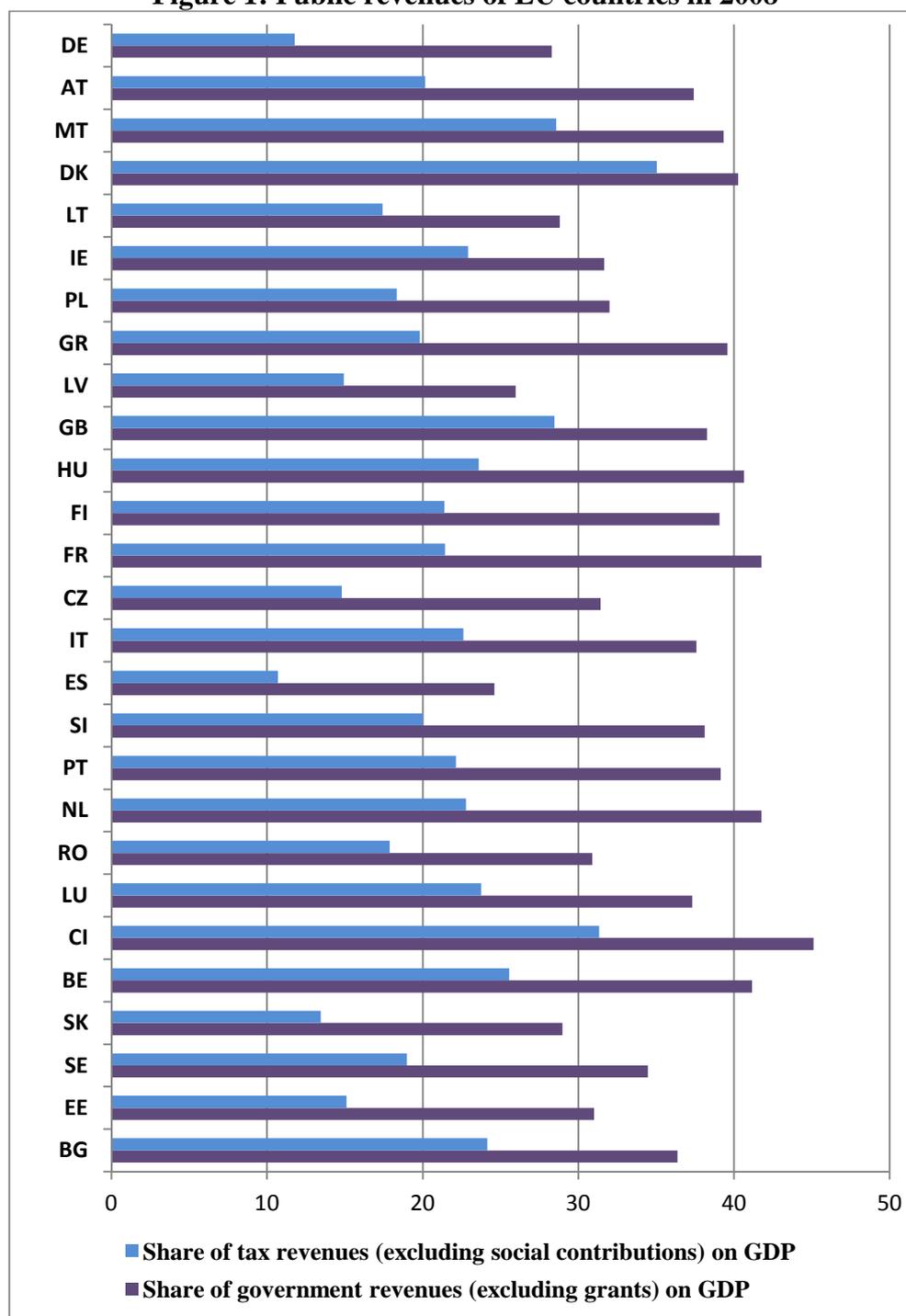
FALR database (<http://www.bidf.ro/index.php>) contains the following indicators of public revenues: 1. property tax revenues (LCU, per capita, % of total revenues), 2. own tax revenues (LCU, per capita, % of total revenues), 3. own current revenues (tax and non-tax LCU, per capita,% of total revenues), 4. total current revenues (LCU, per capita, % of total revenues, this indicator contains its full current revenues and amounts deducted from the income taxes), 5. operating revenues (LCU, per capita, % of total revenues, operating revenues accumulates in addition to current revenues amounts of public money that are used to balance local budgets and / or to subsidize certain activities); 6. revenues for investments (LCU, per capita,% of total revenues), 7. total income per capita, 8. the degree of own tax revenues collection, 9. the local taxation rate is the ratio between the actual level (percentage or absolute value) and the maximum allowed by law for that year. The level of local taxation is a particularly important indicator because it reflects a local government's own efforts to get resources and also shows the flexibility available at a time. These indicators allow very useful comparisons between local administrations of the same type or size.

#### 4. EU-27 descriptive analyses based on World Bank revenues' indicators series

According to World Bank database the EU-27 member states annually collect to budgets public revenue representing between 25-45% of GDP, with an average of about 35% of GDP. Compulsory levies have a share of between 50-70% of government revenue, about 15-25% of GDP. Discrepancies exist among EU countries, for example in countries like Cyprus, France, Belgium, the Netherlands government revenue in 2008 exceeded 40% of GDP, while in countries such as Estonia, Latvia, Germany they stood at below 30% of GDP. Among the countries that get over 70% of their revenues from tax revenue and the highest share of tax revenue to GDP, are Denmark (35% in 2008), Cyprus (31% in 2008), Malta and Ireland. At the opposite extreme is found Estonia, Slovakia, Germany and the Czech Republic, countries where tax revenues accounted for 10-14% of GDP in 2008.

From a structural point of view, the EU Member States are divided into two categories: those in Western and Northern Europe where the revenues are based on direct taxation of incomes and profit (Italy, United Kingdom, Denmark, Estonia, Belgium, etc.) and the countries of Central and Eastern Europe, where the revenues are based on indirect taxation (Greece, Bulgaria, Romania, Latvia, Poland, Slovakia, etc.).

**Figure 1: Public revenues of EU countries in 2008**



European Union Member States differs from the other countries of the world by the importance of social insurance budgets. Social security share of total public revenues range between 20-40% in 2008 (Austria 40%, Spain 52%, France 43%, Italy 36%, Czech Republic 45%). Within the EU-27 countries there are two extremes, namely Germany and Denmark. In Germany the government revenues accounted for 28% of GDP in 2008, predominantly are social contributions, they accounted for 55% of GDP. Tax revenues from income and profit tax represent 18% of total public revenues. In Denmark, the situation is reversed. Danish welfare system is financed by tax revenues paid by individuals and legal entities with a share of 84% of revenues collected in 2008, while social security contributions had a tiny share of 3 % of total public revenues.

The average number of payments of tax obligations made by the European community taxpayers range from two payments per year in Germany to the other extreme of 113 payments per year in Romania, according to data published by the World Bank, *Doing Business* in June 2009. The same study shows that Bulgarians and Czechs spend over 600 hours a year to solve problems about their tax responsibilities and Luxembourgs, Estonians and the Irish consume less than 100 hours per year for the same activities.

A brief descriptive analysis of indicators, based on recent economic indicators published by the World Bank in 2010, shows that among states with the lowest share of government revenue in GDP in 2008 are included: Afghanistan 7.6%, Bangladesh 11%, Guatemala 11.9%, Nepal 12.3%, 13.3% Uganda, Burkina Faso, India, etc. Unlike these, Lesotho collects as public revenues at the central level, in 2008, 65.3% of the value produced within its borders, followed by Norway 51.3%, Kuwait 47.4%, 47.2% Algeria, Cyprus 45.1% , Maldives 44.4% and France 41.8%. Poor countries of the world fall into certain patterns, namely they have collected in 2008 about 10-20% of the GDP of each country as public revenues, and 85-97% of these public revenues are due to tax revenues, excluding social contributions. As compared to developed countries of the world it can be observed a very low share, or no share, of social insurance system revenues in government revenues of these countries. Countries with a low level of development have a tax system which relies on indirect taxation, they held shares exceeding 35% of central government revenues.

## 5. Conclusions

Government revenue indicators are tools of financial analysis of complex process. Analysis of government revenue is in turn a key element in financial management of a public administration. The most important aspect of an analysis in the field of public revenue is to determine the predictability of earnings. Predictability of revenue is essential in analyzing the financial solvency, so the predictability of the various sources of revenues is highly needed and should be done rigorously.

Annual statistical data on any kind of government revenue are offered globally by various international organizations and world governments, particularly through "Finance Statistics Yearbook" published by the International Monetary Fund, "World Development Report" and "World Development Indicators" of World Bank, and a series of publications by the OECD, Eurostat, either listed or in electronic format. If the structure of revenues from public budgets is considered as primary indicator then can be obtained a series of additional indicators by simple mathematical manipulation or combination with other economic or social indicators. Through this mathematical manipulation indicators of public revenues diversify and expand. Usually, countries report their public revenues to different supranational structures as a percentage of GDP, various government revenues as a percentage of their total government revenues or total tax revenues. Reports are made in national currency and the values of government revenue indicators are interpreted contextually. So for an international comparability it is essential to standardize them.

When we intend to build an indicator of revenue should keep in mind a series of requirements such as: a. neutrality and creditability of revenues indicator; b. analysis under uncertainty with lack of data; c. integration between qualitative analysis and quantitative analysis; d. accessibility and usability of indicator values; e. priority selection of revenues indicators; f. objective vs. subjective measurement techniques.

Definition, computation and analysis of government revenues' indicators are necessary for the following reasons: revenues analyses may help governments to better serve citizens and business, they support policy makers to deliver on government priorities, provide comparative data on governance capacity and government performance, help public authorities to better understand their own practices and to demonstrate their progress, revenues analyses allow to benchmark one country achievements through international comparisons, these kinds of analyses lead to learning from the experiences of other countries facing similar challenges. We must always keep in mind that, often, the figures can be manipulated to prove anything and to doubt the quality and relevance to government statistics.

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## CONSEQUENCES OF THE FLOATING EXCHANGE RATE REGIME ARRANGEMENTS ON MONETARY POLICY AUTONOMY: THE CASE OF ROMANIA<sup>2</sup>

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**Abstract:** *This paper examines the degree of monetary policy autonomy of National Bank of Romania (NBR) after adopting a managed floating exchange rate regime on August 2005. We analyze which are the consequences of the euro interest rate movements over the interest rate on the Romanian money market. Under the hypothesis of an open capital market, we adopted in our approach a methodology derived from the one used by Obstfeld et al. (2005). Our results indicate that although the exchange rate regime in Romania is a float, the monetary policy of the NBR is relatively dependent on the ECB policy.*

**Key words:** monetary policy autonomy, floating exchange rate regime, interest rate, Romania

**JEL classification:** E42, E52

### 1. Introduction

According to the traditional arguments, under pegged exchange rates and unrestricted capital flows, domestic interest rates cannot be set independently, but rather must track closely those prevailing in the country to which the domestic currency is pegged. By contrast, under a flexible exchange rate arrangement, the domestic interest rate should be less sensitive to changes in international interest rates – other things equal (Frankel et al., 2004).

The goal of this paper is to examine the degree of monetary policy autonomy of National Bank of Romania (NBR) after adopting a managed floating exchange rate regime on August 2005. In this paper, we will analyze which (if any) are the consequences of the euro interest rate movements over the interest rate on the Romanian money market. Under the hypothesis of an open capital market, we adopted in our approach a methodology derived from the one used by Obstfeld, et al (2005).

The originality of this paper consists in applying this methodology on the Romanian case between 2005 and 2010. In this period, Romania changed its monetary regime (inflation targeting), adhered to European Union and passed through a period of recession due to the international financial crises (2008-2010).

### 2. Literature Review

There is a large literature that examines the degree of monetary autonomy of central banks in the context of liberalization of capital markets and a floating exchange rate regime. There are many empirical regional and single country studies that assess this topic.

Hausmann et al. (1999), who were among the first to study this issue, studying exchange rate regimes in Latin America, discovered that flexible exchange rate regimes did not permit more stabilizing monetary policy and that pro-cyclical monetary measures were actually supported by flexible exchange rate regimes. Frankel (1998) concludes that countries having floating or intermediate regimes (i.e., Mexico after 1994 and Brazil before mid-1998), exhibit much higher

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interest rate responses than countries with less flexible exchange rate regimes (i.e. Argentina, Hong Kong or Panama). Borensztein, Zettlemeyer, and Philippon (2001) focusing on some countries with currency boards or floating regimes (such as those in Argentina, Mexico, Hong Kong, and Singapore), found some evidence consistent with the traditional view.

Bluedorn and Bowdler compare international interest rate responses under pegged and non-pegged regimes to identified, unanticipated, and exogenous U.S. interest rate changes and realized U.S. interest rate changes. They found important differences in estimated transmission from the two sets of measures—identified interest rate changes demonstrate a greater concordance with the impossible trinity than realized rate changes. Flood and Rose (1995) and Rose (1996) examine trade-offs between exchange rate volatility and measures of monetary divergence. They found either no support or weak support for the trade-offs implied by the trilemma. Miniane and Rogers (2007) identify U.S. interest rate shocks from structural vector autoregressions (SVARs) and estimate their transmission to a range of foreign interest rates. Shambaugh (2004) reports evidence that a peg imposes a constraint on monetary policy in the form of higher interest rate pass-through. By contrast, Frankel et al. (2004), using different exchange rate regime classifications, find that full interest rate pass-through cannot be rejected in many cases, even for non-pegs.

Calvo and Reinhart (2001, 2002) argue that under the modern float there could be limited monetary autonomy. Bordo and Flandreau (2003) discovered that even under the classical gold standard domestic monetary autonomy was considerable. Obstfeld et. al (2004) studies the coherence of international interest rates over more than 130 years. They found that the interest rates of pegged economies react more to changes in the base rate; the base rate can explain more of the changes in the local rate for pegs; also, the pegs react more quickly and have a stronger long run relationship to the base than nonpegs do.

### 3. Data

As euro is the dominant currency in the region and also was declared by the National Bank of Romania, starting with 2003, the reference reserve currency, we used the euro interest rates in our empirical research as the base interest rate.

The interest rates are average monthly values of short-term money market rates from the IMF International Financial Statistics database (96860BZF series for Romania and 16360BZF series for Euro Area).

All interest rates are expressed as continuous compounded interest rates –  $r = 100\% \times \ln(1+R)$ , where  $R=10\%$  is expressed as 0.10. While this has almost no effect at low to moderate interest rates, it reduces the impact of outliers.

As a control variable we used a ratio between the foreign reserves and short-term external debt (expressed in percents). The source of the data is the National Bank of Romania - monthly official bulletins for the foreign reserves and the Interactive Statistics Database for the short term external debt series. The variable has been used as a logarithmic difference, the series being transformed similarly to the interest rates.

### 4. Methodology

We use in our research a methodology derived from the one proposed by Obstfeld, Shambaugh and Taylor (2005).

To understand how the base (euro) interest rate should affect local (Romanian leu) rate, we can use the uncovered interest parity equation. When capital markets are open, we can write:

$$R_{rot} = R_{eut} + \% \Delta E^e \quad (1)$$

where  $R_{rot}$  is the leu interest rate at time  $t$ ,  $R_{eut}$  is the euro rate at time  $t$ , and  $\% \Delta E^e$  represents the expected change in the exchange rate over the maturity of the money market instruments.

The equation implies that the local (leu) interest rate  $R_{rot}$  must equal the foreign (euro) interest rate  $R_{eut}$  plus any expected depreciation in the home currency and any risk premium (or eventually, the odds of a peg breaking) (Klein and Shambaugh, 2010).

Given that the level series (nominal interest rates) tend to be close to unit roots, we have to test them for stationarity. If the data are nonstationary or nearly so, any simple regression of the levels of one series on another may generate a spurious regression (Granger; Newbold, 1974; Phillips, 1988).

An appropriate approach would then be to difference the data and repeat the stationarity tests, as we did.

We examined then an equation such as:

$$\Delta R_{rot} = \alpha + \beta \Delta R_{eut} + \theta X + u_{it} \quad (2)$$

where  $\Delta$  is the difference operator,  $R_{eut}$  the euro interest rate,  $R_{rot}$  the leu interest rate, and  $X$  is the control variable.

This model assumes that the risk premium is relatively static, or at least do not change systematically with changes in the euro interest rate.

The model allows the analysis of the short term relationship of the two variables with standard regression techniques. We tested for and eliminated the outliers, based on the results of the RStudent test. Also, we tested the significance of the lags of the explanatory and explained variable, as necessary, to minimize the AIC and SIC statistics.

As a control variable, we used the foreign reserves – short term external debt ratio, which proved to strengthen our model. The reason of choosing that variable was that the decrease of the ratio level should generate an increase in the local interest rate to keep the foreign capital on the local market (and to avoid an exchange rate crisis).

Every model tested implies, also, the tests of residuals' properties for checking the biasness, consistency and efficiency of the estimators.

The following values for  $\beta$  are being expected in case of floating exchange regimes countries:

- $\beta = 0$ : floating countries that ignored the base interest rate when setting monetary policy and their economies were independent;
- $\beta > 0$ : floating countries may show a „fear of floating” behavior, trying to temper exchange rate changes. Hence, the changes in the base interest rate will have the goal to partially stabilize the exchange rate. Also, the countries may experience common shocks and they may coincidentally increase or decrease interest rates together.

During our research we also tested for the level cointegration of the two series, to identify a possible long-run relation. We expected that the cointegration hypothesis would be rejected. As the data sample belongs to the period of the official managed floating exchange rate regime, it is less likely that the Romanian money market interest rate will follow the base (euro) money market interest rate (compared to the case of a pegged currency). Consequently, there should not be revealed a long-term effect of the euro interest rate.

## 5. Results

The two interest rate series in levels had a quite stable evolution during the first three years of the sample. Starting with the second half of 2008 until the end of the 2009, when the financial crisis developed rapidly in the United States, we noticed a volatile period for the interest rate on the Romanian money market. At the same time, the euro interest rate has declined to historical minimum starting with the second half of 2008.

During our analysis we have eliminated two values of the interest rate series, corresponding to October 2008 and February 2009 (we excluded the two outliers by testing them with the RStudent test). The two peaks in the RON interest rate evolution correspond to a speculative attack on the local currency and, respectively, to a period of liquidity crisis in the Romanian banking

system. The October 2008 moment was the first sign of the international financial crisis impact over the Romanian economy.

**Table 1: Romania and Euro Area money market interest rate**

RON interest rate – annual data

Year	Mean	Median	Max	Min	Std. Dev.
2005*	7,4 2	7,0 7	8,1 6	6,9 3	0,5 9
2006	8,3 4	8,4 6	8,7 3	7,2 1	0,4 3
2007	7,5 5	7,5 9	8,9 8	6,4 6	0,7 5
2008	11, 37	10, 72	15, 72	7,9 6	2,2 9
2009	10, 92	10, 06	15, 14	8,7 0	2,2 0
2010	5,5 7	5,4 8	8,1 9	4,3 4	1,0 5

EUR interest rate – annual data

2005*	2,1 9	2,1 3	2,3 9	2,0 8	0,1 4
2006	3,0 1	2,9 7	3,6 1	2,4 5	0,3 9
2007	3,9 8	4,0 3	4,1 6	3,6 8	0,1 5
2008	3,7 8	4,0 0	4,3 7	2,0 0	0,7 5
2009	1,0 0	0,9 2	1,4 7	0,7 1	0,2 8
2010	0,8 1	0,7 9	1,0 4	0,6 4	0,1 5

Note: \* only 5 months

Source: IMF, IFS

The results of estimating equation (2) are shown below and reveal relatively expected results.

$$\Delta R_{rot} = -0.15^* + 0.80^{**} \times \Delta R_{eut-1} - 0.035^{***} \times \Delta R_{fr/debt} \quad (4)$$

(0.08) (0.39) (0.01)

where  $\Delta$  is the difference operator and:

$R_{rot}$  = leu interest rate

$R_{eut-1}$  = euro interest rate, lagged one month

$R_{fr/debt}$  = foreign reserves/short term debt ratio

Note: \*\*\* significant at 99%, \*\* significant at 95%, \* significant at 90%

As NBR has officially declared the floating exchange rate regime, we expected that the  $\beta$  coefficient would tend to zero, but would be positive, as NBR would be trying to temper “excessive” exchange rate changes (managed float). Our prediction has partially been confirmed, as

the value is positive but higher than we expected. It seems that an increase of 1% of the euro interest rate was generating a 0.80% of the leu interest rate with one month lag.

An interesting secondary result is regarding the control variable. The result shows that an increase in the foreign reserves – short term debt ratio will generate a decrease of the interest rate on the Romanian money market and vice versa. Yet this effect is pretty small.

## 6. Conclusions

Although the exchange rate regime in Romania is a float, the monetary policy of the National Bank of Romania is relatively dependent on the European Central Bank policy. Our prediction has been confirmed, although the effect of euro interest rate changes on the Romanian money market seemed to be higher than expected. The results have showed that a 1% increase of the euro interest rate generated a 0.80% increase of the leu interest rate with one month lag, over the analyzed period.

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**Appendix 1: Data series**

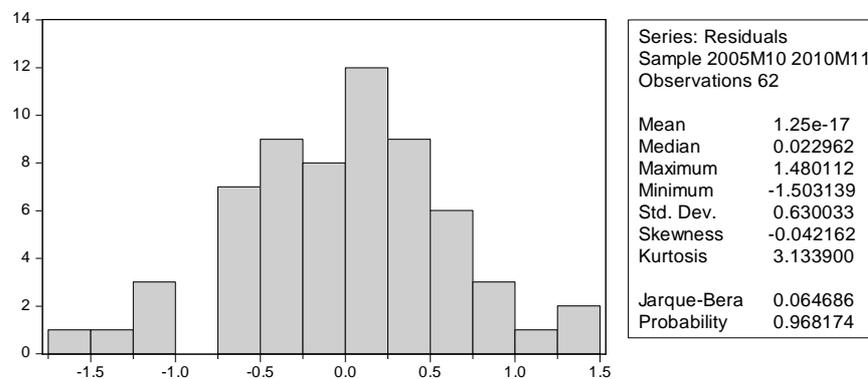
	J an	F eb	M ar	A pr	M ay	J un	J ul	A ug	S ep	C ct	N ov	D ec	Y ear
	2005												2 005
MMRO	-	-	-	-	-	-	-	8	8	7	6	7	7
	-	-	-	-	-	-	-	.0	.2	.1	.9	.0	.4
	-	-	-	-	-	-	-	2	2	2	2	2	2
MMEU	-	-	-	-	-	-	-	.08	.08	.13	.29	.39	.19
	-	-	-	-	-	-	-	2	2	2	2	2	2
FR/Debt	-	-	-	-	-	-	-	.97	.81	.98	.67	.68	.82
	2006												2 006
MMRO	7	7	8	8	8	8	8	8	8	8	8	8	8
	.2	.9	.3	.4	.4	.6	.5	.7	.6	.6	.7	.2	.3
	2	2	2	2	2	2	3	3	3	3	3	3	3
MMEU	.45	.53	.65	.72	.81	.91	.03	.15	.26	.43	.52	.61	.01
	2	2	2	2	2	1	1	1	1	1	1	1	2
FR/Debt	.85	.83	.24	.19	.03	.88	.87	.80	.68	.73	.61	.69	.03
	2007												2 007
MMRO	8	7	8	8	9	7	6	6	6	7	7	7	7
	.0	.9	.3	.0	.0	.6	.5	.5	.8	.1	.4	.6	.6
	3	3	3	3	4	4	4	4	4	4	4	4	3
MMEU	.68	.75	.83	.91	.01	.08	.14	.16	.09	.05	.05	.02	.98
	1	1	1	1	1	1	1	1	1	1	1	1	1
FR/Debt	.66	.62	.55	.45	.36	.37	.29	.35	.33	.26	.21	.27	.39
	2008												2 008
MMRO	8	9	9	1	1	1	1	1	1	1	1	1	1
	.0	.4	.4	0.3	0.7	0.4	0.8	2.1	1.9	5.7	5.0	2.8	1.4
	4	3	3	4	4	4	4	4	4	3	2	2	3
MMEU	.01	.97	.98	.00	.06	.22	.36	.37	.34	.48	.58	.00	.78
	1	1	1	1	1	1	1	1	1	1	1	1	1
FR/Debt	.28	.21	.31	.21	.20	.31	.21	.29	.33	.15	.13	.27	.24
	2009												2 009
MMRO	1	1	1	1	1	1	9	8	9	9	8	1	1
	3.1	5.1	4.0	2.3	1.0	0.1	.2	.8	.0	.6	.7	0.1	0.9
	1	1	0	1	1	1	0	0	0	0	0	0	1
MMEU	.47	.05	.81	.42	.28	.23	.98	.86	.77	.74	.72	.71	.00
	1	1	1	1	1	1	1	1	1	1	1	1	1
FR/Debt	.26	.24	.23	.27	.56	.53	.71	.76	.76	.82	.81	.84	.57
	2010												2 010

	J	F	M	A	M	J	J	A	S	C	N	D	Y
	an	eb	ar	pr	ay	un	ul	ug	ep	ct	ov	ec	ear
MMRO	8	6	5	5	5	5	5	5	5	4	4	-	5
	.2	.4	.5	.0	.8	.9	.5	.0	.1	.7	.3	-	.6
	0	0	0	0	0	0	0	0	0	1	1	1	0
MMEU	.68	.66	.65	.64	.69	.73	.85	.90	.88	.00	.04	.02	.81
	1	1	1	1	1	1	1	1	1	1	1	1	1
FR/Debt	.87	.92	.91	.90	.91	.89	.76	.75	.85	.79	.79	.73	.84

Note: MMRO - Money market rate in Romania; MMEU - Money market rate in Euro Area; FR/Debt Foreign Reserves - Short Term Debt Ratio.

Source: IMF (International Financial Statistics) and National Bank of Romania

### Appendix 2: Error-vector normality test results



### Appendix 3: Error-vector autocorrelation test results

Breusch-Godfrey Serial Correlation LM Test:

	0.836		0.479
F-statistic	515	Prob. F(3,54)	7
	2.753	Prob. Chi-Square(3)	0.431
Obs*R-squared	373		2

### Appendix 4: Error-vector heteroscedasticity test results

Heteroskedasticity Test: Breusch-Pagan-Godfrey

	0.579		0.679
F-statistic	009	Prob. F(4,57)	0
	2.420	Prob. Chi-Square(4)	0.658
Obs*R-squared	835		9
Scaled explained SS	2.183	Prob. Chi-Square(4)	0.702
	110		1

## RATING MODEL COMPARISON THROUGH VALIDATION TECHNIQUES

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**Abstract:** *The purpose of this paper is to apply the rating validation techniques on two rating systems, in order to establish which statistical method has higher discriminatory power in a rating model. We introduce the three most used validation techniques: CAP curve, ROC curve and Conditional Information Entropy techniques. We apply two of them on a logistic rating model and on a multiple discriminant one. The sample we use is of Romanian middle sized companies. We find that the logistic regression is a more suitable technique for the analyzed problem.*

**Key words:** rating model, validation techniques, credit risk.

**JEL Classification:** G24, C53.

### 1. Introduction

One of the essential properties of a rating system is its discriminatory power, its ability to classify the debtors in the correct rating category, good or bad-credit clients. Although the methods for establishing the discriminatory power of a classification method have been applied in medical science, biology, engineering since 1950, it was not until late 90s that these validation techniques were adapted to be applied in credit rating models. The Banking Supervising Committee from Basel considers the rating model validation one of the essential and most difficult issues in developing quantitative credit techniques (Basel, 2005).

The purpose of this paper is to apply the rating validation techniques to two rating systems in order to determine the one with the higher discriminatory power. This result is of great importance, as in future research we can estimate directly the rating model which is more powerful and, what is of utmost interest, the rating model which will deliver the most accurate predictions. To do that, we choose a sample of 105 Romanian middle sized companies, we build the set of financial indicators and estimate a logistic rating model and a multiple discriminant one. Our conclusion is in line with the findings in the literature: the logistic rating model yields better results than the other one.

The paper is structured as follows: in the first section define some introductory notions to be used as foundations for the validation techniques described in the following section. Thus, in the second section, we set the research area and introduce the concepts of cumulative accuracy profile, receiver operating characteristics curve, conditional information entropy measures. In the last part of the paper, we present a case study, by building two rating models and calculating the validation measures prior presented. We compare the results and draw the conclusions.

### 2. Introductory concepts

In order to ensure the consistency of the article, we introduce some fundamental notions. Firstly, we define the types of errors which can appear when a classifier is applied. The types of errors are summarized in Table 1.

If the model indicates a low risk level when in reality the risk associated with the debtor is high and a default can be expected in the next period of time, we have type I error. On the other hand, if the model's output turns out into a high risk profile although in reality the borrower has a low risk profile, then we will have type II errors.

**Table 1 - Error types**

		Actual	
		Low Credit quality	High credit quality
Mo del	Low credit quality	<b>Correct Prediction</b>	<b>Type II Errors</b>
	High credit quality	<b>Type I Errors</b>	<b>Correct Prediction</b>

, Source: Sobehart, Keenan (2001)

In the literature, the correct prediction for the low risk profile debtors is also called hit rate, while the type II error is called false alarm rate. It is desirable that a system has a high value for the hit rate and a low value for the false alarm rate.

Any type an error implies a cost. Type I errors imply crediting the high risk profile clients, thus a supplementary cost with the bank provisions. Still, type II errors assume the loss of significant income that could be brought by low risk profile borrowers. Both type of errors are of equal importance from a bank’s point of view. The error’s extent depends on the exposure on each debtor.

To introduce the rating validation measures, we will refer to a rating system with discrete rating categories, denoted with  $R_1, R_2, \dots, R_k$ . We assume that these rating classes are in an ascending order, in that the debtors with the weakest standing are included in class  $R_1$ , while the ones with the best financial standing are included in class  $R_k$ . The total number of borrowers from one rating class is denoted with  $N_T(i)$ , where  $i$  represents the index for the rating class and  $T$  the index for the total number of cases, whether the cases are defaulted or not. To differentiate, we will note:  $N_D(i)$  – total number of entities that were associated by the rating model with the class  $R_i$ , but which defaulted by the end of the observation period (index  $D$  stands for *default*). Similarly, we have  $N_{ND}(i)$ , the number of non-defaults ( $ND$ ) associated with  $R_i$  rating class.

The random variables we will use to define the discriminatory techniques refer to the distribution of companies on rating classes and on the three groups of entities: all companies – for this group, the probability distribution function will be denoted with  $S$ ; non-defaulted companies -  $S_{ND}$ ; defaulted companies -  $S_D$ . These ad notations correspond to the theoretic probability distribution. Still, in the application we will use a realisation of the rating system, the classification of the entities in the sample after applying the rating model algorithm. Thus, the observed distributions of probability will be denoted with:  $\hat{S}, \hat{S}_{ND}$ , and  $\hat{S}_D$  respectively.

The cumulative distribution function is noted with  $C$ , thus  $C(R_i)$  represents the probability that a borrower would have a rating lower or equal with  $R_i$ . Similarly, the observed cumulative distribution function, denoted  $\hat{C}$ , is divided on the two above mentioned categories:  $\hat{C}_{ND}, \hat{C}_D$ .

The joint distribution of two rating systems,  $S^{12}$  or more precisely  $S^{12}(R_i, R_j)$  is defined as the probability that a borrower would have the rating  $R_i$  within the first rating system and the rating  $R_j$  within the second one. As before, the variable can be calculated for all companies in the portfolio, for defaulted or non-defaulted companies. The cumulative distribution function,  $C^{12}(R_i, R_j)$  gives the probability that a debtor would have the rating lower or equal with  $R_i$  in the first rating system and lower or equal with  $R_j$  in the second rating system.

### 3. Rating validation techniques

In this section we present the main validation techniques, together with graphical representations and statistical indicators for each method.

Firstly, we will introduce the two well known measures of a rating’s discriminatory power: the Cumulative Accuracy Profile – CAP and the Receiver operating Characteristics (ROC). For presenting these techniques, we will follow Engelmann’s (2007) approach. We also introduce informational entropy validation techniques. These three validation models were used for the first time by Soberhart, Keenan (2001). Their study can be considered a pioneering one in the development of credit risk and rating validation methods. They used an extended dataset and a consistent methodology starting from the informational content of the models. The three techniques were used to compare different type of models, even when the models’ output were not comparable. To demonstrate these universality of the validation techniques, Sobehart and Keenan (2001) used

six credit models: a simple univariate model based on the assets' performance, a reduced form model of Altman's Z score, Z score model, a hazard model, a variant of Merton's distance to default model and Moody – Risk Calc model (2000) for public companies, based on ratings, market and financial information.

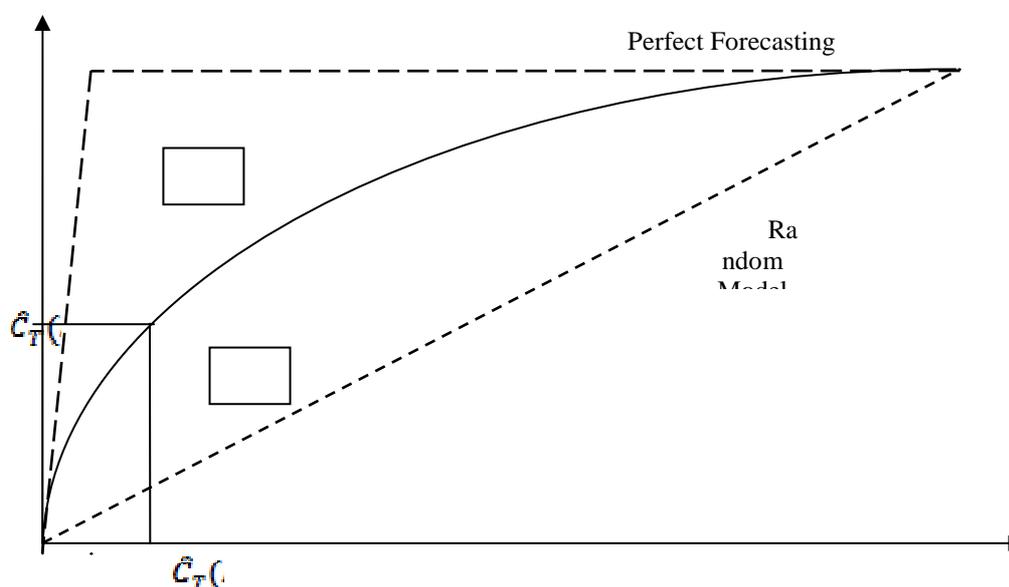
### 3.1 The cumulative accuracy profile

The cumulative accuracy profile results from the projection of the cumulative distribution function of the defaulted companies ( $\hat{C}_D$ ) to the cumulative distribution function of all debtors ( $\hat{C}_T$ ).

Making use of the notions introduced in the previous section, we have the following observed values for the quantities on each axis shown in the graph below. Thus, for a certain rating category,  $R_i$ , the percentage of all entities in the sample with a rating lower or equal with  $R_i$  is determined. This measure is quantified on the Ox axis and is denoted with  $\hat{C}_T(R_i)$

On the Oy axis, the percentage of the defaulted entities, with rating lower or equal with  $R_i$  is quantified. We denote this percentage with  $\hat{C}_D(R_i)$ . This two calculated values determine a point on the cumulative accuracy profile curve, as in Figure 1 (point A). By joining the points for all rating classes we obtain the cumulative accuracy profile.

**Figure 1 – The cumulative accuracy profile**



We briefly present the constitutive elements of Figure 1. We have two special cases, named the random model and the perfect forecasting model. The random model corresponds to a rating with no discriminatory power, and the cumulative accuracy profile is the first bisectrix of xOy. Because the rating system doesn't dispose of any information regarding the creditworthiness of the borrowers, it will consider the number of debtors with a rating better or equal a certain rating class equal with the number of defaulted debtors with a rating better or equal with the certain rating class. The rating model in this case is random, the defaulted cases and the non-defaulted cases are equally treated as no discriminatory method is in place. Each point on this curve will have equal coordinates.

The other special case is the perfect forecasting model – a rating model that holds perfect information on the creditworthiness of the debtors. In this model all defaulted clients will get a lower rating than the non-defaulted clients, thus the curve goes straight to one and remains constant on this value. The “ordinary” curve in the model represents the cumulative accuracy profile for a rating model with a certain performance and discriminatory power.

In figure 1 we also highlighted two areas: first, the area between the “ordinary” CAP curve and the perfect forecasting model curve (denoted AP) and the area between the “ordinary” CAP curve and the random model curve (denoted AR). These two areas hold the information contained in the

CAP curve for a certain rating model. They are summarized in an indicator, accuracy or better known as Gini Coefficient. The Gini Coefficient is defined as:

$$Gini = \frac{AR}{AP} \quad (1)$$

The Gini coefficient varies between 0 and 1. The closer it is to one, the more the CAP curve is near the perfect forecasting model, thus more curved towards the upper-left and the respective rating model has a higher discriminatory power. Indeed, when the ratio has a value close to 1, than AR is significantly higher than AP, thus the area between the CAP curve and the random model widens, while the area between the CAP curve and the perfect forecasting model is shrinking, meaning that the curve is “away” from the random model and very near the perfect forecasting model. Conversely, for the random model we have a null Gini coefficient. The more the CAP curve is closer to the random model, the more the area between the curve and the random model is smaller and the Gini coefficient’s value decreases. That is way, in practice, a high value of the accuracy ratio or Gini coefficient is desired. If a rating has a high value of the Gini coefficient, than it has a good discriminatory power.

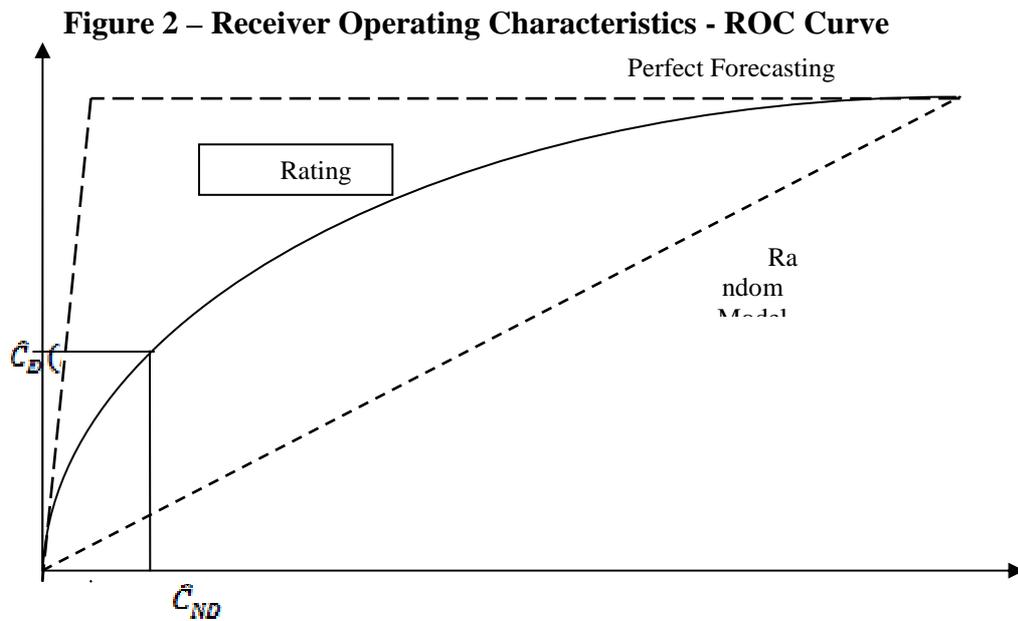
### 3.2 The Receiver Operating Characteristics – ROC Curve

The ROC curve is a technique used for visualizing, organizing and for selecting the classifiers based on their performance. Fawcett (2006) makes a brief of review of the ROC curves’ evolution. Initially, ROC curves were used in the signal detection theory to evaluate the trade-off between error rated and correct classification rates. In time, this category of visual representation techniques was developed in the analysis of diagnosis systems. They were intensely used in the medical field for diagnose testing. Fawcett (2005) also notes that in the last years, ROC curves were more and more often used for establishing the accuracy of classification methods.

In the context of rating systems, the ROC curves were applied for the first time in 2001, in the study made by Sobehart and Keenan (2001). The starting point was represented by the distribution of calculated rating on the two main categories: defaulted and non-defaulted debtors. For a rating with good discriminatory power, the ratings for the non-defaulted debtors have to higher than the ones for defaulted debtors.

For a certain threshold,  $V$ , a decision rule can be settled in order to classify the potential defaulting debtors and the good credit profile debtors. Based on this decision rule, we can obtain a matrix similarly with the one in table 1. Thus, if a debtor has a calculated value for the rating under the threshold  $V$  and defaults, than the prediction of the model was correct. This interpretation is also the definition of the *hit rate*. A correct prediction is as well, if the calculated rating is above the threshold value  $V$  and the debtor will not default. If not, if the calculated value for the rating is under the threshold  $V$  and the debtor does not default, than we can say that the rating system gave a false alarm. The last case is that of a debtor that defaults, but the estimated rating is higher than the value  $V$ .

The ROC curve is given by the pairs (false alarm rate, hit rate) calculated for each possible threshold value. In the context of a rating with discrete classes, the threshold values  $V$  are defined on rating classes/categories. Thus, in case of a rating with  $k$  classes, we will have  $k-1$  threshold values. Each point on the ROC curve is the result of the two coordinates:  $\hat{C}_D(R_i)$  on Ox axis,  $\hat{C}_{ND}(R_i)$  on Oy axis, for a given  $R_i$  rating class. The first coordinate of the ROC points is thus the percentage of the default debtors with a rating lower then  $R_i$ , and the Oy coordinate is the percentage of the non-defaulted debtors with a rating lower then  $R_i$ . The ROC curve is obtained by joining the points, whose coordinates are calculated as mentioned above. A graphic representation of a ROC curve can be found in Figure 2.



As for the CAP curve, we have two special cases: the one of a random model and the one of the perfect forecasting model. In the random model case, the rating model has no discriminatory power and the hit rate is equal with the false alarm rate for each rating class. This is equivalent with the fact that a debtor has the same chance to be considered in the default category, as in the non-default category. In the other special case, the perfect forecasting model, the distribution of scores for default and non-default debtors are perfectly separated. Thus, for any value of the hit rate lower than one, the false alarm rate is zero and inversely, for any value of the false alarm rate greater than zero, the hit rate is one.

As for the CAP curve, there is an indicator of the discriminatory power for the ROC curve also. In this case, the measure is called AUROC and is represented by the area below the ROC curve. The AUROC indicator takes values between 0 and 1. For the random model, thus for a rating without discriminatory power between the two classes of debtors, the value of AUROC is 0.5, while for a perfect forecasting the AUROC is 1. Thus, the more the AUROC indicator for a certain rating model is closed to one, the more the curve is towards the upper-left corner and the rating has higher discriminatory power.

### 3.3 Conditional Information Entropy Ratios (CIERs)

A third measure used to determine the discriminatory power of a rating model is based on the information about defaults contained in the scores' distribution, which is called information entropy. As seen by Sobehart, Keenan (2001), information entropy draw the attention of specialists, as it can be easily used, without prior assumptions to be made on the shape of the distribution.

For the CAP and ROC curves, we have introduced certain statistics to summarize the accuracy of the model and to ensure the comparability between models, for information entropy based methods there were introduced the CIERs (Conditional Information Entropy Ratios). The CIER “compares the amount of “uncertainty” regarding default in the case where we have no model (a state of more uncertainty about the possible outcomes) to the amount of uncertainty left after we have introduced a model (presumably, a state of less ignorance), with a given accuracy.”(Sobehart, Keenan, 2001).

In order to calculate the CIER, one first has to calculate the informational entropy (the uncertainty) associated with the default event, in case we do not apply a model. This entropy reflects the information common to all models – the probability of default for the sample as a whole, which we will call general entropy. Afterwards, we calculate the uncertainty after having taken into account the predictive power of a certain rating model, this is called the model' entropy. The measure we introduce is the following:

$$CIER = 1 - \frac{\text{Entropy of the model}}{\text{General Entropy}} \quad (2)$$

CIER takes values between 0 and 1. If the model holds no predictive power, than CIER would be zero – general entropy and the entropy of the model would be equal, in other words applying the model does not reduce the uncertainty. On the other hand, if the uncertainty would be integrally eliminated after applying the model, than CIER would be one – this is the case of a perfectly predictive model. The more CIER is closer to one, the more its discriminatory power is higher.

**4. Comparison of two rating systems**

In the scope of applying the validation techniques, we take two rating models, compute the CAP and ROC curves for each of them and draw the conclusions about their predictive power.

The common sample for both rating models is a set of data collected from 105 small companies in Romania, with a turnover between EUR 700.000 and EUR 3.755.000 at the end of 2009. 75 of the entities in the sample are non-defaulted companies and 30 are defaulted cases. A firm is considered defaulted if the insolvency procedure was started in 2010. Data are collected from the financial statement at the end of 2009 (public available data). So, the default is observed in the next 12 months from the ending of the input data observation period. The chosen sample represents about 2% of the total population of companies with the turnover in the mentioned interval.

**4.1 The logistic Rating model**

The first rating system is obtained by applying the logistic regressions. As regressors or input variables we have chosen 9 financial ratios. Our choice of financial ratios is based on the set of ratios usually used in the literature combined with data availability. The initial set of financial ratios is listed below:

- R1 – Debt to Equity Ratio
- R2 – Return on Assests
- R3 – Return on Equity
- R4 – Receivables rotation period
- R5 – Total Sales to Assets Ratio
- R7 – Idebttness ratio
- R8 – Inventory rotation period
- R9 – Age of the company

First of all, we have computed a simple statistical analysis of the nine ratios. The results are found in the following table:

**Table 2 – Descriptive statistics for the set of financial ratios**

Variable	N	Simple Statistics				
		Mean	Std Dev	Sum	Minimum	Maximum
R1	105	8.55811	42.43681	898.60149	-76.65754	402.44240
R2	105	5.12324	8.73065	537.93994	0	47.56819
R3	105	18.28825	31.55182	1920	-1.54407	201.42518
R4	105	115.33673	129.63184	12110	2.72093	828.66275
R5	105	2.37999	7.74515	249.89931	0.23894	79.76042
R6	105	14.90932	59.41520	1565	-58.63805	484.63895
R7	105	0.76852	0.39019	80.69435	0.03740	2.24070
R8	92	35.43330	64.15312	3260	0.51360	383.07658
R9	105	11.41905	5.23997	1199	1.00000	19.00000

Source: output table from SAS v9.2

We have 105 observations for eight of the ratios and only 82 for the ratio R8, as we have eliminated the outliers for this variable (companies without inventories). We observe a relatively high value for the ratio R4, which can be explained by the heterogeneity of activity sectors of the entities forming the sample. We also note the relatively high indebttness rate of the companies (the mean of ratio R7 is 0.76).

For the consistency of the analysis, we will conduct a correlation analysis. We calculate the Spearman and Pearson correlation coefficients between each two ratios. We obtain a high

correlation between R6 and R1 (0.84), R3 (0.66), and R5 (0.51), as well as between R2 and R5(0.35), R3 (0.63) and R7 (0.45). Thus, we decide to eliminate ratios R2 and R6 from the input set.

With the remaining ratios (R1, R3, R4, R5, R7, R8, R9) we conduct a logistic regression, whose output is listed in the table below:

**Table 3 - Output of the logistic regression**

The LOGISTIC Procedure

Analysis of Maximum Likelihood Estimates

Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-3.9756	1.6629	5.7159	0.0168
R1	1	0.0237	0.0139	2.9114	0.0880
R3	1	-0.0466	0.0236	3.9071	0.0481
R4	1	0.00219	0.00253	0.7471	0.3874
R5	1	0.1048	0.0583	3.2268	0.0724
R7	1	4.6943	1.4691	10.2102	0.0014
R8	1	-0.00614	0.00597	1.0591	0.3034
R9	1	-0.0691	0.0662	1.0887	0.2968

Source: output table from SAS v9.2

We can see that the estimates for R4, R8 and R9 are not statistically significant: from the last column of the table, the probability to accept the null hypothesis for these estimates is above the threshold of 10% (we consider the significance level of 90% for the null hypothesis tests).

The statistical significant estimates, the ones for the ratios R1, R3, R5, R7 are used in computing the score for each company in the sample. The scores are in the interval [-8,57; 14,8]. We define 6 rating classes, by the following rule:

**Table 4 – Rating classes of the Logistic Rating model**

Decision Rule	Rating Class
Score < 0	1
Score >= 0 and Score < 2.5	2
Score >= 2.5 and Score < 5	3
Score >= 5 and Score < 7.5	4
Score >= 7.4 and Score < 10	5
Score >= 10	6

In the rating proposed above, which we will call the logistic rating model, the rating classes are in ascending order, the debtors which we would expect to default in the next period of time would have to be in the rating class 1. The debtors of high credit quality would have to be in the rating class 6. The distribution of the 105 companies, defaulted and non-defaulted on the six rating classes is represented in table 5:

**Table 5- The sample distribution on Logistic Rating classes**

	Logistic Rating Class						Total
	1	2	3	4	5	6	
Non-Default	6	28	19	14	5	3	75
Default	19	8	2	0	0	1	30

Total	25	36	21	14	5	4	10
							5

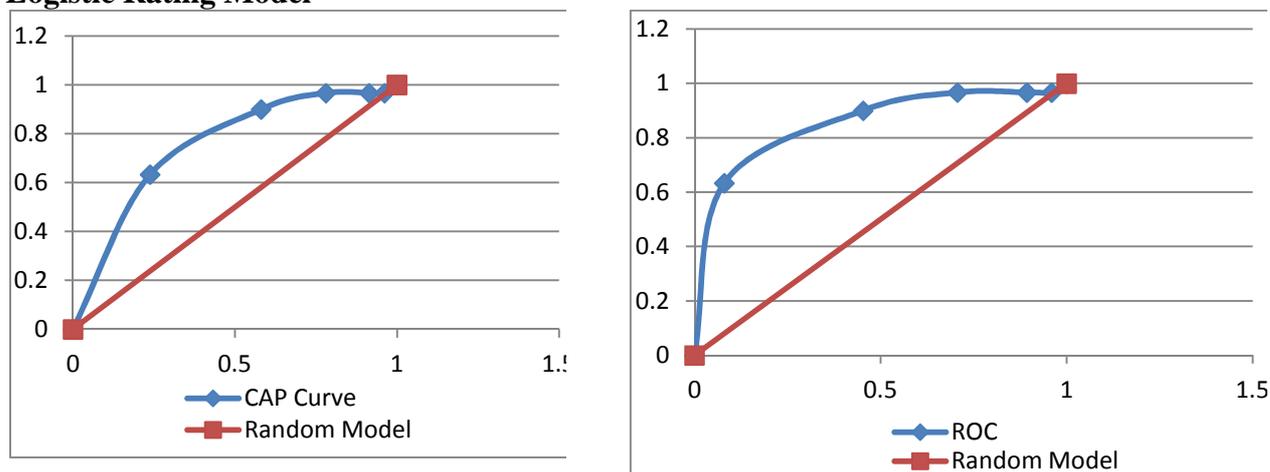
From this table, we compute the observed cumulative distribution function of all companies, on rating classes, which we plot against the cumulative distribution function of defaulted companies, on rating classes. By doing this we obtain the CAP curve (figure 3).

In order to obtain the ROC curve (figure 3), we project the cumulative distribution function of the defaulted companies against the cumulative distribution function of non-defaulted companies. All calculated cumulative distribution functions (CDF) used in building the curves can be found in the table below.

**Table 6 – The calculated cumulative distribution function, on rating categories (all companies, defaulted companies, non-defaulted companies)**

CDF_Tota		CDF_D		CDF_Non-Def	
F	0	F	0	F	0
1	,24	1	,63	1	,08
2	,58	2	,9	2	,45
3	,78	3	,97	3	,71
4	,91	4	,97	4	,89
5	,96	5	,97	5	,96
6	1	6	1	6	1

**Figure 3 – Left : CAP curve for the Logistic Rating model; Right: ROC Curve for the Logistic Rating Model**



With the curves outlined as above, we can calculate the Gini and AUROC coefficient. We obtain a value of 0,5225 for the Gini coefficient and 0,7612 for the AUROC. We will use this values to compare the logistic rating model with the second model we will build.

**4.2 The Z-score Rating model**

For the second rating model we compute a Z-Score. The Z-Score was introduced by Altman in 1968 and it uses Multiple Discriminant Analysis applied to a set of 5 financial ratios. It's a statistical technique used to predict a company's probability of default and it has the following formula:

$$Z = 1,2 * T1 + 1,4 * T2 + 3,3 * T3 = 0,6 * T4 + 0,995 * T5 \quad (3)$$

where:

T1 = Working Capital / Total Assets

T2 = Retained Earnings / Total Assets

T3 = Earnings Before Interest and Taxes / Total Assets

T4 = Market Value of Equity / Total Liabilities

T5 = Total Sales / Total Assets

By calculating the Z-score for the 105 entities in our sample, we obtain a range of scores from -2.83 to 16.12. We define the 6 Z-Score Rating classes, by the following rule:

**Table 7 – Rating classes of the Z-Score Rating model**

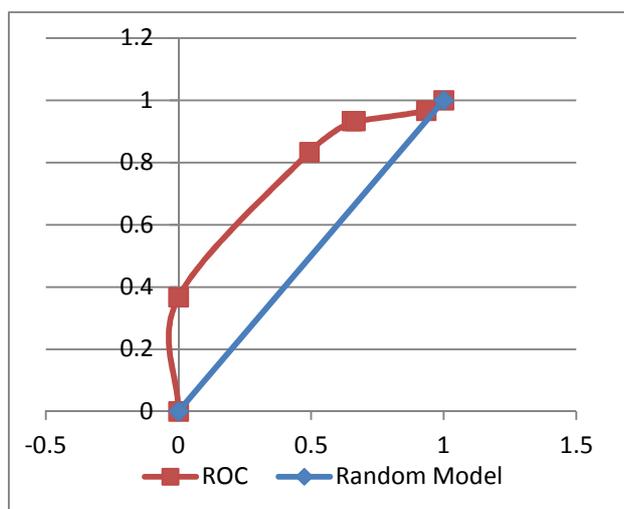
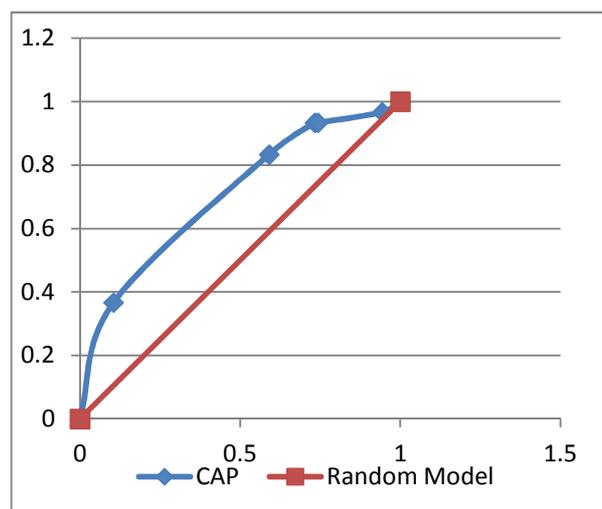
Decision Rule	Rating Class
Score < 0	1
Score >= 0 and Score < 1.8	2
Score >= 1.8 and Score < 2.7	3
Score >= 2.7 and Score < 3	4
Score >= 3 and Score < 7	5
Score >= 7	6

Like for the first rating model, we calculate the distribution of defaulted and non-defaulted borrowers on rating classes (table 8). Then, we calculate the cumulative distribution function for each category of borrowers: defaulted, non-defaulted and all borrowers. We use the computed CDF in plotting the CAP and ROC curves (figure 4)

**Table 8 - The sample distribution on Z-Score Rating classes**

	Z-Score Rating						To tal
	1	2	3	4	5	6	
Non-Defaulted		37	12	1	20	5	75
Defaulted	11	14	3		1	1	30
Total	11	51	15	1	21	6	105

**Figure 4 – Left : CAP curve for the Z-Score Rating model; Right: ROC Curve for the Z-Score Rating Model**



We compute the Gini and AUROC coefficients with the formulas mentioned before in the paper. We obtain a value of 0,4081 for the Gini coefficient and 0.70405 for the AUROC.

#### 4.3 Comparison between the two rating models

By comparing the results obtained from the Z-score Rating model with the ones from the Logistic Regression model, we see that the indicators of the validation techniques for the first rating model have higher valued that the ones of the second rating model. Thus, we conclude that the rating based on the logistic regression has a higher discriminatory power than the one based on the multiple discriminant technique. This result is in line we the evidence found in the literature.

### 5. Conclusions

In this paper, we have introduced three rating validation techniques and applied them to compare two rating models for middle sized companies. Although the sample we have chosen is rather a small one, we find that the results are in line with the literature: logistic regression based rating models are more accurate and have a higher discriminatory power than the ones based on multiple discriminant analysis.

From our review of the literature, this is the first study that compares rating models on Romanian middle sized companies. The results could be further used in forecasting or developing the rating model with quantitative variables. The validation techniques are also suitable for comparing the logistic regression based model with neural networks or support vector machines based models, as well as other rating estimation techniques.

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## CONSIDERATIONS ON THE ADOPTION OF THE FINANCING DECISION IN THE FINANCIAL MANAGEMENT

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**Abstract:** *In everyday language, we often hear the expressions „there is not enough money” or „there is not enough capital”. The premise for the preparation, launching and support of any economic activity is the money, the money funds, the capitals. The problem with capital is always the main focus for a company’s management. Any economic activity that wants to obtain profit is inconceivable without capital. Under these circumstances, the paper touches some options regarding the financing decision in the financial management, the sources to obtain financing, the advantages and disadvantages for the entity.*

**Key words:** decision, financial, management, capital, cost

**JEL classification:** G32

### 1. Introduction

In essence, the financing decision is the entity’s option to cover the financing needs of the considered projects either from own funds, through loans, or through shareholding. Adopting such a financing decision means choosing between equity and borrowed capital to finance a particular project or adopt a part of the equity against the borrowed ones. The decision act on financing belongs to the enterprise as it is the most interested in using efficiently capitals and getting performance.

The importance of the financing decision (Ilie, 2003, pp. 30-31), lies primarily in providing short term financial balance, which means providing cash to meet commitments, namely paying debts with maturity in the near future. Secondly, the company raises the question of investments that would lead to the development of possibilities. This supposes financing medium and long term development, conditioning the increase of future results and maintaining the financial balance.

### 2. Financing alternatives. Advantages and disadvantages generated by the company

Solving the problem involving the company’s capital formation requires synthesis and detailed knowledge at least of public finances, managerial finances, accountancy, economic analysis, capital markets, the banking system, management, etc. and especially of financial management (Bogdan, 2004, p. 43). The financing instruments available for companies include a complex range, each of them having a series of advantages and disadvantages that should be analysed within the financial management so that the financing decision be the best, and not taken at random. When choosing the financing alternatives, the financial management has think about their opportunities, the risks involved, their cost – the most important element of the financial theory, situated at the intersection of the financial and investment fields (Robinson, 1999, pp. 23-56; Dumitrescu et. all, 2002, pp. 243-259), **the system of guarantees**. Each of these factors has a greater or lesser importance for the company, given that financing decisions influence the company’s earnings and, therefore, is important for an adequate strategy (Florea, 2001, p. 40). By showing the financing sources, we have tried to outline their advantages and disadvantages, the costs and risks they involve.

#### A. Internal financing sources

In the financial practice, the range of internal sources to form the company's capitals is much lower as compared to that of external resources. Internal contributions are formed from the company's activity, therefore taking part in a process of self-financing. This activity means that *the company secures development with its own forces, using as financing sources a part of the profit and the sinking fund, covering both the needs to replace the fixed assets and to increase the economic asset.*

Self-financing is regarded as *a set of financing means that give the company the possibility to act on itself without relying on third parties; it gives the company a greater freedom of action, using nothing but its own resources. However, an excess of self-financing might bring a bigger risk to the company; An amount of capital that exceeds its usual requirements may have the effect of favouring certain activities that attract spending or investments whose profitability is insufficient* (Dictionary of management, 1992).

Self-financing can be regarded as *the mass of resources available for company owners to maintain or increase vested capitals.* Practically, self-financing is the sum of two elements: the part of the owners' profit and eventually set as reserve (unshared) and the sum of sinking and eventually of provisions (exclusively recoveries).

A company's **self-financing policy** is the synthesis of production, commercial and financial methods which orient its activity. The flow of self-financing sources is a result of the economic and financial performances, grouped however according to the possibilities of sharing benefits, sinking and debt policy. Internal financing forecasts play the key part in the company's financial policy.

Any policy must be analysed according to the profitability of the reinvested profit. If the profitability of new projects covered through self-financing equals the profitability claimed by the shareholders, the self-financing policy is **neutral** for the company. If profitability of investments covered through self-financing is higher than the remuneration demanded by shareholders, **self-financing has a positive effect** for the company, meaning that it increases its financial value. Therefore, self-financing contributes to the increase of the company's financial means but it does not allow the increase of benefits for reinvestment unless the rate of profitability is increased for the new projects that require more money over the remuneration claims of the shareholders (Toma and Alexandru, 1998, p. 107).

In conclusion, we think that the financial management will be able to handle efficiently financing decisions through internal sources only if all elements that contribute to the establishment of self-financing capacity are improved. In order for the future to be approached in terms of at least a relative, if not absolute safety, self-financing will represent an alternative of the financing decision, but only together with the external sources, to not lead to the company's distancing from the real economic environment.

## **B. External financing sources**

Internal sources of capital formation are often both insufficient and inappropriate for covering the company's global financing need. Under these circumstances, it will have to turn to external sources to get the necessary capital for providing the continuity of current activity or for conducting the strategic options.

### **a. Owners' contribution to capital's formation**

The formation of share capital is the first step in the company's financing activity. The share capital element represents the company's initial financing sources, at the time of its formation usually being comprised of amounts of money, shares, other securities, physical assets etc. When there appears the intention to set up the company or to increase the existing capital, by drafting some legal documents, the shareholders or associates commit to subscribe the capital and make it available to the company. Therefore, we have the notion of *subscribed capital unpaid*. Then, as the subscribed capital is subscribed by the ones involved, it becomes *subscribed capital paid*. The initial value of the share capital is equal to the nominal value of shares, respectively with the value of the contribution in kind or in cash of the shareholders or associates.

One of the ways to increase share capital (Balteş and Ciuhureanu, 2010\$ pp 103-105) which includes the shareholders' contribution is represented by *the subscription and issue of new shares*, which aims to attract funds to finance the activity. If the increase of share capital is made through the issue of new shares the protection of old shareholders should be considered because the issue value of the new shares, if it is lower than the carrying amount of old shares, affects the integrity of the latter ones' value. The protection of old shareholders is provided by using the preferential subscription rights, namely securities attached to the old shares and which enter into parity with them, calculated as a difference between the carrying amount of a share before and after the issue of new shares.

Although on a first approach, the subscription and issue of new shares might not seem to cause problems to the company, it is advisable that the financial management analyses the effects it might have.

First, we consider that the company's credibility may be affected by not subscribing all shares, with serious consequences, both for the short term, if other external financing sources that would contribute to an economic recovery can be used, and also for the medium and long term, if the financing options are not adequate for the company's requirements, or if the company does not have a competitive strategy to use them.

Second of all, if the subscribed capital is not paid on time, it may cause the company's financial crisis. Consequently, we consider that when the company uses shareholders to collect additional financing sources, the management of the financial-accounting activity has the responsibility to analyse both the financial situation of those who subscribe and to make sure they maintain the company's credibility.

Another way to increase the share capital is *to incorporate reserves or capital-related bonuses*. These are internal operations and they contribute to the strengthening of capital and to the increase of the company's financial credibility towards its own shareholders. Actual increase of capital is made by new share issue which are distributed for free to the old shareholders or by increasing the nominal value of the old shares, which does not change the company's status or the total equity. In case of new shares issue destined to sale to new applicants, old shareholders are protected by the awarded rights granted to them for free. These are negotiable rights and their value is determined as a difference between the carrying amount established before and after the issue of new shares (Staicu, 2002, p. 61).

Besides this method of increasing the share capital, the company may also choose *the incorporation of the net profit from the previous financial years (results carried forward) or the incorporation of net profit from the previous financial year (revenue sharing)*. We mention that the latter ones do not imply financial flows, because the incorporated resources already existed in the company.

Moreover, the financial manager may also choose *to increase capital through debt conversion*, namely to swap debts into capital that is not due. This method requires adopting a more important financing decision for the company because it leads to the replacement of a short or long term debt with a change in the share capital. It does not exclusively represent a financing operation, because it does not translate through an actual contribution of capital, but is only a way to increase capital by reducing debts, without resorting directly to treasury or introducing new associates.

In conclusion, we may state that the increase of capital cannot be a decision taken at random. Although, apparently there are not any difficulties or obstacles, because it does not require funds, it will have to be adopted after having previously analysed all possibilities to achieve it. This will avoid especially the discontent of shareholders or associates, when talking about not receiving dividends and also of any other situation with negative effects on the company.

#### **b. The formation of capitals through bond financing**

Bond financing are loans generated by the issue and sale to the public of bonds.

With regard to the Romanian companies, the bond loan is a practice little or not used to attract capitals. However, it should not be neglected that the legislation in force (Law 31/1990 republished;

Law 297/2004) mentions this possibility. Thus, joint stock companies (limited liability companies cannot issue bonds) may issue bonds in a material form, on paper, or in a dematerialised form, by registration in the account. They will have to have an equal value, to give holders equal rights, not less than 2,5 lei (nominal value). The loan's minimum value cannot be less than the equivalent in lei of 200.000 euro, except for the continuous issues, if the amount of the loan is not fixed.

The bond loan includes, besides the fixed interest and other expenses, in the costs' amount other expenses, such as: issue, advertising costs, bank charges, expenses with the printing of bond certificates, issue bonuses, reimbursement bonuses etc.

The decision regarding the public issue of bonds is extremely important for any company. We consider that the financial management will have to evaluate the implications of the bond financing on the company's development possibilities.

These implications may be primarily determined by *the nature of the issued bonds*, respectively by their advantages and disadvantages for the company.

Second of all, *the advantages caused by attracting long term resources*, most of the times at inferior costs than those of bank loans *should be compared with the main problems that might occur*: the evolutions of interest rates and of inflation, the reporting and subscription obligations on a regulated market.

Thirdly, the financial management should be aware of the fact that, unlike shareholders, who are the owners, *the owners of bonds are creditors*. While shares bring a variable dividend, theoretically unlimited, but uncertain, bonds provide a coupon that has a known and safe value. The bond's coupon does not depend on the company's economic-financial results, which has to be paid whether or not the company gets profit (Mitran, 2002, p. 16).

### **c. Company's capital formation from long term loans**

There is no doubt that each of us had to resort to loans to get certain benefits (Emery and Finnerty, 1997, p. 766). In a particular moment of its existence, every company is in the situation of developing or purchasing new assets for a better development of the activity. Usually, in order to finance long term assets, companies resort to long term capital. The profit obtained along the existence of the company is a possibility to obtain the necessary capital. Nevertheless, there cannot be development and expansion alternatives only on equity, but it requires external sources of long term financing.

Of all the methods used to attract long term capital, long term loans are the most used ones. There are three **major reasons** (Rao, 1994, p. 419) that made companies resort to this source of capital formation. First of all, as compared to equity, it is less expensive due to the deductible character of interest expenses. Secondly, long term loans generate a financial leverage that allows an increase of profits (or of losses). Thirdly, as compared to short term loans, the long term ones provide a better flexibility of the company due to the longer period during which reimbursement is allowed. According to the influence of these factors, assessments on the opportunity to resort to loans can be made. Therefore, before hiring any loan contract, a careful inventory of the necessary resources and possibilities to efficiently use them, made by the financial manager, is requested.

Resorting to loans in an uncontrolled manner raises a number of risks for the company, endangering its entire activity. Moreover, under conditions of high interest rates, resorting to loans might become a burden for the company, due to the costs it generates. Therefore, the management of the financial-accounting activity must carefully monitor the company's indebtedness level to ensure, on one hand, a comfortable level of autonomy and financial stability, and, on the other hand, an increased financial profitability.

Although they are frequently used, long term loans are not that attractive to all companies. For example, companies that do not have a constant profit rate can be, at a particular moment, unable to pay the loan's rates. Other companies, that have worked on loss or low profit, loose their interest in taking loans because they might also get profit in the future and therefore, the deductibility of the financial expenses are no longer attractive to managers.

Is a fixed or variable rate of interest more favourable? Which is the most advantageous maturity? What are the guarantees offered? All these are only few of the problems of the management of the financial-accounting activity in case the company decides to take a medium or long term bank loan.

#### **d. Company's capital formation from short term loans**

Short term financing decisions establish a company's development general framework. They are thoroughly grounded and most often irreversible. Generally, short term financing is related to the companies' current activity and it occurs because of time gaps between the production and sales cycles, between payments for purchasing the necessary stocks for the production activity and the cash collected from customers.

Short term loans are usually more flexible than the long term ones. For example, a short term banking loan may be contracted more rapidly than a long term loan such as the one obtained from the bonds issue. Banks need more time to analyse the company's financial position before granting a long term loan. This process requires more time. Thus, if the company requires immediate capital, the financial manager should take into consideration short term loans.

Another consideration is related to why the capital is requested. Long term funds are usually not appropriate if the manager has to meet periodical or cyclic needs. The company might also contract a long term loan that it would pay back before maturity, but this option is usually more expensive. Moreover, short term loans give the company the possibility to act for a future perspective.

Although short term loans are considered more flexible and often less expensive, from the company's point of view, they are more **risky**. This perception is the result of two main causes. The first one is related to the loan's interest which, although smaller, it tends to fluctuate more during this period. The second refers to the fact that any short term debt makes the company more vulnerable to the risk of payment inability, because of the possibility to encounter certain economic problems that result in the lack of positive cash flows.

Furthermore, loans may become unattractive in times of recession because banks typically tighten credit standards and/or loan terms as the economy weakens and nonperforming loans increase. Recession and general economic uncertainty reduces the demand for credit especially in case of corporate borrowers. Thus, in Romania, the international financial crisis and changes in credit standards have resulted in a decrease in applications for loans. Lending in Romania contracted significantly since the fall of 2008 because the central bank's new crediting norms (which intended to limit borrowing risks) entered into force in October 2008 forcing banks to take extra-measures. Lending standards concerning small and medium companies were hardened faster than banks expected, while the situation regarding large companies was reverse. Factors that contributed to this situation were: expectations for the entire economy, risk associated with the industry the company operates, risks associated to required collateral and changing the weight of bad loans in bank portfolio (Drigă and Guță, 2009, p.23).

In conclusion, we consider that the financial management has to pay great attention to this type of financing which, although it seems safe and does not require time to prepare the documents, may however be more risky than long term loans.

#### **e. Attracted sources**

The formation of capital from attracted sources is considered to be inherent due to the mechanism and relationships from the economic circuits, and also the financial circuits.

**Attracted capitals or liabilities** generate the company's obligation to third parties to pay on time the owed amounts. Therefore, they are permanent minimal funds that belong to other natural or legal entities, available for the company and that it uses as its own funds. Compared to the formation sources, the attracted capital may result in the following: *debts to the suppliers of liquid or fixed assets* from different suppliers; *debts to the creditor clients* that come from advanced payments collected from clients in view of delivering the merchandise, providing the contracted

services; debts to the personnel, materialised in salaries, sickness benefits, bonuses, amounts uncollected within legal time, deductions and attachments and other debts; *debts to the social insurance, unemployment fund; debts to the state budget, local budgets and special funds*, such as: income tax, value added tax, excises etc; debts to the group and associates, that may include: deductions within the group, the amounts owed by the company to the associates and shareholders, the dividends to be paid etc.; *debts to different creditors*, namely the amounts owed by the company to third parties based on enforceable titles or from other operations.

#### **f. Leasing: a financing alternative**

Leasing is the operation whereby one party, called *lessor/financer*, transfers for a determined period of time the right of usage of a good whose owner he is, to the other party, called *lessee/user*, upon request, for a periodic payment, called leasing rate, and at the end of the leasing period the lessor/financer has to respect the right of option of the lessee/user to buy the good, extend the leasing contract without changing the nature of the leasing or end contract relationships. The lessee/user might choose to buy the good before the end of the lease period, but not earlier than 12 months, if the parties so agree and if he pays all obligations under the contract. (Governmental Ordinance no. 51/1997, republished, 2000).

*Why does the company use leasing financing? How can the increase of the leasing industry during the last years be explained?* These are only some of the questions we shall try to answer to, by showing some of the most important **qualities of leasing and the facilities** enjoyed by the company (Rao, 1994, pp. 552-553): *increased flexibility, reduced administration costs, low costs for the financer, maintaining the working capital, it is a certain limit of economic calculations for the user's businesses, through the leasing rates firmly established in the contract, the minimum level set by the lending banks does not apply to the lease's value.*

As far as the **forms of the leasing contracts** are concerned, we mention the financial leasing contract and the operational leasing contract (Law no. 571/2003).

Nowadays, decisions regarding the leasing contract are determined by objective and subjective factors of the business partners (Molico and Wunder, 2002, p. 33). In our opinion, the financial management should get involved in the general decision process regarding a leasing contract. Its attributions consist of presenting the risks to the company, as user, by signing such a contract, and also negotiating the contract. If negotiation goes well, the parties involved may take decisions that would lead to the prevention of risks and the bearing of proportionate and fair consequences. We must however note that the decisions to reduce the level of risks are possible only if decision alternatives are based on valuable and complete information. And, in order to use the information sources the most efficiently possible, partners will have to have the knowledge and the corresponding theoretical and practical capacities.

Moreover, we find it appropriate to recall that leasing might be important because it has the ability to turn a non-viable project into a viable one.

### **3. The cost of capitals**

Obtaining an optimal mix of capitals is an extremely complicated process because of the diversity of sources for obtaining the capitals and the variables that should be considered when choosing one or the other.

The financing decision mostly belongs to the company's managers and less to the "suppliers" of capitals. According to many finance specialists, the main criteria in choosing the financing sources are focused on: the financing cost, the financial profitability, real payments and surplus of cash flow.

Regardless of their nature, all capitals have a cost, and optimizing the capitals; structure according to the costs' criteria has already become, if it is well-conceived, organised and conducted, a profitable activity. The cost of capitals is one of the evaluation criteria of the upgrading rate necessary to select investments. Thus, one should not invest in a project unless its economic profitability is inferior to the cost of resources used for financing. It is very important to the entire

business world to know the cost of the capital, because of three main reasons, namely (Halpern at. all, 1998, p. 587):

- To maximise the company's market value, managers have to minimise the costs of all inputs, therefore the cost of capitals; o minimise the cost of capitals, managers have to, firstly, be able to measure that cost;
- Managers of the financial departments need an estimation of the cost of capitals according to which they can take correct investment decisions;
- Choosing the purchase sources of capitals is based on estimating their costs.

The cost of capitals is increasingly determining the user's profit and profitability. As a consequence, it must be forecasted, the company of the future being forced to make an adequate strategy and tactical procedures for an efficient correction and implementation.

#### 4. Conclusions

In conclusion, financing solutions must be adapted to the company's quality needs. Economic practice proved that, due to the economic competition, the creation of new companies and the development of the existing ones regarding the continuous increase of the turnover are increasingly harder to be achieved only with equity capital. The globalization of world economy does not exclude the increase of global competitiveness in all areas of activity that is why entrepreneurs, are forced to use new financing methods, generated by the mechanisms of the market economy. There are currently special financing instruments which meet the applicants' flexible requirements (Molico, 2004, p. 49). On one hand, it might have to reimburse resources even before recovering the advances made, especially if investments have long term profitability. On the other hand, the company might have to use, for short term operations, resources it could use for short term investments.

Financing aspects have vital importance because their solution makes vital the survival of the company, its development perspectives, its current and future performances, the autonomy of its owners and its managers. It is thus revealed the importance of improving the methods and selection instruments of the financing means, adequate to the entity's requirements.

The diversity of sources of capital formation and the consequences involved in choosing one or the other lead to the adoption of the financing decision under risky and uncertain conditions. Therefore, we consider that choosing the ideal financing source could be, if not an impossible objective to achieve, at least a very difficult one. Under these circumstances, the financial management should understand very well the financing possibilities to find a convenient source of capital.

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## THE IMPACT OF CORPORATE GOVERNANCE ON BANK PERFORMANCE

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**Abstract:** *This article aims to characterize the relationship between corporate governance and bank performance. We debated the possible interrelations between the mechanisms of corporate governance and performance and we analyzed econometrically the relation between the reflection of the governance principles in the annual bank reports and bank performances, expressed in the form of the level of cost efficiency and technical efficiency. The analysis was performed over a period of five years (2005-2009) for 3 bank groups. The obtained results show that the evolution of the corporate governance index is statistically significant correlated with both technical and cost efficiency.*

**Key words:** bank efficiency, corporate governance, data envelopment analysis

**JEL classification:** G21, G30

### 1. Introduction

The efficiency and stability of banks constitutes a very important element in the analysis of financial systems, especially of those in developing countries, at the level of which the banking system is the main component of the financial system. This has known for the past years major mutations at the level of the structure of ownership as a result of privatization, of the entry of foreign banks and of the increase of competition determined by the liberalization of the market, as well as of the legislative changes. The creation of a two-tier banking system, based on the principles of the free market, the implementation of new methods and instruments for bank regulation and supervision, the financial or banking crises, the large volume of non-performing loans, the entry of foreign banks through the privatization process or the creation of branches, the creation of new banks, the acquisitions and mergers at the level of the banking sector, the expansion of modern banking products and technologies – all these factors had significant effects on the efficiency and profitability of the bank sector in the countries in Central and Eastern Europe (Poloucek, 2004, p. 75). The efficiency of the banking system influences the cost of financial intermediation and the stability of the entire financial system (Rossi et al., 2005). Moreover, an improvement of the performance of banks shows a better allocation of financial resources and, as a result, an increase of the investments favoring economic growth (Levine, 2005).

The application of the corporate governance principles in the management of banks is important both for the banks, and for the entire economy (Caprio and Levine, 2002) especially since the globalization process of the banking systems has shown important problems regarding the regulation of the corporate governance principles at the level of financial institutions, and the evaluation of the credit institutions' management can prove to be very useful if we consider the direct contamination phenomenon. The faulty application of the corporate governance principles that favored an excessive exposure of bank institutions to risk is considered a cause of the current financial crisis (OECD, 2009). Although at the level of the literature in the field special attention was given to the application method of the corporate governance principles there are a relatively

low number of surveys that study corporate governance at the level of banks (Levine, 2004; Caprio et al., 2007).

In regard to the corporate governance of banks we consider that this presents importance both for the management of credit institutions and for the entire economic system. In the era of globalization the banking system has suffered significant mutations, banks becoming real corporations. The studies in the field have tried to determine the existence and then to characterize the causality relationship between the application of the corporate governance principles and the efficiency of the performed activity. Given the fact that the credit institutions play an important role in economic growth (Levine, 1997, 2005) there can be deduced the fact that the implementation of some efficient corporate governance mechanisms within them also has on economic growth and durable development. The importance of the banking system is significantly larger in emerging countries, where banks are the main financial intermediaries, the stock market being insufficiently developed. The efficient application of the corporate governance mechanisms has an impact on the optimum management of the savings of the population and the financing of the private sector. The granting of loans to the productive sector puts the credit institutions in the position of external provider of corporate governance for the companies they finance or the liquidities of which they manage. (Franks and Mayer, 2001, Santos and Rumble 2006). This argument increases the importance of applying solid principles of corporate governance in bank management both for own activity and for the financed companies.

Even if banks are corporations the bank management has a series of specific characteristics. Among these we consider that the asymmetry of the banking system determines a high vulnerability, for which reason the implementation of some appropriate corporate governance systems is of a real importance both for financial institutions and for economic stability in general. The current crisis brings forward the importance of responsible management in all areas of activity, as mainly in the financial area. There was circulated the hypothesis according to which one of the triggers of this economical imbalance are the very credit institutions through the risky investments they performed.

The specific characteristics of the banking system determine particular traits of the corporate governance in the banking system. The most important aspects differentiate the credit institutions from corporations that activate in other areas are opacity and overregulation. The bank activity has a much higher degree of opacity, for which reason information asymmetry presents significant implications in the financial area (Furfine, 2001; Morgan, 2002). The lack of transparency intensifies the problematic specific to the agent theory (Michael Jensen, 1998) through several channels. In view of the efficient monitoring of the activity of managers the ownership have to implement remuneration systems that serve the interests of ownership and co-interest managers in view of maximizing the company value.

The second *special* characteristic of banks is overregulation. Because of the importance the banking system plays in the economy and of the opacity of the credit institutions even the most liberal of economies tend to impose on them rigorous regulations. Although the literature in the field considers the regulations as an additional corporate governance mechanism, the research performed by Levine (2004) shows that they are interdependent. For example, in many countries the legislation in effect contains normative regarding the structure of ownership for credit institutions, the degree of concentration and the characteristics of the major shareholders. These measures can also have a reversed effect: by trying to compensate the losses generated by overregulation the bank managers have a positive attitude toward risk. At the same time excessive regulation and imposing restrictions on foreign banks does not encourage competition (Levine, 2004).

Considering the importance the credit institutions have in the well going of economy, we consider that the literature in the field does not analyze sufficiently the impact of each corporate governance component on bank performances.

Among the studies analyzing the impact of corporate governance on the financial performances of companies a special place has the research that considers several components of the corporate governance mechanisms. Among the components of the corporate governance mechanisms the

board of directors and ownership occupy a special place, the impact of these factors on the financial performance of the company is of maximum interest and constituted the study matter for reputed economists. Given the fact that through the board of directors the ownership oversee the management of the company, it is considered to be one of the best instruments of implementation of corporate governance at the level of a company (Jensen, 1993).

Hermalin and Weisbach (1998) developed a model that analyzes the characteristics of the board of directors considering the relationship between directors and ownership a continuous negotiation process in view of improving the quality of the management process. The conclusions of their research are that is no statistically significant relation between the structure of the board of directors and the performances of corporations; there is a relation of direct proportionality between the size of the board of directors and the performance of the company; both the structure of the board of directors and its size affect the performances of the enterprise

Concerning the particularities of the credit institutions, the research performed by Caprio and Levine analyze the impact the structure of ownership and the protection of minority shareholders has on the bank performances. The conclusions of researchers show that these criteria lay an important role in determining the market value of the bank. Laeven and Levine (2009) continue their studies by concluding that within credit institutions there is a causality relationship between the dispersion of ownership and the attitude towards risk respectively that the impact of implementing prudential regulations depends on the ownership structure.

Another category of studies analyzes the impact of the property form as component of the corporate governance system on the profitableness of the banks, setting an access on the effects of privatization. Berger et al. (2005) test the effects of corporate governance on bank performance using data from Argentina in the 1990s. The main findings regarding the static effects of bank ownership on performance suggest that state-owned banks tend to have poorer long-term performance on average than domestically-owned banks or foreign-owned banks, consistent with much of the literature. Spong and Sullivan (2007) analyze the way in which different corporate governance aspects influence bank performances. Clarke, Cull, Martinez, Peria and Sanchez (2003) studied the impact of privatization of the financial performances of the credit institutions and Vernikov (2007) studied the relationship between corporate governance and the economic results obtained by banks activating in Central and Eastern Europe.

## **2. The model and data used**

The aim of our research is to analyze the relation between the level of application of the corporate governance principles, quantified with the help of a corporate governance index, and the performance of the bank activity, expressed in the form of the cost and technical efficiency level, at the level of the countries in Central and Eastern Europe.

In the first stage of the study we calculated the corporate governance index and the efficiency of banks. The analysis was performed over a five year period (2005-2009) at the level of five countries in Central and Eastern Europe (Czech Republic, Croatia, Romania, Slovakia and Hungary) and is applied at the level of 3 bank groups (Erste Group Bank, UniCredit and Raiffeisen Banking Group) that represent the main financial service providers in Central and eastern Europe.

The corporate governance index was calculated based on the information comprised in the annual reports published on the web sites of the banks from the selected sample. The analysis criteria used in calculating the corporate governance index are: 1. *The existence of a commitment regarding Corporate Governance*; 2. *The existence of a special column dedicated to corporate governance*; 3. *Information regarding the bank group*; 4. *The number of issued shares and their nominal value*; 5. *Information regarding dividends*; 6. *The company's external audit report*; 7. *Details concerning the main clients*; 8. *Information of interest for employees (hiring, salary policy, information regarding the union etc.)*; 9. *Information regarding the company management*; 10. *Declarations regarding the social responsibility of the corporation, financed actions, main preoccupations in the field.*

**Table no. 1 Analyzed sample**

Bank group	Country	Bank name
Erste Group Bank	Czech Republic	Ceska Sporitelna a.s.
	Croatia	Erste & Steiermärkische Bank dd
	Romania	Banca Comerciala Romana
	Slovakia	Slovenska sporitel'na
	Hungary	Erste Bank Hungary Nyrt
UniCredit	Czech Republic	Unicredit Bank Czech Republic AS
	Croatia	Zagrebačka banka Group
	Romania	Unicredit Tiriac Bank SA
	Slovakia	UniCredit Bank Slovakia a.s.
	Hungary	UniCredit Bank Hungary Zrt
Raiffeisen Banking Group	Czech Republic	Raiffeisenbank akciova spolecnost
	Croatia	Raiffeisenbank Austria d.d., Zagreb
	Romania	Raiffeisen Bank SA
	Slovakia	Tatra Banka a.s.
	Hungary	Raiffeisen Bank Zrt

The calculation methodology for the corporate governance index consisted in allocating for each criteria a score between 0-2 based on the following principles: 0 if the information does not exist or is not updated; 1 if the information exists but is hard to find or incomplete; and 2 if the information is easy to indentify, easy to understand and is complete. The corporate governance index at the level of each bank was calculated by adding the scores obtained at the level of each criteria, followed by the normalization of the scores obtained for the optimum data analysis.

The average values for each bank group, at the level of each country and for each analyzed year are presented in the table below:

**Table no. 2 Average values of the Corporate governance index**

Bank group	Erste Group Bank,	Raiffeisen Banking Group	Uni Credit	Average		
Corporate governance index	.7560	.6760	.7040	.7120		
Country	Czech Republic	Croatia	Romania	Slovakia	Hungary	
Corporate governance index	.7000	.7067	.7333	.7167	.7000	.7033
Year	2005	2006	2007	2008	2009	2010
Corporate governance index	.5233	.6500	.7133	.7900	.7933	.8833

Source: Own calculations

Based on the results obtained there is noticed an increasing trend of the corporate governance index for the analyzed period, as well as the fact that the corporate governance principles are best reflected in the annual reports for Erste Group Bank and at the level of the banks in Romania.

In the analysis of the efficiency of the analyzed banks we will use the DEA Method (Data Envelopment Analysis), which is a non-parametrical linear programming method used to create the efficiency frontier and to evaluate the efficiency of a decision unit. The DEA method provides for the ensemble of analyzed units the efficiency frontier, after which, each decision unit in the used

data set is evaluated in relation to this frontier and is assigned a relative efficiency to the units with the “best” performances. Those units with the “best” performances that are on the efficiency frontier are considered to be efficient, and the others are considered inefficient and an inefficiency score is assigned to them.

In the analysis of the efficiency of banks we started from the hypothesis that banks perform a financial intermediation activity through which a set of inputs are transformed into a set of outputs and that the production function specific to banks is a function characterized by efficiency rates variable in scale. In determining the efficiency we will use the model developed by (Banker, Charnes and Cooper, 1984) which can be written as:

$$\begin{aligned} \min_{\lambda} \quad & z_0 = \theta \\ \text{with the condition} \quad & : \\ \sum_{j=1}^n \lambda_j y_{rj} & \geq y_{r0}, r = 1, 2, \dots, s \\ \theta_0 x_{i0} - \sum_{j=1}^n \lambda_j x_{ij} & \geq 0, i = 1, 2, \dots, n \quad (1) \\ \sum_{j=1}^n \lambda_j & \leq 1 \\ \lambda_j & \geq 0, j = 1, 2, \dots, n \end{aligned}$$

where:  $\theta_0$  – technical efficiency to be estimated of the decision unit;  $\lambda_j$  – a n-dimensional constant that must be estimated;  $y_{rj}$  – the volume of r-type output afferent to unit j;  $x_{ij}$  – the volume of i-type input afferent to unit j;  $r$  –output type;  $i$  –input type;  $j$  – decision unit

The result of model (1) represents technical efficiency. The units with an efficiency level  $\theta_j < 1$  are relatively inefficient and those with  $\theta_j = 1$  are relatively efficient units and are located on the efficiency frontier.

The cost efficiency is defined as:

$$EC = \frac{\sum_{i=1}^m p_i^o \tilde{x}_{i0}^*}{\sum_{i=1}^m p_i^o x_{i0}^*} \quad (2)$$

Because the real cost ( $\sum_{i=1}^m p_i^o x_{i0}^*$ ) is a constant for the decision unit, the cost efficiency can be calculated by using the model:

$$\begin{aligned} \min \quad & \frac{\sum_{i=1}^m p_i^o \tilde{x}_{i0}^*}{\sum_{i=1}^m p_i^o x_{i0}^*} \\ \text{with the condition} \quad & : \\ \sum_{j=1}^n \lambda_j x_{ij} & \leq \tilde{x}_{i0}, i = 1, 2, \dots, m \quad (3) \\ \sum_{j=1}^n \lambda_j y_{rj} & \geq y_{r0}, r = 1, 2, \dots, s \\ \lambda_j & \geq 0, j = 1, 2, \dots, n \end{aligned}$$

For determining the level of efficiency according to the DEA methodology we used the variables presented in the table below

**Table no.3 Variables used to determine technical efficiency and cost efficiency through the DEA method**

Variable name	Variable description
<b>Inputs</b>	
<b>Fixed assets;</b>	Accounting value of the fixed assets owned by the bank in mil. EUR;
<b>Personnel expenses;</b>	Total value of the personnel expenses in mil. EUR;
<b>Operational expenses;</b>	Total operational expenses of the bank in. EUR;

<b>Financial capital</b>	Sum of total deposits, total money market funding, total other funding and equity
<b>Outputs</b>	
<b>Loans;</b>	Total value of the loans in mil. EUR;
<b>Loans and advances to banks;</b>	Total net value of the loans and advances to banks in mil. EUR
<b>Financial investments.</b>	Total investments in mil. EUR
<b>Input price</b>	
<b>Labor price</b>	Personnel expenses / Number of employees
<b>Fixed capital price</b>	Depreciations and amortizations / Fixes assets;
<b>Operational costs</b>	General expenses / Financial capital;
<b>Capital price</b>	Interest expenses / Financial capital.

Source: Own selection

The results obtained regarding the levels of technical efficiency and cost efficiency at the level of the analyzed banks are presented in the following table:

**Table no.4 Average values of the technical efficiency and cost efficiency at the level of the analyzed banks**

Bank group	Tec hnical efficiency	Cost efficiency	Cou ntry	Tec hnical efficiency	Cost efficiency	Year	Tec hnical efficiency	Cost efficiency
Erste Group Bank	.948	.9054	Czech Republic	.831	.784	2005	.821	.746
Raiffeisen Banking Group	.902	.8341	Croatia	.871	.819	2006	.949	.876
UniCredit	.874	.8191	Romania	.996	.981	2007	.965	.925
Mediabank	.908	.8529	Slovakia	.926	.878	2008	.907	.875
			Hungary	.915	.800	2009	.898	.841

Source: own calculations

Based on the data presented above, it is noticed that the highest level both of technical efficiency, and of cost efficiency, is registered by the banks in Romania and Slovakia, and the lowest level of registered by the banks in the Czech Republic. Also it is noticed a decrease of the level of efficiency registered by banks starting with the year 2008, which can be caused by the propagation of the global financial crisis. At the level of the 3 analyzed bank groups, there can be noticed at the level of the countries and of the analyzed years, that the banks that are part of Erste Group Bank are on average the most efficient ones.

In the second stage of the study we tested whether there is a relation between the corporate governance index and the levels of technical efficiency and cost efficiency. For this purpose we used the Granger Causality tests that indicate which variables are useful for the prognosis of other variable. More precisely, we can say that X Granger causes Y if a prognosis of Y made based on a set of information that comprises the history of X is better than a prognosis that ignores the history of X. the results of the granger causality test for the variables corporate governance index, technical efficiency and cost efficiency are presented in the table below.

**Table no.5 Results of the Granger test regarding the causality relationship between the corporate governance index and technical efficiency, respectively cost efficiency**

Pairwise Granger Causality Tests

Sample: 2005 2009

Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
EFFC does not Granger Cause CGI	60	2.49026	0.1201
CGI does not Granger Cause EFFC		5.84897	<b>0.0188</b>
EFFTEH does not Granger Cause CGI	60	3.15956	0.0808
CGI does not Granger Cause EFFTEH		6.65683	<b>0.0125</b>
EFFTEH does not Granger Cause EFFC	60	0.56162	0.4567
EFFC does not Granger Cause EFFTEH		0.29919	0.5865

Source: own calculations

Based on the obtained results, we can with a probability of 95% reject the hypothesis that the corporate governance index does not influence technical efficiency and cost efficiency, so we can state with a 5% margin of error that the corporate governance index evolution influences technical efficiency and cost efficiency.

In the third stage we analyzed the impact of the corporate governance index on the levels of technical efficiency, respectively cost efficiency, at the level of the banks analyzed for the period 2005-2009. The model used in the analysis is described in the following equation:

$$EFF = \alpha + \beta_{1it} \times CGI\_20 + \beta_{2it} \times GDP\_G + \beta_{3it} \times IR + \beta_{4it} \times DC + \beta_{5it} \times IS + \beta_{6it} \times ASFOB + \beta_{7it} \times HHI + \beta_{8it} \times IND\_LSB + \beta_{9it} \times ROA + \beta_{10it} \times E\_TA + \beta_{11it} \times LP\_TL + \beta_{12it} \times LA\_TA + \varepsilon \quad (4)$$

where: EFF – efficiency of bank activity; CGI\_20 – corporate governance index; GDP\_G – gross domestic product increase; IR –inflation rate; DC – level of financial intermediation; IS – Interest spread; ASFOB – average of assets owned by banks with foreign capital in total assets; HHI – bank concentration index HHI; IND\_LSB – the index regarding bank reform and liberalization of the interest rates, developed by the European Bank for Reconstruction and Development that has as objective the determination of the progresses made at the level of the banking systems from the ex-communist states and that reflect from a qualitative and quantitative point of view the liberalization degree of the banking systems; ROA – return of assets; E\_TA – capital structure ( Equity/total assets); LP\_TL –provisions for losses in loans/net losses (Loan provisions/total loans); LA\_TA – average of assets with a high liquidity in total assets ( Liquid assets/ total assets);  $\alpha$  – constant;  $\varepsilon$  – standard error.

The data regarding the banks used in the analysis are taken from the Annual reports of the banks from the period 2005-2009 and from the Fitch IBCA`s BankScope database. The information regarding macroeconomic variables and the ones specific to banking systems are taken from the databases of the World Bank, European Central Bank and European Bank for Reconstruction and Development.

### 3. Empirical results of the analysis

The starting point of our analysis is the descriptive analysis of the data used in the study. The comparative analysis depending on the home state of the average values of the variables of the model at the level of the banks are presented in the table below.

**Table no. 6 Average value of the macroeconomic – independent variables**

Country	GD P increase	Inflation rate	Level of financial intermediation	Interest spread
Cze Mea	5.4	2.9	43.2250	4.5400

<b>ch Republic</b>	<b>n</b>	297	307		
	<b>Std. error</b>	.52	.48	1.74673	.02138
<b>Cro atia</b>	<b>Mea n</b>	4.1	3.5	63.9000	7.8200
	<b>Std. error</b>	.34	.34	1.38285	.25094
<b>Ro mania</b>	<b>Mea n</b>	6.8	6.7	30.0500	8.0000
	<b>Std. error</b>	.59	.40	2.24970	.78322
<b>Slo vakia</b>	<b>Mea n</b>	7.9	3.2	40.2000	4.2400
	<b>Std. error</b>	.52	.30	1.10433	.02138
<b>Hu ngary</b>	<b>Mea n</b>	2.3	5.1	57.6500	1.3800
	<b>Std. error</b>	.47	.44	1.99619	.33526
<b>Ave rage</b>	<b>Mea n</b>	5.3	4.3	47.0050	5.1960
	<b>Std. error</b>	.33	.24	1.76053	.33575

Source: own calculations

By comparing the average values, we notice major differences, at the level of the macroeconomic variables, between the states included in the study. We notice that in the analyzed period the level of average economic increase varies between 2,37%, in Hungary, and 7,97%, in Slovakia. Romania has registered the highest level of inflation (6,77%), as well as the highest level of the interest spread (8%).

The indicator regarding the level of financial intermediation expressed as ratio between the Non-governmental bank loan and GDR has registered the highest average level in Croatia (63,9%), and the lowest one was registered in Romania (30,05%). Although the intermediation degree has registered a constant increase for the analyzed period, Romania still registers one of the lowest degrees of financial intermediation in the European Union.

**Table no. 7 Average values of the independent variables – financial sector**

Country		Foreign banks average	HHI	Indicator regarding bank reform
<b>Cze ch Republic</b>	<b>Me an</b>	84.8365	1093. 2500	4.0000
	<b>Std. error</b>	.52116	15.26 638	.00000
<b>Cro atia</b>	<b>Me an</b>	90.8600	1312. 0000	4.0000
	<b>Std. error</b>	.07856	8.877 96	.00000
<b>Ro mania</b>	<b>Me an</b>	81.2800	1060. 7500	3.1980
	<b>Std. error</b>	2.97112	27.57 335	.04321
<b>Slo vakia</b>	<b>Me an</b>	96.8200	1121. 5000	3.6700
	<b>Std.</b>	.73609	14.63	.00000

<b>Hu</b>	<b>error</b>		262	
<b>ngary</b>	<b>Me</b>	79.0000	819.0	4.0000
	<b>an</b>		000	
	<b>Std.</b>	1.99105	4.748	.00000
	<b>error</b>		21	
<b>Ave</b>	<b>Me</b>	86.5593	1081.	3.7736
<b>rage</b>	<b>an</b>		3000	
	<b>Std.</b>	3.95856	21.67	.03756
	<b>error</b>		573	

Source: own calculations

At the level of the analyzed countries there can be noticed from the table above that the highest level of the indicators regarding structural reforms is registered by Hungary, Czech Republic and Croatia, which means that the financial and banking system in these countries presents the highest degree of liberalization, and the lowest level is registered by Romania.

From the comparative analysis of the 5 national banking systems there can be noticed that in Croatia there was registered the highest average level of the concentration degree, and the highest average level of the indicator average of assets owned by banks with foreign capital in total assets was registered in Slovakia, and the lowest level was registered in Hungary.

The regression analysis of the impact of the corporate governance index on bank performance, expressed through the level of technical efficiency and cost efficiency, quantified through the DEA method, was performed by using the Ordinary least squares (OLS). We developed 2 models, the first one uses as dependent variable the technical efficiency indicator, and the second uses the cost efficiency indicator.

In view of testing the robustness of the analysis we used the *step-by-step* method, more precisely we introduced in stages each category of independent variables, and as alternative estimation method we used the Panel Generalized method of Moments (GMM). We chose to use the GMM fixed effect regression model because the database comprises a high number of variables for a relatively short period of time.

The results of the regression analysis in the case when the dependent variable taken into account is Technical efficiency are presented in the following table:

**Table no. 8 Determining factors of technical efficiency**

Dependent variable Technical efficiency					
Model	1	2	3	4	5
C	0.7435	0.4899	2.5354	3.6470	3.6470
	85***	22*	59*	31*	31*
	(0.0588	(0.2821	(1.4361	(1.7426	(1.7426
	59)	25)	20)	59)	59)
CGI_2	0.2313	0.7729	0.7061	0.8239	0.8239
	10***	01***	60***	25***	25***
	(0.0813	(0.2131	(0.2261	(0.2546	(0.2546
0	18)	08)	26)	21)	21)
GDP_		0.0103	0.0116	-	-
		81	49	0.001003	0.001003
		(0.0099	(0.0104	(0.0125	(0.0125
G		24)	99)	61)	61)
IR		-	-	-	-
		0.007156	0.025865*	0.025121	0.025121
		(0.0119	(0.0138	(0.0176	(0.0176
		15)	88)	76)	76)
DC		-	-	-	-
		0.003835	0.001300	0.012181*	0.012181*
		(0.0055	(0.0059	(0.0067	(0.0067
		74)	75)	02)	02)

		0.0114	-	-	-
		12	0.017455	0.030188	0.030188
		(0.0158	(0.0194	(0.0195	(0.0195
		01)	79)	45)	45)
IS			-	-	-
			0.007812**	0.006100*	0.006100*
ASFO			(0.0031	(0.0032	(0.0032
B			38)	47)	47)
			-1.64E-	-	-
			05	0.000464	0.000464
			(0.0003	(0.0003	(0.0003
HHI			14)	92)	92)
			-	-	-
			0.348787	0.221329	0.221329
IND_L			(0.2843	(0.3539	(0.3539
SB			43)	63)	63)
			-	-	-
				0.025588	0.025588
				(0.0640	(0.0640
ROA				08)	08)
				-	-
				0.029520*	0.029520*
				(0.0145	(0.0145
E_TA				13)	13)
				-	-
				0.079342**	0.079342**
				(0.0340	(0.0340
LP_TL				95)	95)
				-	-
				0.004694	0.004694
LA_T				(0.0030	(0.0030
A				38)	38)
<b>Method</b>	<b>OLS</b>	<b>OLS</b>	<b>OLS</b>	<b>OLS</b>	<b>GMM</b>

Notes: Standard deviations are presented between brackets.

\*, \*\*, \*\*\* indicates significance levels at 10%, 5% and 1%

Source: own calculations

From the analysis of the t-statistical test and of the probability associated to it, which shows us that the coefficients taken into account are statistically significant, from the considered alternative models results that the corporate governance index has a positive impact on the bank performance indicators, both on technical efficiency, and cost efficiency. Thus an increase of the level of the corporate governance index determines an increase of bank performance expressed through the indicators: technical efficiency and cost efficiency.

The evolution of the level of the indicator Technical efficiency at the level of the analyzed banks is positively influenced by the evolution of the corporate governance index and negatively (that is, an increase of the indicator determines a decrease of the level of technical efficiency) by the evolution of the indicators: level of financial intermediation; average of assets owned by banks with foreign capital in total assets; structure of capital and the level of the indicator provisions for losses from loans/ net losses.

**Table no. 8 Determining factors of technical efficiency**

Dependent variable Cost efficiency					
Model	1	2	3	4	5

	0.5943 11*** (0.0723 65)	0.1351 47 (0.2819 82)	2.7516 65* (1.3897 71)	2.7470 08* (1.5728 67)	2.7470 07* (1.5728 67)
C					
CGI_2 0	0.3631 83*** (0.0999 78)	1.0953 29*** (0.2130 00)	1.0054 07*** (0.2188 28)	1.0030 48*** (0.2298 12)	1.0030 48*** (0.2298 12)
GDP_ G		0.0063 06* (0.0099 19)	0.0074 75 (0.0101 60)	0.0069 91 (0.0113 37)	0.0069 91 (0.0113 37)
IR		- 0.021531 (0.0119 09)	- 0.043226*** (0.0134 39)	- 0.030645* (0.0159 54)	- 0.030645* (0.0159 54)
DC		- 0.002055 (0.0055 71)	0.0011 17 (0.0057 82)	- 0.009281 (0.0060 49)	- 0.009281 (0.0060 49)
IS		0.0279 59* (0.0157 93)	- 0.006758 (0.0188 50)	- 0.020623 (0.0176 41)	- 0.020623 (0.0176 41)
ASFO B			- 0.008822*** (0.0030 37)	- 0.007619** (0.0029 30)	- 0.007619** (0.0029 30)
HHI			-3.46E- 05 (0.0003 04)	- 0.000381 (0.0003 54)	- 0.000381 (0.0003 54)
IND_L SB			- 0.467773* (0.2751 66)	- 0.163368* (0.3194 75)	- 0.163368* (0.3194 75)
ROA				- 0.053147 (0.0577 72)	- 0.053147 (0.0577 72)
E_TA				- 0.006647 (0.0130 99)	- 0.006647 (0.0130 99)
LP_TL				- 0.051419 (0.0307 73)	- 0.051419 (0.0307 73)
LA_T A				- 0.001898 (0.0027 42)	- 0.001898 (0.0027 42)
<b>Method</b>	<b>OLS</b>	<b>OLS</b>	<b>OLS</b>	<b>OLS</b>	<b>GMM</b>
<p>Note: Standard deviations are presented between brackets.  *, **, *** indicates significance levels at 10%, 5% and 1%</p>					

Source: own calculations

The evolution of the level of the indicator Cost efficiency is positively influenced by the evolution of the corporate governance index and negatively by the evolution of the indicators: inflations rate; average of assets owned by banks with foreign capital in total assets and level of the indicator regarding bank performance and liberalization of the interest rates. The methods in which we use alternative estimation methods (GMM) confirm and strengthen the conclusion regarding the positive influence the application of the corporate governance principle has on bank performance.

#### **4. Conclusions**

The performance of the bank activity constitutes a very important element in the analysis of financial systems, especially of the developing countries, at the level of which the banking system represent the main component of the financial system and which has know in the past years major mutations at the level of the ownership structure as a result of privatization, of the entry of foreign banks and of the increase of competition determined by the liberalization of the market and of the legislative changes. Another important aspect in the analysis of these banking systems is the legislative frame and the way in which the corporate governance principles are implemented.

The financial crisis has brought back forward the problematic of corporate governance within commercial companies in general. A special place is held by the financial institutions, which are considered to be responsible for the difficult situation global economy is in. the application of the corporate governance principles in the management of banks is important both for banks, and for the entire economy especially that the globalization process of the banking system has shown important issues regarding the regulation of the corporate governance principles at the level of financial institutions, and the evaluation of the management of credit institutions can prove very useful if we keep in mind the phenomenon of direct contamination. The faulty application of the corporate governance principles which has favored an excessive exposure of the bank institutions to risk is considered a cause of the current financial crisis.

The authors analyzed econometrically the relation between the reflection of the governance principles in the annual bank reports and bank performances, expressed in the form of the level of cost efficiency and technical efficiency. The analysis was performed over a period of five years (2005-2009) at the level of five countries in Central and eastern Europe (Czech republic, Croatia, Romania, Slovakia and Hungary) and applied at the level of 3 bank groups (Erste Group Bank, UniCredit and Raiffeisen Banking Group) that represent the main financial service providers in central and eastern Europe. The obtained results show that the evolution of the corporate governance index is statistical significant correlated with both technical efficiency, and cost efficiency.

The obtained results show that the evolution of the corporate governance index influences positively both technical efficiency, and cost efficiency. We consider this an added motif for banks to implement solid corporate governance principles. The European regulations regarding the implementing of corporate governance principles are in a state of permanent reform ad we consider that their evolution must consider the specific needs of the economy and its state of health. We consider that under the conditions of the internationalization of the financial markets an important role is played by a preventive legislation, but which does not alter the rights of the credit institutions.

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## SEVERAL THEORETICAL AND PRAGMATIC COORDINATES ON PERSONAL INCOME TAXATION

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**Abstract:** *Personal income taxation has a particularly important role for public financial resources, on any nation. If falling tax revenue, the method of taxation and the taxable rate are determined with accuracy, personal income tax can be considered economic and financial leverage. So, the involvement of personal income tax to stimulate economic and social development requires an adequate correlation between sampling process in the form of taxes, with those consuming resources and generating the new value. Through this article, we try to identify steps to be followed for choosing the best form of taxation on personal income, taking account of professionals analysis and features of tax systems.*

**Key words:** personal income tax; equity; progressive rate; flat rate.

**JEL classification:** H21, H24

### 1. Introduction

Direct taxes are the most common form of taxation, their development is closely linked with economic development, because it is set either on certain kinds of physical objects or activities, whether on income or wealth. Direct taxes, as individualized, are paid by persons or companies on which collection is performed, holding the whole "burden" of taxation, without the ability "to move the tax burden" to other taxpayers.

Fiscal policy measures in the personal income tax varies from country to country, the factors considered are: economic development; the share of direct taxes in total tax liability of the tax system; categories of income covered by the individual income tax; the tax burden among individual taxpayers; techniques and methods for administration; operation the declarative system; degree of voluntary tax compliance; tax administration.

### 2. Theoretical coordinates on personal income taxation

In the optimal taxation of personal income (Howell, 2005), each state has to find answer the following questions:

⇒ What are the fundamental problems of a state fiscal policy faces in personal income tax?

- It seeks to ensure fairness to the horizontal or vertical equity? Will be applied the same form of taxation, whatever the nature of personal income or tax treatment will vary depending on taxable income? It will take account of progression? In terms of efficiency, which will be the impact on labor demand and the saving system? From the perspective of equity, which will be the impact on the distribution of income? What is the optimal tax scheme should be chosen, so as, to ensure social protection?

⇒ How will be the tax system?

- What will be the number of tax rates? How much tax intervals will be set? It will take account of social security contributions? Will be considered inflation index?

⇒ How to determine the tax base?

- What is the unit of taxation? What benefits are part of taxable income? What solutions are adopted in the registration statement for a negative net income? What is the tax treatment of retirement income? What is the tax treatment of capital income? What is the taxation of income from self-employment? What are the tax rules applied to residents and what is the tax credit for income earned outside the state of residence?

Depending on the answers to these questions and the choice will be appropriate, will proceed to identify the optimal form of taxation on personal income, both for taxpayers and for the formation of public financial resources. Thus:

✓ *To achieve personal income tax must take account of equity, either horizontally or vertically.*

Horizontal equity refers to the fact that individuals in equal economic circumstances should be treated equally by the tax system, so, if two people before tax had the same financial position, after taxation, must remain with an equal financial situation (Canada Library of Parliament, 2005).

Principle that those who are able to pay taxes should contribute more than those who are not, leads us to use tax in view of vertical equity. The two possibilities of action for ensuring vertical equity are proportional taxation and progressive taxation. For proportional taxation, the taxes paid increases in direct proportion to income. Progressive taxation assumes tax installments for taxable income, with the tax rate for each installment, respectively by increasing the rate while increase tax installments (Toukoushian, Michael, 2007).

✓ *To establish personal income tax treatment, it must be identified the typology of income.*

Choice of personal income to be taxed is done considering the time required to obtain / acquire, effective mode of obtaining / acquisition and whether or not globalization income. As regards personal income tax, each state fiscal policy must take into account social aspects, because these contributors also belong to the final customers category, on which taxes have some indirect impact.

A first criterion to be considered to identify the types of income is the time. Thus, we see that there are four categories of income (Hubpages, 2009): Linear income - income is closely connected with time worked, respectively income as a result of carrying out an activity which involves a payment for a certain period of time (usually in this category is income from wages or similar income wage); Residual income - the income earned as a result of previous actions and not requiring any additional effort from individual when acquiring (this can include income from royalties, income from insurance, rental income, etc.); Leverage income - income that is obtained as a result of combined effort of an individual with effort of other individuals (usually this income appear in teams situation, on the multi-level system); Passive income - income which does not depend on time or needs a very little time to obtain (this category includes capital income, interest income, income derived by developing and marketing services through the automated system, etc.).

Depending on the mode of production (in cash or in kind), personal income for taxation are (Revenue Department of Thailand, 2008): Income from personal services rendered to employers; Income obtained by virtue of employment, position held or services; Income from goodwill, copyright, franchise, other rights, annuity or annual income payments from a legal act; Income from dividends, interest on deposits, benefits from a legal person, legal partnership earnings, benefits of mutual funds, payments received as a result of capital reduction, bonuses, acquisitions or dissolution of companies, gains from transfer of shares; Income from rental property, Income from liberal professions; Income from construction and other labor contracts, income from business, trade, agriculture, industry, transportation or any other activity not specified.

Depending on a person belonging to a type of "economic family" (an economic family is a group of people who live together in the ties of blood, marriage or adoption) can be distinguished (Statistics Canada, 2008): income families formed of elderly (revenues are derived from people aged over 65); income families with persons who are aged under 65, with or without employees; income families with children, with both parents; income families with children, with single parent; income persons who do not belong to a family.

✓ *After determining the tax base for personal income, a particularly sensitive issue is the choice of tax rate, respectively the progressive or flat rate. What criteria should be considered for*

the choice of form of taxation, economic criteria, the criterion of social or political criteria? The answer to this question can be obtained from the analysis of advantages and disadvantages of each form of taxation.

Currently, many economists welcome use flat tax, because the benefits that this form of taxation brings to the nation. We try to present some views that are "pro flat tax". Thus, the flat tax benefits include (Mitchell D., 2005): *rapid economic growth* - by increasing jobs and investment; *increasing national wealth* - because it will help to increase the tax base, leaving just the income-producing assets; *simplicity in administration* - recovered from the taxpayer and the tax authority, taking into consideration the system of calculation, reporting, registration and payment; *fairness* - the equal treatment of all taxpayers and eliminating tax privileges like exemptions and deductions; *increase in civil liberty* - by eliminating sources of conflict that may arise between the state and taxpayers, because government would not have to know in detail each financial asset of the taxpayer; *global competitiveness* - by applying the flat tax, some states become "a magnet" for investment and job creation. Often emphasized that the use of flat taxes have economic advantage, because the taxation is done at a lower level, which promotes saving, capital formation and entrepreneurship. (Hall R., Rabushka A., 1985). The nature market is that determines the choice of using the flat tax form, because by increasing globalization, capital and labor will migrate to jurisdictions with lower tax burden. (Marinescu C., 2008).

Progressive taxation, the most popular form of taxation is considered by some experts as being the best. On several occasions we try to present opinions that are "pro progressive rate". A progressive tax is one that properly distribute the tax burden, giving those with low incomes a "free tax burden". In this sense, the greatest advantage offered by progressive taxation is that rich people are those who contribute more to the formation of public financial resources, because they may support tax, disadvantage is encouraging offshore system and hiding taxable income. (Vitez O., 2010).

Many psychologists say that burden must be shared in a utilitarian way, respectively taxes paid should be increased in a non-linear way in relation to income. Is often supported the idea that increasing income entails lowering consumption and increasing saving system. A progressive tax is an automatic stabilizer in the sense that if a person would suffer a wage loss due to recession, through a low taxation for revenue regained, would reduce the blows. (StateMaster-Encyclopedia, 2010). Need for progressive quota occurs due human nature. Differences between people occur at birth. Different talents, different culture, different way of action, a different behavior ... are only a part of the supporting elements for different taxation (Shapiro, 1996).

A part of the political class of Romania supports progressive tax rate based on the consideration that the benefits of flat tax are felt only in the short term, and in conditions of economic crisis, the states using this form of tax increase social polarization and social stabilization measures are ineffective. (Voiculescu, 2009). An imbalance in the social structure of income, also lead to the need to use progressive rate, taking into account that by using the flat tax earn households with high income and lose households with low income, tax burden is higher on individuals with low income than those with higher incomes (Socol , 2010).

We believe that the only substantial and relevant analysis on economic and social environment can choose the optimal form of taxation on personal income.

By those to be presented will try to offer practices used for personal income tax.

Particular attention should be given to the tax rate, in correlation with the tax form used (progressive tax rates or flat tax) and the status of each individual taxpayer.

### **3. Pragmatic coordinates on personal income taxation**

According to data presented by KPMG, evolution of the maximum rate for personal income taxation during 2003 – 2009 (KPMG, 2009) was:

**Table 1: Evolution of the maximum rate for personal income taxation in the Member States OECD / EU**

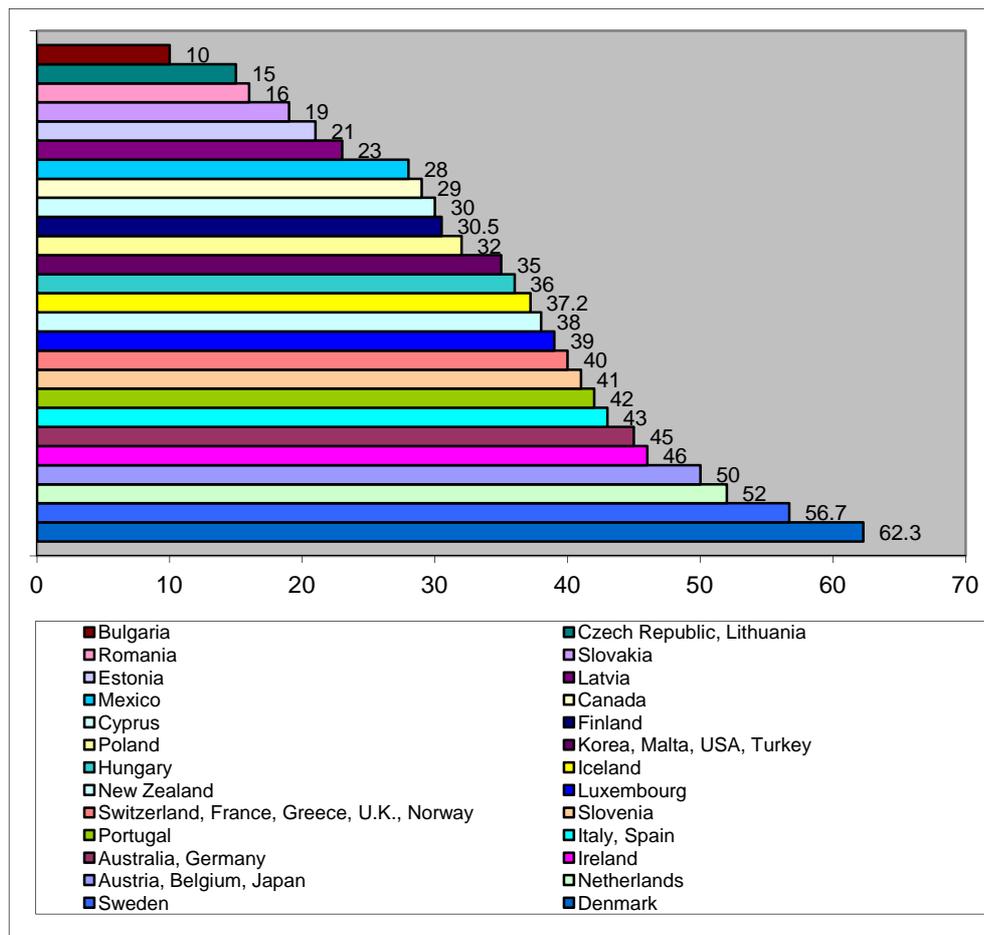
<i>State</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>
Australia	47,0%	47,0%	47,0%	47,0%	45,0%	45,0%	45,0%
Austria	50,0%	50,0%	50,0%	50,0%	50,0%	50,0%	50,0%
Belgium	50,0%	50,0%	50,0%	50,0%	50,0%	50,0%	50,0%
Bulgaria	29,0%	29,0%	24,0%	24,0%	24,0%	10,0%	10,0%
Canada	29,0%	29,0%	29,0%	29,0%	29,0%	29,0%	29,0%
Cyprus	30,0%	30,0%	30,0%	30,0%	30,0%	30,0%	30,0%
Czech	32,0%	32,0%	32,0%	32,0%	32,0%	15,0%	15,0%
Denmark	59,0%	59,0%	59,0%	59,0%	59,0%	62,3%	62,3%
Estonia	26,0%	26,0%	24,0%	23,0%	22,0%	21,0%	21,0%
Finland	35,0%	34,0%	33,5%	32,5%	32,0%	31,5%	30,5%
France	48,1%	48,1%	48,1%	40,0%	40,0%	40,0%	40,0%
Germany	48,5%	45,0%	42,0%	42,0%	45,0%	45,0%	45,0%
Greece	40,0%	40,0%	40,0%	40,0%	40,0%	40,0%	40,0%
Hungary	40,0%	38,0%	38,0%	36,0%	36,0%	36,0%	36,0%
Iceland	25,8%	25,8%	24,8%	36,7%	35,7%	35,7%	37,2%
Ireland	42,0%	42,0%	42,0%	42,0%	41,0%	41,0%	46,0%
Italy	45,0%	45,0%	43,0%	43,0%	43,0%	43,0%	43,0%
Japan	50,0%	50,0%	50,0%	50,0%	50,0%	50,0%	50,0%
Korea	36,0%	36,0%	35,0%	35,0%	35,0%	35,0%	35,0%
Latvia	25,0%	25,0%	25,0%	25,0%	25,0%	25,0%	23,0%
Lithuania	33,0%	33,0%	33,0%	33,0%	27,0%	24,0%	15,0%
Luxembourg	39,0%	39,0%	39,0%	39,0%	39,0%	39,0%	39,0%
Malta	35,0%	35,0%	35,0%	35,0%	35,0%	35,0%	35,0%
Mexico	34,0%	33,0%	30,0%	29,0%	28,0%	28,0%	28,0%
Norway	47,5%	47,5%	47,5%	40,0%	40,0%	40,0%	40,0%
New Zealand	39,0%	39,0%	39,0%	39,0%	39,0%	39,0%	38,0%
Netherlands	52,0%	52,0%	52,0%	52,0%	52,0%	52,0%	52,0%
Poland	40,0%	40,0%	50,0%	40,0%	40,0%	40,0%	32,0%
Portugal	40,0%	40,0%	40,0%	42,0%	42,0%	42,0%	42,0%
Romania	40,0%	40,0%	16,0%	16,0%	16,0%	16,0%	16,0%
Slovakia	38,0%	19,0%	19,0%	19,0%	19,0%	19,0%	19,0%
Slovenia	50,0%	50,0%	50,0%	50,0%	41,0%	41,0%	41,0%
Spain	45,0%	45,0%	45,0%	45,0%	43,0%	43,0%	43,0%
Sweden	57,0%	56,7%	56,8%	56,8%	56,8%	56,7%	56,7%
Switzerland	40,4%	40,4%	40,4%	40,4%	40,4%	40,0%	40,0%
USA	35,0%	35,0%	35,0%	35,0%	35,0%	35,0%	35,0%
UK	40,0%	40,0%	40,0%	40,0%	40,0%	40,0%	40,0%
Turkey	45,0%	40,0%	35,0%	35,0%	35,0%	35,0%	35,0%

(Source: KPMG's Individual income tax rates and social security survey in 2009, "Highest Rates of Personal Income Tax")

Analyzing the maximum rate of personal income tax charged by the 38 states finds that:

- In 2009, the highest rate has been applied in Denmark (62.3%), with a increase to rate practiced during 2003-2007 by 3.3 percentage points.
- Since 2008, the lowest rate has been applied in Bulgaria (10.0%), with a reduction from the rate practiced in 2003-2004 by 19 percentage points, and over the period 2005-2007 by 14 percentage points;

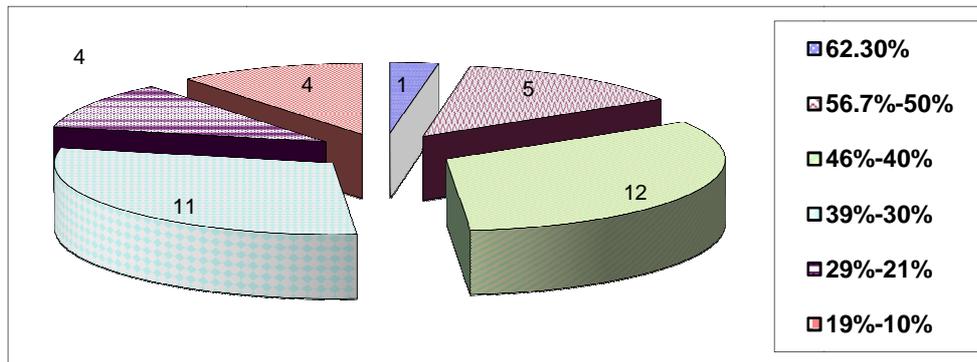
**Figure 1: The maximum rate for personal income tax in 2009, the OECD / EU countries**



(Source: author processing by data submitted by KPMG's Individual income tax rates and social security survey in 2009, "Highest Rates of Personal Income Tax")

- For the period 2003-2009, in 23 states (Australia, Bulgaria, Korea, Estonia, Finland, France, Germany, Italy, Latvia, Lithuania, Mexico, Norway, New Zealand, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, Turkey, Hungary), was a fiscal loosening in personal income tax, maximum rate reduction accomplished with values ranging from 0.4 percentage points (in Switzerland) and 24 percentage points (in Romania);
  - In 11 countries (Austria, Belgium, Canada, Cyprus, Greece, Japan, Luxembourg, Malta, Netherlands, USA) was maintained the level of taxation in the period 2003-2009, the highest being in the Netherlands (52%) and the lowest in Canada (29%).
  - An increase in the maximum rate of personal income tax in the period 2003-2009 was recorded in Denmark (from 59% to 62.3%), Ireland (from 42% to 46%), Iceland (from 25 % to 37.2%) and Portugal (from 40% to 42%).
  - In 2009, highest weight hold states practicing a maximum rate of personal income between 46% and 30%, as follows:

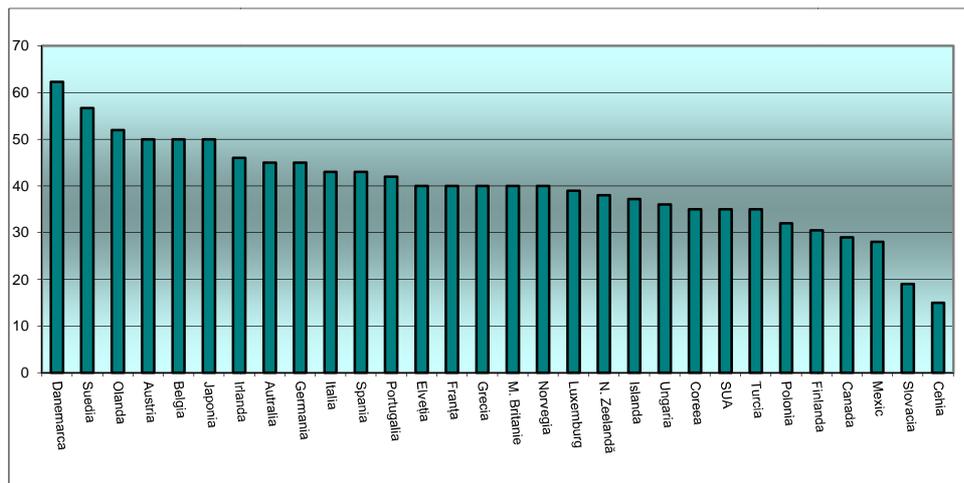
**Figure 2: Distribution of states according to the maximum rate of personal income tax in the year 2009 in OECD / EU countries**



(Source: author processing by the data presented by KPMG's Individual income tax and social security rate survey 2009; "Highest Rates of Personal Income Tax")

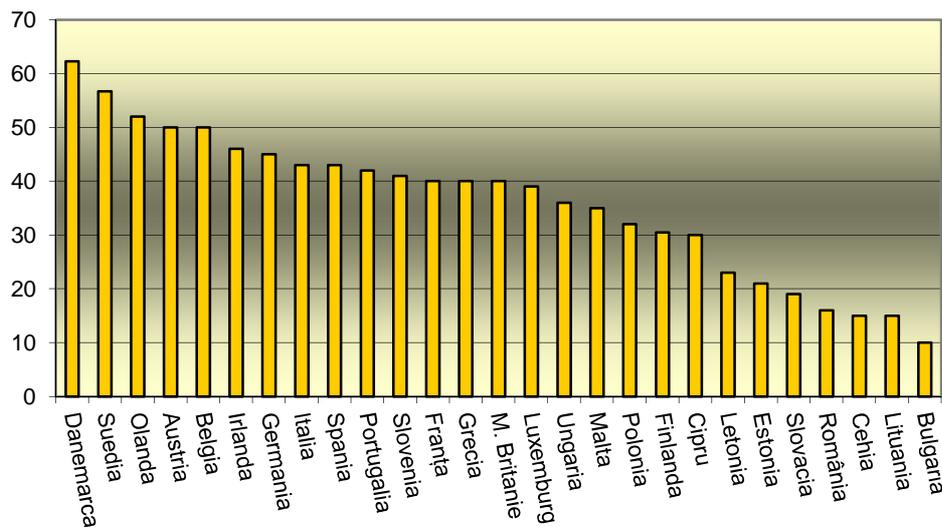
- In 2009, maximum tax rates for OECD member states range from 62.3% in Denmark and 15% in the Czech Republic as follows:

**Figure 3: Maximum rates for personal income taxation, the OECD member states in 2009**



(Source: author processing by the data presented by KPMG's Individual income tax and social security rate survey 2009; "Highest Rates of Personal Income Tax")

- Statement of maximum rates of personal income tax for EU Member States, in the year 2009, ranked first throughout Denmark (with 62.3%), last place is occupied by Bulgaria (with a rate of 10%), as follows in Figure 4.
- In most states practiced progressive taxation of personal incomes, only five states practicing flat tax, which led to a significant reduction the maximum tax rate in: Bulgaria (from 29% in 2003 to 10% in 2009), Czech Republic (from 32% in 2003 to 15% in 2009), Lithuania (from 33% in 2003 to 15% in 2009), Romania (from 40% in 2003 to 16% in 2009), Slovakia (from 38% in 2003 to 19% in 2009).
- Australian tax system is based on progressive taxation of personal income, to determine the portions of income and tax rates being considered fiscal resident. Social protection is observed in the residents, because: portion of income for residents between \$ 1 and \$ 6,000 is not taxable; portion of income for residents between \$ 6,001 and \$ 35,000 implies a maximum tax rate of 12.43%; portion of income for residents between \$ 1 and \$ 34,000 implies a maximum tax rate of 29%. (Australia Taxation Office, 2009).

**Figure 4: Maximum rates for personal income taxation in the EU Member States in 2009**

(Source: author processing by the data presented by KPMG's Individual income tax and social security rate survey 2009; "Highest Rates of Personal Income Tax")

- In countries such as Turkey (Turkis Economy, 2009) and South Korea (South Korea Tax Rates, 2009), progressive taxation is practiced, without consideration of tax residence. Although these countries use the same number of installments of income / tax rates, and the maximum tax rate is identical (35%), tax burden is different. So, maximum income subjected to taxation with lowest rate in Turkey was \$ 5.946 (at which levied a tax of \$ 891.9), while in South Korea, maximum income subjected to tax with the lowest share was \$ 10.830 (at which levied a tax of \$ 649.8).

- Maximum rate of personal income tax of 35% practiced in the year 2009 is used also in the United States of America, but the tax system involves the identification of income brackets and tax rates depending on the situation of each taxpayer. Regardless of the status of taxpayer, lowest rate is 10%, but the portion of income differs, margin is less for unmarried persons and those married but residing separately (between \$ 0 and \$ 8.350), and the highest rate for married persons (between \$ 0 and \$ 16.700). Applying the maximum rate of 35% is made for income exceeding \$ 372.950 for single individuals, head of household, married individuals. For married individuals filing, maximum tax rate applies to income that exceeds \$ 186.475. (United State Individual Tax Site, 2009)

- The Canadian tax system for personal income tax is based on the marginal and average tax, being established at both federal and provincial levels. Differential tax rules are applied depending on the source of income (wage income, income under grants, investment income, etc.). The existence of two forms of taxation (federal and provincial) determine the right of individual provinces to levy surcharges for income exceeding a certain value. (KPMG Canada, 2009). Personal income tax system in Canada determined rarely to be seen as two people with the same average tax rate (except where these two people have exactly the same income).

- Besides Denmark, Sweden is one of the countries with the highest tax rate in the world, being used as the progressive tax. Individuals are required to pay income tax, depending on its size and home, because the tax is levied at both the national and municipal levels. (Sweden Tax Rates, 2009).

- Several Member States have renounced the use of progressive taxation and introduced the flat tax, because the benefits of this form of taxation. In the year 2009, the flat tax was implemented in Bulgaria, Lithuania, Romania and Slovakia. The tax system in Bulgaria using the lowest flat tax

for personal income, respectively 10%, only deviations occurring for: net income from independent activities that are taxed at a flat rate of 15% and dividend income taxed at 5%. (Tax in Bulgaria, 2009).

#### 4. Conclusion

Only economic and social reasons should be taken into account in determining personal income tax system. Regardless of tax residency, when a taxpayer assisting in changing the tax system, by giving up some form of taxation and introducing new forms or changing the tax rate (reducing or increasing), should not attend a "battle" between representatives of political parties. Tax reform should aim at long term, stimulating savings, investment, conduct the work, and ultimately economic growth.

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## RISK MANAGEMENT IN THE PRIVATE HEALTH INSURANCE

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**Abstract:** *The maturity of the financial markets and the stronger interdependencies between their segments are registered also in the field of supervising market players, the actual trend is to switch from a proactive approach – based on norms and regulations, to a reactive one – where the emphasis is placed on self-regulating and internal risk management. The development of the private health insurance, by issuing the new legal provisions in this field, has reopened the subject of the risks for this type of products. Taking into account the above mentioned, the work is aiming an inventory of the main risk categories from the private health insurance field, as well as the global and individual management models for the identified risks.*

**Key words:** risk management, private health insurance, risk categories, global risk, systems of risk analysis

**JEL classification:** G22, G32

### 1. Introduction

Ever since the beginning avoiding the catastrophic vision suggested by the respective notion, we are going to subscribe to the definition according to which risk is an economic category whose origin is in the uncertainty that may or may not generate a damage and aims the possibility of recording a financial loss, being associated to the probability of occurrence of some unwanted events (Coșea, Nastovici, 1997).

The meaning of the concept is kept in other authors' approaches, even if there are given certain tones in order to contribute to the better understanding of the phenomenon. In this regard, the risk is also assimilated to some adverse evolutions of the results (qualified as "downside" risk) or it is defined as the negative impact on the capitals or on the incomes of some financial institute due to some potential events, predictable or unexpected ones.

We can easily notice that, in last instance, the estimation of the risk status presumes to examine in probabilistic terms the possibility to obtain some favourable or unfavourable results in a business deal, located in our case on the insurances market.

The innovations on the financial markets and the globalisation of the financial flows modified the insurances sector activity and architecture, giving it an increased degree of complexity, but also the expression of some accentuated competitive pressures on the component entities.

The higher the profits associated to the new instruments and the insurances products are, the more volatile and exposing the profile companies to new or higher degrees of risk they are. Currently, there is even the fear that innovation in the financial sector, particularly with regard to the extra-account instruments, may have as effect the risk concentration and the increase of the whole system instability.

In addition, the correlation between the various types of risk, both within each company and inside the insurances system as a whole, accentuated and became more complex.

The globalisation and the liberalisation led to increasing the risk of contagion in the international markets, as proved by the financial crises from the '90 in Mexico, South-East Asia, Russia and South America and especially the global crisis beginning in 2008.

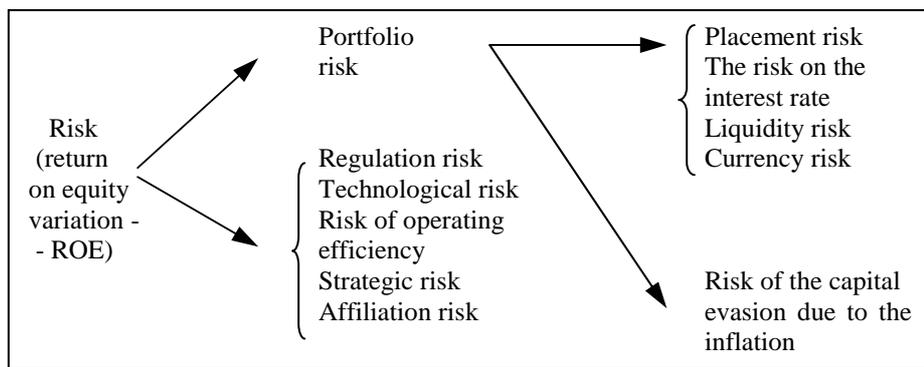
## 2. Risk categories in health insurance

Starting from the main risk generating factors, several typologies loomed in the speciality literature, based on grouping the various risk categories and depending on their concrete way of expression.

Therefore, if we refer to the variation of the return on equity (ROE), the risk factor may be structured as according to the diagram from figure 1.

Other authors make the difference between the risks characteristic for each company (of organisation, material ones and of environment) and those specific for the financial institutions (the liquidity ones, the interests ones, the placement ones), to which they add the market risk, the exchange rate risk, the solvability risk and the operational risks.

**Figure 1: The Structure of the Risk Factors and Their Connectivity**



Source: (adapted from Stancu, 2007)

In the following pages, we are not going to insist on the various ways of structuring the main quoted risk categories, either on the common aspects on the risk incidence within the insurances industry, but we are going to focus on the specific aspects for the private health insurances.

For reasons tied to the presentation fluency, we did not intend to strictly separate the so-called “pure risks”, preferring – there where was the case – to mention the inferences between the various risk categories. Such an approach considers also the fact that, lately, by aggregating the various risk categories, we can obtain the global risk that can be analysed both at the level of a business line (for us the health insurances) and the level of the entire company.

*The regulation risk* is connected to the perturbations that the modification of the specific legislation may induce in the system. In this regard, we consider the primary legislation and the norms of application, the decisions of the competent authorities or other administrative acts (regardless of their titles) that are part of what is known as secondary legislation.

Specific for the financial markets, such as the insurances market, it is that – besides the institutions regulating the common aspects for any activity (taxation, labour law, competition etc.) – we have to deal with a supervisory authority for the respective sector, for the current situation the Insurances Supervisory Commission (ISC).

In the field of regulatory issues, the law provides the Commission with two categories of responsibilities:

- drafting and/or giving opinions on the drafts of the normative acts concerning the insurances sector or having implications over this one, including the specific accountancy issues for the insurances sector, as well as presenting opinions on all individual administrative acts related to the activity of insurance;
- adopting norms for law application, as well as the prudential specific norms, according to the practices in the insurance sector (Law no.32, 2000).

A second peculiarity, this time available only for the health insurances is related to the fact that Ministry for Health drafts the legislation in the sector and it, on its turn, has attributions in issuing the norms of application of the law, which are exercised together or separately from ISC, depending on the situation.

Consequently, the regulation risk is amplified by involving in the legislative process the two mentioned authorities, any lack of correlation between the administrative acts issued by them (or related to the common commercial legislation) having significant implications on the activity of the profile insurers.

It is enough to mention in this context that - in the absence of the Norms of application of the Law on the private health insurances - the fiscal deductibility of the insurance bonuses will not be operable for almost two years (Law no. 212, 2004).

Moreover, both notions of “complementary” or “supplementary”, applied to the voluntary health insurances remain in the stage of theoretical concepts, without defining the basic package of medical services delivered by the public system.

*The market risk* acts on several coordinates that may be structured into two large categories:

- influence of the market proper to private health insurances;
- influence deriving from the medical services suppliers’ market.

Referring to the first aspect, the health insurances market is limited to the population number and it is restricted by the average level of its income. The European integration creates the premises for market extension, beyond the national borders, parallel to competition increase, connected to the reduction of the access restrictions for the external insurers.

The increase of the average income must be analysed in correlation with the degree of accommodation of some physiological and primary security needs (food, clothes, housing etc.), being well-known the fact that, only after reaching a reasonable level of satisfying such needs, the concerns on the long term security (health, retirement fee, unemployment) may become a priority (Maslow, 1970).

The prolonged absence of the afferent mechanisms and institutions for the private health insurances makes that, even for the persons whose incomes are high above average, the access to such type of insurances to be rather low. We do not dispose of results to such systematic researches in the sector but, according to some ad-hoc polls, performed by the author during some conferences, symposiums or other likely events, it resulted that the monthly level of the insurance bonuses is, for instance, much below the quantum of the expenses made in the units of public alimentation (restaurant, pub).

On its turn, the phenomenon of population aging has a significant relevance with regard to the market risk, by increasing the risk of the elder population, much more submitted to the risk of morbidity.

In the same context, even if it regards – in equal measure – the issues of the regulation risk, we are going to mention the aspect related to setting by law the retirement age as it marks (in most of the situations) the passage from the taxpayer status in the social insurances sector to that of “assisted-beneficiary” and, moreover, leads to a substantial diminishment of the individual income, at least until rendering operational the private pensions system.

With regard to the incidence of the risks generated on the market of the medical services suppliers, we deal with a trend of increase of the expenses for such services that, only for our country, increased almost three times in the last six years. The main cause is the assimilation in the diagnosis and therapy practices of the new discoveries in the field, with significant impact on the increase of the cost of the medical technology. At least for Romania and in tight connection to the approach to the European standards, we add to this the increase in the medical staff salaries.

*The risk of solvability* has as referential basis the (in)capacity to cover the commitments on the resources drawn on the own capital account or, generally speaking, the level of final coverage of the existing passives by assessable actives. Its concretisation may lead to the impossibility of covering the eventual losses from the available funds. For the private health insurances, it is predominantly generated by the way the relation client – insured person – medical services supplier is managed,

under financial level, reason for which a series of aspects previously mentioned may be appreciated also as generating factors for such a risk category.

An aspect we have to consider in the mentioned evaluations is that the medical statistics include a large number and, sometimes, rough, estimations of the procedures costs, caused by the issues the public system faces.

Evaluation errors may also occur from the different positioning of the three partners, mentioned in the relation with the expectation towards the use of medical services. It is obvious that any client is orienting towards an optimum use related to its main referential criteria: quality, time, and price. In exchange, if the services suppliers – relying on a rich and complex casuistic – tend to encourage the use, the insurers will proceed just in the opposite way, being motivated by the absence of the sickness episodes.

*The operational risk* is generated by two categories of factors. The first refers to the internal component and it is manifested within the functional context specific to the insurances companies, and the other category refers to the relation with the medical services suppliers. We do not have to forget that, in the last instance, the main goal for the customer is not the purchase of a health insurance, but getting a package of medical services in the terms of optimisation the complex quality – time – price ratio. Therefore, the easy and quick access to the health services, the expectancy duration, the operative procedures of diagnosis and the efficiency of the treatment are factors that differentiate the insurers from the sector and the health insurances products.

The internal component of the operational risk is mainly generated by informational systems and circuits, either they concern the circuit of the specific documents, either it refers to aspects of financial order. The confidentiality of the medical act, the management of the mal praxis cases, the relations with organisms and institutions such as the College of Doctors, the Pharmacists College or the Ombudsman represent equally ways of manifesting the respective risk category.

With regard to the operational risk induced by the relation with the medical services suppliers, the main issue is the inexistence of a unitary system of classification, that is generally accepted (starting from the specific auditors' independence and qualification) for this kind of suppliers. Though several major steps were made in the sector (the ISO 9002 certificates, the licences granted to the medical services by the Public Health Departments or, in the situation of some specific services by the National Commission for the Control of the Nuclear Activities -CNCAN), the absence of a systemic and exhaustive approach, based upon the existence of a set of measurable and comparable parameters of professional performance and economic efficiency raises still problems of transparency in the relations with the insurers and, indirectly, with the beneficiaries of the private health insurances (potential patients of the medical services suppliers).

A much higher operational risk is noticed in relation with accessing the medical units from the public system. We consider the difficulty to negotiate some optimal circuits of access to services delivered by these entities, but also the possibility (uncertain) of delivering some medical services starting from the insured persons' demands, potential patients of the respective institutions.

The fact that there is still no list of prices for the medical services delivered by the entities from the public system (based upon the effective costs related to the management, the medical staff and the auxiliary one, the medical technology, materials, medicines and other products afferent to the medical act) does nothing else but to amplify the dimension of the risk supported by the insurers.

The risk is accentuated by the practice (unofficial, but - unfortunately - generalised) of some „supplementary costs”, to which we add the unfortunate system of “waiting queues” and, sometimes, the stress generated by the multiplication (with or without reason) of the diagnosis procedures, without properly informing the patient.

In the attempt to control, at least partially, the level of operational risk, induced to the insurers by the medical services suppliers, there is the practice of some mutual capital placements, case where it gets signification a new risk category which is the *investment risk*. If we consider that the minimum necessary amount for a medical centre is more of 500,000 and, sometimes, even 1 million Euros, it is obvious that, in order to respond to the market demands, the medical services suppliers depend – in great measure – on the insurers' financial upholding.

It is not less true that the duration of investments recovery in the health sector is rather long (10-12 years). Moreover, a significant weight is the human resources, also considered under investment aspect (recruitment, selection, preparation, motivation, developing loyalty, and promotion), the profitability threshold being reached only after 3-4 years since their inclusion into the organisation.

*The reputation risk* means the depreciation of the “signature quality” (of the rating) and it can be easily converted into a crisis of image, even if it does not correspond to the reality and it is generated, most frequently, by the confusion made by the medical service consumers between the medical service and the insurance as form of coverage for the risk of sickness. Reducing the clientele (direct or through the effect of propagation) does not represent anything else but the passage from the image deficit to the financial one.

The main private health insurances characteristics that, not being correctly or explicitly presented, may lead to rendering concrete the reputation risk refers mainly to the following aspects:

- the exclusion from the private insurances of the medical services that are subject of some national programs, entirely covered by the public system;
- the access to medical services through the private insurances is limited (as value and frequency of access) and depends on the level of the bonuses afferent to the purchased insurance product;
- the fiscal deductibility of the bonuses for health insurances is also limited;
- the existence of some agreement conditions (co-payment employee-employer, period of expectancy) made to render more accessible the level of the insurance bonuses.

Not lately, we are mentioning *the risk of abuse and fraud* which some specialists consider to be directly proportional to the number of agreed suppliers and reverse proportional to the insured persons' number. The losses associated to this type of risk start from the suppliers encouraging the excessive (and unjustified) use of services and continues up to the reimbursement by the insurer of some undelivered services or to tariffs that go over the contract provisions.

The lack of transparency or of documentation with regard to the patients' medical history, the existence of some contractual deficiencies and, especially, the tendency to cover the mal praxis cases represent favouring factors in rendering concrete the risk category we refer to.

### **3. Risk management; Systems of global risk analysis**

The notion of risks management (or risk administration) includes the entire variety of tools, methods, techniques and organisational landmarks used to measure and control the risk in terms of profitability.

As for the risks, they are diverse and with multiple effects, the tools afferent to their management must comprise a proper dynamics, in the meaning of its diversification and in the increase of the precision degree for identifying the various risk categories and for minimising the destructive potential.

There are various tools for the management of the diverse risk categories, starting from the fact that the influence of the individual risk is manifested directly, as a compound of the global risk and indirectly, by empowering other risk categories with which they are in connexion.

Obviously, with regard to the *regulation risk*, the methods of management and control are quite few in number. Despite all these, a pro-active attitude in the process of initiating and drafting the legislation for the sector and of the subsequent normative acts, individually manifested, may be a mean to smooth the influences of this category of risk. In the same context, we can mention lobbying among the institutions with attributions in the field.

On its turn, the *market risk* may be correspondingly managed, in the measure where marketing is a constant of the company organisational and functioning structure. In such a context, the level of the products' attractiveness depends substantially on the way the clients' purchasing power was considered. Moreover, the responsible approach of the promotional activities in the sector – including in a wider meaning – the public education in the sector of the private health insurances is of nature to contribute to the extension of the profile market.

Related to the *risk of solvability*, we are not going to insist on the management of the placements, considering that it is accomplished in a global way, at company level and not on groups of products or business lines nevertheless we shall reiterate the role of the actuarial calculations in establishing the level of the insurance bonuses, in the idea of covering the real medical risk, taking into account the tendency of the insurance companies to secure a better positioning on the market by reporting to the financial availability of the potential clientele.

The control of the *operational risk*, at least with regard to its internal component may be accomplished by using as much performing IT systems as possible. Compared to the operational risk induced by the medical services suppliers, the only form of protection represents its dispersion on as much possible specialised units (laboratories, ambulatories, clinics, centres of recovery).

The possibilities of control of the *risk of abuse and fraud* reside in:

- organising the system of access of the insured persons to the medical services;
- the existence of some systems of permanent evidence and verification (in real time) of the use of the therapeutic procedures, according to the agreement specifications;
- drafting and agreeing on the practice of the health insurances of the medical guidelines, of the procedures protocols and of the system for setting tariffs from them.

It is to be remembered that the private health insurances usually represent only a segment – it is true with certain distinct features – within the businesses developed by the profile companies. Consequently, a large number of decisions and procedures on the risk control are rendered operational at the level of the entire company for reasons of minimising the costs and not only.

In this regard, we can mention the operations of placements management, the implementation and the development of some performing systems of information technology, the mechanisms of staff training and loyalty development, providing a multidisciplinary expertise in the process of concluding the agreements with the suppliers and in surveying their development etc.

All these aim the global risks management whose directions of action may be structured as follows:

- evaluation of the risks taken by the prior activity, whose effect may translate into potential losses;
- estimating the afferent risks for the new categories of operations, products and services stipulated in the company development plan;
- monitoring the risk – performance binominal on categories of clients, organisational divisions, products and services;
- restructuring the placements portfolio and of the series of activities, starting from the results of the prior mentioned activities.

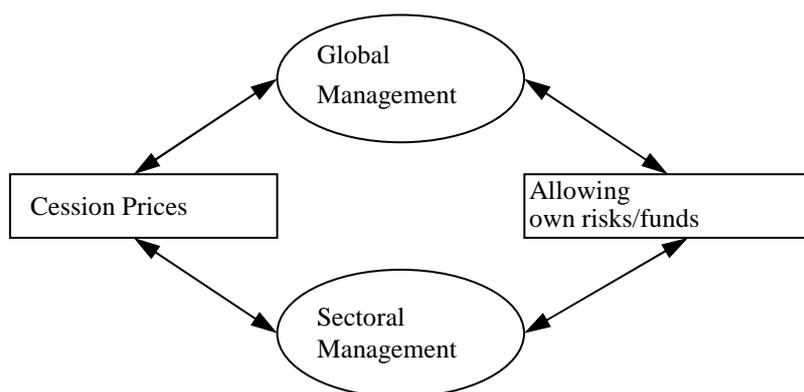
We can notice that, from such a perspective, the decision on practicing an activity, a product or a service does not exclusively rely on the criterion of the individual profitability but has in view, at least in the same measure, the contribution to the reduction of the global risk.

In the literature of speciality, the risk management is treated from a double perspective, that is, the one of the connection between the global and the sectoral management, on one hand, respectively that of the connection between the financial sphere and the trading one.

The *connection between the global and the sectoral management* is based on the hierarchy model, according to which the top-down approach concerns the conversion of the objectives and of the risks global limits, into signals addressed to the operational responsible persons while, through a bottom-up type of approach there are performed the consolidation of the results and of the afferent risks, generated by operations, surveying the accomplishments and comparing them to the objectives.

In the last instance, it is about ensuring a double circuit of the information on the risk factors, towards the operational subunits and to the top of the hierarchy upon the potential risks and the incidence of the effective risks.

**Figure 2. The Connection of the Global and Sectoral Management in the Risk Management**



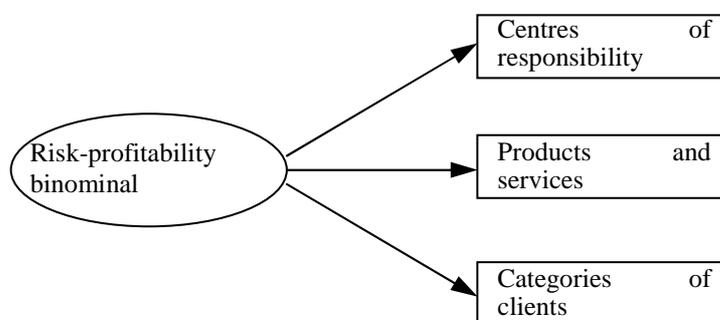
Source: (Dedu, 2004)

The information exchange refers mainly to:

- repartition on centres of responsibility of the internal cession prices representing the competencies on taking risks under pre-set performance terms;
- allowing for the capital and the risks between these centres of responsibility, so that the performances and the risks may be compared;
- the system for allowing the own funds, considered as a mechanism of risks distribution on centres of responsibility, products, clients and individual operations.

With regard to setting the *connection between the financial sphere and the commercial one*, we are going to notice that, if the commercial policy is formulated in the terms of the products-clients binominal, the financial policy is expressed by the risk-profitability report. For this reason, the fundamental issue of the sectoral management concerns allowing the common coordinates risk-profitability on the respective sequences: centres of responsibility, products, and client categories.

**Figure 3. Allowing on Commercial Coordinates the Risk and Profitability Parameters**



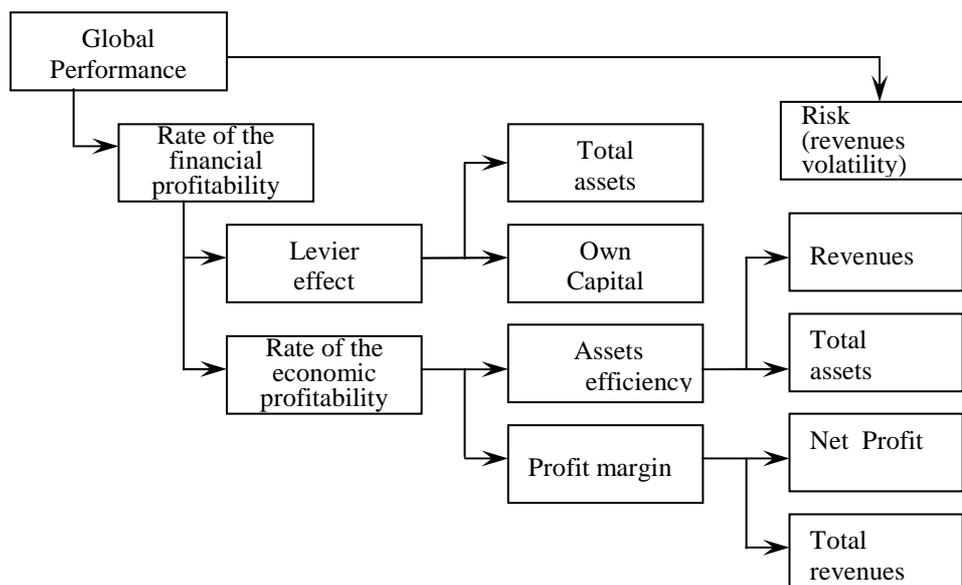
Risks management does not impose the identification of all predictable deviations from the considered standards, but only the anticipation of those adverse evolutions that does not justify under the aspect of the potential risks. From such a perspective, we cannot talk about aversion in the financial environment, not even about a reticence to the risk, but rather of rendering rentable the well defined and calculated risks.

In other words, by their own activity, the insurance companies take over the risks, transform them and incorporate them into the services and the products which they operate with.

A model of simultaneous equalisation of the earnings with the associated risks is presented in the figure below, being known as the *Du Pont System of Analysis*.

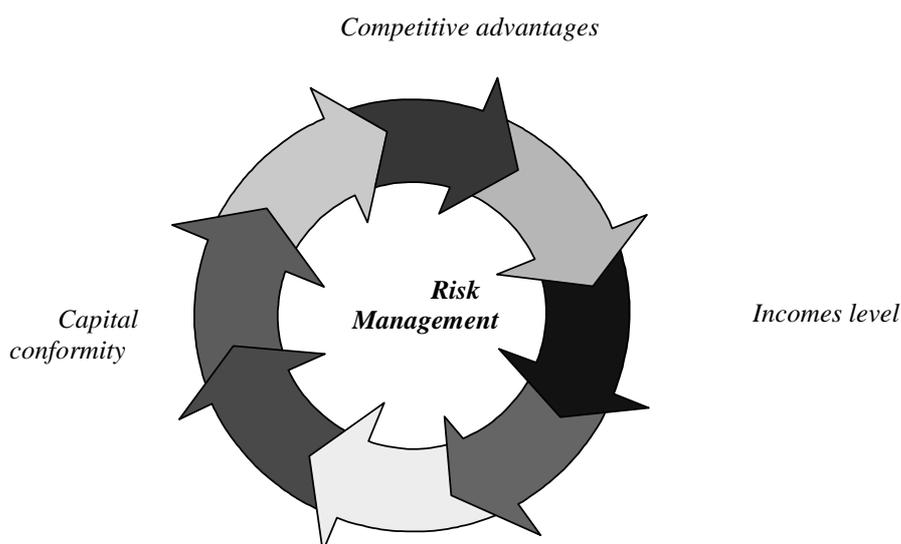
**Figure 4. Du Pont System of Analysis**

Another model of global risk analysis, proposed by the famous ratings evaluation company Standard & Poor's, starts from the following basic coordinates:



- competitive advantages in relation to the risk of the profile industry;
- corporation management and strategies;
- risk management at the company level;
- performances of operational nature;
- investments;
- liquidities;
- level of capitalisation;
- financial flexibility.

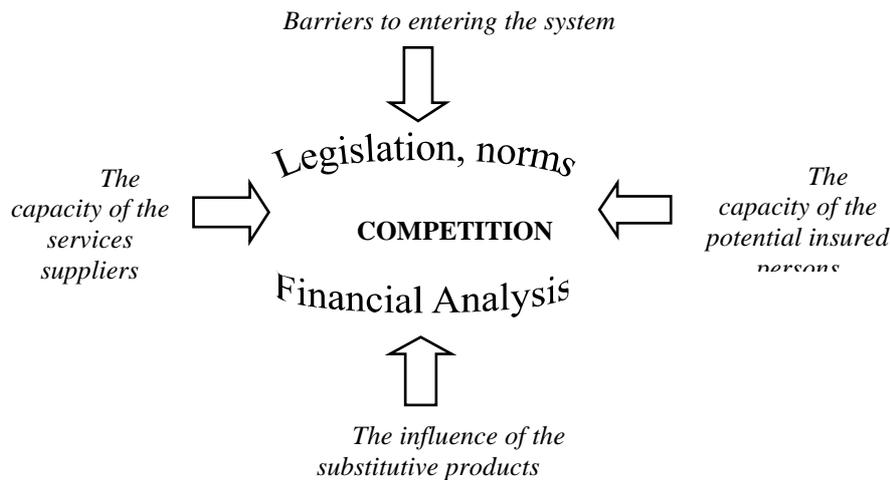
**Figure 5. The Model of Global Risk Analysis *Standard & Poor's***



Source: (Laxton, 2006)

*The risk of the profile industry* supposes understanding the conditionings presumed by the market where the insurers operate and it can be illustrated as follows:

**Figure 6. Characteristics of the Health Insurance Sector**



With regard to the *competitive advantages*, the specific analyses must evaluate the companies' possibility to address the challenges related to the risks specific for the insurance system and to operating in a competitive environment. It is about a basic indicator on the future financial capacity that indicates the rating level to which the respective companies aspire.

The competitive advantages must be considered in tight connection to other financial indicators such as the income levels and the capital degree of conformity.

*The corporation's management quality and strategies* is an indicator of reference on the company's future financial power. This is of nature to increase, to preserve or to compromise the company's competitive advantages. Nevertheless, we are going to mention that the qualitative evaluation of the mentioned aspects has a profound subjective character.

Assigning objectives to the respective process presumes to consider landmarks such as: company's strategic positioning (transparency, motivation, and credibility), abilities to operate, management capability.

We shall make a difference between the *risk management*, generally considered, that presumes a continuous activity of identifying the risk factors and the strict monitoring of the significant risks, having as results maintaining the risk between the admissible limits of tolerance and the managers' awareness on the taken risks and on the risk management at the level of each company, case when the following aspects are to be discussed:

- setting the risk limits in relation to the firm objectives;
- quantifying the risks on comparable bases;
- the possibility to estimate the activities in relation with the capital demands.

The criteria considered in the risk management at the level of each company concern:

- the organisational culture on the risk management;
- the risk control;
- the accidental risks management;
- shaping the risk in relation with the company capitalisation;
- the strategic risk management.

*The performances of operational nature* must be appreciated in the context of increasing the profitability as an aptitude of sustainable increase of the own capitals that usually are more than the shareholders' contribution. The risk management general framework at company's level focuses on the management's capacity to reach a proper adjustment of the risk in relation with the company efficiency.

Funding the capital and satisfying the shareholders by dividends system are equally important like the flexibility towards the current and future needs with regard to capital and liquidity.

The *investments* analysis is important not only with regard to allowing and concentrating the assets, but also referring to the market and credit risk, for the plain reason that is part of the assets and liabilities management.

The significance of this analysis is set by the fact that investments may constitute a source of competitive advantages and an image of the acceptable level or risk. In addition, the investments represent an indicator of the future incomes, of the economic stability but also an inertia factor for the financial policies, if we consider the report between the assets and the liabilities.

The possibility of covering in time the financial obligations and of putting into value the opportunities the financial market provides make liquidity important. The pressure of the liquidity issue is also given by the fact that the deficiencies in this regard are a failure factor.

*Company capitalisation* is another rating factor, referring to the level of conformity of the capital, to its quality, to the degree of coverage by reinsurance and to the level of the formed reserves. However, a company's rating may be different from the scores accomplished depending on capitalisation, as effect of the conformity degree of the capital. In this regard, we refer to approaching the capital depending on the taken risk, to the use of the European model for the sector, to capitals quality and to the management's degree of concern in this regard.

The reinsurance may provide another basis of capital evaluation and of the possibilities to putting it into value, a reduction of the losses due to collective events or of high frequency and a stability of the financial results recorded by the insurances companies.

The *financial flexibility* may be defined as an adaptation, depending on potential (future) supplementary necessities of capital and of liquidity.

It refers to differentiate the performed placements, depending on their level of quality, to the possibility of rendering operational the strategies in relation to the associated level of funding and to preserving or amplifying some competitive advantages, under the terms where the specific analyses and prognoses certify the coverage of the operational costs.

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## PERFORMANCE AND RISKS FOR CREDIT INSTITUTIONS IN THE CURRENT ECONOMIC CRISIS

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**Abstract:** *In this article, the authors intends to underline the main aspects regarding the risk in sustainable development of European credit institutions and the theoretical and practical aspects that can contribute to increasing performance management in credit institutions. Performance management is a means towards obtaining better results from an organization, from teams and individuals within them, through awareness and management of performance on the basis of a framework of planned objectives and competence standards and requirements.*

**Key words:** risk management, performance management, risk administration, compound risk, ambient risk.

**JEL classification:** G01, G21, G23, G32.

### 1. Introduction

This paper is intended to be a significant insight into risk management issues by describing the main types of such risks and by providing management and evaluation procedures of significant risks into some active banking companies in Romania.

In times of crisis, risk management in the banking system has a greater importance than in the normal economic times. The 2009 was a year in which Romania has been hit by the repercussions of the international economic crisis.

Using strategies against risks, implementing procedures to monitor and control risks, risk assessment and quantification can substantially reduce the financial losses of a company or those of a financial institution.

Risk management is an integral part of all decision making and business processes from credit institutions, its purpose being to protect their sustainable development

### 2. The performance management in credit institutions

Performance has an important part to play in the great changes in Romanian society. The actions of the forces of contemporary society determine a certain kind of behaviour, which pivots around competition for resources and clients, and in this competition performance is paramount.

As regards the activity of credit institutions, performance is perceived to cover the following aspects:

- economic characteristics (interest);
- technical characteristics;
- personnel quality.

All these dimensions regarding the spectrum of services offered by credit institutions must be regarded from the point of view of client perception. They contribute to offer attractiveness and to the purchasing of the products offered by the client.

An important aspect in studying the performance of credit institutions refers to the behaviour of the leader generally, and more specifically that of the manager.

The managerial behavioral model has a special importance in guaranteeing a climate with direct implications in the activities carried out by credit institutions.

Mankind has stepped into the 21st Century, a period where we envisage a 'performance revolution' (Petrescu, I., *Fundamentele managementului organizației. Abordări moderne*, Editura Alma Mater, Sibiu, 2005, pp. 280-284).

In the 21st Century, in a market economy, knowledge of performance management has become indispensable in running any kind of business, and especially credit institutions. Awareness of performance management can form the basis for development, and managers must act as catalysts.

Economies are faced with rapid mutations: each activity field is geared towards change, creating numerous interactions as regards the social organization and environment, and the strategies used in the financial world.

Economists forecast that in the first part of the 21st Century a new economy will appear, based on performance and bearing the following characteristics:

↻ small and medium enterprises will multiply rapidly while aiming at high-performance activities;

↻ the frequency of performance assessments of the companies' dealings with the clients will increase continuously;

↻ all economic and social activities will be based on performance;

↻ the main functions of the company will become coordinating, protecting and integrating performance;

↻ property and management of performance will converge (Petrescu, I., *Fundamentele managementului organizației. Abordări moderne*, Editura Alma Mater, Sibiu, 2005, p. 284).

Credit institutions belong to the category of services aimed at immaterial goods, and therefore quality and productivity are often conflicting. Clients want both, and it is up to the high-performance credit institutions to strike the right balance between these two aspects to the benefit of their clients.

There are other main problems to be resolved by credit institutions wishing to offer high-performance services, including:

➤ offering diverse services that are simple and easily accessible;

➤ continuously training personnel to be qualified and friendly to customers;

➤ prompt service, a main way to retain clients;

➤ client-orientated attitude for the staff, who are ambassadors of credit institutions;

➤ authority delegation, so that the front line employees can personally attend to emerging problems.

To ensure the future of the network, it is necessary that all members of credit institutions make maximum efforts to improve quality, and performance productivity.

The behavior of credit institutions in performance management must be directly linked with renewing banking activity, products, services, conceptions and staff behavior.

But in order to renew it is decisive to create interest and involvement at group level, to create the organizational framework necessary to innovate.

The main components of the process can be summarized thus:

↻ adopting flexible structures that allow the development of useful ideas for the organization;

↻ training and encouraging personnel to find solutions capable of innovating and diversifying products and services offered;

↻ recruiting and promoting personnel with a sense of initiative;

↻ mediating communication between clients and staff;

↻ introducing an adequate rewards system for employees;

↻ creating and testing conditions that can lead to sustaining the innovative ideas regarding the economic and financial activities of credit institutions.

The market economy presupposes the existence of a free competitive struggle between suppliers, in which the quality of services offered by the banks becomes the main criterium for the client who is selecting the right offer.

Given the increase in the global productivity of labour as a consequence of technical and scientific progress permanently evident in society, the offers available in all sectors of activity are developing and diversifying, to the point where they exceed demand. This situation naturally leads to only a part of the services offered being consumed, namely the quality services.

On the other hand, the consumer becomes implicitly more demanding, as the service is only consumed through client participation as its beneficiary.

For credit institutions, the immediate consequence is that the preoccupation with quality, the satisfaction of client needs and expectations becomes a pre-condition for survival. This leads to a need to adopt an efficient strategy to manage quality.

### **3. Significant risks in credit institutions**

In the activity of credit institutions are identified five major risk categories, namely: credit risk, market risk, liquidity risk, operational risk and reputational risk. These types of risks are not excluding each other, given the fact that a product or service can expose the credit institutions at multiple risks.

#### ***The credit risk***

It is the risk of record loss or failure to accomplish estimated profits due to non-fulfillment from the counterparty of its obligations stated in the contract.

#### ***The market risk***

It is defined as the risk of record loss or of failure to accomplish estimated profits arising from changes in the market prices, interest rate and exchange rate

As part of the market risk we distinguish the ***interest rate risk*** arising from fluctuations in market interest rates.

#### ***The liquidity risk***

It is defined as the risk of loss record or of failure to accomplish estimated profits resulting from the incapacity of credit institutions to cope with the decrease of funding sources or the need for increased investment returns without involving costs or losses that can not be supported.

#### ***The operational risk***

It is defined as the risk of loss record or of failure to accomplish estimated profits and it is determined by internal factors (inadequate performance of internal activities or the existence of untrained staff) and external factors (economic conditions, changes in environment of the credit institution, etc.).

As part of the operational risk it is also identified ***the legal risk***, which may occur due to the lack of correct or poor implementation of legal or contractual provisions that adversely affect the operations of the credit institution or the state of the credit institution.

#### ***Reputational risk***

It is defined as the risk of record loss or of failure to accomplish estimated profits due to lack of public confidence in the integrity of the credit institution.

Risk management is an important component of the strategy of a credit institution to obtain a desired level of profit while maintaining an acceptable risk exposure. In the domain of risk management a credit institution guides itself by the operational legal provisions, resolutions, instructions and regulations of the National Bank of Romania, standards, manuals, circulars, instructions, regulations and by its own strategic objectives and rules.

Given the importance and complexity of risk management, in this process are involved all the structures of a credit institution from the Annual General Meeting to each business division.

Risk management in 2009 was made part of the general objectives, so that levels of activity to be mutually supported. This approach allows the credit institution to define and implement a risk

management strategy that starts from the top and it is integrated in its routine activities and operations. The management personnel, regardless of its hierarchical level, will manage the activity on principles of risk efficiency. Moreover, the staff as a whole, will be trained to be aware of the importance of risk management in achieving their own objectives.

One of the main objectives of the risk management process for 2009-2010 is to ensure a steady flow, with a high quality and with increasing trends of the net revenue even while the international economic crisis is acutely manifested nationally. This objective will be achieved by ensuring optimal combination between the assets, the liabilities and the financial risks.

#### **4. Risk management short-term strategy**

##### **4.1. Credit risk strategy and that of associated risks**

###### **a. General Considerations**

In terms of economics, risk is defined by three main activities, namely:

❖ *The analysis activity*, which requires accurate estimation of risk based on customer's initial status parameters and of the transaction for which funding is needed.

❖ *The risk prevention activity* to diminish or even remove the effects.

❖ *The ownership of costs activity and potential loss diminish* generated by risks

###### **b. Objectives of the strategy**

Credit risk strategy objectives and the associated risks are:

➤ increase in loan portfolio quality of the credit institution by monitoring the following indicators:

→ the importance of "overdue" credits and that of "doubtful" credits in total loan portfolio (gross value) not to exceed 2%;

→ the importance of "overdue" credits and that of "doubtful" credits in total equity (gross value) not to exceed 5%;

→ the importance of classified credits into the "doubtful" and "loss" categories (gross value) in total loan portfolio not to exceed 5%.

➤ maintaining a net interest margin percentage resulting from dividing the active average interest rate to the liabilities average interest rate of minimum 1,5.

###### **c. Credit risk strategy**

For the credit risk strategy, the credit institution seeks the review of lending requirements whenever is needed by internal and external regulations and through which is to be studied:

- analysis of used terms;
- analysis of approval and granting of the credit criteria;
- analysis of credit guarantee policy and of the evaluation practices of securities;
- diversification of loan portfolio by products specific to every type of customer;
- updating of rules and regulations relating to lending activity
- review the rules and procedures for managing non-performing loans;
- developing and improving IT applications and communication system for the provision of credit and interest overdue reports;
- pursuing unpaid overdue loans and interests by using different methods (negotiating with the client, the rehabilitation credit and the prosecution, enforcement);
- offering credit insurance so that the risk is transferred partially or entirely from the creditor;
- compel the applicants, co-payers and guarantors to engage in credit and other payment obligations arising from all these with all their movable or real estate property;

##### **4.2. Market risk strategy**

###### **a. General Considerations:**

Interest rate risk is determined and monitored to calculate the potential adverse impact on net interest income, as a result of improper correlation of interest rates on attracted and borrowed sources with interest rates on investments made and the potential losses in net assets.

The levels and dynamics of the interest rate are the result of simultaneous action, converging and contradictory, of several general and specific factors with direct or indirect influences such as:

the profit rate, the ratio of demand and credit supply on the market, the risk for loan provider, the duration of the credit, purchase price for attracted sources, volume of owned sources which are not invested in fixed assets, level of inflation, monetary policy, etc.

**b. Objectives of the strategy:**

Minimize interest rate risk depending on the ratio of interest bearing assets and interest bearing liabilities, taking care that its value is close to 1.

**c. Market risk strategy includes:**

To achieve the objectives of market risk, a credit institution's strategy includes the following provisions:

- exposure to interest rate risk will be maintained at an appropriate level to the nature and complexity of bank activities within the limits set by its administration;
- implementation of management and supervision procedures of the risk to obtain a large and stable over time interest rate margin, and the profitability and capital value does not change significantly as a result of unexpected fluctuations of interest rates;
- diversification of banking products and commissions related to the core business in order to reduce interest rate risk for their abatement;
- regular review of interest rates on bank's assets and liabilities operations based on analysis and forecasts made by the Administration of assets and liabilities committee on the basis of information on bank market interest rates;
- achieve performance in bank marketing activities to ensure continuous communication between the credit institution and the customer, to facilitate the exchange of messages, information and ideas to achieve the interests of each party;

**4.3. Liquidity risk strategy**

**a. General Considerations**

The main task of bank management is to estimate and to fully cover the optimum liquidity needs. Achieving and maintaining optimum liquidity is a managing requirement whose value is supported only by practice, taking into account the many implications of liquidity risk arising from fluctuations both on profitability and other risks related to the credit institution's activity.

**b. Objectives of the strategy**

The objective of a credit institution for its activity on liquidity risk is represented by maintaining an adequate liquidity activity in terms of ensuring the necessary resources to support the provisions of the budget (business plan) and scheduled loan portfolio growth.

**c. Liquidity risk strategy**

To achieve the objective of liquidity risk, credit institution's strategy includes the following provisions:

- the growth of attracted sources of non-bank customers and introduction of new savings products with high stability level on long and average periods, benefiting from competitive rates and adequate promotion;
- the implementation of the credit institution of a value of greater liquidity than 1 on each maturity band;
- the immediate liquidity indicator made by the credit institution must be higher than 20%;
- maintaining stable relations with suppliers and financing sources and keeping an active position on the interbank market;

**4.4. Operational risk strategy**

**a. General Considerations**

In the category of operational risk factors included:

- the preparation, number of employees and safety measures taken at each workplace;
- the products and the banking services, operating practices adopted or their practice error;
- the structure of the internal procedures used or the faulty application of provisions;
- the weaknesses in computer and communications infrastructure;
- disruptions in activity and system failures;
- internal and external fraud;

- improper application of legal and contractual provisions.

Operational risk management is carried out continuously in the credit institution taking into account the risk factors.

#### **b. Objectives of the strategy**

For proper operational risk management by the credit institution, the objectives are:

- ensure work continuity regardless of the type of disruptive event;
- improve operational efficiency and continual internal control;
- improve the quality of customer services;
- increased training of employees;
- effective management of information and human resources in the credit institution;
- the credit institution must have at all times its own funds to cover operational risk they are exposed to;

#### **c. Operational Risk Strategy**

To achieve the objectives for the institution's operational risk the strategy of the credit institution includes:

- regular review of management processes and operational risk measurement;
- developing a technology based on web / intranet technology to collect operational risk reports throughout the bank;
- establishing rigorous operational and internal control cultures, including separation of duties and responsibilities specifications for every job;

### **4.5. Reputational risk strategy**

#### **a. General Considerations**

Damaging reputational risk is caused by the credit institution's image as a result of negative publicity made, business practices and / or individuals associated with them, or the management staff, regardless of its conformity with the reality, producing a loss of confidence in the integrity of the bank from clients, which leads to the failure in reaching the expected profits. The potential impact of reputational risk to the activity of the credit institution may consist of:

- image deterioration or loss of customer confidence, third-party counterparty banks, media and so on in the bank;
- production of direct or indirect financial loss, measurable or not;
- failure to launch new products / new services;
- failure in reaching estimated profits and / or reduction of the market share.

#### **b. Objectives of the strategy**

For the proper management of reputational risk by a credit institution, the objectives are:

- improve the image and avoid direct or indirect damage to the image and reputation;
- avoid disclosure of secret or confidential information and use of information by their staff to obtain personal benefits or denigrating the credit institution.

#### **c. Reputational risk strategy**

To achieve the objectives for the institution's operational risk the strategy of the credit institution includes:

- defining image of the bank attributes and methods of image enhancement;
- regular review of policies and procedures to know more about clients with the purpose of avoiding entering into business relations with customers who have a history of fraudulent transactions involved in money laundering, major incidents of pay, clients who don't pay on time, or involved in illegal activities;
- IT application development process to improve the identification of unusual and / or suspicious transactions;
- preparation of front-office staff to advise clients in making informed decisions, correct and consistent with their needs regarding the purchase or use of banking products and services offered by a credit institutions;
- developing a working procedure for receiving complaints from customers and solving them;
- preparation of the staff code of conduct from the credit institution;

## **5. Alternative plans for unpredicted situations in significant risk management in credit institutions**

The crisis is a period in the evolution of a credit institution, characterized by increased accumulation of difficulties, the outbreak of conflict stress, the onset of strong pressures from outside, making difficult its normal functioning. Managers and employees of the credit institution which enters into crisis are suddenly deprived of the landmarks, as it is, they are removed from their normal bases of decision making and information so that it is difficult for them to measure and analyze the sum of new elements issued the crisis.

A crisis occurs in circumstances where the credit institution is unable to overcome, with the applicable means and strategies in normal times, a certain situation.

In a crisis, the credit institution goes through several stages:

1. The first stage, the impact stage, would be one in which there is an unexpected event that takes by surprise the credit institution and this automatically responds with its own routine of problem-solving;

2. In the next stage, it appears that we can not solve the problem by the means and strategies applicable in a situation of normality;

3. In stage 3, on the background of crisis augmentation, the management structure seeks to put at work all available resources to solve the problem;

4. Stage 4, is the active stage of crisis. The duration of this stage and the way in which it is solved depends on the speed of reaction of the crisis management team and the quality of alternative plans used for the crisis situations.

Alternative plans for crisis situations have as purpose:

- Making the situation stable
- Limiting the damages
- Functional restoration

The alternative plans for crisis situations, drawn by credit institutions include the following principles:

- Identifying the causes that generated the crisis;
- Formation of teams with specific tasks and more decision-making power;
- The attempt to rapidly remove the outbreaks of crisis;
- Maintaining the image of the institution as being a financially solid one;
- Prepare post-crisis action plans for implementation.

These principles lead to the achievement of action plans that will be used in unplanned situations.

### **Conclusions**

Competitiveness is the most important success factor in the market economy. This means that the credit institutions needs to have many products to offer, which can prove their increase in efficiency.

Given the strong competition on the financial and banking market, quality is a priority condition for survival.

For the complete success of a credit institution, its products must::

- satisfy a well-defined purpose;
- satisfy client expectations;
- comply with legal measures and other conditions imposed by the social and economic environment;
- be competitive on the market.

One of the main objectives of the risk management process for 2009-2010 is to ensure a steady flow, with a high quality and with increasing trends of the net revenue even while the international

economic crisis is acutely manifested nationally. This objective will be achieved by ensuring optimal combination between the assets, the liabilities and the financial risks.

Credit institutions are determined to continue to play an active part in European economic development.

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## NATIONAL ACCOUNTING AS A BRANCH OF ACCOUNTING

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**Abstract:** *National Accounting presents in an updated form the ensemble of the value-based information regarding a nation’s economic activity. National Accounting might provide the data needed to support the macroeconomic studies that follow the behaviour of national economy as a whole and the relationships it establishes with other national economies. It meets the need to reflect past activities, as accurately as possible, along with the need to allow forecasting economic future. Within the same context, through simulation, modelling and provisional calculus, National Accounting should be able to offer strategies of economic policies, options and convenient alternatives.*

**Keywords:** National Accounting, nation economic life, forecasting, macroeconomics.

**J.E.L. classification:** A13, B9, D03, D84, E02, E17, e61, E66, M41, M48, M49, O21.

### 1. Introduction

The importance of accounting is given by its universal value, by its functioning at all the levels of human society’s development. Through a system of specific notations, accounting observes, records and quantifies and thus it becomes a successful means to manage the entire economic life (Horomnea, 2001).

Specialised literature offers various ways to define National Accounting or the System of National Accounts, which nevertheless have as a common feature the fact that they start from its chief objective, that is, presenting quantitatively, in an aggregate, complete and coherent form, a nation’s economic realities, at a given moment or during a given period of time, usually an economic-financial and fiscal year (Pop, 1998).

Accounting has always enriched its conceptual and methodological content during the course of its history. Thus, National Accounting presents in an updated form the ensemble of the value-based information regarding a nation’s economic activity.

The definition of National Accounting has been marked by the same two main theoretical trends that have developed in relation to the status of accounting, i.e. one that sees accounting as a branch of economic science and the other that considers it a mere micro- or macroeconomic management technique.

### 2. National Accounting as a branch of accounting

The movement of values is universal, happening in companies, institutions, groups of companies and also at the national and international level. This justifies the necessity to extend accounting calculus from the micro- to the macroeconomic level (Tabără, 2001).

The emergence and the development of National Accounting is linked to the evolution of national economies, the amplification of the relationships between them at the global level-in the course of time, this happened during the second part of the 20<sup>th</sup> century.

On the background of the macroeconomic research’s attempt to discover the determining factors of the national revenue and due to the need to get information regarding the economic situation of a country and its evolution in time, there was the need to organise the statistical data available that referred to these aspects at that moment. Thus, economists got involved in finding a

descriptive model able to allow classifying and grouping some data very complex in nature but related within a single framework.

In order to carry out such a desideratum, right from the beginning, it was considered that the framework of accounting was the only one able to allow a coherent and full description. The accounting structure offers the best presentation of the instruments needed to manage a collection of statistical data separated from each other. As a result, accounting techniques allow both to organise and to highlight the links between numerous and varied variables and to create a true dashboard of national economy.

Accepting National Accounting as a branch of accounting comes from the fact that it supposes the use of a conceptual and methodological framework with an accounting nature in order to edit data, even statistical data. In this endeavour it is easy to seize the interdisciplinary character as “a process of cooperation, which unifies scientific disciplines, and is characteristic for the current stage of development in knowledge, where each discipline keeps its gnoseological autonomy, its specialisation and independence and, at the same time, it integrates into the global system of knowledge” (Tabără, 2003).

As a result, as a theoretical and practical intercession, National Accounting has a strong interdisciplinary character, motivated by the fact that, starting from economic concepts and notions, it ensures, through accounting and statistical methods, the presentation of macroeconomic information within an accounting framework.

The motivation behind the inclusion of National Accounting into the scientific field of accounting is supported by the use of balance sheets, and of some fundamental concepts and principles of accounting such as: stocks and flows, monetary unit, accounting period, accounting entity, accounts and account operation rules, etc.

In the course of time, National Accounting has continuously enriched its conceptual and methodological content so that, currently, it is capable of rendering the ensemble of value-based information regarding a nation’s economic activity.

The need to obtain an abstract in numbers of a nation’s economic life is justified by the fact that, in a market economy, the state manages consistent economic and financial resources that must be oriented in order to achieve the objectives targeted by macroeconomic policies. This abstract in numbers of a nation’s economic life must be rendered by National Accounting, which is an instrument that helps to synthetically measure and test, within a rigorous accounting framework, an ensemble of information that aims to describe the fundamental phenomena of capital production, distribution, repartition and stock-piling (Capanu et al., 1994).

From a historical point of view, accounting first appeared, developed and got standardised at the macroeconomic level, mainly aiming to systemise data and to provide the information needed by the environment outside economic units and then, at a given time, it was needed for the “traditional contest of enterprise management” to extend and to encompass the entire national economy.

National Accounting provides the data needed to support the macroeconomic studies that follow the behaviour of “national economy as a whole and the relationships it establishes with other national economies. Macroeconomics considers economy as a whole too but its interest focuses on aspects such as: production, revenue and total consumption; the level of labour force employment and unemployment; the level of monetary circulation; the general level of prices, etc. Thus, in the case of macroeconomics, the interest moves from individual consumers to the overall consumers of all households, and from the production of an enterprise to national production” (Capanu et al., 1994).

The systematisation of the *objectives of National Accounting* such as they are presented in specialised literature, leads to the following rough scheme:

- to provide information on the national economy;
- to analyse the relationships between economic entities;
- to provide the instruments of economic policies at the macroeconomic level;
- to unify economic language.

The System of National Accounts or National Accounting is a crucial instrument in the collection of numerical and quantifying data in a systemised, simplified form, of the main operations of the national economy. Thus, it represents a model that stresses in particular the relationships of interdependence between the elementary units of the economy, the aggregation of results within significant macroeconomic categories, favouring flow-based economic analyses (the variation of an activity during a given period) (Tobă, 2005).

Using instruments and data statistical in nature, National Accounting aims to provide a complete figure-based representation of the national economy, which should nevertheless be simple enough to allow for its fundamental aspects to be easily extracted and used especially in forecasting. It should be noted that besides the role that makes it reflect past activities and help to a better understanding of current economic phenomena, National Accounting also has a crucial aspect that allows exploring the future through previsions, planning and economic policies.

In what regards public accounting information, it is enclosed and systemised in accounting balance documents for third parties from outside the economic entity. Despite the fact that accounting data are subject to a process of systemisation and formalisation, generated by accounting normalisation, they appear in an important number of accounting reports, which leads to the need to centralise them in order to build macroeconomic aggregates (indicators).

National Accounting is a system formed by a collection of accounts and sheets whose purpose is, as it was said before, to provide a systemised, comparable image, as complete as possible, on the economic activity developed during a certain period in the country that employs this system. The main task of this system is to structure the phenomena, processes and flows of a national economy in a small number of economic categories and to present them in a form and a framework that should offer an image of the economic cycle as accurate, intelligible and adapted as possible.

Those who use financial accounts at the microeconomic level desire data able to allow them to make assessments at the macroeconomic level; users are interested in the performances and the vulnerability of a national economy even if the *groups of macroeconomic information users* are essentially the same, their structure and their informational needs are consistently different. Thus, we can group the users according to the systematisation of their needs (Dobroţeanu, 2004):

- **The state** is the priority user and thus, as an internal user (as an owner in the economies mainly characterised by state ownership), the state is interested to see how its wealth is managed, previous achievements or future potential while, as an external user (as manager of a nation's wealth, in the case of market economies), the state uses financial-accounting information to identify the leverage it could use to create and implement macroeconomic policies.

- **Investors**-Getting information about the economic and political climate of a certain country is crucial for making a decision to invest. Thus, macroeconomic financial accounts seem to be the only one able to offer a clear and complete image on the performances achieved at the national level, on the future economic potential. The risks associated with investing in an economy are diminished or intensified according to the economic policies enforced and to the intentions expressed verbally by government official. From this point of view, investors seem to be interested especially by macro-accounting information that would enable them to evaluate macroeconomic stability, interest rates, the evolution of exchange rates, the fiscal facilities and incentives granted, etc. All these data combined with microeconomic ones complete the image regarding the advantages and disadvantages in a given economy.

- **Creditors**-At the macroeconomic level, private or official creditors are very active users of the information make known through financial accounts. In contrast with the understanding of creditors used in a microeconomic way, at the macroeconomic level, creditors are those who grant short, medium or long-term funding to governments. Thus, their interest is oriented mainly towards macro-accounting information that would enable them to assess a state's capacity to reimburse, the level of its debts, its capacity to generate positive cash flows in foreign currencies, the level and the evolution of international reserves, etc.

- **Economic and financial analysts**-At the international level, decisions to invest, fund, etc. are influenced to a great extent by economic and financial analyses and by the rankings published by

rating agencies. These agencies that put together elite economic analysts, owing to the array of the clients they serve, are interested to a greater extent in macroeconomic financial statements similar to those demanded by creditors and investors. Internally, economic analysts generally offer a wide array of services, their need for information differing according to the objective they pursue. Thus, for example, if an analyst is required a professional opinion regarding the evolution of the food industry, his need for data is channelled towards those that enable him to analyse the performances and the tendencies of the sector, its contribution to the construction of the gross domestic product, the evolution and the tendencies in what regards wages, the workforce, the structure of product production and retailing, fiscal incentives and treatment, the level of the subventions granted to that sector, etc. The larger the field of analysis the more complex need for financial accounting information.

- **The political class**-To survive in the political life any party needs financial-accounting information of a macroeconomic nature. Thus, a widely known example is that parties create their own economic strategies in order to seduce the electorate. To this purpose, their informational needs are usually oriented towards macroeconomic financial-accounting data that would enable them to understand and assess the GDP levels, inflation rates, budgetary expenses and revenues, the level of the monetary mass, of the wage-increase index, etc.

- **Unions**-Firstly, it seems that unions are interested above all in the evolution of inflation, which would offer them a basis for negotiating changes in wages. Secondly, the union's interest seems to be oriented towards the sector's contribution to the formation of the gross domestic product, which would enable them to assess the stability of jobs. However, to restrain analyses only to these aspects that are priorities for unions would mean to limit the understanding of the consequences that the demand for macro-accounting information formulated by the unions has on macroeconomic policies, on the offer of macro-accounting information and, implicitly, on accounting.

- **Private entrepreneurs**-Private entrepreneurs are private companies who develop their business on the territory of a country. Just as investors, private entrepreneurs are interested in gathering information such as: the evolution of inflation, the government's sectoral policies (of privatisation, reform, stimulation, etc.), the policy and the evolution of exchange rates, fiscal policy and incentives/restraints, the recent evolution of foreign trade relations, etc.

National Accounting is given the role of an accounting management and information system, which, essentially, should offer:

- clarifications regarding the economic future and past;
- (alternative) orientations regarding future economic strategies;
- relevant analyses focused on the market;
- the limitation of hazard in the making of macroeconomic policy decisions;
- adequate solutions and motivations for the decisions made (Tabără, 1997).

### 3. Conclusions

Starting from the above premises, it is obvious that the fundamental role of National Accounting is to be an instrument that allows us to express the fundamental balances within an economy. Thus, it meets the need to reflect past activities, as accurately as possible, along with the need to allow forecasting economic future. Within the same context, through simulation, modelling and provisional calculus, National Accounting should be able to offer strategies of economic policies, options and convenient alternatives.

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## QUANTITATIVE APPROACH ON RELEVANCE AND CREDIBILITY OF THE ACCOUNTING INFORMATION

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**Abstract:** *Underlying accounting information and managerial decisions that influence the further evolution of entities must present a high degree of accuracy. Given that "obtaining assurances" in the audit area is difficult and expensive, this study presents a method of analysis of accounting information in computerized environment using statistical techniques to detect anomalies in the data. The aim of the method consists in detecting anomalies in accounting data using supervised methods of data analysis, but mostly unsupervised data analysis methods. The result of the research is a quantitative model for concrete structural analysis of accounting information.*

**Key words:** relevance, credibility, accounting information, audit

**JEL classification:** M41 - Accounting . M42 – Auditing

### 1. Introduction

"Accounting is the most important source of information of a nation" (Mongestern, 1976).

Computer, information technology and communication, complexity of the systems currently used in computerized accounting, led to the dematerialization of financial information. This, together with the development of the audit process itself have increased the possibilities of obtaining accounting information quickly, in various forms (reports, analysis, charts, etc.) and access them in real time.

In preparing this study we started from the reality that, in the context of rapid changes in economic environment in which any business operates, the submission of additional information outside the financial statements is encouraged. [ Morosan Ioan 2010 ]

Thus, the organization's financial communication does no longer mean (only) the publication of financial statements. What methods do we have at our disposal to ensure that information presented is reliable and shows the true picture of the events and transactions occurred within the entity?

The concept of the accounting information quality is based on the particularities of financial communication process by determining its quality characteristics in order to create an instrument to measure its effectiveness.

In this context, the audit, as the independent and objective-functional activity, contributes significantly to increasing the credibility of this information. Crucial in this respect is the audit ability to identify relevant information from the multitude of accounting data provided using techniques such as anomaly detection in data analysis.

*Anomaly detection* refers to the problem of finding patterns in data that do not conform to expected behavior. Anomaly detection has been the subject of many studies and articles. Hodge and Austin [2004] provided an extensive investigation of anomaly detection techniques developed in the fields of machine learning and statistics.

A broad review of anomaly detection techniques for both numerical data and symbolic data is presented for by Agyemang et al. [2006].

A thorough examination of novelty detection techniques using neural networks and statistical approaches have been presented in Markou and Singh [2003a] and Markou and Singh [2003b], respectively. Patcha and Park [2007] and Snyder [2001] present a survey of anomaly detection techniques used specifically for cyber-intrusion detection.

Detecting anomalies in accounting data from companies will be approached using statistical analysis of the evolution regarding the trial balance accounts.

Trial balance sheet is a document used to verify the correct recording in the accounts of the operations performed, the consistency of synthetic and analytical accounting and is also the main instrument by which accounting reports are prepared according to law.

Trial balance not only fulfills a control function, but also those of the clustering and centralization of data recorded in the accounts and analysis of economic activity.

The method proposed in this paper consists of statistical analysis of data from trial balances of a society and it will cover the detection of anomalies in data that can disrupt management decisions following a misinterpretation of accounting information.

## **2. Analysis methodology of trial balances accounting information using supervised data analysis**

Computerized accounting systems currently used facilitates facilitates audit data in electronic system that can be performed in order to verify the transactions made by the entity in aspects of: data completeness (if all transactions performed by the company have been have been accounted) and data accuracy (if registration of transactions in the accounting was done according to legal regulations in the field).

Electronic audit is therefore used to verify the accuracy of preparation of accounting having as a tool the analysis of temporal evolution of the accounts.

By electronic control method it can be obtained summary statements from the audited entity's accounting records, that can contribute to the selection of transactions to be analyzed.

### **2.1. Setting up database**

Starting from the assumption that relevant financial information in the financial statements can be determined through a structured approach, we begun our research by setting up the database.

The aim was to develop a methodology for evaluating the accounting information using statistical techniques and models.

Electronic control methodology was developed through the following steps:

- a) computer system analysis;
- b) the import of electronic data;
- c) imported electronic data validation;
- d) imported electronic data analysis.

a) Computer system analysis

Purpose of this analysis was:

- to identify the internal rules of entry and processing, including the relationships between sub-systems and checking if they are consistent with the accounting regulations
- establishing the elements of quality testing to ensure the information entered and processed;
- to determine how to store transactions and how they can be accessed

b) In the import of electronic data phase it were actually obtained the computer data system (trial balances for 3 consecutive years (2008, 2009 and 2010) in lst files.

We specify that this phase of import primarily involved the transformation of data with a tool which is shown below:

```
import globsplitChar = 0xB3removeChar = [0xC4, 0xC5, 0xC3, 0xC2, 0xC0, 0xC1, 0xD9,
0xB4, 0xDA, 0xBF, ]def checkMinus(input): if not input.strip(): return input if input[-1] ==
"-": return "-%s" % input[:-1] return input for fileName in glob.glob("*.txt"): fileData =
open(fileName).read() fileData = [s for s in fileData if ord(s) not in removeChar] fileData =
```

```

""" .join(fileData).split("\n") fileData = [fileLine for fileLine in fileData if fileLine.strip()] for
excludeString in ["Nr.Reg.Comert", "Denumire", "ELECTRA", "BALANTA de VERIFICARE",
"RULAJ CURENT", "SOLD FINAL", "SUME FINALE", "BUZAU", "Debit"]: fileData =
[fileLine for fileLine in fileData if excludeString not in fileLine] fileData =
[fileLine.strip().split(chr(splitChar)) for fileLine in fileData if fileLine.count(chr(splitChar)) > 3]
payload = [] for fileLine in fileData: del(fileLine[0]) del(fileLine[-1]) fileLine =
[cellData.strip() for cellData in fileLine] fileLine = fileLine[0:2] +
[checkMinus(cellData.replace(".", "")) for cellData in fileLine[2:]] if
len(fileLine[0].replace("*", "").strip()) == 3: fileLine.insert(0, "d") else:
fileLine.insert(0, "n") payload.append("\t".join(fileLine)) open("output_%s.txt" %
fileName[:-4], "w").write("\n".join(payload))

```

The report was being formed initially in Microsoft Access, subsequently resulting in a practical database which had the months for records, and the accounts from trial balances as fields.

These data were analyzed by electronic data validation and confirmation of their accuracy and were subsequently exported to a statistical analysis of data.

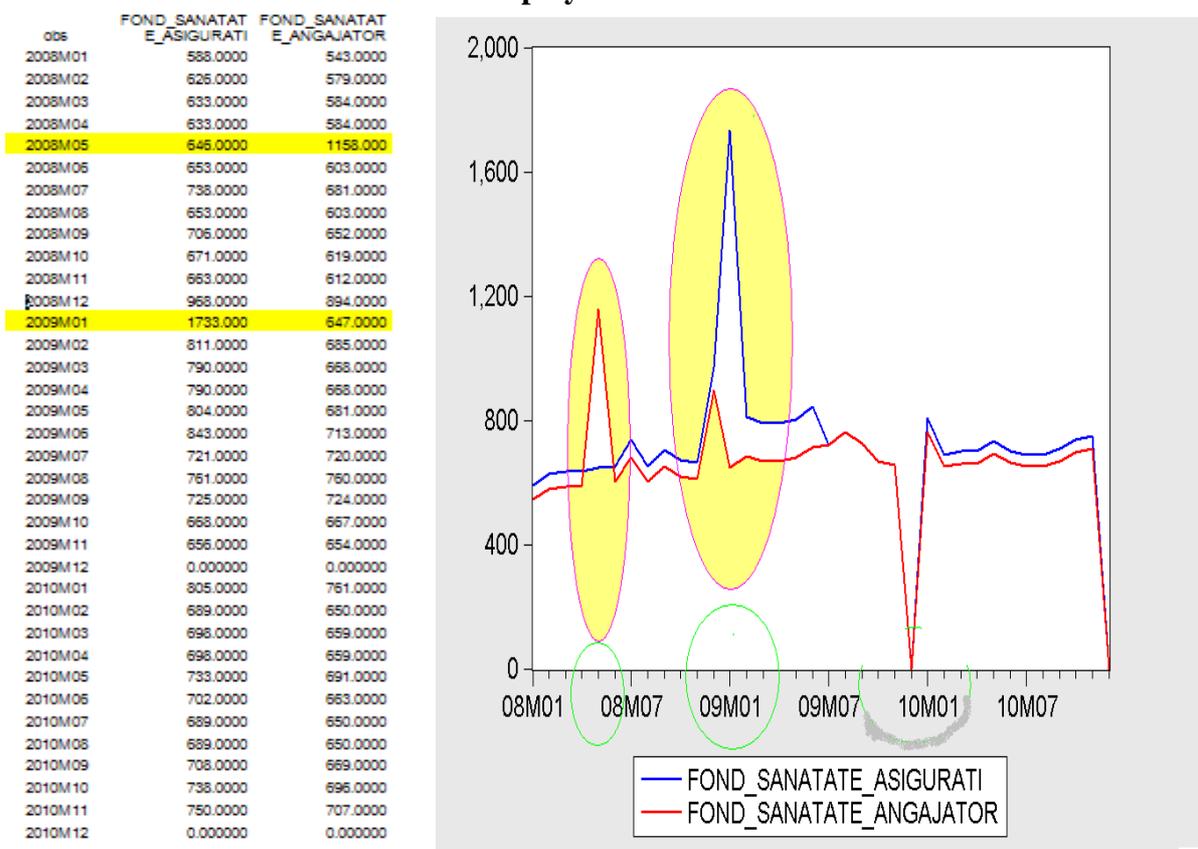
To confirm the electronic data there were taken into account extreme values, the number of transactions and control totals.

### 2.2 Time series analysis and their seasonality

A first statistical analysis consisted of a graphic interpretation of time series results and their seasonality.

We describe below such a graphical analysis of the evolution accounts 431.1.2 "Employer health fund" and 431.3 "Employees Health Fund"

**Figure 1 Graphic analysis of the evolution accounts 431.1.2 "Employer health fund" and 431.3 " Employees health fund"**



Source : Authors projection

The study reveals that in May 2008, January 2009 and December 2009 there are differences between the two accounts graphs.

From an accounting perspective the 431 "Social Security" account is used to track of settlements on the employer and employee contributions to social insurance and social security contribution for health.

Settlements are subject to staff calculation, costs recording and employee wages settlement. Structurally, the salaries are made up of base salary due to employees and various types of bonuses and benefits laid down by legislation. Employing unit is obligated to pay deductions representing contributions to health insurance (as the other contributions calculated) in the month following the month for which the deductions are calculated for, so that at the end of each month, the final balance of the accounts reflect the amounts owed to Social Security. This is normal behavior for these accounts.

In this context, we have analyzed each of the resulting anomalies (deviation from normal behavior).

a) In May 2008, closing balances of the accounts mentioned, according to the trial balance of the month, are as follows:

431.1.2 "employer health fund - 1158 lei final creditor balance

431.3 " Employees health fund. " - 646 lei final creditor balance; these values being the fault that generated the graph.

The question which has caused the auditor to undertake additional analysis and tests was "what happened in that month? Are these relevant data?"

Doing the analysis of accounting records from that period, the auditor found that only in May 2008, the company had hired an extra person on a civil convention framed (collaboration). Given the applicable laws and regulations in the area at that time, the auditor aimed the accounting records in order to determine if they were made in compliance with legal and accounting rules and standards and reflect the reality of the occurred events.

b) In January 2009, closing balances of the accounts mentioned, according to the trial balance of that month, are presented below:

431.1.2 "Employer health fund" - 647 lei final creditor balance

431.3 "Employees health fund - 1733 lei final creditor balance, these values being the fault that generated the graph.

Similarly, the auditor has focused his attention on January, in order to determine the accuracy of accounting information. Thus, it appeared that the final balance account 431.3 " Employees health fund " consists of the final balance account for the month of December 2008, which was added to the amount representing the January turnover ( $1733 = 968 + 765$  lei).

The analysis of accounting data for January 2008 revealed that in January was paid the amount representing employer contributions to the health fund (sum of 894 lei, which is in fact 431.1.2 final balance account at the end of December); instead not the same thing happened with the amount representing the contribution to employees health fund (final balance at the end of December 968 lei). 1733 lei amount was paid only in February, according to the trial balance of that month.

Given that the theme of this study is the detection of anomalies in accounting data, in order to establish by the auditor the credibility and relevance of these data, we will not debate the subject of late payment of contributions to fund health and legal consequences that arise from this event.

c) In December 2009, closing balances of the accounts mentioned, according to the trial balance of that month, are presented below:

431.1.2 "employer health fund - 0 lei final balance

431.3 " Employees health fund - 0 lei final balance.

These values have led to the third appearance of irregularities in the graph of the two accounts, which led the auditor to proceed into investigating this anomaly.

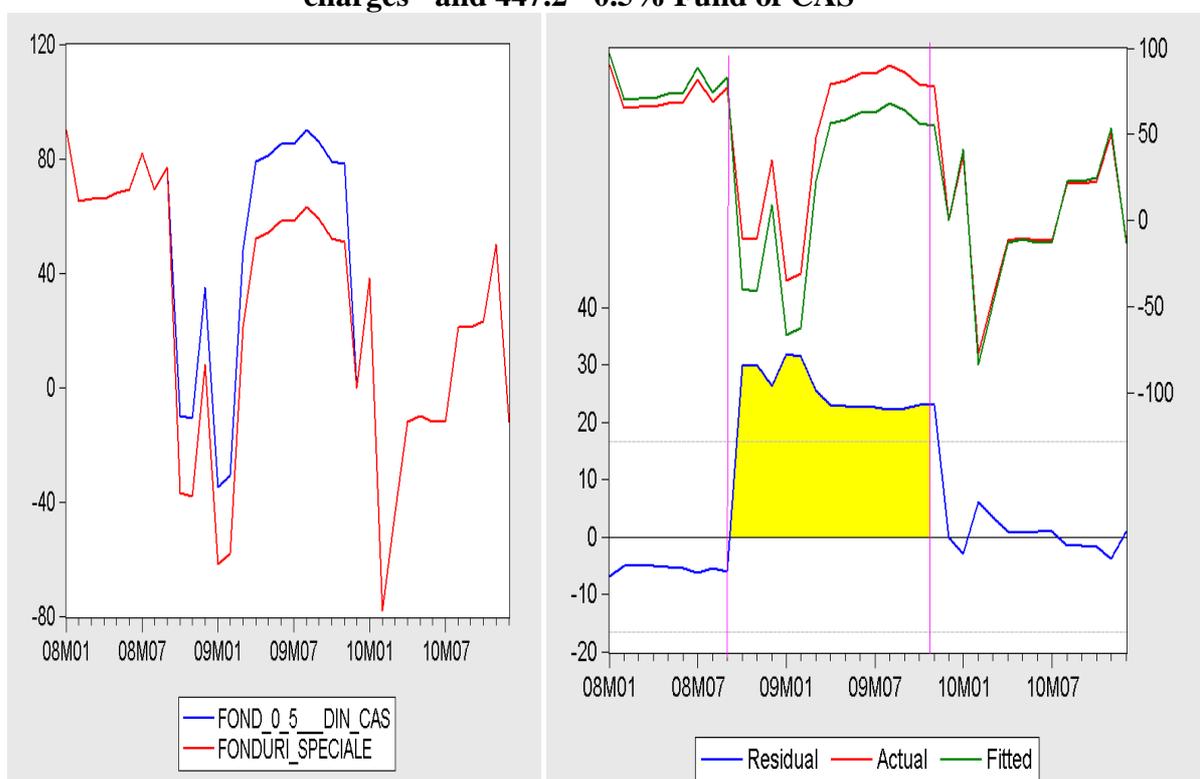
Thus, based on the analysis of accounting records for December, and accounting documents, the auditor noted the following: in December there were calculated and recorded amounts representing employer and employee obligations to the health fund, related to salaries of December, but in December, both contributions have been paid (meaning those for the month in progress, and those for the month of November). For this reason, in late December, these accounts do not show final balance.

Given the foregoing, the auditor will assess the accounting data on these two accounts as correct and the generated chart correctly pointed out that in that month, there was a deviation from normal behavior (current month's contributions are paid next month), meaning that they have paid have paid contributions to social insurance for two months.

### 2.3 Graphic differences Analysis

In the second study were compared the following accounts: 447 "Special funds - and similar charges" and 447.2 "0.5% Fund of CAS" in order to achieve a graphic differences between the evolution of two accounts, and the chart differences.

**Figure 2 Graphical analysis of the evolution of accounts 447 "Special funds - and similar charges" and 447.2 "0.5% Fund of CAS"**



Source : Authors projection

From an accounting perspective account 447 "Special funds - and similar charges" is a liability account, through this account being achieved the records of debts and payments made to other public bodies according to law.

According to the comparison of the generated graphs as well as the differences chart made for the two accounts, an anomaly was revealed in the period October 2008 - December 2009.

In this context, the auditor is required to perform additional tests and analysis to determine the cause of the fault, and consequently, the reality of accounting data.

The analysis of balance sheets and the October 2008 Journal Register has revealed that, in that month, a transaction was erroneously recorded, in this way an analytical account being created, respectively account 447.3 "Drinks-Tobacco Fund". The amount found with the account debtor turnover 447.3 "Drinks-Tobacco Fund" ( 27 lei) throughout the mentioned period appears to be

faulty. In December 2009, the erroneous registration was corrected so the final balance account at the end of that month is 0 lei, from that moment the analytic account 447.3" Drinks-Tobacco Fund " disappears from the trial balance.

Anomaly detected in graphical analysis led to the detection, by the auditor, of an erroneous accounting entries,, which negatively influenced the accounting information submitted by entities in the financial statements of the Company.

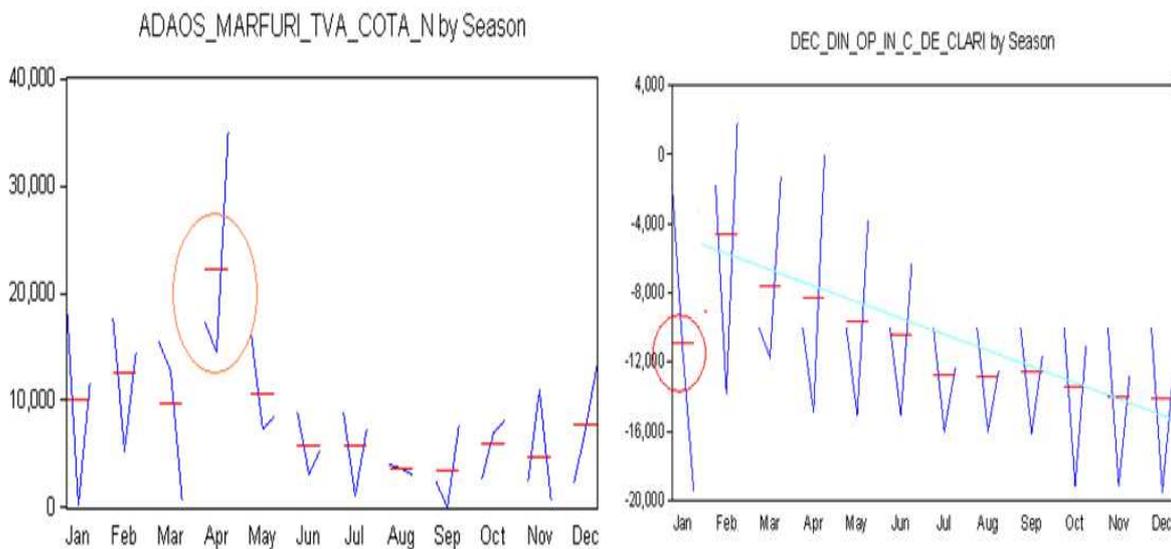
**2.4 Statistical analysis of time series seasonality**

Another type of analysis conducted in the research was the seasonality study of statistical time series.

O time series is a sequence of recorded values of a variable in a certain period of time [Chan, P. K. and Mahoney, M. V. 2005] .

An important feature of time series, which was considered in the econometric analysis, is seasonality. In this process virtually every month has been accumulated in the analyzed years.

**Figure 3 Analysis of seasonality data for 378 account "Differences in the price of goods" and 473 account " Settlements under clarification from operations "**



Source : Authors projection

From an accounting perspective, the 378 account "Differences in the price of goods" is an account that serves to highlight the commercial mark-up (dealer’s profit) related to goods in commercial units.

Based on the above chart, the auditor examined the accounting records relating to all economic phases that goods are going through (acquisition, calculation and recording of the commercial mark-up, selling related merchandise and download management).

Special attention was allocated to the month of April of each year of the period subject of analysis, because, as a result of seasonality chart, the 378 values account are growing in that month. This can be explained on account of acquisition (which is correlated with analyzing the evolution of account 371 "Goods"), increasing the share of the commercial mark-up for incoming goods (average rate of commercial mark-up applied by the company is 20%), reducing the rate of commercial mark-up due to sales promotion or other causes.

In terms of seasonality data analysis related to the account 473 "Settlements under clarification from operations" there stands out a downward trend of media settlements under clarification from operations, which means that the number of unclear statements which prevented accounting recording of company’s events and transactions decreased.

**2.5 Data analysis by regression**

Another way of analyzing data that was used in research was regression, which shows how a variable is dependent on another variable (or other variables).

Simple regression method involves explaining a resultative Y variables based on a factorial variables, using a model called the regression function [ Bianco, A. M., Ben, M. G., Martinez, E. J., and Yohai, V. J. 2001 ] .

In such a model the concept of causality is used, ie changes in the independent variable causes changes in the dependent variable.

Using linear regression, we can determine the impact an account (or some accounts) have on some other accounts.

We used regression to determine the relationship between the value added tax and price differences related to goods.

The regression equation is : not due value added tax = coefficient x price differences related to goods. (In our case the value of this coefficient is 0.41)

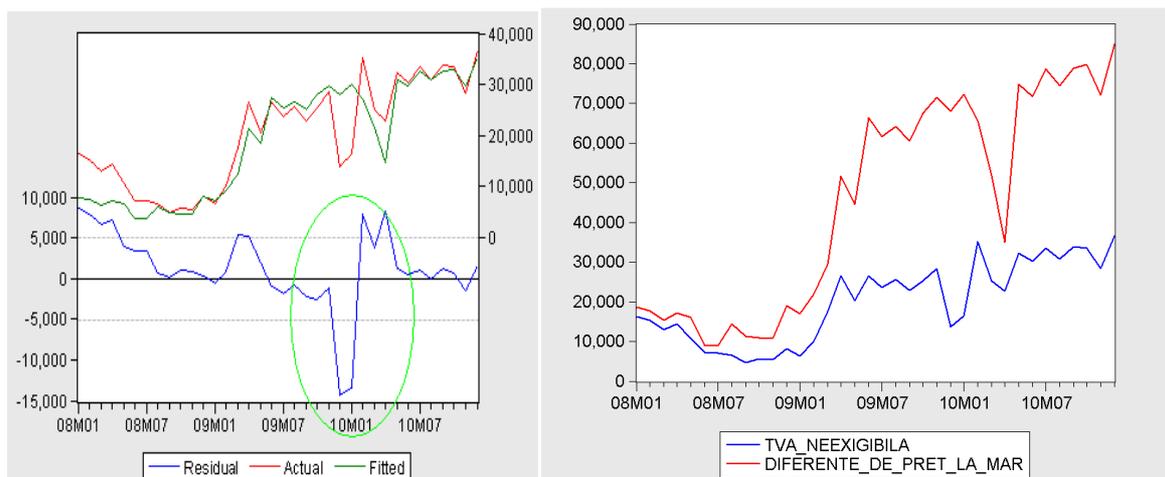
Using EViews we analyzed the null hypothesis using t test (if determined coefficient significantly different from zero). Associated probability is lower than the level of relevance , thus rejecting the null hypothesis and the coefficient is considered statistically significant.

Another indicator that shows whether the regression model is well specified is R. This coefficient indicates that 75% of the not due VAT total variance is due to goods price difference. The regression and graphical analysis of this dependent is presented below, as well as the anomaly recorded in 2010.

**Figure 4 Regression Method**

Dependent Variable: TVA\_NEEIGIBILA  
 Method: Least Squares  
 Date: 03/16/11 Time: 15:01  
 Sample: 2008M01 2010M12  
 Included observations: 36

	Coefficient	Std. Error	t-Statistic	Prob.
DIFERENTE_DE_PRET_LA_MAR	0.413624	0.016032	25.80030	0.0000
R-squared	0.752794	Mean dependent var		19989.07
Adjusted R-squared	0.752794	S.D. dependent var		10201.87
S.E. of regression	5072.353	Akaike info criterion		19.92838
Sum squared resid	9.01E+08	Schwarz criterion		19.97237
Log likelihood	-357.7109	Hannan-Quinn criter.		19.94373
Durbin-Watson stat	0.902865			



Source : Authors projection

Based on the above regression analysis Auditor has carried out further tests and analysis concerning both the August 2008, and especially during April-December 2009 to determine the cause of the anomalies recorded.

Conclusions about the anomalies indicated by the graphs above, are:

- From August 2008, the company proceeds to carry out acquisitions of goods, an operation that falls under the Law on Fiscal Code no.571/2002 regarding VAT. (Chapter 9, " tax relief transactions" art. 142 "reliefs for imports of goods and intra-Community acquisition)

- In August 2008 acquisition of goods (to which normal VAT rate applies to) showed a reduction of approximately 30% compared to January of that year. In this context, the share of commercial mark-up is growing by 2% share compared to the one used in January 2008.

- Given that acquisitions (VAT free) made in August 2008 represents 22.7% of total procurement of goods in the month, the anomaly recorded on the chart above has led to additional tests that confirmed the data reality.

- Regarding the second anomaly, it was found that in April 2009 that procurement of goods recorded an increase of 84% compared to January 2008, but 30% of all goods purchased are represented by community acquisitions. Since the latter are VAT free, the gap between the two accounts graphs (378 "Differences in the price of goods" and 4428 "VAT not due") is fully justified.

- A situation similar to that described in the preceding paragraph was recorded in May 2010, when purchases of goods from Italy represents 47% of all purchases in the current month, which justifies the third anomaly on the chart of the 378 account "differences in the price of goods" compared to the one of 4428 chart account "VAT not due."

- In December 2009, draws attention the anomaly recorded on the account chart 4428, "VAT not due." Additional checks performed by the auditor have generated the following results:

- increasing the share of commercial mark-up (up to 34%, respectively with 70% more than in previous month)

- Reduction of the final credit balance account 4428 "VAT not due" by 52% compared to the previous month final balance, while increasing debtor turnover by 30% this month against the account debtor turnover from the previous month (it is known that VAT not due become due at the time of merchandise sale)

- increased revenue from the merchandise sale in December 2009 with 30% compared to the previous month, while purchases of goods in December increased by only 7% compared to the previous month

Given the above findings and the study hypotheses (the auditor has no other knowledge about the company, except the information from the database) the next step will be to identify those events and transactions that have generated the anomalies and the influence of those on the entity's financial statements.

Among the possible alternatives to explain the situation described we mention: conducting sales promotion held during the holidays, reduction in VAT rate while maintaining selling prices, which would lead to higher commercial mark-up and ,by default, to profit growth, making purchases from non-taxable companies or purchase of goods for which no bill was drafted yet.

### **3. Analysis methodology of accounting information related to trial balances using unsupervised data analysis**

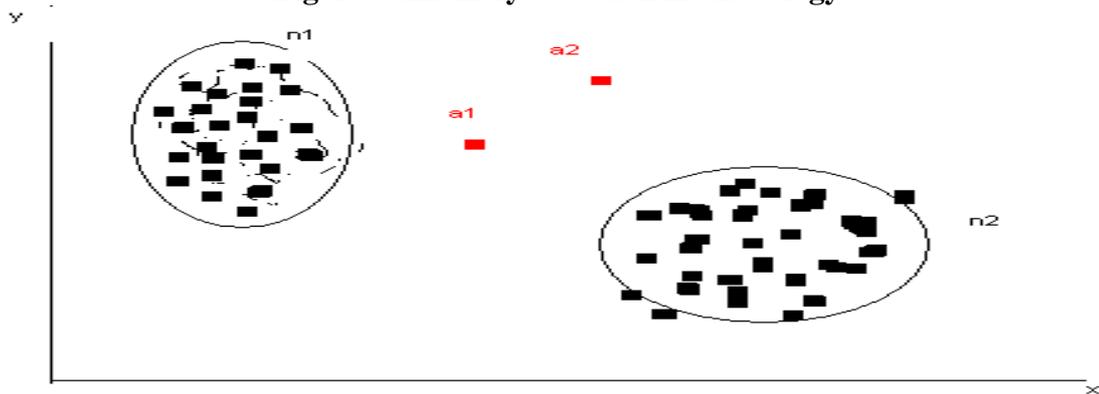
Anomaly detection as an unsupervised method means that it requires no prior data set containing cases of fraud known as the starting point in analysis (Bakar, Z., Mohamad, R., Ahmad, A., and Deris, M. 2006) .

Unsupervised anomaly detection is an important issue destined to find patterns in data that do not conform to expected behavior.

Detecting outliers or anomalies in data has been studied in the statistics community as early as the 19<sup>th</sup> century [Edgeworth 1887]. Over time, a variety of anomaly detection techniques have been developed in several research communities.

Anomalies are patterns in data that do not conform to a well defined notion of normal behavior. Figure 1 illustrates anomalies in a simple 2-dimensional data set. The data has two normal regions,  $N_1$  and  $N_2$ , since most observations lie in these two regions. Points that are sufficiently far away from the regions, e.g., points  $0_1$  and  $0_2$ , , are anomalies.

**Figure 5 Anomaly detection methodology**



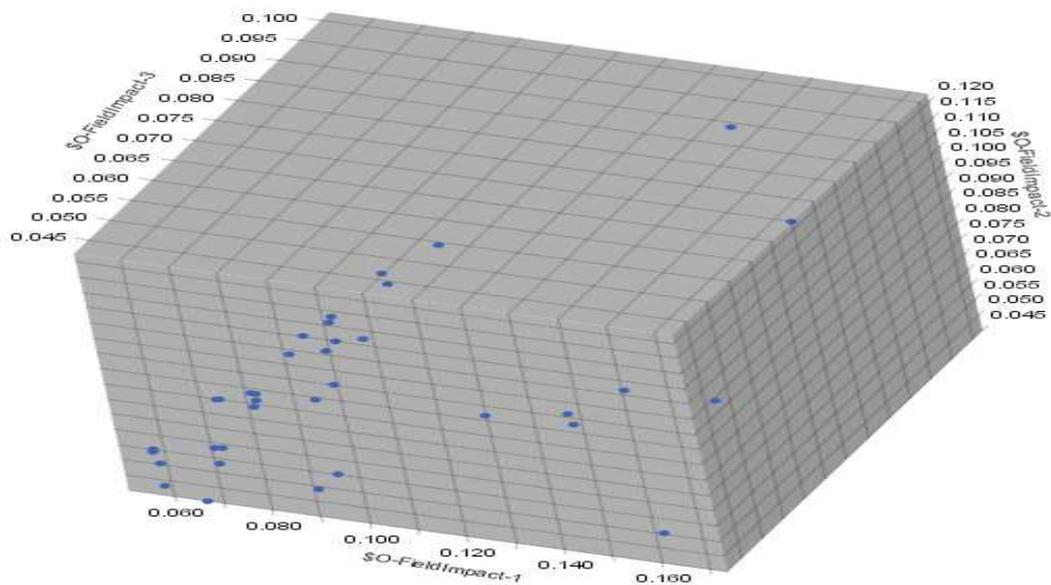
Source : Authors projection

A straightforward anomaly detection approach is to define a region representing normal behavior and declare any observation in the data which does not belong to this normal region as an anomaly. But several factors make this apparently simple approach very challenging:

- Defining a normal region which encompasses every possible normal behavior is very difficult and the the boundary between normal and anomalous behavior is often not precise..
- When anomalies are the result of malicious actions, the anomalous observations may appear like normal

Due to the above challenges, the anomaly detection problem, in its most general form, is not easy to solve.

**Figure 6 Anomalie indices**



Source : Authors projection

A key aspect of any anomaly t detection techniques is the nature of input data. In our case accounts were the specific input variable.

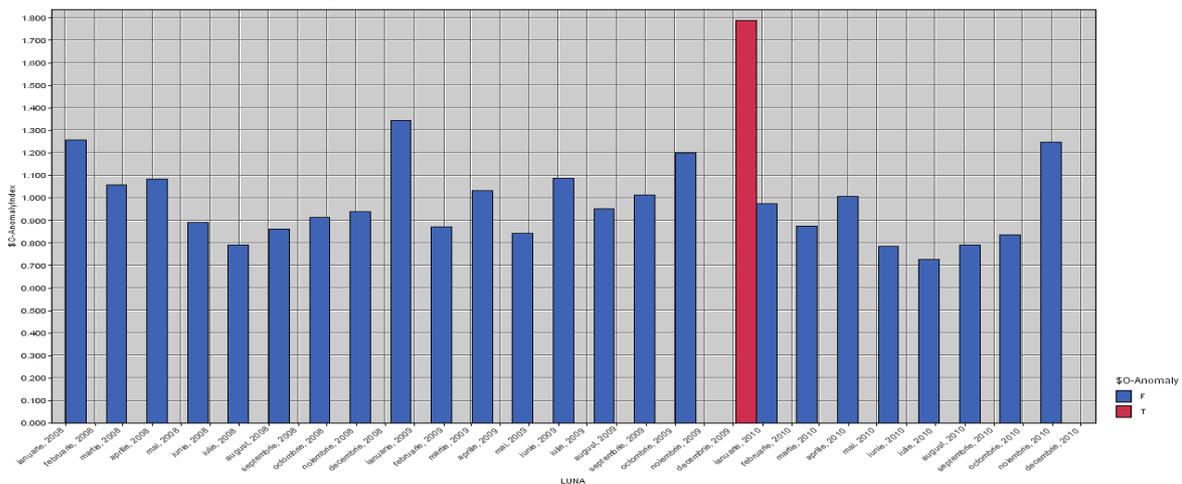
Classification based anomaly detection techniques operate in two-phase fashion. The training phase learns a classifier using the available labeled training data. The testing phase classifies data as normal or anomalous using the classifier and the cluster analysis [ Barnett, V. and Lewis, T. 1994] .

Unsupervised anomaly detection has examined a large number of fields (in our case accounts) to identify clusters or pair groups for which similar records and indices of abnormality have been made (Fig. 6). Then, each record was compared with others in the group in order to identify possible abnormalities.

In applying these concepts in the detection of accounting errors we considered the database used in previous studies and used SPSS statistical program to determine the month that is characteristic of an anomaly compared to other months of the year, based on distances between clusters.

The conclusion study according to the the chart below based on the index of abnormality is that December 2009 is statistically an anomaly that must be further analyzed.

**Figure. 7 Unsupervised statistical analysis of anomalies in the database**



Source : Authors projection

#### 4. Conclusions

This study represents the development of an innovative method of accounting information analysis in computerized environment in order to test the relevance and credibility of information by using statistical techniques to detect anomalies in the data.

Given the hypothesis (The auditor has no knowledge about the history and specific activities performed by the audited entity), the proposed method has proven to be an effective tool available to the auditor, who can demonstrate it's usefulness and reliability in financial accounting area.

The result of the research is a quantitative model for concrete structural analysis of the accounting information underlying the financial statements.

Future directions of research will consist of a statistical analysis using other techniques and also other financial statements and it will also consist of using data mining analysis on the financial statements of several companies.

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## THE INFLATION ANALYSIS IN ROMANIA IN THE POST-ACCESSION PERIOD

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**Abstract:** *The European Union accession has determined the short term consumer prices variation induced by the adoption of the communitary acquis and of some specific policies to the European Union, but also on a long term as a result following the fulfilment of the convergence criteria. The perception of a different inflation compared to the calculated one in the official statistics can be explained by the fact that the perceived inflation forms upon the frequently purchased goods, while the official inflation depends on the structure of the consumer basket.*

**Key words:** prices, consumer basket, EU accession, perceived inflation

**JEL classification:** E31, F36

### 1. Introduction

The European Union accession has brought both benefits and costs for the Member States, but there is a widespread consensus among the authors that the benefits of the accession will exceed the costs, especially in the long run (Zemeckis, Drodz, 2009, p.1, apud Tang, 2000, p.1).

Concerning the consumer prices, the effects of the EU accession differ from country to country, depending on the specific characteristics of each economy and on the norms of the European Union in the moment of the accession.

The main factors which affect the consumer prices level after the accession to the European Union are: the harmonisation of the structure and rates of indirect taxes; the adoption of the Common Agricultural Policy (CAP); the introduction of the Common Customs Policy.

### 2. Literature review

In order to quantify the impact of the accession to the European Union upon the inflation in Austria, Breuss (2000) has compared the inflation rates from Austria with the one from Germany (as a EU Member State) and Switzerland (as a non-EU Member State). According to this method, the EU accession has not had significant effects upon the prices, but the preparations for the euro adoption has led to a significant slowdown of the inflation. In the case of food, beverages and manufactured goods, a larger price diminishment has registered then in the case of the other goods and services as a result of the integration on a single market. Comparing the price evolution from Austria and Germany, Pollan (1996) has established that the effect of the accession to the European Union upon the prices of the food, services and manufactured goods has been -1/2 percentage points (Breuss, 2000, p.180).

Piesarskas (2007) has established that the accession of Lithuania in the EU has not had a direct significant effect upon the inflationary process. In the time of the 2004-2006 period, approximately 0,6 percentage points of the inflation rate has been related to the GDP increase. This rise has not been a specific effect of integration, but just a natural result of the faster economic growth.

However, Zemeckis and Drodz (2009) have shown that in the Baltic countries the inflation rate has been higher than the European average, as effect of the foods and agricultural goods price convergence towards the higher levels in the European Union, Ehrlich (2004) saying that the impact has been stronger in Latvia and Lithuania because of the higher share of food in the consumer basket. Also, the rise of the price of goods and services in the Baltic countries has been determined by the fiscal changes which entered into force starting with the moment of the accession to the

European Union. This refers to the harmonization of the national legislation with the legislation of the European Union in terms of the harmonization of the value added tax (VAT), excises and the common tax rates afferent to the customs duties.

The increase of prices of the food goods is due to the adoption of the Common Agricultural Policy. In order to estimate the impact of the adoption of the Common Agricultural Policy upon the inflation rate in Slovakia in the first four months (May-August 2004), Doliak (2004) has compared the current price level of the food goods and the price level before the accession to the EU. The results obtained highlight the inflationary effect of the adoption of the CAP upon the food goods and subsequently upon the total inflation as being of about 0,3%, a bit higher than the expectations of the National Bank of Slovakia. Subsequently, following the market competition, the prices of the goods which have increased under the influence of the CAP have begun to diminish.

In Greece the food prices have recorded an 8,5% increase as an effect of the accession to the European Union, causing an increase of the inflation rate with 3,5%. These increases have affected the consumption of food goods, both on an overall level, but also to its structure. Consequently, the impact of the adoption of the CAP upon the food consumption has been negative, recording a 1% decrease (Georgakopoulos, 1990, p.491). We consider that, the diminishment of the consumption of certain foods has had, subsequently, a positive effect, upon their prices.

The accession to the European Union has implications upon the inflation rate, not only on the short term, but also on the long term.

The long term effects upon the inflation are conditioned by the catching-up process which the Member States of the European Union must go through in order to adopt the euro currency .

Examining the impact of the catching-up process upon the inflation rate in the new Member States, Égert (2010) highlights the fact that the initial price and the regulated prices strongly affect the inflation rate, while the Balassa-Samuelson effect exercises a smaller influence.

Podkaminer (2008) highlights that a higher level of the GDP is asociated with a higher price level. This tendency can be explained through the fact that the well developed countries are characterized by relatively higher service prices, as a result of the manifestation of the Balassa-Samuelson effect. Accordingly, there is a compromise between the low inflation and the fast real convergence.

Although, after the accession, the consumer prices have increased in some countries, empirical studies show that the necessity of the fulfilment of the price stability criteria, in order to adopt the euro currency, has had a positive impact upon the inflation rate.

### **3.The evaluation of the inflationary effects of Romania's accession to the European Union**

Romania's accession to the European Union has determined the consumer price variation induced by the adoption of the communitary *acquis* and of some policies and mechanisms specific to the European Union.

1.According with the Treaty of the European Union, Romania has the obligation of the harmonisation of *the tax legislation with the communitary acquis*. The adoption of the communitary legislation has increased the excises at the main product groups subjected to these conditions, which has led to the significant rise of prices afferent to alcoholic beverages and tobacco (14,94%) and to housing, water, electricity (10,05%). Considering the consumer basket share (25,82%), their contribution to the consumer price increase has been higher, explaining almost 60% of the average inflation rate in 2007.

2.Another effect of the accession upon the inflation rate is the *adoption of the Common Agricultural Policy* which has determined an increase in agricultural goods in January 2007 with only 1,5%. The explanation consists in the superiour level of prices afferent to the majority of food goods the intervention prices established by the European Union. Consequently, the food price increase in the first six months has been insignificant, registering an increase of about 0,3%. The increase of prices afferent to food and non-alcoholic beverages with 3,91% in the year 2007 is due

to the evolution in the second semester, as a result of the diminishment of the supply of agricultural goods (adverse weather conditions).

3.The application of the Common Customs Policy, from 1st January 2007, has had a favourable impact upon the consumer price variation, through the elimination of the intercommunitary customs duty and the reduction of its level in the case of the trade with the states which are not members of the EU. Considering that the imports share from the European Union has a significant part in the total of imports (72,3% in 2007), the inflationary impact of the application of the Common Custom Tariff has been favourable, especially upon the following categories: foods, beverages, tobacco, clothing and footwear and energy products. These justify the diminishment of the inflation rate in the year 2007 afferent to the components of the HICP mentioned earlier.

The statistical data highlights to us the fact that Romania has recorded a decrease of the inflation rate in the year 2007 at all of the components of the HICP, with the exception of food and alcoholic beverages; the miscellaneous goods and services, whose increase has been under 0,5%. The decreasing evolution of the inflation rate is due to the *integration into a common market*, giving the manufacturers and consumers a higher flexibility in the access of those supply and delivery markets with lower prices. The access of the external manufacturers on the Romanian market has increased the domestic supply, on one hand, and has determined the competition increase, on the other hand, with effect upon the price reduction.

Given the fact that the food goods and the housing, water, electricity hold the highest share in the Romanian's consumer basket, HICP is influenced largely by their price variations, which justifies the value of 4,91%.

4.Another factor which has had a positive influence upon the inflation rate has been represented by the *inflationary expectations*. According with the results of the poll made by the European Commission, 67% of Romanians have anticipated the consumer price reduction in the first months of the year 2007.

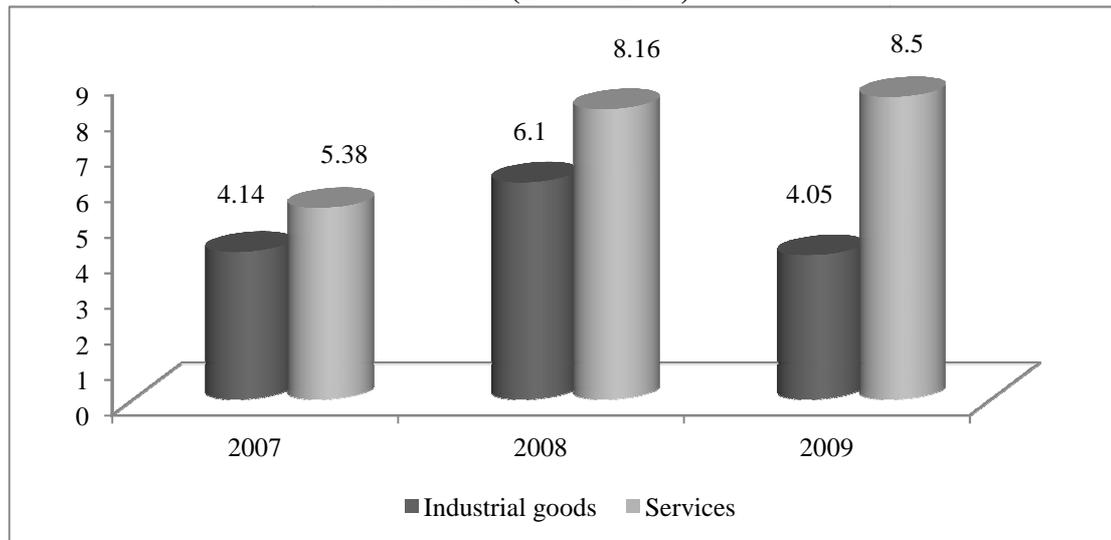
5.The *trade liberalization with the EU* has determined *the deterioration of the trade balance*, reaching the maximum level in the month of November 2007 (-1839 mil. euro), with effect upon the depreciation of the national currency. The increase of the Romanian leu currency exchange in relation with the European currency was another negative factor which has influenced the inflation rate in the last quarter of the year 2007.

6.The rapid economic growth, as a result of the *liberalisation of the capital account*, was an inflationary pressure factor upon aggregate demand. The acceleration of the real gross domestic product with 3,6% in the 2007:T3 – 2008:T2 period has determined an increase of the final consumption with 13,51% in the first quarter of the year 2008, creating pressures upon the consumer prices.

7.Another element with a powerful influence upon the wage pressures, and subsequently upon the inflation rate has been *the level of the unemployment rate*, which registered a decrease starting with 2000, reaching the 3,8% value in the second quarter of the year 2008. The increase of the degree of labor employment has led to the net earnings increase with 25,9% and implicitly of the inflation rate.

Romania's integration to the European Union implies its integration in the Economic and Monetary Union (EMU), which implicitly assumes the fulfillment of the nominal convergence criteria provided in the Maastricht Treaty. Of all these criteria, the first (the price stability) remains the critical point for the Romanian economy. The failure of this criteria implies the lack of sustainability of the macrostabilisation of the Romanian economy (Dinu, Socol, 2006, p.19). The degree of fulfillment of the convergence criteria represents the preparation stage of a country of the EMU.

In terms of the *real convergence criteria*, they refer to the reduction of the disparity between the income per capita, which is conditioned by important productivity gains and the relative price convergence. According to the statistical data given by Eurostat, the GDP per capita, measured in the purchasing parity standards (PPS) has been in 2007 about 42% compared to the European average, while the productivity level is situated at approximately half the EU level.

**Figure 1. The average inflation rate of the tradable and non-tradable products in Romania (2007 – 2009)**

Source: European Central Bank, <http://sdw.ecb.europa.eu/browse.do?node=2120778>

But the reporting to the Euro can lead to risks related to the manifestation of the inflation, as a possible result of the Balassa-Samuelson effect and, ultimately, in time to the loss of external competitiveness (Daianu, Vranceanu, 2002, p.66). This effect will be more significant as the share of non-tradable goods and services in the consumer basket increases.

I have considered the industrial goods to be part of the tradable goods sector, and services – the non-tradable goods sector. In Romania, although services hold a relatively low share in the consumer basket, we observe the increase of their share, reaching in the year 2009 at 18,37%, the effect of the price increase in this sector upon the total inflation being moderate (1,46%), despite the tariff increase in a rhythm superior to the average rate of inflation (figure 1).

The real convergence process implies substantial productivity increases, but these are followed by the price increase in the service sector. Figure 1 highlights the increase of the ecart between the inflation rates afferent to the two sectors (tradable and non-tradable goods), the service sector recording a double dynamic towards the inflation rate of the industrial goods in the year 2009.

Generally, the price levels from the poorer countries tend to be lower than the price levels in the countries with higher incomes due to the lower wage level. The productivity increase in the tradable sector will generate the wage increase in line with the productivity level. The countries with a higher productivity level will pay higher salaries than the ones with a lower one. Because the wages will equalise in the entire economy, and the unit labour cost is part of the price, the least productive countries will have cheaper services. The catching-up process of the productivity implies the services price convergence, and consequently the convergence of the price level. The price convergence process will translate in a higher inflation and the real evaluation of the leu currency. Due to the catching-up process the Member States could be in the impossibility of fulfilling of the inflation and exchange rate criteria, simultaneously (Lommatzsch, Wozniak, 2006, p8).

In our opinion, in order to fulfill the two criteria it is necessary that the productivity differences between the two sectors of the economy to be moderate so it does not lead to significant wage increases in the non-tradable sector and, implicitly, to price increase.

#### **4.The perception upon inflation in Romania**

The knowledge of the perception of inflation is important, because the purchase decision is influenced by the consumers perception regarding the price level, which means that the demand for goods and services is determined, rather, by the perceived price than the official one. In the annual Report afferent to the year 2003 of the Dutch Central Bank the decrease of the population's consumption is highlighted in the moment of the introduction of the euro, because the perceived inflation has exceeded actual inflation. The modification of the consumption-savings ratio

influences the level of the official inflation rate. Another effect of the perceived inflation refers to the wage claims from the employees in order to maintain the purchasing power, thus becoming a source of the cost-push inflation. The importance of knowing the consumer's perception can be explained through its impact upon the inflationary expectations.

According to the polls performed among the consumers, the citizens feel a different inflation than the official one, the differences being explained through the existence of numerous factors. The subjective perception of the price changes by the general public is known in the 'specialty' literature as the *perceived inflation*. One of its quantification possibilities consist in the calculation of the synthetic balance on the results obtained from the poll performed by the European Commission. Every month, the consumers from the Member States of the European Union are asked about their perception regarding inflation. The question to which they must answer is: "How do you think that consumer prices have developed over the last 12 months?". The possible responses are that these have:

- a) risen a lot;
- b) risen moderately;
- c) risen slightly;
- d) stayed about the same;
- e) fallen;
- f) don't know.

The questionnaire answers are centralised for each country, the synthetic balance being calculated as the difference between the percentage of respondents which have declared that the prices have increased and the percentage value of those who declared that the prices decreased or remained unchanged. The responses afferent to variants c) and f) are not used in calculating the balance, the balance being calculated as it follows (Fluch, Stix, 2005, p.27):

$$B_{it} = \text{percentage (a)} + 0,5 \times \text{percentage (b)} - 0,5 \times \text{percentage (d)} - \text{percentage (e)}$$

$B_{it}$  - the country balance at time t

The balance value shows us the perceived inflation trend and not its exact value, for example, a larger number of citizens feel the price increase, being a qualitative measurement, and not a quantitative one (the official inflation rate).

The gap between the perceived and official inflation is influenced by diverse factors. Generally, the price changes afferent to the frequent purchased goods are stronger perceived than those whose purchase frequency is low. Also, the price increases are stronger perceived than the price decreases (Fluch, Stix, 2005, p.45).

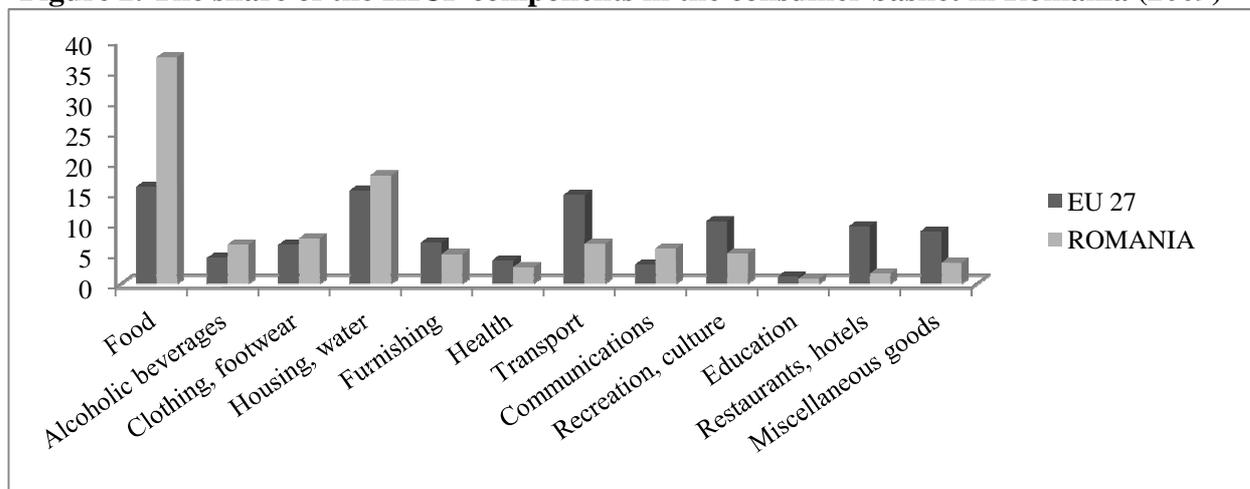
The results of other studies (Antonides et.al, 2006) highlight, besides the purchase frequency and the price increases, other factors which can influence the perception of the inflation. The consumers compare the prices with the benefits of the respective product, and if they consider that the cost-benefit ratio is optimum, even if the prices will increase, the perceived inflation will be stable. Also, the payment method is another factor which influences the perceptions, the payments through credit cards or bank accounts being less perceived.

Because in the calculation of the harmonized index of consumer prices an average basket representative for all households is used, the perceived inflation by each consumer is different. Individuals will perceive an above average consumer price increase, if the goods and services whose prices increased, hold a significant share in the consumer basket. Similarly, the inflation perceived by each Member State of the EU differs from the average perceived at a European level. For example, in the case of the *food price increase on the European market, Romanians will feel the price increase more strongly than the Europeans*, because of the double share of the food goods in the Romanian consumer basket compared to the European one.

According to the Classification of the individual consumption by purpose used in the HICP calculation, in Romania, foods and non-alcoholic beverages have a higher share in the consumer basket (37,25% in the year 2009), compared to the value registered at the European Union level (15,93%). Any change of the prices in these groups, due to the high share which they hold in the

consumer basket, will lead to an increase of the harmonized index of consumer prices. Concerning the housing, water, electricity, their share in the consumer basket is the second value after foods.

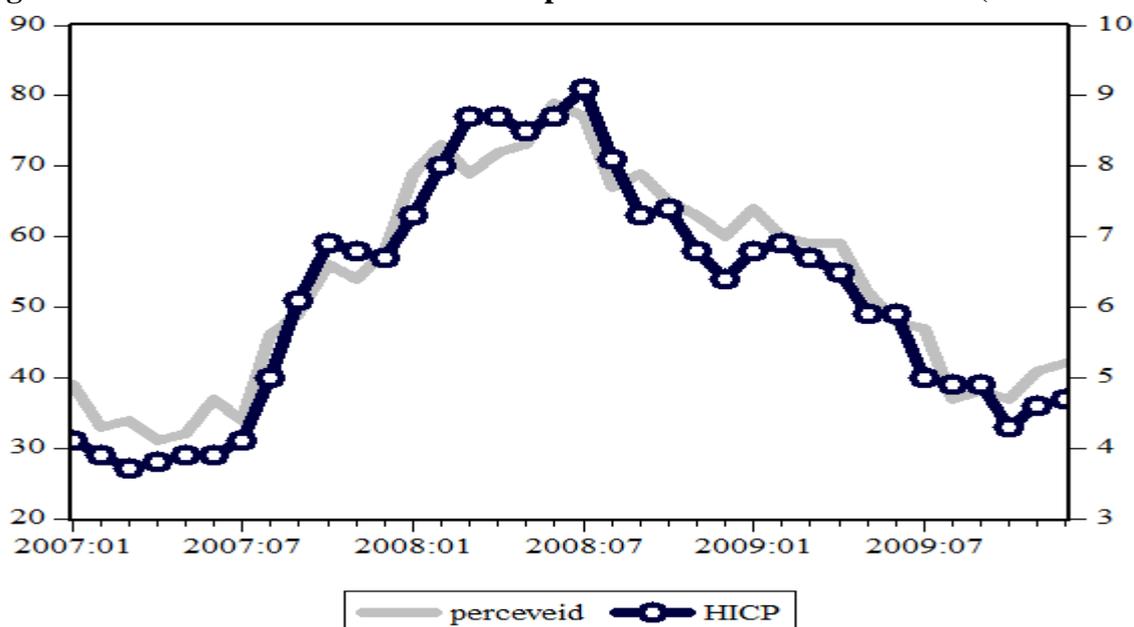
**Figure 2. The share of the HICP components in the consumer basket in Romania (2009)**



Source: European Central Bank, <http://sdw.ecb.europa.eu/browse.do?node=2120778>

From the graphic we can observe the ecart between the shares in the consumer basket registered in Romania and in the EU related to hotels and restaurants (7,81%), recreation and culture (5,42%), transport (8,06%), which signifies the assignment of a larger part of the consumer expenses at the EU level towards the previously mentioned destinations. We observe that both at the level of the European Union and Romania the education expenditure has the lowest share.

**Figure 3. The evolution of the actual and perceived inflation in Romania (2007 – 2009)**



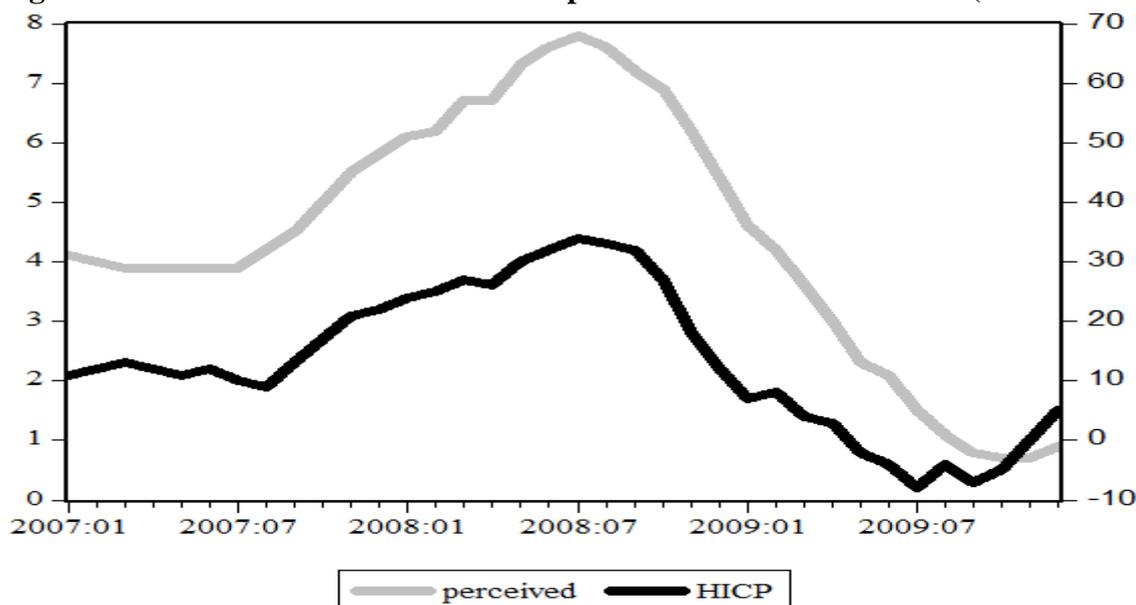
Source: European Central Bank, <http://sdw.ecb.europa.eu/browse.do?node=2120778>, European Commission, Business and consumer survey results, 2007-2009

The higher the goods and services share in the consumer basket is, the higher the impact upon the HICP, which means that the price increase of the food has a higher influence upon the harmonized index of consumer prices in Romania than in the European Union. But, the food purchase frequency is daily, both in Romania and the EU, the price increases being perceived more than in the case of other goods and services. Thus, the difference between the perceived inflation and the actual inflation rate is higher in the EU than in Romania (figure 3, 4).

In Romania, the difference between the perceived inflation and the official inflation rate has been insignificant, in the some months (March-August 2008) Romanians perceiving the price increase as being lower than the one calculated by the official statistics.

In the first quarter of 2007, when the inflation rate registered a downward trend, the perceived inflation exceeded the official one, the ecart decreasing the same time as of the inflation acceleration. The exceeding of the perceived inflation by the official one coincided with the period in which the inflation rate measured with the help of the harmonized index of consumer prices has registered itself on an upward trend. In the next period, the perceived inflation has followed a downward trend, similarly to the inflation rate, but in a slower rate, because the people's subjective perception is influenced by the previous price increases, which, remain in memory a long period of time.

**Figure 4. The evolution of the actual and perceived inflation in the EU (2007 – 2009)**



Source: European Central Bank, <http://sdw.ecb.europa.eu/browse.do?node=2120778>, European Commission, Business and consumer survey results, 2007-2009

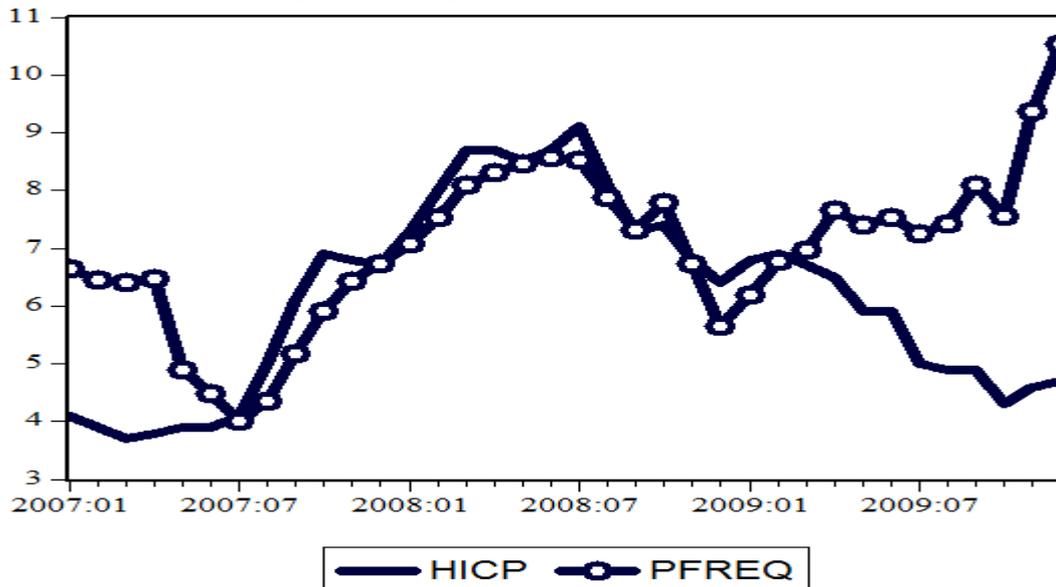
In order to explain the evolution of the perceived inflation in Romania, I have divided the twelve components of the HICP in two categories: goods and services purchased frequently and goods and services purchased rarely. In the first category I have included: foods and non alcoholic beverages, alcoholic beverages and tobacco, transport, recreation and culture, restaurants and hotels. The second category includes: clothing and footwear, housing, water, electricity, gas and other fuels, furnishing, household equipment and routine house maintenance, health, communication, education, miscellaneous goods and services.

Considering that the perception of the inflation is given by the purchase frequency, its size is influenced by the variations of these products. For example, if the prices of the frequently purchased products increases, and the other remain the unchanged or diminish, the perceived inflation will be higher than the actual one.

Comparing figure 3 and figure 5 we observe that the price increase of the frequently purchased goods follows an evolution similar to the synthetic balance value obtained through the polls, which means that Romanians feel a higher inflation when the prices afferent to the foods, beverages, tobacco, transport services and restaurants increase. Thus, in the first quarter of the year 2007 and the year 2009, the inflation has been perceived as being higher than the one calculated by the National Institute of Statistics, because in these periods, among items with higher purchase frequency, significant increases in alcoholic beverages and tobacco have been registered, whose share in the consumer basket has been approximately 6%, having a minor impact upon the harmonised index of consumer prices. The maintaining of the inflation rate at a relatively low level

in the first quarter of the year 2007 is justified by the very small variations of the foods prices, considering that they hold the highest share in the consumer basket (approximately 37%). Romanians have perceived the inflation as being approximately the same with the one registered in the official statistics in which the food prices have increased in a rate superior to the other consumer items.

**Figure 5. The evolution of the actual inflation and the inflation of the frequently purchased products in Romania**



compared to the countries of the European Union upon the inflation rate, because of the relatively low services share in the consumer basket (approximately 18%).

Although on the short term, the inflationary impact of Romania's accession to the European Union has been both positive, and negative, the fulfillment of the prices stability criteria will result to the diminishment of the inflation rate, followed by a temporary increase after the introduction of the euro currency.

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BANKING MANAGEMENT: USE PRIVATE NETWORKS OR INTERNET SITE

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**Abstract:** *Banking companies face a dilemma is an essential for the credibility and effectiveness of operation: who is the best solution for the bank to tranzacțiiile secure, fast, effective and compatible? Variations consist in the use of Intranet site or Virtual private networks. Intranet solution involves identifying problems in the short/long Intranet site development, plus specific organizational and technological issues. Solution with Virtual private networks, seen as a reliable data transfer by financial and banking systems, necessary to define their semantics, standards, protocols used, and dedicated hardware-software systems.*

**Keywords:** Virtual Private Network (VPN), Point-to-Point Protocol (PPP), Point-to-Point Tunneling Protocol (PPTP), Internet Engineering Task Force (IETF), MultiProtocol Label Switching (MPLS).

**JEL Classification: G2**

## **Introduction**

Bank management is faced with organizing system dependent factors, operational safety, reliability, minimum response time, effectiveness, economic efficiency and the implementation of management functions and attributes. All these elements are solved by using computer optimum banking. In this context, banking units have essentially two choices: use private networks or intranet site

### **1. Items on computerization of banking via the Intranet**

The real power of the Intranet site is visible through the effective use of short/long. Intranet can benefit banking company only after the start to be considered as part of the redesign work.

The system is able to cause, increasing productivity and employee information to change the culture of banking company.

Intranet site to identify information flows, which is able to optimize them, the system will lead to motivating employees to develop processes and mechanisms that may lead to optimization of existing information flows. The main problems that arise on short and long term development Intranet systems are:

a) the success of Intranet systems focuses on the transformation of a banking company in banking company a "no paper" and the connection resources to BDL's Intranet/BDD;

b) banking company to inform employees about the possibilities and alternatives that can provide labor productivity growth through Intranet sites, including benefits that may result from use of their stock;

c) the objectives in the short/long can be obtained by resolve the problems of technological, organizational, or informational strcuturale of banking company;

d) implementation of Intranet systems by promoting the web for all the organizational structures of banking company;

e) senior management of banking company must have measures to change the culture of information staff;

f) banking company operative management of staff training should involve the generation, storage, handling and management of banking documents, through improvement of their appearance and functionality in HTML format.

### Technological and organizational issues specific Intranet systems installation

Major banking company, such as Netscape and Microsoft quickly develop key technologies for Internet sites, focusing in particular on the idea of transformation Intranet sites closed and open systems static and dynamic Web pages and published by optimizarea their best on the Intranet.

The problems facing a banking company after the launch of an intranet, are in our opinion, the following:

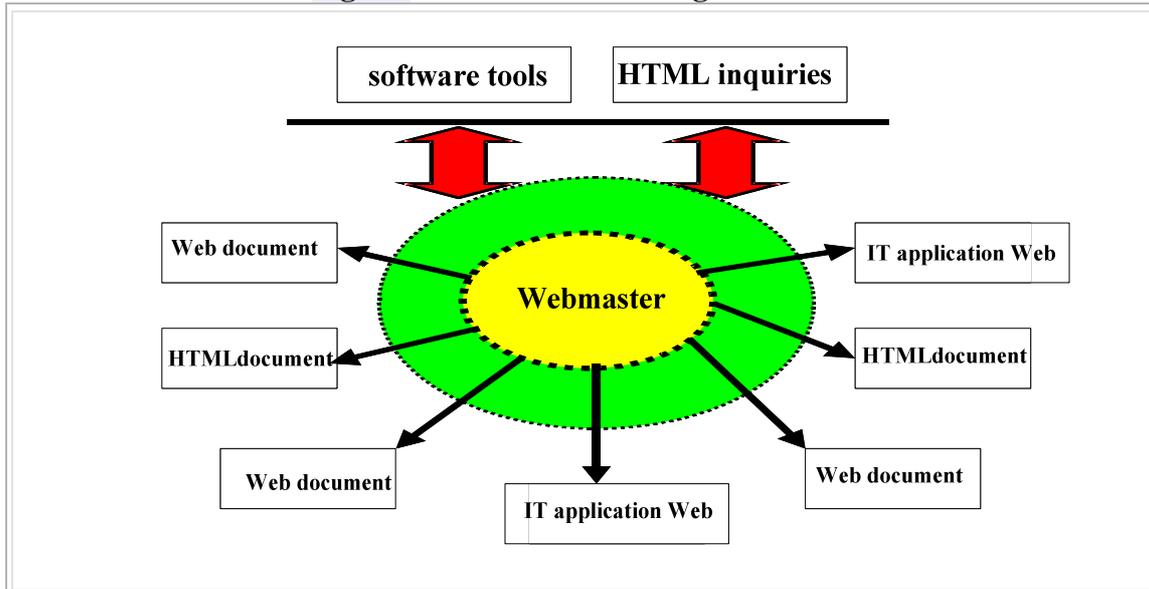
<i>Technology Issues</i>	<b>Organizational aspects</b>
granting of access passwords and user ID for our Intranet standad	Intranet site-promotion in the banking company in order to attract employees to its development
granting of access passwords and user ID for banking company managers, administrators and system engineers	achieve combination and interconnections of culture focused on the use of paper with one based on electronic documents
-installation of security measures on the Intranet, to eliminate unauthorized access to confidential information or	preventing monopolization's Intranet by a department/group of persons
use in the Intranet site of BDL (local data base) /BDD (distributed data base) already implemented	participation of third parties (customers, employees, auditors, consultants, etc.). activitățile computer by updating the specific data and generate controlled by them
-achieving conversion of traditional documents, on paper, electronic documents	behavior-training employees on the Internet to protect discussion forums online and other interactive features for users
continuous improvement Intranet-site facilities to maintain its top user preferences	measurement of total operational effectiveness/partial Intranet site
pluriserver-s-installation in the company's organizational structures	-obtain additional funds for ongoing IT (information technology) solutions modernizarea Intranet

If banking company very high, there may be two solutions to the positioning server ages:

**A. solution with a server:** it is ideal for distributing information and data to all departments and customers Intranet systems, by interposing a WebMaster between Intranet and users;



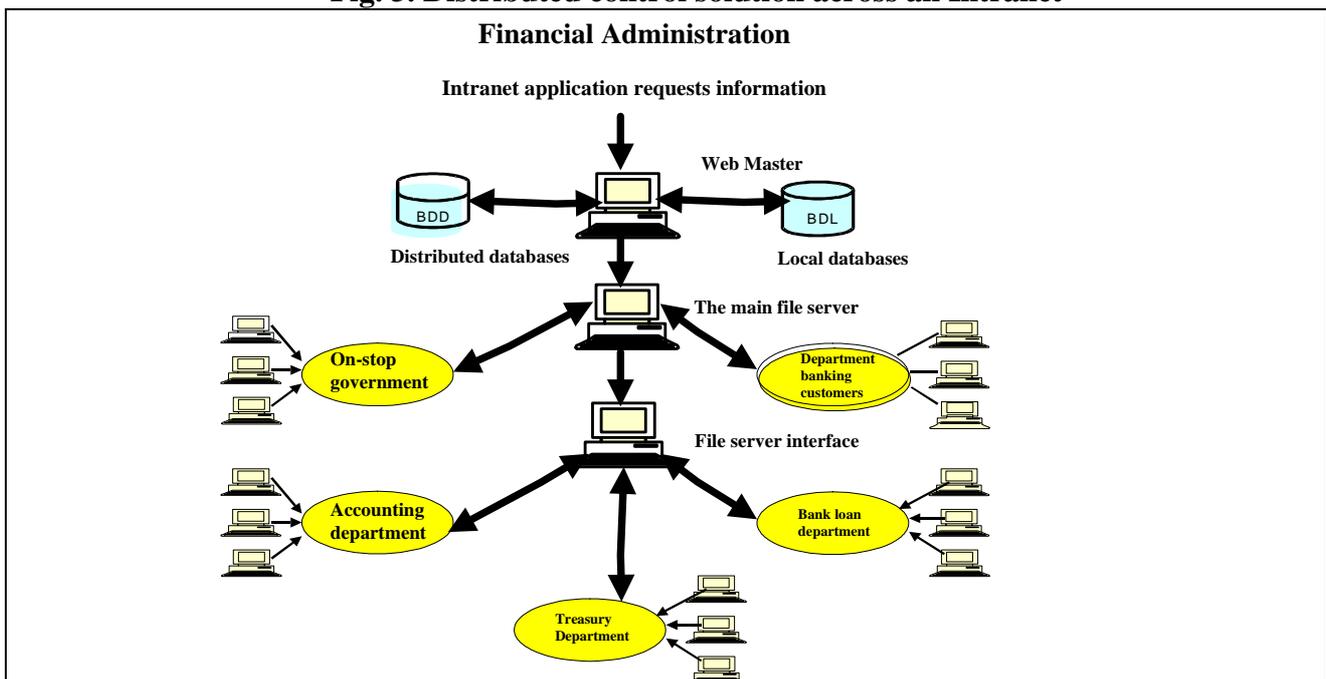
**Figure 2. Centralized Management Intranet**



They may set of strategy and guidelines for employees on differential access to web pages and content of the confidential nature of information circulated on the Intranet. These elements lead, in our opinion, the following **conclusions**:

- (1) Intranet systems lead to improvement of existing arhitecture network computers using LAN/WAN;
- (2) Intranet ensure universal factors influence success: reduce costs, leading to productivității growth and facilitate the exchange of information;
- (3) Intranet site is dedicated to complex business technology, fast, safe and effective;
- (4) employees must use the facility's operational intranet;
- (5) banking company should promote maximum use Intranet systems as their main utility is the usefulness of the information and run complex operating. Virtual private network, a reliable data transfer by SGI.

**Fig. 3. Distributed control solution across an Intranet**



## 2.Virtual Private Network

Building Virtual Private Network requires solving computer technical issues, the most important being the following:

- a) Virtual Private Network Semantics;
- b) Standards and protocols used to connect virtual private networks;
- c) Hardware and software systems in the networks of interconnections dedicated virtual private

### 2.1.Semantics Virtual Private Network

**Virtual Private Network (VPN)** provides a protective tunnel for the transfer of data across various points over the Internet.

VPN acts as a direct and secure connection between client (on the general, as users place on the premises of banking company/distance) or between two local computer networks (Local Area Network-LAN) through public Internet network.

VPN can be made towards the implementation of information systems to governmental, nongovernmental and regional.

These types of networks can be used in the banking company, insurance-reinsurance, stock, etc. institutions.

VPN allows users to access company servers and/or connection with its various subsidiaries through associated security architecture developed extranet sites. VPN allows direct connections, called "**tunnel**" which can provide acceptable security features, which are virtually impossible to intercept data and unauthorized access to a VPN.

They have a low cost advantages deriving from the connection, reducing the number of ports of entry, eliminating the lines of point-to-point connectivity, while company employees can take advantage of fast data connections VAN specific sites, unlimited low speed provided by modems.

Bob Lonardier analyst at technology consultancy company information, Hurwitz Group, believes that all the factors listed above, will result in a cost point of equality between VPN solutions and focusing exclusively on Internet use, in about 6 -- 9 months. These benefits have created a boom in their use VPN technologies.

Thus, 56% of banking company with more than 1,000 employees and 70% of banking company children in the U.S. already have VPN solutions or implementation stage. According to a survey by CIO Insight publication Datamonitor is forecasting an increase of sales of hardware-software VPN to 585% million in 2005 to \$ 16 billion in 2010.

### 2.2. Standards and protocols used to connect private networks virtual

VPN requires the existence of software components at both ends of the connection by which to ensure the exit traffic encryption and decryption of input traffic. This software can run on a PC or a dedicated hardware platform, the supervision of an operating system: Windows, Linux or NetWare.

These hardware platforms are actually dedicated data associated with a concentration of banking company.

Items related to authentication, access control and encryption protocol is achieved through **point-to-Point Protocol (PPP)**.

PPP is a protocol-oriented TCP/IP and used for transmitting IP packets via a serial link point-to-point. Have been developed and other links of the "tunnel" between the devices, called **point-to-Point Tunneling Protocol (PPTP)** and **Layer 2 Tunneling Protocol (L2TP)**. PPTP is a protocol of "tunnel" through which PPP frames are encapsulated in the type of networks using TCP/IP.

**Protocol L2TP** is a combination of PPTP and Cisco Systems proprietary system, called **Layer 2 Forwarding (L2F)**.

**L2TP VPN** sites dedicated operation, the facility is a fusion between PPTP and L2F. He was being initiated by Cisco company, as an encapsulation protocol used for PPP frames, so standard homogeneous structures of data transmitted between network nodes and their transmission on a LAN network such as TCP/IP. L2TP has a privacy transmission system, called **IP Security (IPsec)**. IPsec is a comprehensive set of security protocols, which was developed and administered by the **Internet Engineering Task Force (IETF)**, ensuring secure communication via the Internet.

To ensure quality of service (**Quality of Service-QoS**) to enable network administrators to assign priorities to ensure IP protocols for specific users or applications, bandwidth sufficient to report the importance of data packets.

The optimal solution is to mark data packets, the router so they automatically recognize the high priority packets. in the Seine, came standard technology called **Multiprotocol Label Switching (MPLS)**. This is an IETF protocol used in IP traffic management, ensuring that the second router is to send each other, sets the priority routing through a sophisticated system of labeling.

Because this label is removed cititre operations of the header, which leads to eliminating the need to identify the next node address.

MPLS is a leading solution, among other systems, the QS. In addition to those listed, use the VPN and other standards or protocols, especially useful within exit traffic encryption and decryption of input traffic.

### **2.3. Hardware and software systems dedicated interconnections in the networks of private virtual**

VPN uses a set of hardware and software systems provided by various companies to price, performance and numărde users.

These hardware-software systems are marketed differently, the possibility of delivery of VPN and VPN banking company headquarters to subsidiaries, all these elements require a comparison of these systems, focused on the following criteria: typology VPN (for the head office or branch banking company ), the purchase price, the estimated costs for a number of users connected to a VPN, additional extensions to hardware-software systems, the cost of VPN configurations and scores obtained by testing these components.

VPN structures most used and effective are:

**a) Arhitectura with VPN implemented all at an banking company** is characterized by connections between its headquarters and its branches through Internet interpunerii system.

Each node of the architecture contains a typical local network (LAN) and VPN connections are made through a protective tunnel data transfer. Connections between headquarters and remote users, is achieved through ISP.

VPN architecture implemented all at an banking company can be used effectively by banking companies, insurance-reinsurance, stock exchange or banking company which carry complex commercial transactions.

**b) Hybrid MSP-VPN architecture is based on the idea that the heart of the topologies** are connecting to a remote server, an authentication service and a common connection.

Nodes of a network architecture containing typical local (LAN) and a VPN, and connections are provided through a protective tunnel data transfer. Connections between network nodes (branches) and the central node are implemented through a network-type MSP. Because of these features, derviã name athitecturii.

All connections between distant users and headquarters are made based ISP. MSP-VPN hybrid architecture may be appropriate for carrying out the banking company complex commercial

transactions, stock exchanges, banking companies, insurance-reinsurance or financial administration.

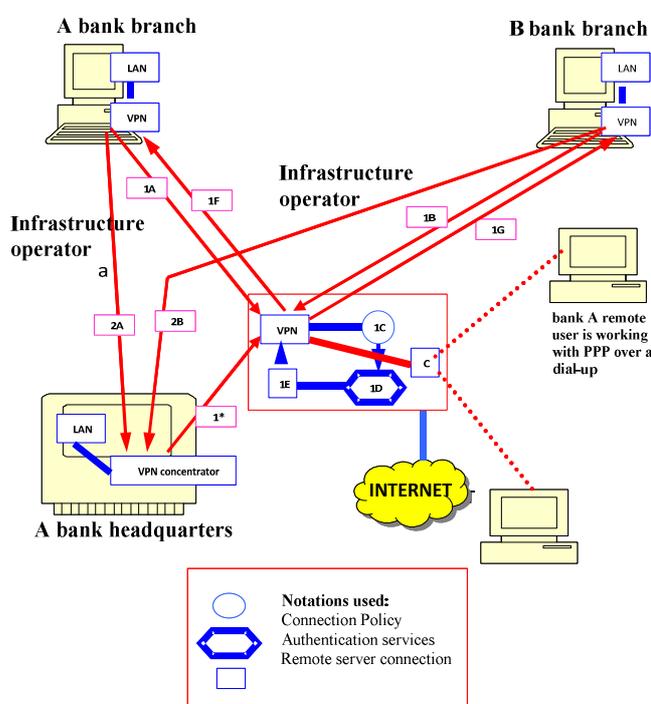
c) **Architecture with supplier/operator easily to the Intranet**, has the particular existence of an infrastructure operator at the banking company, which are added authentication services and connectivity policies.

Central node (based banking company) and satellite nodes (branches banking company) have a LAN, plus a router. Connections between users are remote and headquarters of banking company are implemented by VPN.

To maximize security the central node and satellites, all system interfaces with the Internet are protected by the VPN network.

Architecture with supplier/operator of the VPN is easily feasible for banking companies, insurance-reinsurance, financial administration, banking company which carry complex commercial transactions, stock exchanges, state administrative institutions or government agencies.

**Figure 4. Architecture of hybrid MSP-VPN usable for banking**

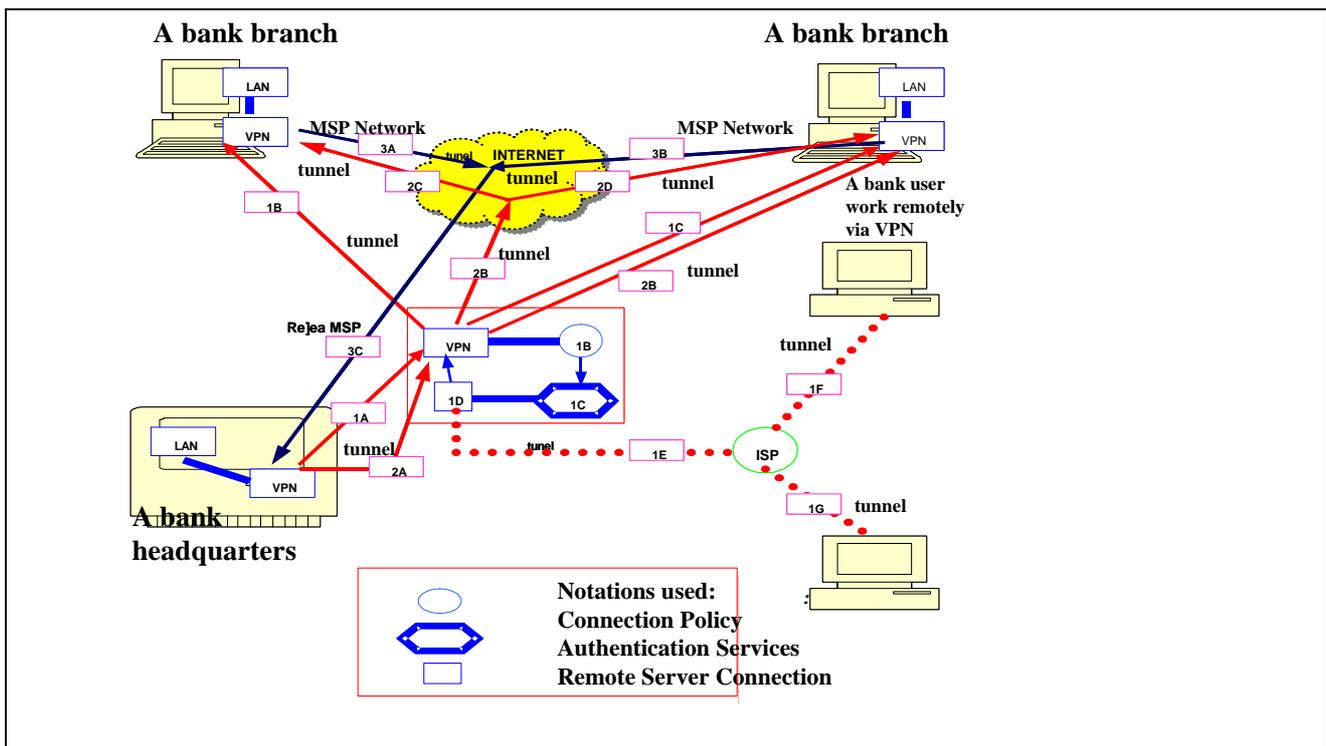


d) **Architecture with IP network operator**, contains nodes satellite network architecture consisting of typical local (LAN) and VPN, while the central node has a VPN concentrator and LAN data.

This architecture uses a server remote connection, authentication and policy service connection, while the connections are secured through a protective tunnel data transfer. Connections between users are remote and headquarters of banking company are implemented through a remote server connection.

Central node (based banking company) may have access to the Internet system, while satellite nodes in the architecture, can access the Internet only via the central node. Operator IP network architecture can be implemented by banking company which carry complex commercial transactions, stock exchanges, banking companies, insurance-reinsurance, financial administration, government agencies or administrative institutions of the state.

Figure 5. Architecture with IP network operator



### Conclusions

Banking companies face a dilemma is an essential for the credibility and effectiveness of operation: who is the best solution for the bank to tranzacțiile secure, fast, effective and compatible?

Variations consist in the use of Intranet site or Virtual private networks.

Intranet solution involves identifying problems in the short/long Intranet site development, plus specific organizational and technological issues.

Solution with Virtual private networks, seen as a reliable data transfer by financial and banking systems, necessary to define their semantics, standards, protocols used, and dedicated hardware-software systems.

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## IMPLEMENTATION OF MANAGEMENT ACCOUNTING IN PRE-SCHOOLS

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**Abstract:** *Organization and functioning of management accounting education in schools is based on Concepts and Principles Whose content is Purely internal open standards, as Defined by Their Conventions of schools and Who is therefore Each Without Any Normalization (Standardization).*

*Implementation and Improvement of management accounting is Necessary because it provides all accounting information is quantized, Processed and sent for internal use by the school manager. The main Objectives of management accounting has: Analytical Calculation (the dishes, Carrying Costs, places of work) Costs and results of internal school budgeting, management control or management of deviations from default Costs and Costs tissue.*

**Key words:** SCHOOL, management accounting, costing, control manager, budget

**JEL Classification:** M41

### 1. Introduction

Education has always been and always will be a great power sector innovation. Its always manifested itself as an innovator in developing countries of the world market economy. Based on the experience of European countries in significantly more advanced process of economic reform (Poland, Czech Republic, Hungary) and analyzing economic developments in Romania conclude that until now, the education system develops and strengthens continuously as stabilizing mechanisms market.

Analysis of the educational system requires not only knowledge of constituents and relationships between its structures, but considering that they are developing links with socio-economic and cultural environment in which it integrates. Education system functions as a property is essential for its reporting of its activities under supra systems (education system, society, etc.) or subsystems (the school system, the educational process). National school education system in Romania is played on different levels (degrees), profiles and forms of educational institutions in a coherent and unified.

Education is organized into levels, ensuring consistency and continuity of training and education, according to age and individual peculiarities.

The binding segments is part primary and lower secondary level. After completion of the mandatory two-tier school youngsters can continue their studies (upper secondary) of vocational school, or move into working life. After graduating and passing the high school, youngsters can continue their studies in secondary or higher education.

To achieve successful completion of general education and compulsory for ten years, but attendance

at other levels of education, the state provides them free of charge, no school fees, but incurring the cost of education budget.

### 2. Research Methodology

From legislation and specialized literature we see that in primary and secondary education is organized managerial accounting, and practice demonstrates that call costs used only average costs per student / day care are the main indicators background and level of expenditure of funds to be allocated to each partner school office. For that approach to be useful practical activity of education funding to establish the calculation of these costs are taken into account: the structure of educational costs and increase the participation of various social partners in the work of allocating funds to finance institutions education.

In an average cost of university education institution is calculated as the sum of all categories expenditure that will be or have been made in a certain period of time (one month a year) by the number of students. He pointed out that these average costs differ from one unit to another school. In these circumstances specialists were interested to examine the causes differentiation of these costs to develop new policies and new funding programs for the organization of schools.

From 2004 through H.G. 2192, in Romania to establish the necessary funds are trying to use the system "standard costs" or "real costs". Through this funding system would be a closer in the volume of funds allocated to the unit, its real needs. Standard costs should be considered normal, typical, yet real.

Any deviation from the standard costs will be considered during the process from normal and needs analysis, arguments and corrections that take account of the misconduct cases. Replacing average costs or standard costs to actual costs basis for determining the amount of funds for financing education is a goal for our country and asked:

- Modernizing the education system as a whole this approach which involves additional costs;
- Eliminate the state of underfunding of the whole school;
- Ensuring equity in the financing of various types of schools in rural and urban areas by stages and forms of education;
- Amount of funds requested by framing university education, within the limits of capacity / affordability of donors to respond to a request made by the schools.

One of the strongest reasons to promote the establishment of standard costs is the need to rebalance the ratio of wage costs / non-wage expenditure in the budget for pre-university education. Currently, as a result of hard budget constraints, very little remains for non-wage inputs, including capital investment. Based on these considerations, we can say that if you want to lift a nine level really the entire economic activity of pre-university education is necessary to pass a leadership committed to organizing and management accounting and costing adapted to the specific schools.

As a first step, management accounts held in educational institutions will ensure the registration of operations on the collection and distribution costs by destination, with activities, forms and levels of education (preschool, primary, secondary, SAM, secondary and foremen) cost centers (schools), education profile. In order to expeditiously in order to provide information on the costs of an educational institution, it is useful to promote various methods of cost calculation based on default charges. In this sense, we try to implement a classical method, the overall method, a more advanced method, the method of cost centers and locations or modern method ABC (Activity Based Costing) that is rarely used, because this method is less studied due to news.

Overall method is to collect all costs (direct and indirect) and reporting at the end of the reporting

period the number of students trained. Direct expenses found in a school unit are: textbooks costs, student transportation costs, expenses scholarships and are indirect costs and non-teaching staff salaries and operating limits.

The method of calculation on centers (places) is to collect all expenses incurred by the school unit

costs and calculate them in relation to particular areas of expenditure constituted as units of calculation. This method differs from other methods in that the calculation point of gravity is moved from the final calculation of the cost onto the carrier expenses (student / preschool) to the

calculation of the places (classes) which gives greater spending efficiency, a characteristic element director of a modern educational institution.

The sectorisation class educational institution and can be considered the awarding of costs per pupil places, in order to calculate the unit cost of each student. The method of calculation involves spending places on the one hand, the need to increase the role of accounting information management capacity and accountability in management cost accounting of management control which may extend up to the job of costs. Extension of management control can not be done unless a precise boundaries of places of expenditure and as accurate as possible to determine the costs and outcomes to determine the responsibilities of each.

Under these conditions the extension of managerial accounting, cost becomes a place of importance. They should be regarded as the most important basis for enterprise budgeting and reimbursement. This is because the identification and registration costs are the primary places of division organizational expenses such as budgeting, tracking and calculating expenses, performing the best and more closely with the people that those responsible for carrying consumption.

Budgeting, expenditure tracking and job cost calculation (classes) as the responsibility centers, where costs are born to be commensurate with the income of such sites - a basic requirement for management control - are all the more necessary in that increase mechanization and automation-education training, which involves strengthening the spirit of organization, accountability and efficiency.

Method ABC (Activity Based Costing) is based on the fact that the size of the cost depends largely on how activities are organized in schools than the number of pupils. In this chapter we wish to present descriptions and method of depreciation on specific indicators and costing information useful in analyzing costs. Emphasize that there are many ways to measure costs, but all require an analysis of their art both now and in the future.

Each of the calculation methods used allow the use of an overarching set of indicators, but indicators specific to certain methods allow for better tracking and cost emphasis.

In my opinion, the indicators give the ABC method can be particularly useful because the educational process from an educational unit may be carried on activities identified in the schools. Costing the activities within schools can be used to eliminate the shortcomings of traditional costing methods.

Cut pre-university educational institutions into centers of activity and responsibility, provide a meaningful representation of the resource-consuming process because the ABC method is concerned, primarily the consumption of resources by activities that make up the school drive. Identification of management control activities is, but should be done with other members, being a participatory process.

Today control has therefore become an asset management (or disability) decisive competitive.

Looking for a more relevant cost model that reflects the value of training in schools, highlights the fact, not cost control, but the root causes of resource consumption are likely to direct control. In a world of limited resources, the control must be exercised even when the resources to achieve effective management. In this respect management control must give an answer to questions like: This work adds value? This work is effectively managed?

### **3. Conclusions**

Most public institutions have difficulty in implementing a management control system. The main

problem is the fact that the results of such educational institutions are often difficult to measurable and sometimes their quality Can be determined than the long term. In addition, staff in schools do not always seek to obtain material benefits. Much of their work can be carried out as a volunteer or in exchange for a small fee. Thus, a wage policy linked to the quality of work performed (system of bonuses, etc.) is less effective than in economic organizations.

Control through budgets is another dimension to the management of an institution. Budget management is the process by which educational institution you define both short-term goals and the means to produce them, which is done through the budget.

In the context of management control, the budget is a short-term plan, usually up to a year, presenting resources and recruiting responsibilities by different decision makers within university education. For a better track to achieve the objectives, the annual budget can be cut shorter time intervals such as quarters, months, decades.

The budgets of budgetary control is achieved, which consists in comparing its results with budget

projections made in order:

- To identify the cause (or causes) of deviations from budgets;
- Different levels of information;
- To take possible corrective measures;
- To assess the activity responsible for various budgets.

The budget is the elaboration of management control and a plan showing how they achieve the policy objectives of the educational institution (cost reduction).

Building a budget resulting from the arbitration recorded sometimes conflicting goals of different

entities in an organization, for which a budget can be considered as a mechanism for regulating the behavior within the institution.

A budget is a forecast figure of the objectives and / or the means to achieve them. Expected monetary data are expressed, giving a budget system uniformity. A budget must be a realistic estimate, taking into account the constraints on the educational institution subject to both internal nature (the personnel, funding sources) and external nature (conjecture, economy, social environment). Budget preparation should begin by taking into account the most important constraints that must bear the institution.

Budgetary procedure is carried out according to the size of the unit, the degree of decentralization, the specificity and profile unit, the organization of information system, etc., is carried on for up to 4-6 months. Thus, the budgetary procedure for the next financial year (1.01.-31.12.N +1) begin in the spring current) March and April of year N) and runs until the autumn (September, October of the current year N), when final budgets are developed and submitted the centers of responsibility for implementation next year.

Budgetary procedure can be typed as follows:

- Establishing business objectives for the coming year ( the operating plan) by the general direction and transmission and information on business management by the management center;
- Drawing up provisional budgets (pre-budgets) by each responsible institution designated centers and choice of alternatives considered desirable;
- Checking the consistency of the budget, in this stage, provisional budgets developed for each responsibility center are grouped in the general management to test various components of the overall coherence of the budget, responsible management centers (in fact, responsible for budgets) and Budget Committee (control management and general managers) to discuss objectives and allocate resources for their implementation, achieving a true "negotiation" of the objectives and means for each budget.

Management control has an important role in this phase as it verified realistic initial assumptions and objectives, assess the sensitivity of results to the uncertain variables and ensure the existence of a "reserve" in the general direction, while budget implementation is usable for a conjecture adverse or unforeseen circumstances at the level of manage budgetary entities;

- Final budgets and submit them to the centers of responsibility (detailed budgets are based on their time management and organizational space);
- Monitoring budget implementation and updating them to evolving business environment and achieving goals.

For the better conduct of business schools and permanently maintaining the equilibrium relationship between income and expenditure, we propose a budgetary cost for the achievement of objectives set for future periods. In this budget, expenditures are defined as a whole and are broken down by types of expenditure in nature. Thus, responsibility for employment in the budgeted expenditure is almost exclusively the manager and chief accountant of the school.

So I think it would be advantageous to prepare a budget for each class because the educational institution is found different levels of education (preschool, primary and middle school, high school theory, technological school, vocational school, the school of arts and crafts post-secondary), and each budget to be bound by a responsible budget. The need for budgeting for each class in an educational institution is required and achieving performance in terms of the limited sources.

Mention that the unit's budget is compiled for a year. We propose in this sense that the annual budget to be divided into quarterly budgets because the practice shows that schools do not fall in annual budgets, budget adjustments constantly seeking to obtain additional funding.

Use activity centers facilitate and control the budget. Control may be exercised only by comparing the costs that were budgeted to those who were actually registered because of their real activity. All partial budgets developed will be assembled in the general budget of the school institution.

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## CORPORATE INCOME TAX BURDEN IN THE EU: DOES IT REFLECT A TAX COMPETITION?

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**Abstract.** *One of the main parts of the decision which shapes European fiscal policy is the design of tax systems of Member states that they consider most appropriate and according to their preferences. Although variation proposals have been made to harmonize direct taxes on corporate income in the European Union, at present it is foreseen that the adoption of tax systems of Member States does not lead to a harmful tax competition. Empirical verification of the existence of harmful tax competition on the field of direct corporate taxation is difficult, but the literature have been tried several methods. In this paper, we analyze the trends in corporate income taxation in the European Union and the way they are related to tax competition. It is preceded by an analysis of both positive and negative aspects that accompany tax competition. Our data indicate that the hypothesis of tax competition generating a lining to the "bottom" level of taxation is only partially tested empirically, namely for statutory tax rates, and weakly for effective tax rates. At the same time, its impact on budgetary revenues may not be obvious.*

**Key words:** corporate income tax rates, effective tax rates, tax competition, investments

**JEL Classification:** E62, H25

### 1. Introduction

Adopting at community level some rules regarding fiscal instruments nature and utilization may not be regarded as expression of a mechanical process of continuous extension of community *aquis* process boundaries. It is supported on considerations linked to both the essence of European integrationist process under the form provided by constituting treaties and exigencies a fiscal system must ideally satisfy: to collect the incomes necessary by methods that suppose the lowest costs preserving equity in sharing fiscal burden and generating a minimum possible in resource allotment. Fiscal rules adopted at community level are also necessary in order to limit distortions that might interfere in fiscal income allotment between EU Member States (and, especially of those induced by "harmful tax competition").

The legal conditions for unfolding businesses in different Member States converge more and more as integration outcome. Consequently, the national non-harmonized tax systems turned into a major factor of influencing investments decisions. Displacing economic activities from one Member State into another one, exclusively as a consequence of tax treatment differences, affects tax bases national authorities act upon to obtain budgetary incomes.

Although express provisions regarding to harmonizing direct taxation, including on corporate income, this possibility is not excluded, existing coverage in Art.94 according to which, stating unanimously, the Council may adopt directives meant to harmonize Member States regulations, with direct incidence upon common market.

Harmful tax competition problem firmly entered on community agenda in the second half of the '90s. On one hand, international capital circulation liberalization and the "boom" of direct external investments carried out by multinational companies ever more suitable to arbitrate between alternative emplacements have produced states largely spread attempts of attracting investors, including by tax incentives. On the other hand, the moral component "harmful" term involves drew

civil society's attention, determining several bodies activism (e.g. Tax Justice Network) preoccupied with problems such as "tax heavens" or "corporations social responsibility", which contributed to sensitizing public opinion. Moreover, European Commission constantly confines an agenda of extending community's prerogatives, inclusively as a consequence of problems visibility, offering them motive for launching new harmonizing initiatives that, through resuming to tactic of grouping into "legislative packages" could go beyond measures strictly connected to fighting against "harmful" tax competition.

## 2. Tax Competition and its effects

Tax competition concept has been introduced by C.Tiebout (1956) starting from idea of existence equivalent of private ware markets. Contributors options for residence offering them the combination of public goods and cost paid for them (through taxes) in the extent they were able to satisfy best their preferences are admitted. In their turn, tax authorities watch contributors' attracting in their own jurisdiction, offering them taxes-public goods combination they want until an optimum of taxation base is reached, corresponding to minimizing the cost of provided public goods.

This idea may be regarded under two aspects. On one hand it may be concretized into a "trap" to cost reduction, which is equivalent with increasing efficiency public funds are spent, and on the other hand, a "rent limitation" effect may be noticed by offering public goods for a cost not exceeding the level necessary for cost covering under efficiency conditions.

*Tax competition manifests especially as regards:*

- foreign direct investments, regarded as being ever more important for generating working places in EU countries;
- mobile financial capital (portfolio investments) necessary to financing investments, enforcement of financial markets and obtaining comparative advantages in financial services providing;
- intra-company financial flows that may be drained towards its own fiscal jurisdiction through profit international transfer;
- highly qualified labor force.

We can admit that tax competition is susceptible to generate important *positive effects*. It is about, first of all, *diminishing contributors' vulnerability face to exploitation on them by state*. From this perspective, state is regarded as a monopole with a natural tendency to increase its costs and extend activities needing for this purpose and increase its resources by magnifying taxes. However, there are limits in manifesting this effect determined by situations when contributors cannot avoid residence in a certain state, remaining "exploitable" (contrary to consumers in private market who may refuse acquisition of too burden-some good or service). At the same time, authorities may form (by tax coordination or harmonization) actual "cartels", with possible impact of diminishing residence exchange.

Such argument directions start from supposing that authorities' decisions are unfavorable to citizens, which cannot occur but only if politicians serve narrow interest groups. Thus, if things are like this, then the preferable modality to correct these distortions is direct action on them, not through indirect mechanisms such as tax competition that may generate their own distortions.

Tax competition may stimulate *budget efficiency growth*, determining the offer of best services for lowest cost for contributor. Since tax competition reduces budgetary resources of the state affected, necessity of a better "administration" of public expenditure, limiting thus wastage is obvious. This thesis would not be, however verified if government acted as a maximizer of citizens' well being, a hypothesis which stands in contradiction with the one which bases the former argument. Even then, however, tax competition has not necessarily positive effects, they manifesting, however, only in the peculiar case when part of marginal public expenditure which represents "pure wastage" is larger than base elasticity in relation with tax rate.

In the third place, tax competition may *stimulate economic activity* by liberating investments with a part of taxation burden. Thus, we can admit their discouragement in subtracting saving and

available capital “pool” diminishing, including as a result of reduced profit to be used for reinvestments. A study published under the OCDE aegis estimates a 0.5% positive effect on economic growth rate as a result of 10% marginal tax rate reduction (Mitchell, 2004). This effect does not uniformly produce and it is remarked especially in significant diminishing of high tax rates.

However, tax competition is not always a game with positive sum. Circumstances when *its consequences are negative* are neither few nor scarce. Summarily presented, they refer to *producing a sub-optimum level of public goods* While tax competition intensifies it is ever more difficult that tax incomes could cover up public goods cost.

This hypothesis is infirmed, however, for example, by Tanzi and Schuknecht (2000) according to whom there are no indices that countries that mobilize smaller budgetary incomes in relation with GDP “produce much weaker social indicators” than states with larger budgetary incomes in relation with GDP: “the largest part of what governments wish to achieve can be done with expenditure levels of 25-35% from GDP”. Moreover, statistical data do not attest diminish, at EU level, of budgetary cashing susceptible to limit providing capacity of public goods, not even as regards the most influenced by tax competition such as those on corporate income is not obvious. Finally, it is obvious that any reduction in government revenue should automatically result in an under-provision of public goods. It is rather to be expected that in such a situation governments reacted by reducing budgetary transfers.

*Eroding budgetary incomes of states unfavorably affected* is another consequence of tax competition, determining difficulties of reducing budgetary deficits, a distinctly delicate issue in EU, in the context of limits imposed by Stability and Development Pact. This effect, under manifested conditions, may also have several causes:

- cashing reduction from taxes placed on mobile taxation bases as a consequence of reducing taxation rates;
- production factors mobility from high taxes states towards those with diminished taxes with the corollary of reducing taxation bases in countries that practice higher tax rates;
- re-locating mobile production factors may negatively affect remuneration of immobile factors with the consequence of supplementary eroding taxation bases.

These effects are more difficult to bring into evidence, though there can be remarked some states that engaged in an aggressive tax competition with purpose of attracting important investments in relation with their economic dimension. Moreover, however, even if it were verified in practice, budgetary incomes reduction would constitute itself as a negative effect of tax competition especially if the size of public budgets were the optimum one before their being reduced. According to study carried out by Teather (2005), if governments acted with maximum efficiency, tax competition would not determine capital taxes reduction with more than 3%. And, under conditions when capital taxes rise in EU to about 20% of GDP, probable cashing caused by tax competition would not exceed 0.5% of GDP. In other words, tax competition reduces budgetary expenditure level with maximum 0.5% of GDP. If, however, budgetary revenues are more than 0.5% of GDP over the optimal level, then tax competition will have beneficial effects.

*Tax burden displacement upon less mobile taxation bases* – as a tax competition potential effect - may show an unfavorable impact in social plan. Budgetary income losses associated to reductions of taxes upon mobile factors might theoretically be compensated through indirect taxation increases, but they – consequence of harmonization measures performed for several decades now at EU level - already are at increased levels. This situation may result in re-positioning direct taxation structure through a more accentuated taxation of immobile bases than the mobile ones. As it was showed in a Report of Commission in 1996 (“Monti Report”) in EU capital tax rates on independent activities (*self-employed*) have been reduced with one-tenth between 1980 -93, while employed work taxation rates increased with one-fifth (Bratton & McCahery, 2001). On the other hand, however, budgetary cashing for personal income tax practically remained constant as proportion from GDP for over 20 years, they have represented 11% of GDP in 1980 and 10.8% in 2002 (Boss, 2002).

Similar effects can also come out as a consequence of reducing tax rates on corporation income. When tax rate on corporate income is more diminished than the one on wages, there is physical persons' tendency to organize their activity under the form of commercial society, aiming at reducing taxation. To avoid this effect, many countries have in view approaching tax rate on wages income to corporate income tax rate having as a consequence diminishing the progressiveness of tax from wages and, implicitly, of the retribution capacity of the whole tax system.

Similarly, generous situations of the social service "exploitation" may appear in a country without contributing with taxes to their support ("socio-fiscal nomadism") manifested by contributors who change residence according to costs and benefits offered by national systems in various stages of life.

Preoccupations for capital outcomes attracted to more attractive tax destinations seem to have been at the origin of many European countries reticence to re-direct revenues from labor taxes towards the capital. Fencing tax competition might have a side effect such re-adjustment with the consequence of stimulating labor force employment, effect which, however, it is not significant: as Sorensen (2001) points out, the 10% increase of effective tax rate of capital income in EU-15 and reduction of taxes on wages income so that public incomes should be maintained constant results in reducing unemployment rate with only 0.6%.

In its turn *influencing decisions of investment emplacement* – as effect of tax competition - has sometimes been contested on argument that other factors are those which show an impact upon an investment placement (e.g. closeness to consumers, cheap labor force and proper qualification, infrastructure, natural resources existence etc). Without denying importance of other factors, in investment decision making, as well as fiscal regulations clarity and stability, under conditions when there are no significant differences between countries from the standpoint of these factors, the level of taxes becomes a more important variable in investment decision making and capital allotment. It is the situation revealed in numerous studies that identify a relation statistically significant between the level of practiced taxes and the size of foreign direct investments. According to Eggert & Hafler (2002) Cnossen (2002) estimations, at EU level, the results are remarkably close as regards the effect of tax rate on foreign investments differences: 1% reduction of effective tax rate in host-country determines a 3.4% growth of direct foreign investment in that country and respectively, 3.3%.

One can admit that tax level in host-country shows a reduced impact on "horizontal" investment decisions (that aim at access to host-country market) if there is attractive alternative locations. On the contrary, in case on "vertical" type investments, representing a ring of an international productive network where the finite product resulted entered in the competition with the similar ones achieved by other producers, minimization of production costs is more important, so that tax level in host-country may represent a significant impact on investment decisions.

In principle, direct foreign investments are especially directed to zones where significant reductions of tax rates are promoted. Although EU is a well-integrated economic space, there still are significant transaction costs associated with capital trans-boundary flows so that companies place their activities if tax rate differences compensate the mentioned costs.

*Strategic interactions inducing between fiscal authorities* of "prisoner dilemma" type, with corollary of establishing all ever lower levels of tax rates (*race to bottom*) represent one of tax competition manifestations. Moij's study (2004) referring to EU situation concludes that a 10% growth of tax rates in neighboring states determines an 8% increase of tax rate in an European country. This phenomenon is much facilitated by possibility of dissociating advantages (regarding infrastructure, services offered by education) and, respectively, disadvantages (size of tax gatherings) presented in one jurisdiction or another, phenomenon known under the name of *free riding*.

Revealing a certain effect of tax competition more susceptible to manifest depends on a number of factors:

- alternative mechanisms that may substitute taxes as instrument of capital attracting;

- asymmetries between countries from resource standpoint;
- production concentration in certain geographic spaces (“crowding” within “center-periphery” model);
- existence of scale economies in providing public goods and services;
- offer by public sector of some inputs that reduce private production cost;
- degree of mobility of production factors;
- either existence or nor of inclination to inner market (*home bias*);
- possibility of trans-boundary compensation of tax loss, etc.

There are several considerations based on EU characteristics that minimize in its peculiar case the risk of manifesting some negative consequences of public goods and services sub-providing type or *race to the bottom*.

- existence of a “center-periphery” model within EU, confirmed otherwise through the distinct importance of structural funds within community budget, may allow favored countries from this viewpoint to keep higher tax rates with no risk for investment loss;
- large Member countries which tend to have higher tax rates may afford to evaluate scale economies in producing public goods, and it reduces sub-providing risk;
- in the same sense the persistence of an important inclination to investments inner market is manifested.

At EU level, increasing preoccupation of Member States for problems of tax competition does not reflect so much the internalization of above-mentioned considerations, as it does for perception of an ever more evidenced shaping of the “winners” and “losers”. In the former category there are undoubtedly countries such as Ireland, Estonia, UK, and Austria; France and Italy in a smaller extent, while Germany considers it has still got to lose.

The check-up of tax competition existence is difficult, but it may be revealed through following methods:

- indirect detection of phenomenon existence, starting from analysis of tax incentives response for investments;
- estimating correlation between tax rates from various jurisdictions;
- analysis of tax rates.

### **3. Trends of direct corporate income taxation in European Union**

The evolution of tax rates on corporation incomes offers a possibility of checking-up manifestations of one of tax competition effects. In this respect, we may operate with several notions:

*Statutory tax rate* corresponds to relation between payment tax level and taxable profit. Although this indicator does not offer information on tax burden effectively supported by company since it does not take into account determining modalities of taxation base, it has an important psychological function being perceived as a signal regarding general fiscal climate of a country.

During the last 25 years important reductions of statutory tax rates on EU corporation incomes have occurred, having a tendency of accelerating especially during the last period. Thus, a few member states in 2001 - 2010 have not operated reductions of tax rates (table 1) within which Belgium and Germany are found. Generally, reductions operated in small countries have been more significant than those applied in EU big ones. Consequently, average rate in the whole EU was reduced to this interval from 29.6% to 22.8%. In 1990-2001 the statutory average rate decreased from 37.6% to 29.6%.

The 12 New Member States proceeded to a more accelerated reduction of tax rates on corporate income. Thus, the average tax rate at the level of these ones was 22.4% in 2004, decreasing up to 18.7%, in 2010, representing less than two thirds of the 45% level registered in the first years of ‘80s.

Without denying that the decreasing trend of tax rates can represent a reflection of tax competition manifested between member states, a common aspect, in fact, for advanced countries

outside EU, we admit, however, that other factors also may be at the origin of indicator reduction. Thus, ideological preferences may be revealed through the almost systematic coincidence of important reductions of tax rates of capital with the presence at governing of parties belonging to the right side of political specter. At the same time, significant reductions of tax rates on corporate income registered in East European countries were placed, in this space, within a process of economic transition through a strong restriction of state and public sector intervention in economy. In the second place, one must have in view that a state reaction may represent not only a proper competition which results from comparing tax rates from its own jurisdiction with the ones existing in other countries.

**Table 1. Corporate income tax (%) in EU Member States**

Country	1990	1995	1998	2001	2004	2007	2009	2010
<b>Austria</b>	39	34	34	33	33	22	22	22
<b>Belgium</b>	41	39	33	33	33	33	33	33
<b>Denmark</b>	40	34	33	33	33	22	22	22
<b>Finland</b>	41	25	22	22	22	22	22	22
<b>France</b>	37	36	34	33	33	33	33	33
<b>Germany</b>	50	45	45	45	45	45	45	45
<b>Greece</b>	46	40	40	40	40	40	40	40
<b>Ireland</b>	43	40	40	40	40	40	40	40
<b>Italy</b>	36	36	36	36	36	36	36	36
<b>Luxembourg</b>	33	33	33	33	33	33	33	33
<b>United Kingdom</b>	34	33	33	33	33	33	33	33
<b>Netherlands</b>	35	35	35	35	35	35	35	35
<b>Portugal</b>	36	39	39	39	39	39	39	39
<b>Spain</b>	35	35	35	35	35	35	35	35
<b>Sweden</b>	40	28	28	28	28	28	28	28
<b>UE-15 (arith. average)</b>	39	35	35	35	35	35	35	35
<b>Bulgaria</b>	40	40	40	40	40	40	40	40
<b>Cyprus</b>	42	25	25	25	25	25	25	25
<b>Czech Republic</b>	41	41	41	41	41	41	41	41
<b>Estonia</b>	26	26	26	26	26	26	26	26
<b>Latvia</b>	25	25	25	25	25	25	25	25
<b>Lithuania</b>	35	29	29	29	29	29	29	29

			9	4	5	5	5	5
<b>Malta</b>	32	35	3	3	3	3	3	3
	.5		5	5	5	5	5	5
<b>Poland</b>	40	40	3	2	1	1	1	1
			6	8	9	9	9	9
<b>Romania</b>	38	38	3	2	2	1	1	1
			8	5	5	6	6	6
<b>Slovakia</b>	40	40	4	2	2	2	1	1
			0	9	5	2	9	9
<b>Slovenia</b>	25	25	2	2	2	2	2	2
			5	5	5	3	1	0
<b>Hungary</b>	50	19	1	1	1	1	2	2
		.6	9.6	9.6	7.6	8.6	1.3	0.6
<b>New Member States (arith. average)</b>	36	31	3	2	2	1	1	1
	.2	.9	0.9	6.9	2.4	9.1	8.8	8.7

Source: Taxation Trends in the European Union, Eurostat Newsrelease 92/2009; June, 2010.

In the last two decades of the past century a reduction of statutory tax rates spreading applied to EU countries occurred: standard deviation decreased from 3.4 to 2.0 in 1990 - 1997, with a further increase in 2000 years. Given that the EU New Member States tend to have significantly lower tax rates on corporate income than older members, spreading within EU-27 is bigger. Registered tendency in the course of last decade is that of deepening the difference between tax rates practiced by old member states and those of the new ones, even under conditions when rates are decreasing in both country groups. If we take into account local taxes, too, upon companies (important countries such as Germany, Italy, Luxembourg and Portugal) statutory tax rate dispersion is also much bigger.

The *effective tax rate*. Economic effects of taxation depend on both statutory rates and on elements of taxation base (expenditure deductibility, existence of tax credits, tax treatment of re-invested profit etc.). In this context, it is possible that to high values of statutory rates correspond reduced effective tax rate on corporate income in conditions of practicing tax deductions on a large scale.

Most important effects of taxation on investment decisions are determined by *effective marginal rate (EMTR)* which represents tax rate of an investment that obtains a rate of return equal with the capital cost level, taking into account practiced tax deductions, inflation rate and imputation systems. For a change, taxation effects on public revenues and their re-distributive function are determined by *effective average rate (EATR)*, respectively the relation between total tax perceived on an activity and total income level.

Table 2 synthesizes the levels and tendencies in the field of effective marginal tax rate on corporate income in EU. In contrast with statutory corporate tax rate, the table shows a less dramatic decline of effective marginal tax rate (EMTR). This thing is due to several reforms that referred to enlarging taxation base in order to compensate a part of reduction of statutory tax rates. In general, we can admit that statutory taxes reduction was only partially compensated through enlarging taxation base.

**Table 2. Effective marginal tax rate on corporate income (%) in EU Member States**

Country	1 998	2 001	2 002	2 003	2 004	2 005	2 006	2 007	2 008	2 009
<b>Austria</b>	3 3.5	3 7.3	3 6.9	3 6.9	3 7.3	2 8.0	2 8.0	2 8.0	2 6.0	2 7.2
<b>Belgium</b>	3 8.3	3 8.1	3 8.3	3 3.1	3 3.1	3 3.1	1 2.5	1 0.1	6 .0	4 .3
<b>Denmark</b>	3 4.4	3 1.3	3 1.3	3 1.3	3 1.3	2 9.4	2 9.4	2 6.6	2 6.6	2 6.6
<b>Finland</b>	3 1.7	3 3.6	3 3.6	3 3.6	3 3.6	3 0.6	3 0.6	3 0.6	3 0.6	2 7.9

<b>France</b>	4 8.3	4 4.8	4 4.0	4 4.2	4 4.3	4 4.2	4 3.8	4 4.2	4 4.3	4 4.3
<b>Germany</b>	5 5.9	4 0.5	4 0.5	4 1.8	4 0.5	4 0.5	4 9.7	3 9.7	3 2.5	3 1.9
<b>Greece</b>	3 4.2	3 4.1	3 4.1	3 4.1	3 4.1	3 1.2	2 8.2	2 4.3	2 4.6	2 4.6
<b>Ireland</b>	1 2.2	1 2.0	1 6.6	1 9.1	1 9.2	1 9.2	1 9.3	1 9.3	1 9.3	1 9.4
<b>Italy</b>	2 2.6	1 8.6	3 7.6	3 5.7	3 4.7	3 4.7	3 4.7	3 4.7	3 0.7	3 1.3
<b>Luxembourg</b>	3 6.7	2 9.9	2 8.2							
<b>United Kingdom</b>	3 7.3	3 6.0	3 7.3	3 7.4	3 7.5	3 7.5	3 7.2	3 7.4	3 6.6	3 7.3
<b>Netherlands</b>	3 8.9	3 8.4	3 8.4	3 8.4	3 8.4	3 5.5	3 3.4	2 9.1	2 9.1	2 9.1
<b>Portugal</b>	3 6.7	3 6.6	3 4.5	3 4.1	2 8.7	2 8.7	2 8.7	2 7.7	2 7.7	2 7.7
<b>Spain</b>	4 6.2	4 4.1	4 3.0	4 3.0						
<b>Sweden</b>	2 8.2	2 7.4	2 7.4	2 7.4	2 7.4	2 9.1	2 9.1	2 9.1	2 9.1	2 7.5
<b>UE-15 (arith. average)</b>	3 5.7	3 3.7	3 5.1	3 4.9	3 4.4	3 3.2	3 1.4	3 0.3	2 9.1	2 8.6
<b>Bulgaria</b>	3 3.4	2 6.8	2 2.5	2 3.2	1 9.3	1 5.0	1 5.0	1 0.2	1 0.4	1 0.1
<b>Cyprus</b>	3 4.3	3 3.2	3 3.7	1 9.3	1 9.3	1 4.2	1 4.2	1 4.2	1 4.2	1 4.2
<b>Czech Republic</b>	3 6.8	3 0.6	3 0.6	3 0.6	2 8.0	2 5.7	2 3.8	2 3.8	2 0.8	1 9.9
<b>Estonia</b>	2 4.6	3 2.8	3 2.8	3 2.8	3 2.8	3 0.5	2 9.4	2 8.2	2 7.0	2 7.0
<b>Latvia</b>	2 7.3	2 7.3	2 4.6	2 2.0	1 8.6	1 8.6	1 8.6	1 8.6	1 7.2	1 7.2
<b>Lithuania</b>	1 .5	1 .6	1 3.5	1 3.5	1 3.5	1 3.5	1 6.7	1 5.9	1 3.5	1 7.5
<b>Malta</b>	3 8.7	3 8.7	3 8.7	3 8.7	3 8.7	3 8.7	3 6.5	3 8.7	3 8.7	3 8.7
<b>Poland</b>	3 8.0	2 9.9	3 0.0	2 8.3	2 0.2	2 0.3	2 0.2	2 1.4	2 1.4	2 1.4
<b>Romania</b>	3 9.4	2 7.1	2 7.7	2 7.1	2 6.4	1 8.2	1 8.2	1 8.6	1 8.6	1 8.6
<b>Slovakia</b>	4 3.5	3 0.0	2 5.9	2 4.9	2 8.5	1 9.4	1 9.4	1 9.4	1 9.4	1 9.4
<b>Slovenia</b>	2 7.8	2 7.8	2 7.8	2 3.5	2 3.5	2 5.3	2 6.0	2 5.2	2 4.1	2 3.1
<b>Hungary</b>	2 5.3	2 6.2	2 6.3	2 6.3	2 4.3	2 0.8	2 0.8	2 3.5	2 3.5	2 3.5
<b>New Member States (arith. average)</b>	3 0.1	2 7.7	2 7.8	2 5.9	2 4.4	2 1.7	2 1.6	2 1.5	2 0.7	2 0.9

Source: Intermediate Report TAXUD 2008/CC/009, Report 2009, *Centre for European Economic Research*. The EMTRs are computed using M. Devereux methodology. In the table above, we take into account EMTRs on retained earnings.

*Effective average rate* in EU various member countries was less mobile: it registered a certain decrease in the course of '80 years but stabilized starting from the second half of '90s. Registered effective rates dispersion was very significant at the beginning of this interval further on narrowing considerably. In fact, according to European Commission, about three quarters of differences registered between Member States under the aspect of effective average tax rates didn't change situation between statutory rates.

The adherence of New Member States did not change situation as significant as the former ones occurred in case of statutory tax rates, reduction of average rates did not occur in the same rhythm as those statutory. East European countries significantly contributed to general decrease of corporate income taxation in EU. In 2006, average tax rate on corporate income in states with transition economies was 19.3%. By comparison, average in the other countries of Europe was 27.5%, being at a difference of 8.2% face to the other East European countries (Intermediate Report TAXUD 2008/CC/009).

It is, however true that estimations made for new members do not take into account various incentives selectively applied in such countries such as: tax-exempt for 10 years for newly founded companies in Czech Republic and Slovakia, tax credit of 35-50% from the value of investments during the first 5 years in Hungary, tax exempt or reductions in corporate income tax applied for companies established in "special economic zones" in Latvia and Lithuania; accelerated depreciation promoted in Poland for certain categories of new fixed assets purchased. As, however, most tax incentives were incompatible with community *aquis* in the field of state aids, they were eliminated with adherence of respective countries to EU.

Effective marginal tax rates were more stable over time than effective average tax rates because of enlargement of the tax base in line with the reduction of statutory tax rates. Since more profitable capital investments tend to produce the highest mobility, developments above can be interpreted as an intensification of competition for mobile capital, particularly at multinational companies' level.

In general, we recognized that the statutory tax rate reductions were partially offset by broadening the tax base. Differences recorded between EU Member States in terms of actual rates can be explained by differences in statutory rates and factors to determine the tax base.

The *implicit tax rate*, defined for each economic function, is generally computed as the ratio of total tax revenues of the category (consumption, labor, and capital) to a proxy of the potential tax base defined using the production and income accounts as national accounts. The tax revenue relative to GDP statistics can be described as macro backward-looking tax burden indicators. In this respect, it corresponds to corporate income tax as proportion from GDP or, may be calculated at the microeconomic level by reporting the tax payable by a company in its gross profit. This indicator has a problem to characterize the importance of relevant tax factor itself. On the one hand, if it is determined at the macroeconomic level, it is strongly influenced by the dimension and dynamics of GDP, and the structure of firms (i.e., major companies within it) which affects its ability to facilitate international and inter-temporal comparisons. At the microeconomic level, on the other hand, it depends on the size of gross profits, which are difficult to compare between tax jurisdictions because of differences in accounting standards (particularly on reserves, off-balance elements etc.).

On the other hand, this indicator reflects the effects of a tax system parameter other than rate and tax base on the above indicators can "catch" as the way of tax administration. However, issues such as honesty taxpayers, fiscal controls intensity or time of collection of taxes may be different in time or from one jurisdiction to another.

As a rate of tax on corporate income and GDP, this indicator has remained remarkably constant at EU level in a period characterized by significant reductions in tax rates. It is true that, over the time, it is noted some fluctuations in the Member States, but they reflect cyclical developments required by the business cycle phases. According to the table 3, countries with smaller economies show a faster growth in relative terms of budgetary receipts from corporate income tax than big countries. In the same context, we see no trend of convergence of "tax burden" carried by this type of tax in the EU. The most important changes of the level of this indicator have occurred in

countries with lower tax rates, reflecting the preferences of countries prone to a higher redistribution through the budget lever were not frustrated.

There are two important reasons why the tax rate reductions have led to decreases in budget revenues. To some extent, corporate income tax reduction led to stimulate economic activity, which later gave rise to proceeds from this tax. The relatively constant level of implicit tax rate, despite significant reductions in corporate income tax, is due to the fact that, while many countries have adopted measures to broaden tax bases, as an effect of community initiatives to combat harmful tax competition. This suggests a keen interest in maintaining high profitable investments, including those made by transnational corporations. To achieve this, tax rates was reduced and to limit the budgetary revenue losses more tax deductions was eliminated. As the importance of tax deductions size decreases with increasing corporate income, this combination of measures is particularly favorable to transnational companies.

However, broadening the tax base by reducing opportunities for tax deductions may have adverse consequences in terms of internationalization of production and unlimited cross-border movement of capital. Essentially local business firms, generally small and medium-sized bear a greater tax burden, while multinationals have access to numerous tools that allow tax arbitrage restructuring national tax bases (on the paper, not through physical transfer of assets) so as to maximize the bases in jurisdictions characterized by lower tax rates.

**Table 3. Corporate income tax as % from GDP**

Country	1 995	1 997	1 999	20 01	20 03	2 005	2 007	2 008
Austria	1 .6	2 2	2 .0	3 3	2 3	2 .3	2 .6	2 .6
Belgium	2 .3	2 8	3 .2	3 1	2 9	3 .4	3 .6	3 .3
Denmark	2 .3	2 7	2 .4	2 8	2 9	3 .9	3 .6	3 .4
Finland	2 .3	3 5	4 .3	4 2	3 4	3 .3	3 .9	3 .5
France	1 .8	2 3	2 .7	3 1	2 1	2 .3	3 .0	2 .8
Germany	0 .9	1 3	1 .5	0 6	0 7	1 .1	1 .4	1 .1
Greece	2 .3	2 3	3 .2	3 4	2 9	3 .2	2 .6	2 .5
Ireland	2 .7	3 2	3 .8	3 5	3 7	3 .4	3 .4	2 .9
Italy	3 .3	4 1	2 .7	2 9	2 2	2 .3	3 .2	3 .2
Luxembourg	6 .6	7 5	6 .7	7 3	7 3	5 .8	5 .4	5 .1
United Kingdom	2 .7	3 7	3 .3	3 4	2 6	3 .2	3 .2	3 .6
Netherlands	3 .3	4 5	4 .5	4 2	3 0	3 .6	3 .5	2 .4
Portugal	2 .4	3 2	3 .6	3 4	2 9	2 .8	3 .7	3 .7
Spain	1 .9	2 7	2 .9	2 9	3 1	3 .9	4 .8	2 .9
Sweden	2 .6	2 8	3 .1	2 6	2 2	3 .6	4 .0	3 .0
UE-15 (arith. average)	2 .6	3 2	3 .3	3 4	3 0	3 .2	3 .5	3 .1
Bulgaria	-	-	3	3	3	2	3	3

			.1	8	1	.4	.2	.3
<b>Cyprus</b>	4	4.	5	6.	4.	4	6	7
	.0	4	.9	2	3	.6	.9	.1
<b>Czech Republic</b>	4	3.	3	4.	4.	4	4	3
	.6	8	.8	1	6	.5	.8	.4
<b>Estonia</b>	2	1.	2	0.	1.	1	1	2
	.4	8	.0	7	6	.4	.7	.5
<b>Latvia</b>	1	2.	2	1.	1.	2	2	3
	.8	2	.0	9	5	.0	.7	.1
<b>Lithuania</b>	2	1.	0	0.	1.	2	2	2
	.1	6	.8	5	4	.1	.6	.8
<b>Malta</b>	2	2.	2	3.	4.	4	6	6
	.6	6	.7	2	5	.5	.7	.8
<b>Poland</b>	2	2.	2	1.	1.	2	2	2
	.7	7	.4	9	8	.5	.8	.7
<b>Romania</b>	-	-	3	2.	2.	2	3	3
			.8	5	8	.7	.1	.0
<b>Slovakia</b>	6	3.	3	2.	2.	2	2	3
	.0	7	.1	6	8	.7	.9	.1
<b>Slovenia</b>	0	1.	1	1.	1.	2	3	2
	.5	0	.2	3	7	.8	.4	.5
<b>Hungary</b>	1	1.	2	2.	2.	2	2	2
	.9	9	.3	3	2	.1	.8	.6
<b>New Members States (arith. average)</b>	2	2.	2	2.	2.	2	3	3
	.9	6	.8	6	7	.9	.6	.6

Source: Taxation Trends in the European Union, Eurostat Newsrelease, 2009-2010.

The analysis of existing data should be taken into account the fact that the indicator is an ex-post one, its level in a given year may be affected by events occurring before and it exercises residual effects. This is the case of precedence clauses (allowing, for example, as an investment to qualify for a tax system since its performance, although the actual tax system has been changed) or the case of carry forward tax-losses.

Another important indicator to characterize developments in corporate income tax is the *proportion of revenues from corporate income tax in total budgetary revenues*. The overall trend of this indicator has been known to decline since 1965, but having a slightly steep slope from the late '80s. This fact suggests that although the Member States managed to maintain constant tax revenues from corporate income tax relative to GDP, they could not grow as much as other types of taxes increased. In the '90s, the trend was slightly higher, followed by a new slightly downward trend during the current decade. The EU-15 level of this indicator was 6.8% in 1995 (table 4), followed by a trend of growth in 2003, with slight oscillations and increased values to 8.6% in 2009. In the New Member States, changes in the last decade were similar, but the growth trends were more marked especially during the current decade. In general, the data shows that the New Member States are more dependent on revenues from this tax for their public budgets than the EU-15.

**Table 4. Corporate income tax as % of total taxation**

Country	1 998	2 000	20 02	200 4	20 06	20 08	20 09
<b>Austria</b>	3	5.	4.5	7.2	5.	5.	6.
	.8	0			3	5	2
<b>Belgium</b>	5	6.	7.1	6.9	6.	7.	8.
	.4	3			4	5	2
<b>Denmark</b>	4	5.	4.8	5.7	6.	7.	7.
	.8	5			0	7	4

<b>Finland</b>	5 .0	7. 5	9.4	9.4	7. 7	7. 6	9. 0
<b>France</b>	4 .2	5. 2	5.9	7.0	5. 0	5. 3	6. 9
<b>Germany</b>	2 .2	3. 1	3.6	1.4	1. 9	2. 8	3. 5
<b>Greece</b>	8 .0	7. 5	9.5	10.1	9. 1	10 .3	8. 0
<b>Ireland</b>	8 .3	9. 8	11. 9	11.9	12 .7	11 .0	10 .7
<b>Italy</b>	8 .3	9. 4	6.4	7.0	5. 3	5. 8	7. 5
<b>Luxembourg</b>	1 7.7	1 9.0	17. 4	18.4	19 .2	15 .4	14 .8
<b>United Kingdom</b>	7 .7	1 0.7	9.1	9.3	7. 6	8. 9	8. 8
<b>Netherlands</b>	8 .1	1 1.4	11. 0	11.0	8. 1	9. 7	9. 1
<b>Portugal</b>	7 .3	7. 5	6.9	5.8	5. 6	7. 6	7. 9
<b>Spain</b>	5 .8	8. 1	8.7	8.6	9. 3	11 .0	12 .8
<b>Sweden</b>	5 .4	5. 6	5.9	5.3	4. 6	7. 3	8. 3
<b>UE-15 (arith. average)</b>	6 .8	8. 1	8.1	8.3	7. 6	8. 2	8. 6
<b>Bulgaria</b>	-	-	10. 1	12.3	12 .8	12 .0	13 .1
<b>Cyprus</b>	1 4.9	1 7.0	21. 3	20.1	13 .1	13 .1	16 .6
<b>Czech Republic</b>	1 2.7	1 1.0	11. 2	12.0	12 .8	12 .0	13 .1
<b>Estonia</b>	6 .7	5. 1	6.0	2.3	5. 1	4. 7	5. 2
<b>Latvia</b>	5 .5	6. 8	6.4	6.6	5. 3	6. 9	8. 9
<b>Lithuania</b>	7 .4	5. 0	2.6	1.9	4. 9	7. 3	8. 6
<b>Malta</b>	9 .8	9. 4	10. 0	10.6	14 .4	13 .2	19 .4
<b>Poland</b>	7 .3	7. 5	8.9	5.8	5. 6	7. 6	7. 9
<b>Romania</b>	-	-	12. 3	8.8	10 .1	9. 7	10 .5
<b>Slovakia</b>	1 5.0	9. 8	8.8	7.8	8. 3	8. 7	10 .0
<b>Slovenia</b>	1 .3	2. 8	3.1	3.4	4. 6	7. 2	8. 8
<b>Hungary</b>	4 .5	4. 9	5.9	6.0	5. 8	5. 6	6. 9
<b>New Members Stases (arith. average)</b>	8 .5	7. 9	8.9	8.1	8. 6	9. 0	10 .7

Source: Taxation Trends in the European Union, Eurostat Newsrelease 92/2009.

In the same context, we find large differences between EU Member States regarding the contribution of taxes on corporate income to achieve budget revenues. Thus, in 2001 these taxes contributed only with 1.4% to Germany's federal budget, but with 18.4% of revenues collected in Luxembourg. It is natural that these differences should be reflected also in the differing priorities that Member States perceive the opportunities of this type of tax harmonization at Community level. Paradoxically, however, at least in extreme cases mentioned above, the preference for harmonization is that which would be expected: Germany is at the forefront of the Member States to support initiatives to harmonize tax rates, while Ireland remains among members most reluctant to such proposals.

#### 4. Conclusions

The evolution of taxes in recent decades has the following characteristics: the statutory corporate income tax rates were reduced; tax bases have been expanded; effective tax rates, reflecting the impact of statutory rate and the tax base, fell; tax revenues from corporate income have remained broadly stable as a percentage of GDP since 1995; similar developments have had also tax revenues from corporate income tax as a percentage of total tax revenues, registering but isolates levels slightly increased at New Member States.

There are some difficulties in searching for empirical evidence regarding the expression of tax competition between EU Member States and its effects. The data necessary to do so are not readily available, and the parameters that may lead to an indirect evidence of tax competition are not more useful.

Policy actions in the field of corporate income taxation in the EU have been relatively rare. This is the result of an institutional design that promotes the principle of subsidiarity concerning revenues from corporate taxation, having uncertain effects on competition in terms of corporate income tax in Europe. While statutory rates have declined in recent decades, revenues collected from corporate income tax as a percentage of GDP have been remarkably stable.

This result does not suggest that EU is free to any initiative. More tax obstacles to the functioning of truly integrated European market have been identified mainly to the identifying the phenomenon of tax avoidance through relocation, transfer price manipulation or transfer of profits by capitalizing reduced, although their extent varies.

We can admit that a better coordination in the field of corporate income taxes by establishing a common basis of taxation may reduce tax compliance costs. Provided it is well designed, would also be additional benefits by strengthening border tax. However, the proposal leaves untouched the tax rates and, therefore, including the effects of tax competition, if not enhances transparency of the tax base.

Current corporate tax systems in the European Union are far from being perfect. It is important that the European Union re-consider them on sound economic principles such as neutrality between investors and financing sources, equity between companies, simplicity, efficiency and income stability. Obviously, there is so far a uniform solution on how to mitigate any biases exhibited by current tax systems. The proposed corporate tax systems at the EU level have advantages and limitations, but they deserve to be debated.

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## THE PHENOMENON OF SHADOW ECONOMY IN EUROPEAN COUNTRIES

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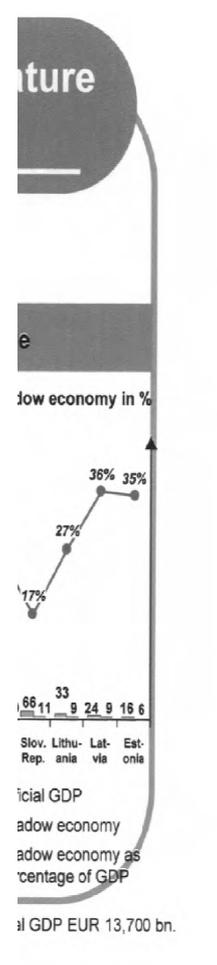
**Abstract:** *In the current socio-economic situation, in which the economic crisis is making its presence felt in all of the European countries, the phenomenon of shadow economy finds a fertile ground for development and diversification. It is unanimously recognized that in time of crisis, the illicit activities amplify to a larger scale but also they have new forms of manifestation.*

**Key words:** shadow economy, crisis

**JEL classification:** O17

In order to better understand the phenomenon of shadow economy and its share within the Gross Domestic Product, we present a report of the Organization for Economic Co-operation and Development, concerning the shadow economy in the states of the European Union.

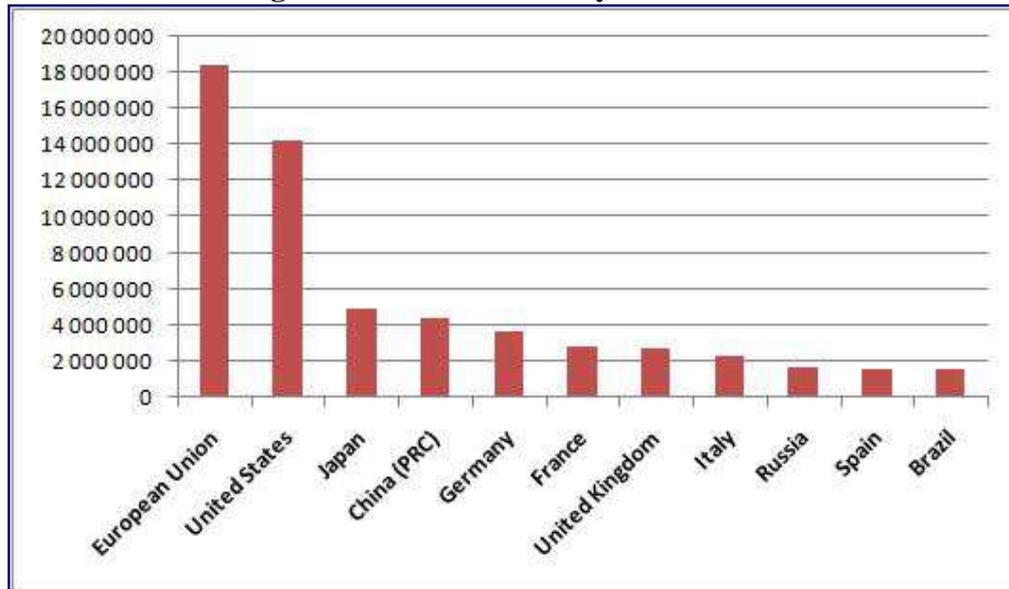
**Figure 1. Shadow economy in Europe**



According to the analyses of the OECD, the shadow economy in Romania was in the year of 2009, at a level of 33%, in proportions similar to those of Bulgaria, Croatia and Turkey, although the average of the Western European states is around 15%.

We also present a report concerning the share of this phenomenon at world scale.

**Figure 2. Shadow economy in the world**



Source: OECD Report, 2009

We try to present a few forms of manifestation of the shadow economy phenomenon (forms of fraud and tax evasion) in some countries.

The shadow economy has grown alarmingly in the developed countries over the past two years, as soon as the economic crisis set in, according to the calculations made by international economists. Illegal work and evasion of taxes or payroll taxes are becoming more common, even in developed countries.

"Because of the economic crisis, the shadow economy will grow during 2010 within the developed countries, after it grew however already in 2009", it is shown within a recent study of Friedrich Schneider, an Austrian economist and specialist in the shadow economy, as it writes the "Le Figaro" newspaper.

According to his calculations, the share of the shadow economy in the GDP within the countries members of OECD has increased from 13.3% in 2008 to 14% in 2010. In France, this report has increased from 11.1% to 11.7%.

The increase may seem small, but it ends the downward trend recorded in late '90s. The Baltic and Mediterranean states are dealing with the largest ratios. The shadow economy represents 25% of GDP in Greece and around 40% in Latvia and Estonia.

Belgium has the fifth largest shadow economy of the member countries of the Organization for Economic Co-operation and Development. Only Greece, Italy, Spain and Portugal have a worse score than this country. In 2010, 61 billion euro worth of black money freely circled within the Belgium shadow economy, representing 17.9% of the GDP (OECD).

The companies accept such a situation in order to compensate for lost revenue, while the employees accept to work illegally in order not to lose their jobs. "Many people try to compensate their declining incomes, by participating in the shadow economy" (Schneider).

**In Germany:** the crime of tax evasion is defined as the omission in full knowledge, of showing (proving) to the administration the elements which condition the establishment of taxes due or to communicate inaccurate or incomplete information, from the moment when these actions tend to minimize tax or to obtain unjustified fiscal advantages to their author or to a third party.

**In the Netherlands,** tax evasion is defined such as willingly writing a non-accurate declaration, presentation of false documents or the non-observance of the legal duty to provide to the administration certain information needed for the establishment or the control of the tax due.

**In Luxemburg,** fiscal fraud takes on two forms which are sanctioned differently:

1. the simple fraud that presents an involuntary character and which is performed "by anyone", in his quality of tax payer, of mandatory or as a person taking care of the businesses of a tax payer;

such a person determines out of negligence the reduction of tax collection or the granting or unjustified keeping of fiscal advantages. This crime is liable for only a fine whose amount varies depending on gravity.

2. the intentionally fraud and the tentative of intentionally fraud are punished identically. The sanctions applied comprise:

– fines whose amount depend upon the discretionary appreciation of the administration and which are not limited by law

– prison sentence, which for the repressive authority does not have an optional character and whose maximum is fixed to 2 years

– deprivation of civil and political rights, which is applied in those cases when one has been convicted to at least 3 years of prison

In the Luxembourg legislation it is also defined the term of crime against the fiscal order, named "blakettgesetz". This term covers any non-observance of the fiscal legislation. This crime can be committed by anyone without fulfilling the conditions of another crime and which is contrary intentionally or out of negligence, in his quality of tax payer or in the administration of the businesses of a tax payer, both to the fiscal law as well to the decision taken in the procedure of taxing that mentions that its non-observance is punishable.

**In Ireland:** the fiscal fraud is defined as any crime committed with deliberate will, in order to avoid paying tax. The Irish law punishes more harshly the special fiscal offences that are not falling into a certain type of tax, but are common to all the taxes and fees collected by the fiscal administration. They are considered as very severe crimes and they are therefore severely punished. Among the 15 categories enumerated by the Finance Law on the year 1988, it appears among others:

1. establishment of an inaccurate declaration or the communication of inexact documents

2. opposition to the fiscal control etc.

**In Japan:** where fiscal honesty is usually high, the fiscal fraud constitutes the object of reprobation and is qualified as a crime. It is investigated by the fiscal services as well by Prosecution and Police.

It is possible that in the following period, although Japan have had an important economic growth, due to natural disasters that recently swept the country, on the background of a period of reconstruction and socio-economic reorganization, the phenomenon of the shadow economy might increase. It remains interesting to see how much and in which forms of manifestation.

Besides the legal aspect, the distinction between the techniques of non-payment of the tax – respectively fraud or evasion – is not justified. From the point of view of the budgetary revenues the juridical aspect has a lesser importance, the effect being the same: both determine a decrease of the amounts available to the state.

In the new era of globalization, the phenomenon of shadow economy has unprecedented spread, taking over the weak economies of underdeveloped states, which do not have an institutional system that is strong enough to face such a threat. For this reason, in the majority of third world countries (Latin America, Asia, Africa), the shadow economy is the predominant one due to the necessity of those states to find solutions to the major economic problems that they face. However the third world countries are not the only ones affected by the existence of the shadow economy, taking into account the fact that the developed countries as well as the ex-Socialist countries that are currently under development during the last years, register as well an increase of this phenomenon. The appearance and aggressive development of the shadow economy raises major problems and represents a challenge for both the international organizations as well as for the national public authorities, which have to find solutions for fighting or at least limiting the effects that this phenomenon has on the national and international economy. The shadow economy is manifesting under different forms: beginning with a series of unregistered domestic activities and going up to more severe practices, such as drugs, guns and persons trafficking, money laundering and corruption etc.

It was also observed lately, a closer connection between the mafia-like criminal organizations and terrorist groups. Large amounts of money obtained from drugs and persons trafficking, prostitution and money laundering, as practiced by mafia groups are being directed towards terrorist

groups from Asia, Africa and Latin America, thus financing their purchasing of guns and the training of new followers, offering to them the opportunity to infiltrate the strategic points of the Western world and to threaten through terrorist attacks the national and international security.

It was also noticed that the identification and fighting of the practices of the shadow economy becomes more and more difficult due many times to the incapacity of the public authorities to find adequate methods in fighting them, or because of an incomplete legislation or the appearance of what are called fiscal paradises (namely territories, countries and institutions that offer the advantage of secrecy on the financial and commercial operations developed within them, as well as low taxing or even non-existent taxing of the revenues). The opening of secret bank accounts in such areas and the depositing in the respective accounts of the amounts obtained from illicit activities renders difficult or even impossible their monitoring by the empowered institutions. Tax havens are usually situated in small islands from the Caribbean Sea or the Pacific Ocean, but tax havens also exist in wealthy regions of the world from Europe to Asia. Some of the most well known tax havens are situated in the Cayman Islands, Monaco, Andorra, Bahamas, etc.

The issue of fighting the phenomenon of shadow economy is becoming more widespread due to the fact that the governments of under-developed states, where the shadow economy sustains largely the economy of the state, do not want to contribute to its fighting but instead they sustain its development, in their attempt to improve the living standards of population.

There are states where the shadow economy occupies a significant percentage of the GDP (in Romania during 2009, the shadow economy surpassed 33% out of GDP). As a result of the existence of all these factors, the real dimensions of the phenomenon of the shadow economy become very hard to be estimated by specialists, while the methods of fighting such practices are usually over passed by the working methods of criminal groups and terrorist organizations. These discrepancies appear also on the background of the opening of national borders for the free circulation of goods and persons, as well as on the background of the unprecedented development of the Internet and of the electronic applications that are more and more used in diverse fields such as electronic commerce, the banking field, etc., simultaneously with the development of computing frauds (hacking, software piracy, stealing of money and information, computer spying, card thefts and many others). The development of the contemporary society within the context of globalization and the spreading of the Internet world brings new possibilities to avoid the institutions and security systems with the aim of obtaining illegal incomes, thus allowing the criminal groups to develop and perfection in a much faster way than in which the methods of fighting are developing.

To conclude, in order to identify and fight such practices it is needed to be aware of the fact that we do not hold sufficient instruments for fighting and for the total reform of the mentality and of the system for fighting against the phenomenon of the shadow economy, in order to have real chances to stop its development. In the meantime, it is called for the adaptation of legislation in this field, its uniformity within the countries of the European Union and a common and concerted action for the limitation of this phenomenon.

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## A METHODOLOGICAL PROPOSAL FOR THE DESIGN OF A SUSTAINABLE FINANCING PORTFOLIO\*

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**Abstract:** *This paper aims to propose a method to construct a sustainable financing portfolio. In this context, the study firstly proposes an optimal solution for the model of sustainable financing portfolio. Then, to observe the impact of the variable character of the budget, of the prices of input for sustainable financing sources in sustainable financing portfolio and the impact of marks for sustainability of sustainable financing sources, the authors provided an analysis for any two sources of sustainability, „i” and „j”. The results showed that variation of the relative mark of sustainability for the two sustainable financing sources is equivalent to simultaneous variation of the purchasing prices of the two sustainable financing sources envisaged, the best point of portfolio sustainable financing is given by the tangent point of indifference and budget hyper-surface and the variation of the purchasing price of the sustainable financing sources generates the two known effects (substitution, i.e. income). These conclusions highlighted by the paper may be important for the future developments, where the boundary of the indifferent sustainability must be also generated by sustainability criteria, and not by efficiency criteria.*

**Keywords:** sustainability, portfolio, financing.

**JEL Classification:** C02, C18, G11

### 1. Introduction

We are interested in constructing a sustainable financing portfolio based on considerations of sustainable border so as to enable the decision maker to choose an appropriate financing package.

In this context, the question is to design an indifference curve that expresses the same degree of overall sustainability of the portfolio at different combinations of sustainable financing sources.

Let's make some specifications of conceptual nature:

- Sustainable financing portfolio refers to a set of points from the indifference hyper-surface that expresses the same global sustainability in the portfolio for various combinations of possible “amounts” of sustainable financing sources;
- The role that have prices in the consumer's indifference curves, have in our case *marks for sustainability*;
- We proposed to use a Lagrange-type function's optimization.

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\* The communication is an excerpt from the research project no. 821/2008 PNII - IDEI, „Mix of the adjustment policies in the light of the economic convergence of Romania with the European Union, financed by CNCSIS – UEFISCSU.

## 2. Quantitative issues

We will made develop the following formalization:

▪ *Notations:*

- $x_i$  : „amount” of the sustainable financing source „i” included in the „optimal” sustainable portfolio;
- $t_i$  : “purchase price” of the sustainable financing source „i” from the sustainable financing portfolio (This price has the significance of a transaction cost.);
- $m_i$  : mark of sustainability of the sustainable financing source „i”;
- B: budget (exogenous) allocated to construct the sustainable portfolio of financing sources;
- PS : sustainable financing portfolio;
- M: mark of sustainability of the sustainable financing portfolio (which, according to the convention agreed above, will be maximised);
- $\lambda$  : Lagrange multiplier of the sustainability of the financing portfolio (The Lagrange multiplier shows with how many units will the value of the sustainability mark of the portfolio of financial assets modify when the budget allocated to construct the sustainable portfolio of financial assets changes with one unit.);

▪ *Formal equations:*

- Restriction of the optimizing model:  $B = \sum_{i=1}^6 x_i \cdot t_i$  ;
- Target function:  $PS = M(x_1, x_2, x_3, x_4, x_5, x_6) = \frac{\prod_{i=1}^6 (m_i \cdot x_i)}{\sum_{i=1}^6 (m_i \cdot x_i)}$  ; (it may be easily demonstrated

that such a function is decreasing and convex (its Hessian matrix is defined positively). These mathematical characteristics describe the qualitative hypotheses regarding a hyper-surface of indifference.)

- The optimization function (Lagrange) will have the following analytical form:

$$L = M(m_1 \cdot x_1, m_2 \cdot x_2, m_3 \cdot x_3, m_4 \cdot x_4, m_5 \cdot x_5, m_6 \cdot x_6) + \lambda \cdot \left[ B - \sum_{i=1}^6 (x_i \cdot t_i) \right] \rightarrow \max;$$

▪ *Economic significance of the Lagrange multiplier:*

- Conditions of maximization:  $\frac{\partial L}{\partial x_i} = 0$  for  $(\forall) i \in \{1,6\}$ , thus:
- $m_i \cdot \mu_i = \lambda \cdot t_i$ ,  $(\forall) i \in \{1,6\}$ ,
- where  $\mu_i = \frac{\partial M}{\partial x_i}$ , meaning it is the marginal mark of sustainability of the financing portfolio;

- Since, it is obviously that for the given  $t_i$ ,  $dB = \sum_{i=1}^6 (dx_i \cdot t_i)$ , it results that a variation of the mark of sustainability of the financing portfolio, dPS will be written as:

- $dM = \sum_{i=1}^6 (m_i \cdot \mu_i \cdot dx_i)$  ;

- as  $m_i \cdot \mu_i = \lambda \cdot t_i$ , we obtain:  $dM = \sum_{i=1}^6 (m_i \cdot \mu_i \cdot dx_i) = \lambda \cdot \sum_{i=1}^6 (dx_i \cdot t_i) = \lambda \cdot dB$ ,

- hence the significance of  $\lambda$ :

$$\lambda = \frac{dM}{dB} ;$$

▪ *Optimal solution of the model:*

- It is given by the tangency point between the hyper-surface of the budget (a concave hyper-surface) and the hyper-surface of the sustainable financing portfolio (a convex hyper-surface);

- The system of equations that leads to the optimal solution is:

$$\begin{cases} dM = 0 \\ B = \sum_{i=1}^6 x_i \cdot t_i \end{cases}, \quad (1)$$

which is:

$$\begin{cases} \sum_{i=1}^6 m_i \cdot \mu_i \cdot dx_i = 0 \\ B = \sum_{i=1}^6 x_i \cdot t_i \end{cases}, \quad (2)$$

if we differentiate completely the second equation (B is given therefore it can be assimilated to a constant), we obtain:

$$\sum_{i=1}^6 (t_i \cdot dx_i) = 0, \quad (3)$$

hence:

$$\frac{dx_j}{dx_i} = -\frac{p_i}{p_j} \text{ for } (\forall) i, j \in \{1,6\}, \text{ cu } i \neq j \quad (4)$$

On the other hand, from the equation of the hyper-surface of indifference it results:

$$\frac{dx_j}{dx_i} = -\frac{m_i \cdot \mu_i}{m_j \cdot \mu_j}, \text{ for } (\forall) i, j \in \{1,6\}, \text{ cu } i \neq j. \quad (5)$$

Combining the two results (actually eliminating between the two results the expression  $\frac{dx_j}{dx_i}$ ),

we obtain the mathematical condition of the sustainable financing portfolio which achieves the optimal decision under the given budgetary conditions:

$$\frac{m_i \cdot \mu_i}{m_j \cdot \mu_j} = \frac{t_i}{t_j}, \quad (6)$$

hence:

$$\frac{\mu_i}{\mu_j} = \frac{\frac{t_i}{m_j}}{\frac{t_j}{m_i}} = \frac{\tilde{t}_{i/j}}{\tilde{m}_{i/j}}, \quad (7)$$

with the following notations:

$\tilde{t}_{i/j}$ : relative cost of financing through sustainable sources of financing „i”, and „j”, respectively;

$\tilde{m}_{i/j}$ : relative mark of sustainability of the sustainable sources of financing „i”, and „j”, respectively.

Therefore, will we obtain a sustainable financing portfolio (optimal in terms of the budget allocated for the input costs of the sustainable financing sources within the financing portfolio) when the following mathematical condition will be accomplished for all the specific sustainable financing sources: *the ratio of the marginal mark of sustainability of the financing portfolio to any*

two sustainable financing sources is equal with the ratio of the relative price of opportunity to the relative mark of sustainability of the two sustainable financing sources.

If we note  $m_i \cdot \mu_i = \bar{\mu}_i$ , where  $\bar{\mu}_i$ , which we call adjusted marginal mark of sustainability, represents the marginal mark of sustainability of the sustainable financing portfolio related to the sustainable financing source „i”, corrected by multiplication with the mark of sustainability of the sustainable financing source „i”, than we can make the following statements:

a. The ratio of the two adjusted marginal marks of sustainability of the financing portfolio (marginal marks of sustainability determined in relation to two any sustainable financing sources) is the very marginal rate of substitution between the two sustainable financing sources, so that the mark of sustainability of the sustainable financing portfolio doesn't change (in other words, so that the decision of formation of the sustainable financing portfolio remains on the hyperspace of sustainability)

b. Although the marks of sustainability afferent to each sustainable financing source were considered to be constant, they can change due to the modification of the financial structure of the market; the model can therefore be complicated further, particularly for the cases of prognosis, considering that the marks of sustainability of the sustainable financing sources are, in turn, variable. The same reasoning can be done for the purchasing costs of the sustainable financing sources, susceptible to join the formation of the sustainable financing portfolio.

### 3. Qualitative analysis for a portfolio of dimension 3

To enable us observing the variable character of the budget, of the input price of the sustainable financing sources within the sustainable financing portfolio, and of the mark of sustainability of the sustainable financing sources, we will make an analysis for two given financing sources, „i”, and „j”, having the purchasing prices „ $t_i$ ”, and „ $t_j$ ”, the marks of sustainability „ $m_i$ ”, and „ $m_j$ ” and the total budget B.

#### 1. Variation of the budget (B) allocated for the construction of the sustainable financing portfolio

We will suppose that budget B is variable and the purchasing prices of the sustainable financing sources and of the marks of sustainability of these financing sources remain constant

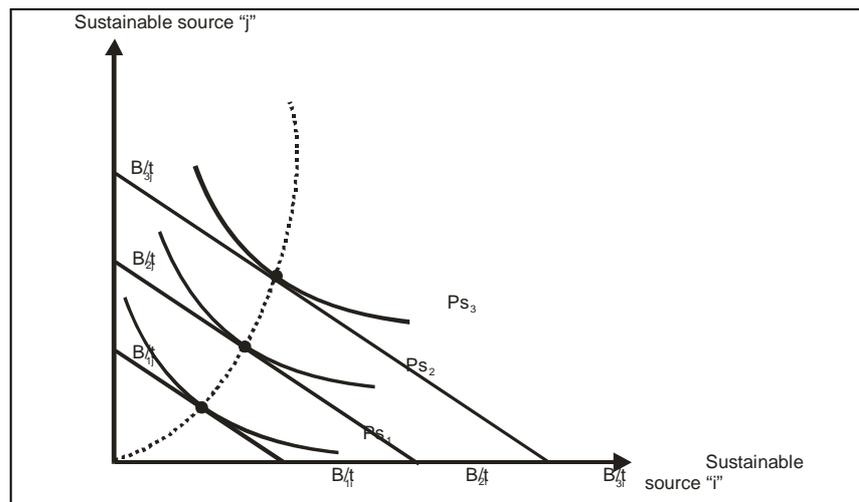
The equation of the initial budget will be:  $B = x_i \cdot t_i + x_j \cdot t_j$ , hence:  $x_j = -\frac{t_i}{t_j} \cdot x_i + \frac{B}{t_j}$ . As  $t_i$  and  $t_j$

are constant, the graphic representation of the budget will be a straight line with negative slope (with the size  $t_i/t_j$ ) and with the free term  $B/t_j$ .

The curve of indifference of the mark of sustainability of the sustainable financing portfolio will be decreasing and convex.

The optimum of the sustainable financing portfolio will be obtained in all points of tangency between the straight line of the variable budget and the different curves of indifference (parallel between them - as it can be easily demonstrated, two curves of indifference can never intersect. As we are in the Euclidian space, it results that any two curves of indifference are parallel between them). Joining all these points of optimum we will obtain the path of the sustainable financing portfolio for different values of the budget allocated for the construction of the sustainable financing portfolio, as shown in Figure 1.

**Figure 1. Path of the sustainable financing portfolio for a variable budget**

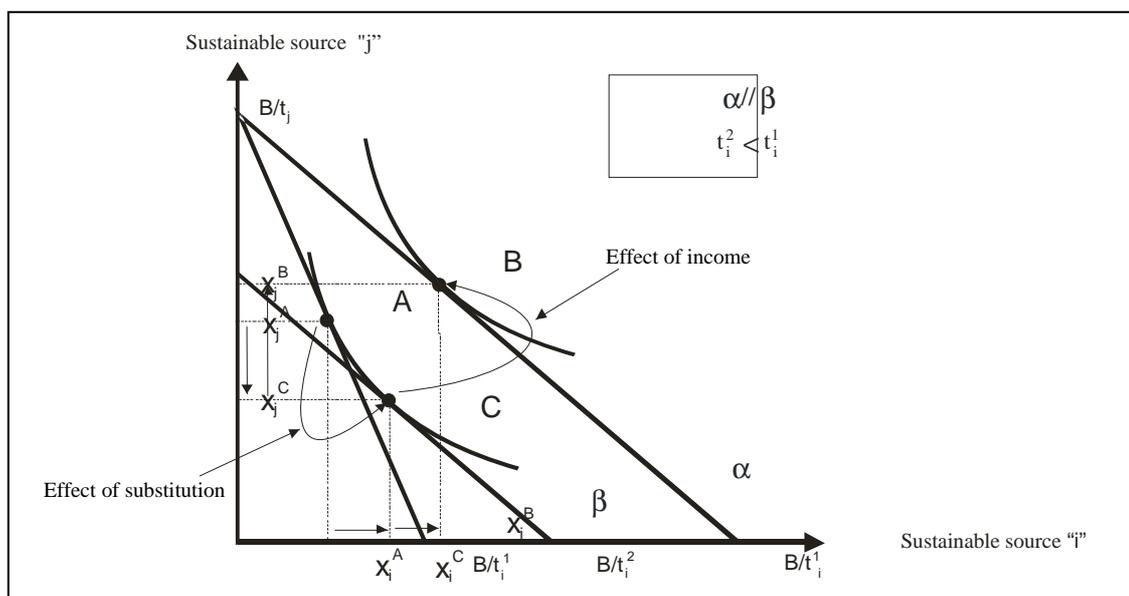


*II. Variation of the purchasing price (t) of the sustainable financing sources*

If we consider as given the size of the budget and the level of the marks of sustainability of the sustainable financing sources and if we consider that we have variations of the purchasing price of the sustainable financing sources that will form the sustainable financing portfolio, then we obtain the two known effects, the effect of income and the effect of substitution. To simplify the graphic representation of these effects, we will suppose (without affecting the general character of the demonstration) that the purchasing price of the sustainable financing source „j” remains constant (that is,  $t_j = \text{constant}$ ) and that only the purchasing price of the other sustainable financing source „i”,  $t_i$  varies (for instance, we will suppose that this cost decreases).

Taking into account the equation of the budget for the construction of the sustainable financing portfolio,  $x_j = -\frac{t_i}{t_j} \cdot x_i + \frac{B}{t_j}$ , it results that for a constant B and for a constant  $t_j$ , the free term of the straight line representing the budget will remain fixed. What changes is the slope of the straight line representing the budget (i.e.  $t_i/t_j$  ratio). In order to maintain the slope of the initial budget, a line of budget is plotted parallel with the initial line of budget (this signifies the return to the relative initial purchasing price of the two sustainable financing sources) and tangent to the initial curve of indifference. This enables us to identify the two remarkable effects of the variation of the purchasing price of the sustainable financing source „i”, namely the effect of substitution and the effect of income (Figure 2).

**Figure 2. Effect of income and effect of substitution for the decrease of the purchasing price for the financing source „i”**



*III. Variation of the mark of sustainability (m) of the sustainable financing sources*

If so far we had changes in the budget allocates for the construction of the sustainable financing portfolio (either by the direct variation of the size of the budget, or by the variation of its slope caused by the variation of the purchasing price of the sustainable financing sources), this time we will have changes of the curve of indifference

Let us resume the equation that describes the curve of indifference of the two sustainable

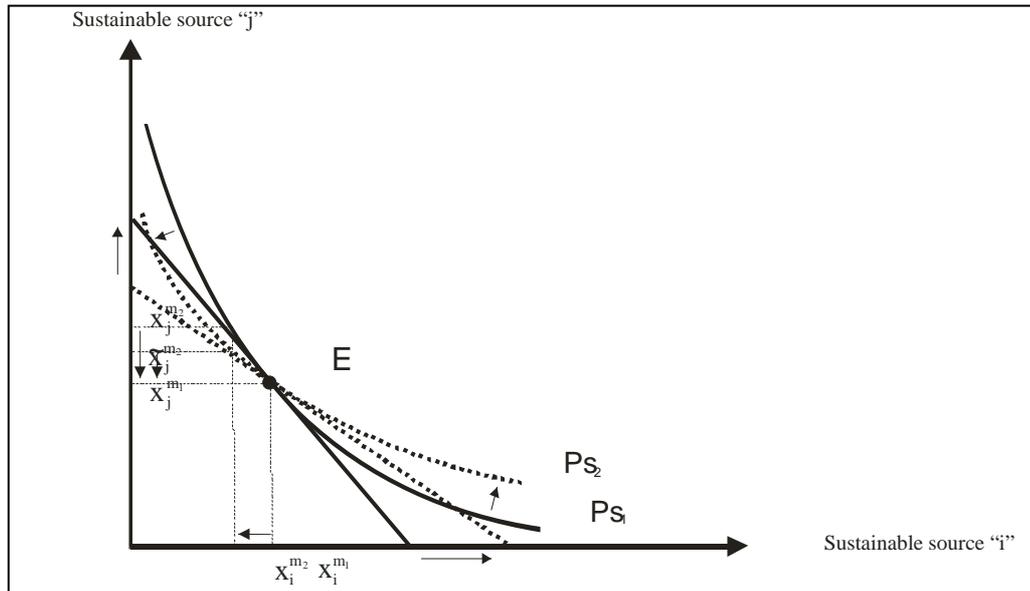
financing sources, „i” and „j”:  $\frac{\mu_i}{\mu_j} = \frac{t_j}{m_i} = \frac{\tilde{t}_{i/j}}{m_j}$ . If we suppose that the relative mark of sustainability

of the two sustainable financing sources decreases, that is  $m_i^2 < m_i^1$ , and  $m_j^2 \geq m_j^1$ , it results then that the marginal rate of substitution between the two sustainable financing sources decreases. This means that the same size of decrease of the “amount” of the sustainable source „i” will need a smaller increment (than at the initial moment) of the increase of the “amount” of the sustainable source „j” so that the mark of sustainability of the sustainable financing portfolio is preserved.

Figure 3 shows this situation.

It can be noticed that the variation of the relative mark of sustainability of the sustainable financing sources „i” and „j” is equivalent to the simultaneous variation of the purchasing price of these two financing sources. This result is very important because it allows a neutral behaviour of the decision maker interested to construct a sustainable financing portfolio: if the evaluation of the marks of sustainability changes, he/she can counteract this by negotiating an adequate variation of the purchasing price of the two sustainable financing sources (we believe that, would this conclusion be developed further up to the final consequences, we might reach a result of neutrality absolutely similar to that obtained by Miller-Modigliani (laureates of the Nobel prize for economy) and, very interesting, also concerning financing designs, but on a higher paradigm than the one used by the two, namely on the paradigm of sustainability (they considered the paradigm of optimality)).

**Figure 3. Effect of the variation of the relative mark of sustainability of the sustainable financing sources „i”, and „j”**



#### 4. Conclusions

Regarding the analysis of empirical financing sources, the study highlights some conclusions that may be important for future developments:

- the best point of portfolio sustainable financing is given by the tangency point of indifference hypersurface and budget hypersurface;
- variation of the purchasing price of the sustainable financing sources generates the two known effects (substitution, ie income);
- structure of sustainable financing portfolio can be optimized by the classical optimality criteria (eg, as done in the study, using a Lagrange function);
- indifference hypersurface of sustainable financing portfolio is convex and decreasing in relation to all independent variables;
- budget variations of the decision maker describe the trajectory of sustainable financing portfolio.

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**THE ANALYSIS OF THE CONTRIBUTION OF THE INCOME TAX IN FORMING  
BUDGETARY REVENUES AND THE IMPLICATIONS FOR ECONOMIC OPERATORS  
IN ROMANIA**

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**Abstract:** *The need to ensure the goals of public expenditure requires continuous availability of resources in a volume as large as possible. This is an important objective of the financial policies of the state, leading to an action of interventionism in the economy through the tax system. Thus, economic policy decisions are closely linked to the tools provided by the tax system, allowing a joint action to achieve the desired effects. In the category of instruments with direct impact on the economic operators' activities and the revenues collected for the state budget are the income taxes. In this article, is made an analysis of the revenue collected through the income tax and the correlations made between the number of active traders, GDP, income determined by the income tax, the amount of social security, employment, unemployment and the level of the average nominal monthly salary in Romania.*

**Keywords:** income tax, budget revenues, economic operators

**JEL classification:** E62; H21

### **1. Characteristics of the process of forming budget revenues from direct taxation in Romania and EU**

The necessity to acquire important resources determines a tendency of the state to try to get bigger revenues. From where? Obviously, from the collection of taxes, fees, contributions and other amounts owed to the general government. The coercive nature determines a certain tendency of taxpayers to try to avoid enforcement. In this context, determination of optimal taxation seems to be the key to a harmonization of the state's interests with those of the taxpayers. What is its level? The answer is very difficult, each state is trying to provide both functionality of the tax system as well as a higher level of resources. Direct taxes are a component of the tax system resulting in the mobilization of a substantial amount of budgetary resources but it also allows for state involvement in achieving effects of an economic nature. Direct taxation is an area where we can see a process of differentiation in the EU Member States, focusing particularly on eliminating double taxation and preventing tax evasion. Thus, there are major discrepancies both at the level of the resources generated by direct taxes (29,8% in Denmark, 6,1% in Slovakia in 2007, in Romania, 3,62%) and in rates or in tax bases. In 2007 in the EU27, the share of tax in GDP was 3,5%, registering a 0,2% increase over the previous year. In the same period, the highest income tax to GDP ratio was 6,9% in Cyprus, where the tax rate is 10% and at the opposite end stood Germany with 1,4%, with 0,5

percentage points higher than in 2004 and 0,8% more than in 2001 and 2002, when the corporate tax share of GDP was 0,6% , the legal tax rate being 38,7%.

Furthermore, in our country there is a transfer of tax burden in the area of indirect taxation. Thus, in the year 2008, tax revenue came as a percentage of about 64% from indirect taxes and 36% from direct taxes and in 2009, about 66% and respectively 34%. At EU level, there is a rapprochement between the ratio of the main categories of income. Also, another fundamental aspect worth mentioning is the level of taxation. It is known that our country registers a low degree of taxation compared with many EU countries, but this does not reflect positively on revenue collected. Despite this reality, the Romanian taxpayers have experienced aggressive taxation, because taxation in Romania, although comparable with EU countries can not be assessed without taking into account the fact that the GDP per resident is much lower compared to that achieved in other countries of the EU. Experience has shown that, at a pressure level approximately equal to compulsory levies, it is much easier bearable when the GDP per resident is higher than the country where its level is lower.

Using the flat tax is another aspect that differentiates the direct taxation system in our country, compared with progressive tax schemes used in many EU countries. In our country is used the 16% rate, while average tax rates in the EU is about 25%. Large differences are recorded also for personal income tax, Romania being situated between Serbia and the most developed EU countries, which otherwise apply progressive tax.

Most EU Member States have focused mostly on reducing the tax rates for businesses. Thus, in the interval 1995-2009, the average tax rate fell by 11,8%, the area of deductions and exemptions being restricted and choosing the broadening of the tax base for the companies by reducing incentives for depreciation and deductions. An analysis of taxation in the EU shows that structural differences manifest themselves in the revenue, expense, deductions, incentives, methods to combat evasion, with direct implications on the types of taxpayers. At the same time, a transferring of the tax burden on taxpayers with high income and significant consumption can be noted. The peripheral countries in geographic terms (except the north) tend to charge a lower tax level: Ireland, Spain, Portugal, Cyprus, Malta, Great Britain, but also Romania, Bulgaria, Lithuania have a low share of GDP compulsory levies, while the 'continental' countries (France, Germany, Denmark, Austria) far exceed the EU27 average.

## **2. The role of income tax in shaping budgetary revenues**

Applying a differential tax treatment reported to the form of ownership with direct implications for fair competition between operators, has required the providing of a coherent framework for taxation by income tax legislation. The changes made by the Romanian economy have been passed to the tax system, which has undergone repeated legislative changes. The income tax has not taken exception to these changes, such changes occurring in both tax rates and tax bases or the persons that are exempt from income tax. In recent years, the option was to reduce the tax rate, in the hope that the level of 16% will increase the tax base by developing existing businesses, by attracting foreign investors, etc..

The necessity of ensuring a deficit of the General Consolidated Budget to a level that allows the requirements for convergence, the supporting of the harmonization process, of the providing of elements of tax competitiveness and of the reducing of the underground economy, led the coordinates of fiscal policy in our country. With the use of fiscal relaxation measures they wanted the ease of the business environment, the stimulation of private initiative, the encouraging of formalization of the hidden economy, the stimulating of the economic growth by expanding the tax base. From the data presented in Table. 1 results that the share of tax revenue in total revenue has fluctuated from year to year. Thus, after 2005 there was an increase of about 2 percentage points per year until 2008, when the first elements of the crisis appeared, there is a decrease of tax revenues in total revenues, simultaneously to the total income.

**Table no. 1 The share of income tax in total revenues, tax revenues and direct taxes in Romania between 1995-2009**

nul	Inc ome tax mil. lei	Tot al revenue mil. lei	Inco me tax share of total revenue (%)	Tax revenue	Inco me tax share of fiscal revenue (%)	Dire ct tax – mil. lei	Dire ct taxes share of total revenue (%)	GD P	Dir ect tax share of GDP
995	279, 13	1.28 8,83	21,6 6	1.24 5,45	22,4 1	634, 06	44,0 2	7.2 13,6	8,7 8
996	351, 73	1.83 7,28	19,1 4	1.75 2,30	20,0 7	853, 26	41,2 2	10. 892,0	7,8 3
997	1.06 3,89	4.38 3,45	24,2 7	4.00 5,10	26,5 6	2.05 1,67	51,8 5	25. 292,6	8,1 1
998	1.08 4,56	6.72 1,55	16,1 4	6.06 7,79	17,8 7	2.27 1,42	47,7 5	37. 379,8	6,0 7
999	1.66 4,56	9.32 3,98	17,8 5	8.50 1,90	19,5 8	2.65 6,08	62,6 7	54. 573,0	4,8 6
000	1.99 2,70	12.0 34,20	16,5 6	11.4 39,45	17,4 2	3.14 7,25	63,3 2	80. 377,3	3,9 2
001	2.19 9,10	14.8 20,90	14,8 4	13.7 27,71	16,0 2	4.11 4,63	53,4 5	116 .768,7	3,5 2
002	2.99 7,90	17.9 20,60	16,7 3	16.7 75,24	17,8 7	4.18 5,12	71,6 3	152 .017,0	2,7 5
003	4.36 8,10	25.2 44,70	17,3 0	23.6 02,30	18,5 1	5.01 9,30	87,0 3	197 .427,6	2,5 4
004	6.44 1,60	32.1 95,40	20,0 1	30.2 52,70	21,2 9	7.58 5,40	84,9 2	247 .368,0	3,0 7
005	6.49 5,30	36.5 99,50	17,7 5	34.5 31,20	18,8 1	8.96 2,50	72,4 7	288 .954,6	3,1 0
006	7.90 5,47	40.6 98,11	19,4 2	38.2 31,15	20,6 8	11.8 49,30	66,7 2	344 .650,6	3,4 3
007	10.5 28,80	48.9 84,60	21,4 9	45.3 25,10	25,1 1	15.0 73,50	69,8 5	416 006,8	3,6 2
008	130 39,9	611 51	21,3 2	55.1 33,6	19,3 7	19.0 10,63	67,4 4	514 700	3,6 9
009	106 17,1	564 34,8	18,8 1	12.4 54,5	22,4 1	16.7 96,70	70,2 3	498 007,5	3,37

Source: National Institute of Statistics, Ministry of Finance, own calculations

Also, it is apparent that fluctuations of the share of the income tax in total revenues is due to the overtaking of the growth of the income tax by the growth of total revenues collected for the state budget. On average, on the studied interval, this proportion is 18%. Although since 01.01.2005 the profit tax rate was reduced by 9% (from 25% to 16%) the revenues collected to the state budget under this head, have increased by 53.7 million lei, while the total revenues increased by 4404.1 million lei, which led to the shrinking of the share of profit tax in total revenue by 2.26% over the previous year, when there was registered a level of 20.01%. Another conclusion that emerges from analyzing the data in table. 1 is that about 20% of tax revenue is earned on the amount of the profit tax collected, the difference up to 100% being based on the other categories of tax revenue.

**Table no. 2 The modification of the tax on profits from one year to another, within the achievements in the state budget in Romania between 1995-2009**

Change	Income tax		Direct taxes	
	Relative [%]	Absolute [Δ] – mil. lei	Relative [%]	Absolute [Δ] – mil. lei

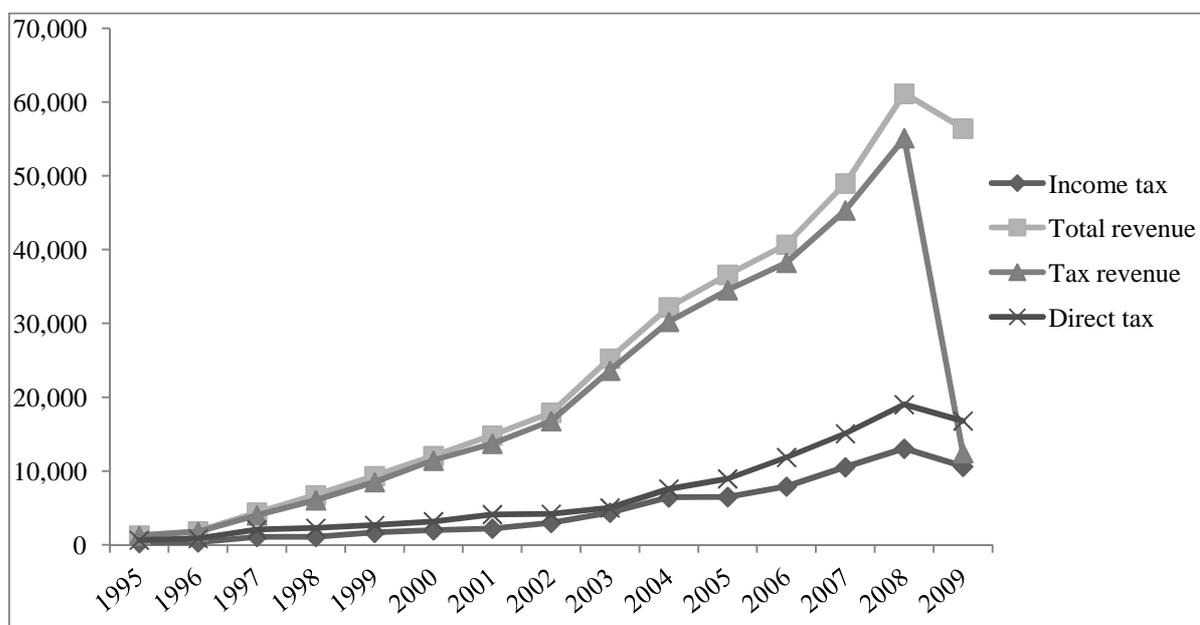
1996/19 95	26,01	72,60	34,57	219,2
1997/19 96	202,47	712,16	140,45	1.198,41
1998/19 97	1,94	20,67	10,71	219,75
1999/19 98	53,48	580,00	16,93	384,66
2000/19 99	19,71	328,14	18,49	491,17
2001/20 00	10,36	206,40	30,74	967,38
2002 /2001	36,32	798,80	1,71	70,49
2003/20 02	45,71	1.370,20	19,93	834,18
2004 /2003	47,47	2.073,50	51,12	2.566,1
2005/20 04	0,83	53,70	18,15	1.377,1
2006/20 05	21,71	1.410,17	32,21	2.886,8
2007/20 06	33,18	2.623,33	27,21	3.224,2
2008/20 07	21,76	2.291,30	26,12	3.937,13
2009/20 08	-18,57	-2422,8	-16,28	-3023,5

Source: Own calculations

In the analyzed time-period, the evolution of the income tax has registered both trends of growth and mitigation. The first trend can be seen in the segment 1995-1997, when income tax revenues rose from 279.13 million to 1063.89 million; the second in the period 1998-2004 when it saw an increase of 3,86 times which the absolute amount represented an increase of 4777.04 million (in 1997-1998 the increase was insignificant, namely 1.94%, with 20.67 million), the third period, represented by the years 2005-2008, recorded an increase of 6326.13 million, respectively 97.39%; from 2009, there was a decrease in tax revenues caused by both in relative and in absolute values.

Chart based on previous data, the dynamics of direct tax and income tax in the period 1995-2009 is as follows:

**Figure 1: The evolution of income tax, total revenue, tax revenue and income tax collected to the state budget of Romania in the period 1995-2009**



### 3. The effects of direct taxation on economic operators

At the level of economic operators, the implications of direct taxation target: the number and pattern of economic, legal structure, territorial spread and their size and economic and financial performance (turnover, gross investment, value added). The analysis undertaken in this regard in Romania, made in the timeline 1995 - 2008, attempts to assess quantitative and qualitative effects arising from direct taxation on various macro and microeconomic measures.

The effects of direct taxes on the number of active economic agents in Romania, as well as their legal structure, in the period 1995 - 2009 are generated by practicing charging exemption or exemptions, partial or total taxable profits for a certain period of time and for certain geographical areas (eg, tax exemptions on certain times and for certain geographical areas considered "disadvantaged"). If on a short term, these measures include an increase of the degree of utilization of resources and the ease of social tensions by reducing unemployment, with direct impact on consumption, on a medium term these commitments will positively influence the public budget's tax revenues by extending taxable materials and on a long term, they will be otherwise, leading to a "false" increase in in the number of companies and thus an escalation of the phenomenon of tax evasion.

Based on these issues, most entrepreneurs are moving towards the establishment of limited companies, which fiscally gives them, on one hand a lower constraint and on the other hand, greater leeway in the taxable income through deductions.

To highlight an interdependence between the number of active companies and a number of economic and social variables, we will use a multifactorial regression model.

The dataset includes 13 observations and seven variables (Table no. 3):

- the dependent variable that considers the mobility of the flows of labor;

- the independent variables that considers: GDP per resident, the income tax, the net average monthly nominal earnings, the number of unemployed residents, the employed population.

The data to be analyzed is as follows:

**Table no 3 The evolution of the dependent variable and of the independent ones**

Year	Active companies	GDP	Income taxes	Contributions (employee + employer)	Employees	Unemployed	Nominal earnings
1	304.359	7.21	279,13	588,5	6160	998	21

995		3,6					
1	312.067	10,8	351,73	818,6	5939	658	32
996		92,0					
1	316.751	25,2	1.063,89	1.767,1	5597	881	63
997		92,6					
1	318.376	37,3	1.084,56	2.994,0	5369	1.025	104
998		79,8					
1	318.736	54,5	1.664,56	4.731,7	4761	1.130	152
999		73,0					
2	308.064	80,3	1.992,70	8.655,7	4623	1.007	214
000		77,3					
2	311.260	116,	2.199,10	12.510,6	4619	827	302
001		768,7					
2	315.105	152,	2.997,90	16.186,7	4568	761	379
002		017,0					
2	349.061	197,	4.368,10	18.614,7	4591	659	484
003		427,6					
2	394.519	247,	6.441,60	22.457,4	4469	558	599
004		368,0					
2	433.030	288,	6.495,30	26.791,7	4559	523	746
005		954,6					
2	461.812	344,	7.905,47	33.236,8	4667	460	866
006		650,6					
2	499.857	4160,	10.528,80	39.613,6	4885	387	1042
007		06,8					
2	534525	5147,	13039,9	31448	5046	403	1309
008		00					
2	519441	4980,	10617,1	33066,6	4774	709	1361
009		07,5					

Source: National Statistics Institute

The econometric description of the link between the seven variables: - the number of companies active in Romania for each observation in part, - the value of GDP - income tax revenue, - the amount of contributions, - the number of employees, - the number of unemployed, - the level of the average net nominal monthly earnings, can be made with the following models:

➤ unifactorial model:  $Y_i = f(x_{1i}) + \varepsilon_1$  explains changes in the number of active companies taking into account the registered GDP;

➤ unifactorial model:  $Y_i = f(x_{2i}) + \varepsilon_2$  explains changes in the number of active companies taking into account the income tax;

➤ unifactorial model:  $Y_i = f(x_{3i}) + \varepsilon_3$  explains changes in the number of active companies taking into account the contributions;

➤ unifactorial model:  $Y_i = f(x_{4i}) + \varepsilon_4$  explains changes in the number of active companies taking into account the number of employees;

➤ unifactorial model:  $Y_i = f(x_{5i}) + \varepsilon_5$  explains changes in the number of active companies taking into account the unemployment;

➤ unifactorial model:  $Y_i = f(x_{6i}) + \varepsilon_6$  explains changes in the number of active companies on the net average monthly nominal earnings.

➤ multifactorial model:  $Y_i = \square(x_{1i}, x_{2i}, x_{3i}, x_{4i}, x_{5i}, x_{6i}) + \varepsilon$  explains the variation of the number of active companies in Romania taking into account all the factors in the analysis.

The identification of the functions of the first six regression models is performed using graphical representation of the variable  $y$  depending on the other four factor variables:  $x_1, x_2, x_3, x_4, x_5$ , respectively  $x_6$ .

Because the graphic representation shows that the correlation between  $y$  and  $x_1$ , respectively  $y$  and  $x_2$ ,  $y$  and  $x_3$ ,  $y$  and  $x_4$ ,  $y$  and  $x_5$ ,  $y$  and  $x_6$  can be approximated with a straight, which results that  $y$  correlated with the six factors will present a linear model.

Econometric multifactorial model regarding the dependence of the number of active companies of the six independent variables:

$$Y_i = a_1x_1 + a_2x_2 + a_3x_3 + a_4x_4 + a_5x_5 + a_6x_6 + \varepsilon \quad [1]$$

where:

$a_1, a_2, a_3, a_4, a_5, a_6$ - model parameters;

$\varepsilon$  - random variable.

The F test that was used in the analysis of the regression is a global test of significance of all coefficients (except for the free time, if it occurs) Following the testing of the hypotheses have been obtained the results shown in Table no. 4.

**Table no. 4 The analysis based on ANOVA**

ANOVA					
	df	SS	MS	F	Significance F
Regress ion	6,00	1711558798299,70	285259799716,61	208 6,42	0,0000000011
Residua l	7,00	957050639,29	136721519,89		
Total	13,00	1712515848939,00			

From the table above and from the study of the values that  $F_{tabelar}$  can have, it results that  $F_{calculat} > F_{tabelar}$  (the factor of significance  $\alpha = 0,05$ ) which leads to the conclusion in favor of rejecting the null hypothesis and in favor of the alternative model and therefore the model is appropriate to make a prognosis.

The solving and the analysis of the model was performed using regression calculation procedure of the EXCEL application, leading to the display of the following results, presented in Table no. 5.

**Table no.5 Regression procedure results**

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
X Variable 1	0,16	1,02	0,15	0,87	-2,26	2,58
X Variable 2	3,23	9,59	0,34	0,73	-19,44	25,91
X Variable 3	-10,32	4,95	-2,08	0,07	-22,05	1,39
X Variable 4	42,70	3,62	11,77	0,00	34,13	51,28
X Variable 5	53,08	19,99	2,66	0,01	5,80	100,37
X Variable 6	565,18	318,42	1,77	0,11	-187,77	1.318,13
<b>Regression Statistics</b>						
Multiple R						0,9997
R Square						0,9994
Adjusted R Square						0,8561
Standard Error						11.692,7977
Error						11.692,7977
Observations						13,00

From the table shown results that theoretical values are as follows:  $Y_i = 0,16x_1 + 3,32x_2 - 10,32x_3 + 42,70x_4 + 53,08x_5 + 565,18x_6$ , and the standard error of estimate (the estimate of the standard deviation error  $\varepsilon$ ) is 11692,7977.

According to the result in table no. 6 the multiple correlation coefficient is 0,9997 resulting a strong link between the number of active companies in Romania and the dependent variables: GDP,

the size of tax, contribution levels, number of employees, number of unemployed, the monthly average net nominal earnings.

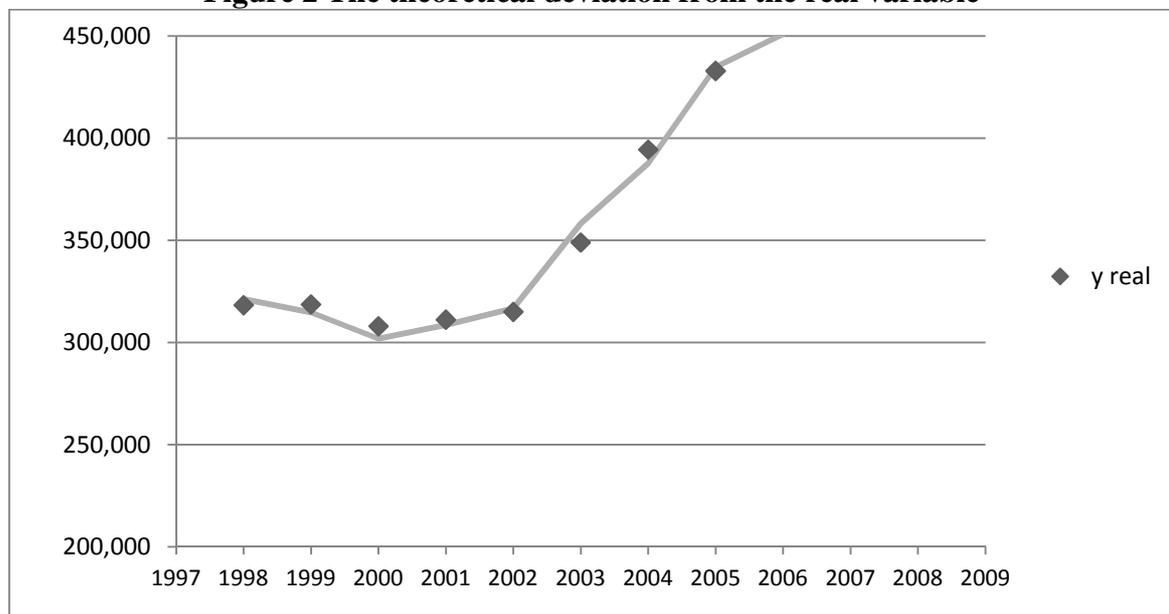
The estimated values of the variable  $Y_i$  and of the residual variable, based on the application EXCEL are presented in Table no. 6.

**Table no. 6 The theoretical value of the number of active companies and the deviation from actual value**

<i>Observatio n</i>	<i>Predicted Y</i>	<i>Residuals</i>	<i>Standard Residuals</i>
1	323.993,4008	-19.634,4008	-2,2883
2	301.159,6592	10907,3408	1,2712
3	310.790,2185	5.960,7815	0,6947
4	321.217,8601	-2.841,8601	-0,3312
5	314.683,3205	4.052,6795	0,4723
6	301.820,1206	6.243,8794	0,7277
7	308.532,0607	2.727,9393	0,3179
8	316.654,0046	-1.549,0046	-0,1805
9	358.224,8470	-9.163,8470	-1,0680
10	387.702,2190	6.816,7810	0,7945
11	434.861,6000	-1.831,6000	-0,2135
12	450.902,9062	10.909,0938	1,2714
13	509.391,4002	-9.534,4002	-1,1112

Graphically, the deviation of theoretical values from the real values is represented as follows:

**Figure 2 The theoretical deviation from the real variable**



#### 4. Conclusions

Given that since 2008 the world economy faced its biggest economic and financial crisis, fiscal policy measures are proving to be an important tool for economic recovery. In our country, the effects expected from the application of new legislative provisions did not register. Thus, the introduction of the minimum tax has created major difficulties for many businesses, because the determination was carried out by payment obligation with regard to a tax base made in the

economically good times. In this context, being affected by the crisis, they were forced to take drastic measures: waiver of employees with direct implications on the number of unemployed, partial or complete restriction of activity, crossing in the gray area of economy or transferring business neighboring countries, where the level of taxation for business is much smaller (in Bulgaria, the tax rate is 10%). According to the data from the ONRC, there is a significant increase in the removed companies, respectively by 29.28% more in 2010 than in 2009 and with 43.62% in 2010 compared to 2008. At the same time, the number of registrations has increased at a rate much lower: with 6.25% in 2009 compared to 2008 and with 12.92% in 2010 compared to 2008. Obviously, there may be voices that support the fact that a large number of removed companies are not carrying on an activity, being kept in a dormant state. But if we consider the large number of unemployed persons (at a rate of 4.4% in 2008, it reached 7.8% in 2009) and the dramatic reduction in GDP in 2009, we can foresee the real impact of this tax on economic operators and the whole economy. The unemployed have thickened the ranks of those that are leading the social spending of the state, which was forced to take other measures. Here, then, it is proven once again (was it really need for this painful example for us to find out something long experienced and proven?) that the use of taxes only for the procurement of resources without a correlation with the economic role, especially in difficult times, has no beneficial effect, quite the contrary. Why do other countries like Hungary, Austria, Lithuania and others have acted to reduce tax rates to profits? The answer is obvious and requires no further comments. The use of taxes as economic leverage can lead to economic recovery, with positive effects on revenues and thus the entire population.

A stable, flexible, transparent and predictable fiscal policy, can stimulate entrepreneurship and can determine economic development. The rush for high budget revenues may become a target pest, while the economic recovery in the medium and long term is unsustainable. This study shows that the income tax may become an important tool in stimulating economic activity, with direct implications over unemployment, GDP, number of active traders, revenues and the entire economy.

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## EUROPEAN FUNDING – REDUCTION OF ECONOMIC DISPARITIES OR THE RICH GET RICHER?

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**Abstract:** *This paper analyzes the cohesion policy, its components, one of its main financing programmes: European Regional Development Fund and its implementation within the North Western Region of Romania. As a case study it was analyzed the implementation of this programme in the target region. It was assessed, at county level, if access to European funding has a potential to reduce economic disparities or just “rich counties got richer”. Since the process of contracting European Funds is still at the beginning several recommendations to increase absorption capacity were made at the end of this document.*

**Key words:** European funding, Structural funds, Cohesion policy, economic disparities, absorption, ERDF

**JEL classification:** F15, F36, D78, H77, O23, G32

### 1. Introduction – A short overview of the social economic cohesion at the level of the European Union

The objective of social economic cohesion was first mentioned in the founding Treaty of the European Community, the Treaty of Rome(1957): “strengthen the unity of their economies and to ensure their harmonious development by reducing the differences existing between the various regions and the backwardness of the less favoured regions”. Afterwards, in 1986, it was introduced and reinforced by the European Union together with the adoption of the European Single Act(European Commission, 1986), and later was incorporated in the EU Treaty together with the Maastricht Treaty. After the 2004 and 2007 enlargements, one of the biggest priorities of the European Union became the cohesion policy. As reported by the European Commission(2009), the European Union (EU) comprises 27 Member States forming a community and single market of 493 million citizens. However, great economic and social disparities still remain among these countries and their 271 regions. European Cohesion Policy is at the centre of the effort to improve the competitive position of the Union as a whole, and its weakest regions in particular.

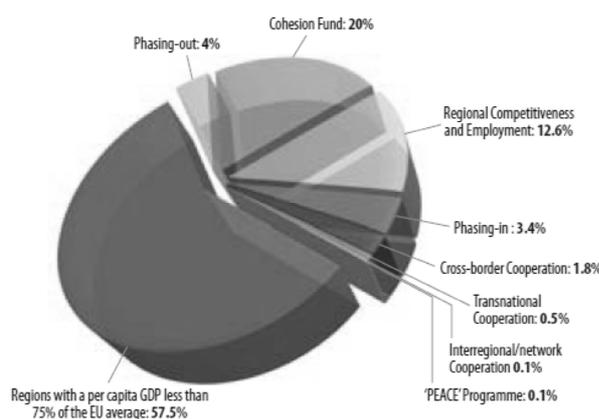
The main instruments to improve competitiveness of the “weaker” regions are considered to be the European Regional Development Fund (ERDF) and the European Social Fund (ESF), otherwise known as the Structural Funds, as well as the Cohesion Fund. Through these instruments European Commission invests in thousands of projects across all of Europe’s regions to achieve its primary task: to promote economic and social cohesion by reducing these disparities between Member States and regions (European Commission, 2009).

The budget of the Cohesion Policy €347 billion EUR for 2007–2013, represents the single largest source of financial support at EU level for investment in growth and jobs, designed to enable

*all regions* to compete effectively in the internal market. The Cohesion policy is the first European policy, ever, which surpasses as financial allocation the Agriculture Policy.

The main message of the Cohesion policy for 2007-2013 as published by European Union(2007) is: “more growth and jobs for all regions and cities of the European Union”. The „Cohesion Policy 2007-2013 National Strategic Reference Frameworks” considers that the Cohesion policy is designed to bring „concrete results, furthering economic and social cohesion and reducing gaps between development levels in the various regions.”

**Figure 1 EU Cohesion Policy(2007-2013)**



**Source: European Union(2007)**

The three main objectives of the Cohesion policy are:

- **convergence**, under which the poorest Member States and regions (GDP per inhabitant less than 75 % of the Community average) are eligible, accounting for around 82 % of the funds for 2007 to 2013;
- regional **competitiveness and employment**, accounting for around 16 % of the funds; all regions which are not covered by the convergence objective or transitional assistance are eligible for funding;
- European **territorial cooperation**, accounting for around 2.5 % of the funds available.

**Figure 2. Cohesion Policy - Objectives structural funds and instruments(2007-2013)**  
**Objectives, Structural Funds and instruments**  
 2007-2013

Objectives	Structural Funds and instruments		
Convergence	ERDF	ESF	Cohesion Fund
Regional Competitiveness and Employment	ERDF	ESF	
European Territorial Cooperation	ERDF		

**Source: European Union(2007)**

As presented by Droj(2010)b and by Cace et all(2009) in financial terms, these instruments rank first as weight in the European Union budget and they include according to Cace et all(2009): (1) European Regional Development Fund (ERDF), set by EU Council and Parliament Regulation no.1080/2006, which supports the sustainable economic development at the regional and local level

by mobilizing the local capacities and by diversifying the economic structures in areas such as research and technological development, innovation and entrepreneurship, information society, SMEs, environmental protection, energy; (2) European Social Fund (ESF), set by EU Council and Parliament Regulation no. 1081/2006, which contributes to increasing the adaptability of the labour force and of the enterprises, to increasing the access to the labour market, to unemployment prevention, to a longer active life and to the increased participation of the women and immigrants on the labour market, provides support to the social inclusion of the disadvantaged persons and curbs discrimination; (3) Cohesion Fund, set by EU Council Regulation no. 1084/2006, which finances projects for environmental protection and trans-European transportation, projects for sustainable development and projects for the improvement of the air and road traffic management, for urban transportation modernization and for multimodal transportation modernization.

As seen above, the official position of the European Union and of a large portion of the academic community (for e.g. Romer, 1986; Lucas, 1988; Grossman/Helpman, 1991; Moravcsik, 1999; Pastor, 2001; Boldrin and Canova, 2003) are considering the cohesion strategy of the European Union as a functioning solution for reducing economic and social disparities. Other specialists are doubting its efficiency and its results and especially: Boot et al (2001), Horvat and Maier (2004), Horvat (2004), Bauer (2001), Reilly (2004), Lianu (2003), Wostner (2008), Droj (2010)a, Droj (2010)b or Kemmerling and Bodenstern (2008). These specialists pointed and highlighted several issues which constitute bottlenecks for a successful EU funds absorption and for a real reduction of economic and social disparities at the European level.

In this context this paper will further analyze the main instrument of the Cohesion Policy in Romania: the European Regional Development Fund - through its key programme: the Regional Operational Programme (ROP). The paper will also analyze the status of ROP implementation and regional/county distribution of funding; will assess the contribution of the ROP to the reduction of regional disparities. Finally it will provide some considerations over the impact of the cohesion policy to the reduction of social and economic disparities between the counties part of the Romanian North Western Region.

## **2. Implementing the Cohesion Policy - European Regional Development Fund**

As described in the section above the Structural Funds and the Cohesion Fund are financial instruments of the policy of economic and social cohesion. These instruments have as main role to support the reduction of the gap between the development of different regions from the member states and promote, to this purpose, the economic and social cohesion (Droj, 2010b). The general rules for the Structural Funds and the Cohesion Fund were set by the EU Council Regulation no. 1083/2006 June 2006, which defines the general framework for the European Regional Development Fund, European Social Fund and for the Cohesion Fund (European Council, 2006).

As mentioned in a report by Economist Intelligence Unit (2007) the eight East European EU member states that joined in 2004, along with Bulgaria and Romania—the “EU10”—are set to receive a huge amount of support from the EU in 2007-2013. The eight more seasoned “new member states” will see their funding allocations almost double, and the jump in funding for Bulgaria and Romania compared to the pre-accession funds they had been receiving will be even more sizeable (Economist Intelligence Unit, 2007).

**Table 1 Total funds allocated to the EU 10 for 2007-2013**

Total funds allocated to the EU10 for 2007-2013

Country	Total assistance (billion (euro))	Per capita assistance(euro)	% of the GDP
The Czech Republic	26,686	2.627	3.5
Estonia	3,393	2.555	4.1
Hungary	25,307	2.561	3.9
Latvia	4,001	1.751	3.9
Lithuania	6,775	2.041	4.2
Poland	67,284	1.773	3.6
Slovakia	11,507	2.102	3.9
Slovenia	4,102	2.082	2.0
Bulgaria	6,674	901	4.0
<b>Romania</b>	<b>19,668</b>	<b>911</b>	<b>3.2</b>
TOTAL	175,397	1.930	3.6

**Source: Economist Intelligence Unit(2007)**

Having joined the European Union only in 2007, this is the first time that Romania has had an opportunity to benefit from the Community funds under Cohesion Policy. As an objective mentioned by the European Union(2009) the initial expectations from the Cohesion Policy is to have an overall increase in gross domestic product (GDP), with estimates of a 15% increase for the period 2007–13, and to create and safeguard approximately 200 000 jobs. For the 2007–13 period, Romania has been allocated almost €20 billion under the Convergence Objective1 and €55 million under the European Territorial Cooperation Objective. Romania has seven programmes. Three programmes will receive funding from the ERDF: the ‘Regional’ programme, the ‘Increase in Economic Competitiveness’ programme and the ‘Technical Assistance’ programme, while two programmes will be funded by the European Social Fund and will focus on human resources development and improving administrative capacity. Two infrastructure-oriented programmes, the ‘Environment’ programme and the ‘Transport’ programme, will be funded by both the ERDF and the Cohesion Fund. All regions in Romania are eligible under the Convergence(European Union, 2009).

**Figure 3. Funds for Romania in billion EUR 2007-2013**

FUNDS FOR ROMANIA IN BILLION € 2007–13				
Objective	Fund	EU	National Public	Total
Convergence	CF	6.5	1.8	7.8
	ERDF	9	2	11
	ESF	3.7	0.7	4.4
<b>Total Convergence</b>		<b>19.2</b>		
Total European Territorial Cooperation*	ERDF	0.5	-	0.5
<b>TOTAL</b>		<b>19.7</b>	<b>4</b>	<b>23.7</b>

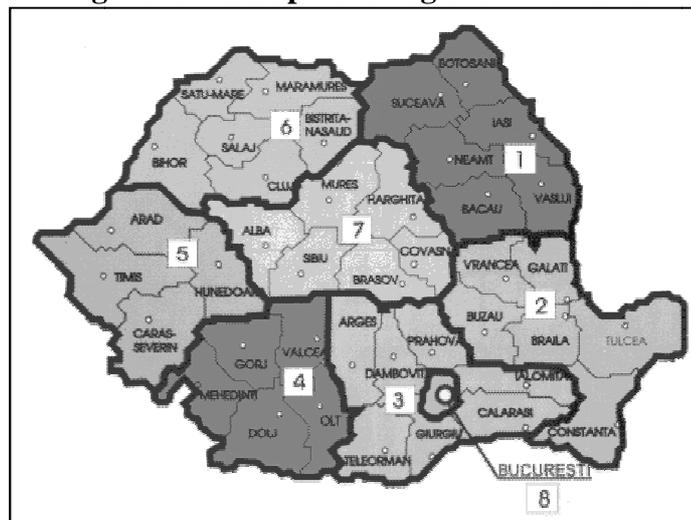
**Source: European Union(2009)**

The Regional Operational Programme 2007 - 2013 (REGIO) is one of the main Romanian operational programmes agreed with the European Union and a very important tool for implementing cohesion policy in the Romanian regions and the national strategy and the regional development policies(Droj, 2010). It is applicable to all eight development regions of Romania. The overall objective of the ROP consists of "supporting and promoting sustainable local development, both economically and socially, in the regions of Romania, by improving the conditions of infrastructure and business environment, which support economic growth". This means that the ROP's aim is to reduce economic and social development disparities between the more developed regions and the less developed ones. (Romanian Government, 2007). In order to accomplish the strategic objective of ROP, the following specific objectives have been established:

- To increase the economic and social role of urban centers, adopting a polycentric approach, in order to stimulate a more balanced development of regions
- To increase accessibility within regions and in particular the accessibility of urban centers and their connection to surrounding areas;
- To increase the quality of social infrastructure of regions;
- To increase the competitiveness of regions as business locations;
- To increase the contribution of tourism to the development of regions.

As mentioned above and presented in the figure bellow Romania has eight development regions: which contain between four to seven counties(Region 1 to 7) and the Ilfov County of the capital city of Bucharest(Region Eight).

**Figure 4. Development Regions – Romania**



**Source: Romanian Government( 2007)**

Since the Regional Operational Programme in Romania is financed within the European Regional Development Fund (ERDF) this fund supports EU regions with a GDP per capita below 75% of the European average. The total budget allocated to the ROP is approximately 4.4 billion Euros in the first 7 years after accession (2007-2013). EU funding represents approximately 84% of the ROP budget. The rest comes from national funds, public co-financing (14%) and private co-financing (2%)(Droj, 2010b). It is expected that the implementation of this programme will create better conditions for the economic and social balanced territorial development of all Romanian Regions and for urban growth poles able to spread the development.

The balanced development of all the counties regions will be achieved through an integrated approach, based on a combination of public investments in the local infrastructure, active policies to stimulate business activities and support for the valorisation of the local resources, by the following priority axes:

- Support to sustainable development of urban growth poles
- Improvement of regional and local transport infrastructure
- Improvement of social infrastructure
- Strengthening the regional and local business environment
- Sustainable development and promotion of tourism
- Technical assistance.

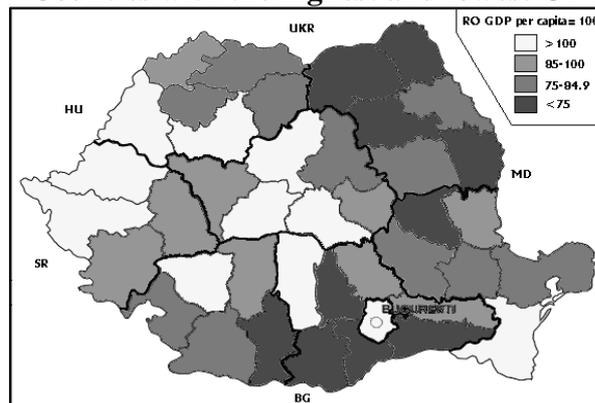
**Figure 5. Regio - Breakdown of finances by priority axis**

Priority Axis	EU Contribution	National Public Contribution	Total Public Contribution
Support to sustainable development of urban growth poles	1 117 806 529	273 365 256	1 391 171 785
Improvement of regional and local transport infrastructure	758 355 021	118 355 985	876 711 006
Improvement of social infrastructure	558 903 260	98 629 992	657 533 252
Strengthening the regional and local business environment	633 423 700	76 471 117	709 894 817
Sustainable development and promotion of tourism	558 903 264	57 862 924	616 766 188
Technical Assistance	98 629 988	32 876 662	131 506 650
<b>Total</b>	<b>3 726 021 762</b>	<b>657 561 936</b>	<b>4 383 583 698</b>

Source: European Union – 2007b

### 3. NORTH WESTERN REGION OF ROMANIA - REDUCTION OF ECONOMIC DISPARITIES OR THE RICH GET RICHER?

From this amount of 4.4 billion Euros an amount of 488.28 million Euros are allocated to the North-West Region as presented in the programming documents of the Regio Programme (Ministerul Dezvoltării Regionale și Turismului, 2007). North-West Region has a surface of 34,159 sqkm, accounting for 14.3% of the total surface of the country. It comprises six counties (NUTS 3): Bihor, Bistrita-Nasaud, Cluj, Maramures, Satu Mare and Salaj. North-West Region's network of localities comprises of 42 towns and cities and 1,802 villages, grouped in 402 communes. Out of the towns and cities, four of them have a population over 100,000 inhabitants (Cluj-Napoca – 310,194 inhabitants, Oradea – 206,223, Baia Mare – 140,937 and Satu Mare – 115,197), nine between 20-100,000 inhabitants and 29 less than 20,000 inhabitants. As observed from the below image the Cluj and Bihor counties are considered to have the biggest GDP levels, followed by Satu Mare county. The counties of Maramures, Bistrita Nasaud and Salaj Counties have the lowest level of GDP and the highest rate of unemployment.

**Figure 6 Romania - Counties with the highest and lowest GDP per capita in 2004**

Source: Ministerul Dezvoltării Regionale și Turismului, 2007

To the North-West region of Romania as described above was allocated from the Regio Programme 2007-2013 an amount of 536.41 million Euros from which directly to the usage of the region are allocated 488.28 million Euros. The allocations of funds are distributed between the five implementation axis and sub-axis of the programme (Droj, 2010b):

- Priority axis 1. Support to sustainable development of urban growth poles
- Priority axis 2. Improvement of regional and local transport infrastructure
- Priority axis 3. Improvement of social infrastructure

- 3.1 Improvement of Health Infrastructure
- 3.2 Improvement of Social Services Infrastructure
- 3.3 Improvement of Emergency Infrastructure
- 3.4 Improvement of Education Infrastructure
- Priority axis 4 Strengthening the regional and local business environment
  - 4.1. Development of sustainable business support structures
  - 4.2. Rehabilitation of unused polluted industrial sites
  - 4.3. Support the development of microenterprises
- Priority axis 5 Sustainable development and promotion of tourism
  - 5.1. Restorations and valorization of cultural heritage
  - 5.2. Creation, development, modernization of tourism infrastructure
  - 5.3. Promotion of Tourism
- Priority axis 6 Technical assistance.

Analyzing the above, and since the only Axis on which allocated funds can contribute directly to the improvement of economic competitiveness and reduction of disparities between the counties of the North Western Region the authors selected priority axis 4 and priority axis 5 for analyzing the linkages between the economic disparities of the North Western Region Counties and the real absorption level of European Funding.

The first selected priority axis 4 has the purpose of strengthening the regional competitiveness and supporting regional and local business environment. Domain of intervention 4.1 covers investments intended to develop support structures for sustainable business of local and regional importance, 4.2 covers rehabilitation of disused industrial polluted sites and their preparation for new economic activities. The Axis includes also support for microenterprise development or for the acquisition of modern equipments, IT and modernization and building of production premises: within the Domain of Intervention 4.3. This domain is open for private micro-enterprises.

The research focused on analyzing the total number and value of the contracted projects and evaluate the information in concordance with the location(counties) where the project are proposed to be implemented. The data was collected from the ADR Nord Vest website in 18.03.2011. As observed from the Table 2 below and from the Figure 10 most of the European funding were contracted by Bihor, Cluj and Satu Mare counties which have the biggest GDP in the region.

**Table 2: Total number of projects contracted in Axis 4 and Axis 5 in the Romanian North Western Region**

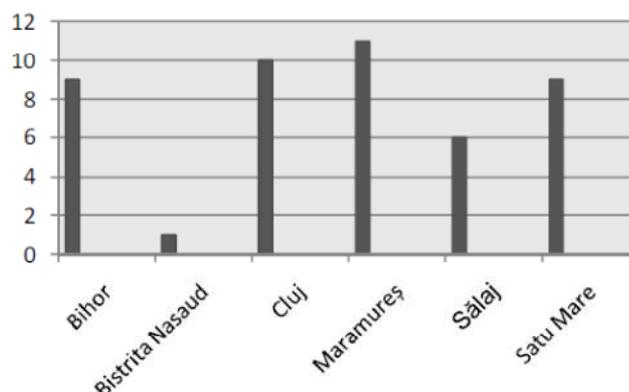
Județ	AXIS 4				AXIS 5			
	4.1		4.3		5.1		5.2	
	Contr acts	Total value (EUR)	Cont racts	Total value (EUR)	Cont racts	Total value (EUR)	Con trac ts	Total value (EUR)
Bihor	3	62.224.400	9	2.904.170	1	28.717.702	2	13.545.766
Bistrița Năsăud	0	-	1	461.814	1	1.424.891	1	20.460.770
Cluj	2	17.390.893	10	2.263.391	0	-	1	20.460.770
Maramureș	0	-	11	3.456.323	1	15.160.569	0	-
Sălaj	0	-	6	1.305.906	1	17.740.229	0	-
Satu Mare	0	-	9	3.261.803	2	23.780.152	1	24.858.089

**Source: Own calculation based on [www.nord-vest.ro](http://www.nord-vest.ro) 18.03.2011**

As observed from the above table 77% of the total funding is allocated to three counties: Bihor (41%), Cluj (20%) and Satu Mare(16%) and has been attracted by the “richest” counties. These counties also dominate regarding the number of the projects(40 projects comparing with 22 projects). The only Axis where Maramures county performed over the average is the Axis 4-DMI 4.3 which concerns the development of micro-enterprises. In this Axis, Maramures had the biggest

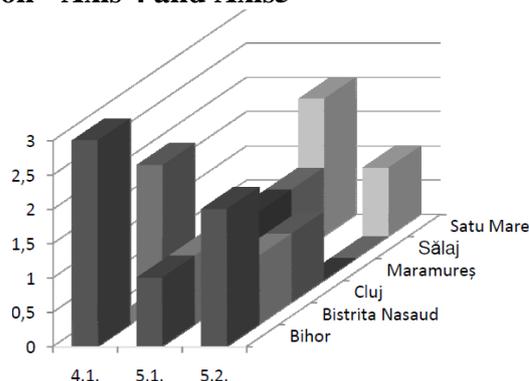
number of projects selected for contracting. Bistrita Nasaud is the lowest contracting county with only three contracted projects. This can be observed from the below presented Figure.

**Figure 8. Total number of projects contracted in Axis 4, Domain of Intervention 4.3 – micro-enterprises**



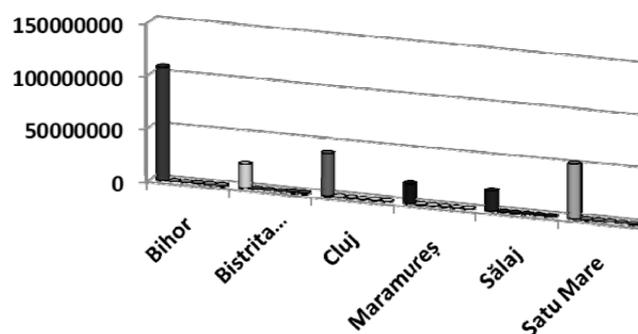
Source: Own calculation based on [www.nord-vest.ro](http://www.nord-vest.ro) 18.03.2011

**Figure 9. Total number of projects contracted in European funding North Axis 4 and Axis5 (except 4.3 – micro-enterprises) region - Axis 4 and Axis5**



Source: Own calculation based on [www.nord-vest.ro](http://www.nord-vest.ro) 18.03.2011

**Figure 10: Total contracted Western Development region - Axis 4 and Axis5**



Source: Own calculation based on [www.nord-vest.ro](http://www.nord-vest.ro)

In conclusion, as observed from the above figures and tables the “richest” countries in the region are proving to be more effective in attracting and contracting successfully European funding, rather than those with lower GDP. This can be a potential situation in which the disparities between the counties, after receiving European funding can become even larger and the “rich get richer”.

## 5. Conclusions

The most important reasons identified for these facts can be linked with internal aspects of the beneficiary organizations which are pointing to a series of diverse factors which hinder the capacity of absorption and cause low European funding contracting rates (Droj, 2010a, Fundația Șoros Romania, 2009 or Departamentul pentru Afaceri Europene, 2009).

Most of the factors causing a lower than expected absorption capacity in Romania, and which can influence also the capacity of absorption in the analyzed counties, can be summarized in the following lines (Droj, 2010a):

- Slow actions of the institutions specialized in analysis and contracting of the financing projects

- Lack of proper specialized staff in the fields of European funded projects accession and management, mostly at the level of the beneficiaries
- Low level of information, low expertise and very low qualifications of the beneficiaries regarding the accession and management of European funded projects
- “Low percentage” of contracting specialized external consultancy at the level of the beneficiaries with direct effects over the low capacity for absorption of external financing, the lack of professional approach regarding the proposal and contracting of European projects, and the quality of the proposed projects.
- Low reaction at the level of beneficiaries and management authorities regarding the process of elaboration, proposing for financing or evaluation and contracting of projects
- Low financial and management capacity of the beneficiary. Some of the proposed projects lack the co-financing in order to be implemented.

Since these causes are directly threatening the successful implementation of the cohesion and regional development policies a direct action should be taken both at the level of Programme Management Authorities and at the level of the beneficiaries in order to significantly increase the current absorption capacity of European Structural Funds.

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## THE MOTIVATION, THE COSTS AND THE PARTICULARITIES OF THE INITIAL PUBLIC OFFERINGS ON THE ROMANIAN CAPITAL MARKET

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**Abstract:** *The research made in this paper investigates the motivation, the costs involved by the launch of an initial public offer and the particularities of those IPOs successfully finalised on the Romanian capital market from a comparative point of view.*

**Key words:** Initial public offer, romanian capital market

**JEL classification:** G00, G01, G38

### 1. The motivation of the initial public offerings

The history and the capital markets experience regarding the companies that have accessed funding on this market shows that launching an initial public offer is motivated by different reasons and these are not always related solely to obtain financing but also involves taking into consideration of several other factors.

In the literature, there is a series of paper works that examine the motivations that underlie a firm decision to become public and access funding by launching an initial public offer.

Some authors (Stoughton N., Pong Wong K. And Zechner J. – Journal of business, University of Chicago, vol. 74, nr. 3, 2001) have classified these studies into three major categories:

1. Studies that examine different aspects of initial public offerings without trying to find an explanation of the firm's decision to become a public company - in these studies a firm aims to finance an investment project and / or the issuer manifest a risk aversion and wants to diversify his funding sources. Such studies consider that the decision to issue securities is derived from various forms of informational asymmetries of the market where the issuer have operated ( this category includes the studies of – Leland and Pyle(1977), Grinblatt and Hwang (1989), Welch(1989), Brennan and Franks (1997), Stoughton and Zechner (1998),Cao and Shi( 2000), Pichler(2001)).

2. The second category of studies considers that the main motivation for a company that decides to make an initial public offering is to minimize financing costs compared, from this category of paper works point of view, with a private issue of securities ( this category includes the studies of - Zingales (1995), Chemmanur and Fulghieri (1999)).

3. The third category of studies explains the initial public offerings in terms of the influence they have on the fundamentals related to the business activities of the issuer: competitive advantage, increased business revenues, improve marketing company image, management quality, market share, etc. (this category includes studies of authors such as -. Holmstrom and Tirole (1993), Maug (1997), Bolton and Von Thadden(1998),Pagano and Roell (1998)Van Bommel( 2000).

A review of the literature that examined the motivations underlying the launch of an initial public offer leads to the conclusion, in our opinion, that although the fundamental reason of such an initiative is taking advantage of the funding opportunities offered by the capital markets, the company that launches an initial public offer consider the advantage of creating a positive image in

the market, increasing the openness toward other participants and the easier access to finance subsequent of the listing on a regulated market.

As regards *the capital market in Romania*, as we shall see below, accessing funding through capital market by launching initial public offerings has not only remained until now at a very low level comparing with other capital markets in the region, and incomparable with mature western European capital markets, but offers with a significant value were launched by state-owned companies. This situation demonstrates that, despite the benefits of running an initial public offer followed by listing on a regulated market, private economic environment is still reluctant to the state of "open society" and the implications of such decisions.

## **2 The costs of the initial public offerings**

The decision to launch an initial public offering followed by the listing on stock exchanges should take into account the amount of the costs incurred.

Conversion into an open society involves taking into consideration many issues, some immediate and financially quantified, others concerning a longer time horizon and involving changes at the management level.

The costs of such initiatives are divided into two categories: *direct costs* that refer to the expenses related to legal matters, audit, financial intermediary and the fees for the stock market authority and the stock exchange which the shares will be list on and *indirect costs* relate to the time and effort made by the management for the preparation and conduct of the offer, the capital dilution associated with the sale of the shares and subsequent the listing costs to ensure a certain level of transparency required by the regulations, the implementation of accounting standards and corporate governance principles agreed and claimed by the capital market .

Ritter considers that once a company's shares are traded on the stock market, increasing their liquidity allows the issuer to raise capital on better conditions than if it were forced to compensate investors for the lower liquidity associated with a closed society (Ritter J. Ray, „Initial Public Offerings”, Contemporary Finance Digest, Vol. 2, No. 1, page 5-30, spring 1998).

On the Romanian capital market these costs mainly concern:

- Taxes and fees charged by the Financial Investment Services Company, designated as the intermediary firm, for consultancy services in preparing the company for the public offer and subsequent listing on a regulated market or an alternative trading system, preparation of the documentation.
- Fees charged by the by the Distribution Group;
- Expences with the audit firms, legal consultancy and financial and accounting consultancy if necessary;
- Tariffs and fees levied by National Securities Commission (NSC);
- Tariffs and fees levied by the Bucharest Stock Exchange (BSE) and the Central Depository.

Another important cost for the issuer that is to carry out an initial public offering is the financial intermediary or the intermediation syndicate commission involved in the public distribution of securities and the fund raising. According to the studies like Bartlett and Shulman (2003) this cost may be prohibitive and may cause some companies to waive listing on a regulated market.

Several comparative studies ( Chen and Ritter(2000) - Chen, H.C., Ritter, J.R., The seven percent solution, Journal of Finance, volume 3, 2000, page 1105-1131) , Tortsila( 2001 și 2003) - Torstila S, What determines IPO gross spreads in Europe?, European Financial Management, volume 4, 2001, page 523-541 and Torstila, S., The clustering of IPO gross spreads: international evidence, Journal of Financial and quantitative analysis, volume 3, 2003, page 673-694) shows that these commissions are higher in U.S. than in Europe. If such a commission is in Germany 4% or in Belgium 2.5%, in the U.S. the firm must pay about 7% of the offer's value representing the commission of the (Torstila 2003).

In terms of costs represented by the intermediary's fees and commissions the capital market in Romania it can not be specify a value as such rates generally vary from case to case, there is no

specific formula for establishing them and their level is influenced by several factors (amount and size of the offer, its complexity, distribution area, etc.). Concrete information about rates and fees charged by the intermediary can be identified in the public offering prospectuses. Analysis of the offer prospectus of the initial public offerings made on the Romanian capital market shows that these costs are around 2 percentage points of that value proposition (The estimated value is based on identifying the amount of the commission for the initial public offering SNTGN Transgaz S.A. 2.09% (offer's value of RON 226 millions), the initial public offering C.N.T.E.E. Transelectrica S.A. 2.25% (offer's value of RON 12 millions) Initial Public Offer SC Alumil Rom Industry S.A. (offer's value of RON 28,75 millions). We notice a higher level of fees at the higher values of the offerings).

*The fees and commissions charged by the capital market authority for initial public offers were reduced over time, one important change occurred in 2007 with the entry into force of Regulation 7/2007 when they reached an overall maximum of 0.5% of the offer amount, but vary by issuer and purpose of the public offer.* (In addition to the percentage fees charged on the offer's value, NSC has some fixed tariffs: to approve the preliminary notice will be charged 1.000 RON, approving the preliminary prospectus will be charged an amount of 2.500 RON, to maintain securities to NSC a fee ranging from 1.000 to 4.000 RON per year.)

In our opinion, the Authority's decision to reduce the fees received from the public offerings was a necessary measure to be taken many years ago because it would have certainly helped to boost the start of initial public offerings of securities on the Romanian capital market. Such an initiative would have counted during the start of the domestic capital market when the Romanian companies accessed very difficult the funding sources and in the banking system both the lack of collateral and the high expenses with the bank fees in an economic climate of rates inflation reaching sometimes three figures values. A frequent explanation for the absenteeism of the Romanian companies on the capital market was the fact that an initial public offering followed by a listing on the Bucharest Stock Exchange involved high costs unjustified by the potential benefits, in terms of a less liquid capital markets and investors reluctant to risk.

Bucharest Stock Exchange charge two categories of fees and commissions. One relates to the processing fee, charged for the review of the admission to trading documentation to be paid to the Exchange no later than the date of application for admission and the other fee covers the admission to trading, promotion and maintenance, due in advance for a period of 12 months from the commencement of trading of financial instruments, and to be paid within 10 working days after the receiving of the Stock Exchange listing decision. Besides the two commissions the Bucharest Stock Exchange charges a fee of 0.15% (before September 2008 had a value of 0.09%) of the public offer value for transactions in the Public Offers Market Section (POF). All the subscription orders are entered in a public offering section of the stock exchange (POF), and after the closure of the offer and the process of allotment of shares, IPO transactions are settled through the system POF.

*The Central Depository, a member of the BSE, charges an annual admission fee whose level varies depending on the number of holders, ranging from 700 RON (less than 500 holders) and 120.000 RON (over 500,000 holders)*

*If in previous years the Bucharest Stock Exchange show admission rates vary according to the level of several indicators, in 2008 in the spirit of the events initiated by the institution about the promotion of the mechanisms by which a Romanian company become public and the launch the public offerings by the issuers already listed, the Bucharest Stock Exchange exempt from the pay of the admission fees the issuers of the equities (including collective investment schemes) and the rights attached to them for all the quotas of the section Equities.*

*In our opinion, this decision, taken only in the second half of 2008, when access to capital markets funding has already been affected by increased instability due to the financial crisis, when investors dropped the long-term investment plans and tried to minimize their losses and to obtain liquidities, came too late to have a significant effect on the number of initial public offerings conducted by Romanian companies.*

*As we will see, the end of 2007 and first half of 2008 represented a reversal of the initial public offerings and market trend could be enhanced if it had been a substantial reduction in fees charged for admission and listing on the regulated market before the capital market to be affected by the global financial crisis.*

*The Bucharest Stock Exchange decision to eliminate the fees for admission to trading of new securities seems to be inspired by similar decisions adopted by other exchanges in the region. For example, exchanges in Hungary (Budapest Stock Exchange) and the Czech Republic (Prague Stock Exchange) did not perceive any processing or admission fee since 2007.*

### **3. The particularities of the initial public offerings on the Romanian capital market**

Increased funding of economic activities through the Romanian capital market, although a stated goal of the institution and the Romanian stock market participants, it was very difficult to get stimulated and this way to raise capital remains an underutilized opportunity for Romanian companies. A timid progress was made in 2000 but the number of companies that initiate an initial public offering followed by listing on a regulated market remains extremely low compared with developed markets but also with other emerging capital markets in the region. For example, exchanges like Sofia Stock Exchange, which has a market capitalization lower than the Romanian one, in the last four years ran a number of initial public offerings double comparing with the Bucharest Stock Exchange proving that the Bulgarian companies have realized the advantages of becoming an open society.

The Romanian capital market, born in a context of a macroeconomic instability, through an administrative decision made efforts to reach a mature market development at European level, to transform itself into a developer of the businesses with growth potential.

*Unfortunately the experience of the last fifteen years shows that accessing financing through the capital market remained extremely low in number and in value despite efforts to promote these mechanisms in the Romanian economic environment.*

*After fifteen years of activity of the Bucharest Stock Exchange representative names from different areas of the economy are still missing, is still discussing the possibility of listing of companies like Hidroelectrica, Henri Coanda Airport, Nuclearelectrica, and the few listings that followed an initial public offerings were made at large periods of time, disappointing the investors willing to trade the shares of those issuers.*

The Romanian companies' lack of interest in terms of the capital market financing has, in our opinion, several reasons: in the early stages of capital market in Romania has been the lack of experience regarding the market mechanisms, the high costs involved by the launch of an initial public offering followed by listing on the stock exchange, unstable macroeconomic conditions with very high inflation rates, few risk-tolerant investors. After 2004, when the Romanian capital market recorded some resounding success in terms of obtaining funds by the companies that have decided to become public, was expected to start an increasing trend of the number and the value of the initial public offerings, but the achievement may be considered disappointing compared with the performance of the other emerging capital markets in the region. On the other hand, this situation is not unique but other markets are comparable in size and level of development with the Romanian one.

*The analysis of the primary initial public offerings market raise, on the one hand, the issue of the number of offerings and on the other hand, a performance indicator is represented by the amount of funds that are mobilized through capital market compared with other ways to finance the economic entities.*

*The number of initial public offerings of shares made on the Romanian capital since 1998, only nineteen, is very small compared to the dozens of IPOs made annually on the Polish stock exchange for example.*

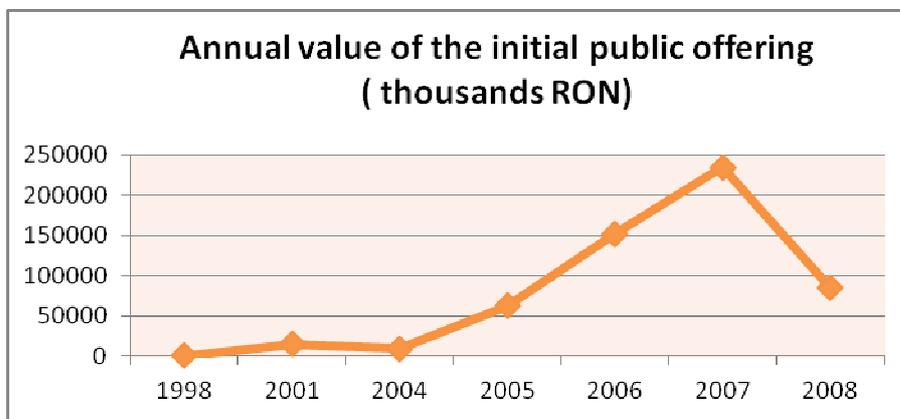
*In this short analysis we will take into consideration the initial public offers made until 2008 with a number of thirteen offerings, because after this moment on the Romanian capital market the*

only issuers interested in raising funds through the capital market were investment funds, the only exception being represented by the Monetary, Financial and Commodities Stock Exchange Sibiu but this issuer don't represent a non financial company that seeks funds to developed a business so we consider that must be left outside the analysis.

In our opinion, more relevant is the importance of capital market as an alternative financing by issuing shares for Romanian companies is the level of funds raised through these offerings, and from this point of view, unfortunately, the total amount of the thirteen offerings exceeded with less a half a billion lei while the value of lease contracts for companies in 2005 was about 1.5 billion lei, or only the corporate bank loans amount for 2006 exceed fifty billion lei.

Returning to the evolution of the initial public offerings annual value is noted, as shown in the figure above, an increase in the annual value since 1998 to 2007 when it peaked at 235 million lei. 2008 had seen a drastic decline in the value of initial public offerings that reached only 85 million lei, while their number increased.

**Figure no.1 Evolution of initial public offerings of stock values between 1998 and 2008**

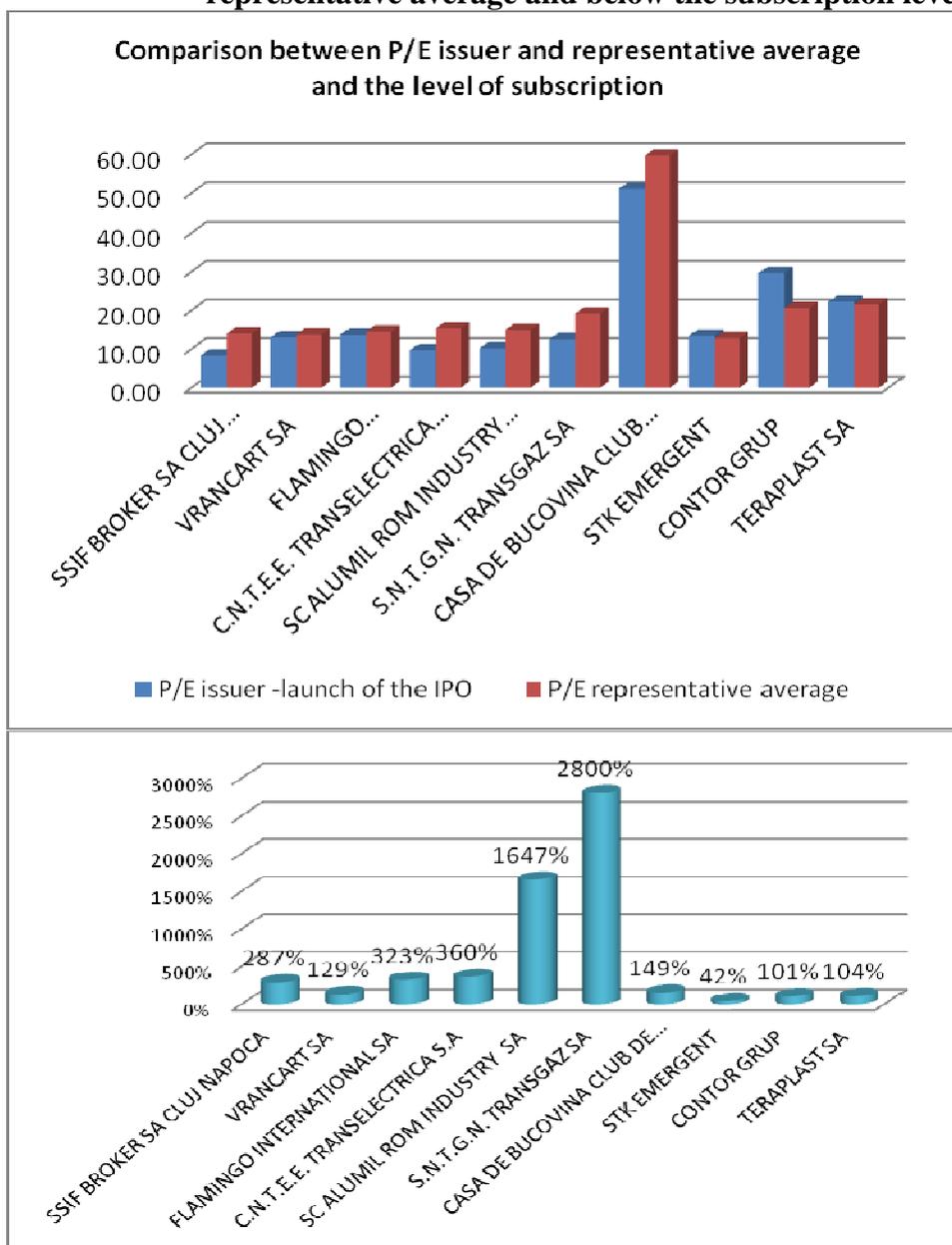


Another important aspect is the reaction of the market participants to the primary initial public offerings of shares launched on the Romanian capital market.

From this point of view we can say, taking as argument the underwriting of the offerings made, that on the Romanian market were investors willing to purchase shares of new entrants to the market. Of the ten IPOs successfully completed only one had a lower subscription level, under 100% - the investment fund STK Emergent, but this offer was a first in terms of the instrument offered and was made when the Romanian market decline triggered by the global financial crisis started, and, on the other hand, had the highest market offer price - 281 RON. Viewed in terms of value this offer has mobilized at a subscription level of 42% more than 20 million lei which is a higher value than almost half of all offers made on the market. So only the level of subscription is not a sufficient indicator to characterize the attractiveness of an initial public offer of shares to investors.

The subscription level of the offers on the Romanian market confirms the direct correlation between the attractiveness of shares from an initial public offering and level indicators  $P/E$  and  $P/B$  calculated for the issuer with the offer price and the average of these indicators for issuers in the same industry. As shown in the chart below, offers for which the indicators are at a lower level that are comparable average had a higher subscription level of investor confidence that the shares have growth potential in the secondary market.

**Figure no.2 Comparison between the P/E of the issuer at IPO launch and the representative average and below the subscription level**



Where the indicators for the issuer are equals or exceeds the values taken into account in the comparison, the level of subscription, although more than 100% is lower than other offers.

Two initial public offerings, those made in 2006, when the stock market was in a powerful process of development, had subscription levels that have exceeded 1000% and then 2000% showing that in that priod were much larger sums that could be mobilized through the capital market but the small number of offers did not offer investors opportunities. After those successful offerings would have seemed that the natural consequence would be an increasing number of offersin the next year but 2007 was a disappointment to the market participants because the single initial public offer launch was of the Transgaz.

The number of shares offered and subscribed ranging from a few hundred thousand to tens or hundreds of million, the offer with the highest number of shares subscribed in 2005 was conducted by Vrancart with 116,5 million shares but with a lower offer price, offer with an amount subscribed only of 17,475millions lei.

The prices of the offers launched also varies from 0,1 RON to 191.92 RON for Transgaz share. The degree of underwriting proved that the price level did not influence the attractiveness of the IPOs in the market.

As we mentioned above, the values of initial public offerings of shares were very low compared with other financing options that a company has on the Romanian market. Among these offerings is remarkable Transgaz IPO that has mobilized funds of 226 million lei, representing almost half the total value of the offerings launched between 1998 and 2008 on the Romanian capital market.

Evolution of shares from initial public offerings on the secondary market showed gains of 10%, sometimes more than 100% above the offer price and very small or even negative returns from the first day of trading as shown in the figure.

**Figure no.3 The result of the first day of trading**



Shares from initial public offerings listed on the BSE in 2008 recorded negative returns but these results need to be analysed taking into consideration the macroeconomic conditions from the end of the 2008 when the Romanian economy recorded the first shock caused by the global financial crisis.

#### 4. Conclusions

In conclusion, examining in detail the primary initial public offerings, one of the major engines of the financing of the economy through capital market, we can say that, the capital market in Romania is in its infancy comparing with other capital markets from the region or from Europe. The small number of IPOs and the "symbolic" value of only half a billion lei in ten years, prove that Romanian companies did not access this funding opportunity even if the subscription level achieved showed that investors have the willingness to fund businesses with development opportunities.

Slightly upward trend recorded in late 2007 and early 2008 regarding the number of companies that have decided to launch initial public offerings was and will be affected by the influence of international financial crisis, manifested inter alia, by the lack of liquidity and a low appetite for investments which had the effect of stopping the initial public offerings on the Romanian capital market.

Prospects for funding through initial public offerings on the capital market in Romania may get a different direction in the coming years if we take into account that from the beginning of 2010, issuers have a second spot capital market on the exchange trading platform of SIBEX. But for this new direction to happen it will be necessary an important change in the macroeconomic conditions along with the coherent monetary and fiscal policy, big efforts to restore and increase the confidence of the investors, especially small, individual investors and on the other side the companies to learn

how to use the capital market mechanisms to obtain funds at a lower cost than from the alternatives like banking system.

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## CHANGES IN THE DYNAMIC RELATION BETWEEN THE PRICES AND THE TRADING VOLUME FROM THE BUCHAREST STOCK EXCHANGE

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**Abstract:** *This paper explores the relation between the prices and the trading volume from the Bucharest Stock Exchange. The data employed consist in the daily values from January 2002 to March 2011. We identify some significant changes caused by events such as Romania's adhesion to the European Union or the effects of the global crisis.*

**Key words:** Romanian Stock Exchange, Stock Index Volume, Trading Volume Causality

**JEL classification:** G 10, G 15

### 1. Introduction

The relation between the stock prices and the trading volume is one of the main topics of the financial economics. The study of interactions between these variables could reveal some mechanisms of the stock markets (Karpoff, 1987). In the last decades several scientific papers approached this subject. Many of them found a positive correlation between the stock returns and the trading volume (Rogalski, 1978; Karpoff, 1987; Gallant et al, 1992; Lee and Rui, 2002). The Granger causality method was largely used to analyze the nature of the relation between the prices and the trading volume, with different results. Hiemstra and Jones (1993) identified bidirectional causality between the stock returns and the trading volume, while Saatcioglu and Starks (1998) obtained various results in their study about six Latin American stock markets.

Some studies found an asymmetrical nature of the relation between the prices and the trading volume (Epps and Epps, 1976; Karpoff, 1987). Other articles revealed some particularities of these interactions in the context of emerging markets (Saatcioglu and Starks, 1998; Kamath and Wang, 2006; Kamath, 2007). It was also revealed the relation between the prices and the trading volume could suffer changes in time due to economic and political events (Sidra et al, 2009; Khan and Ahmed, 2009).

In this paper we analyze the changes that occurred in the relation between the prices and the trading volume from the Bucharest Stock Exchange (BSE). Founded in 1882, BSE was closed during the communist regime. In 1995 BSE was reopened. However, between 1997 and 2001 the difficulties of transition and the impact of the East Asian Financial Crisis caused a significant decline of the stock prices. After the consolidation of the national economy BSE experienced a recovery in 2001. Romania's adhesion to the European Union in 2007 contributed to significant inflows of foreign capitals on the domestic stock market. In 2008 the impact of the global crisis caused another drastic decline. Since 2009 the stock prices increased again but the Romanian financial markets were still under threat of the new shocks from the national economy or from abroad.

In order to identify the differences between the corporations and the small companies we study the two main segments of BSE: BET and RASDAQ. While on BET there are listed the biggest

Romanian companies, RASDAQ contained rather smaller companies. We analyze the price – volume trading relation during four periods:

- a first period, from January 2002 to December 2006, when BSE was stimulated by the consolidation of the national economy;
- a second period, from January to December 2007, when significant inflows of the foreign capitals occurred;
- a third period, from January 2008 to February 2009, when the global crisis caused a sharp decline in the stock prices;
- a fourth period, from March 2010 to March 2011 when, despite a recovery, the threats of the new shocks persisted.

**Figure 1: Evolution of the indices from the BET market (BETC) and from RASDAQ (RAQC) between January 2002 and March 2011**



Source of data: BSE

In the next section there are described the data and the methodology employed in this paper. The third section presents the empirical results and the fourth section concludes.

## 2. Data and Methodology

In our investigation we use daily data of the trading volume and the closing index prices of the two main components of BSE: BET and RASDAQ. These values cover a period of time from January 2002 to March 2011. We split this sample of data into four sub-samples corresponding to the four phases mentioned before. We use two indices: BET-C for BET market and RAQ-C for RASDAQ market.

The returns of the two indices are computed using the equation:

$$R_t = \ln(P_t) - \ln(P_{t-1}) \quad (1)$$

where:

- $R_t$  is the return on the day  $t$ ;

-  $P_t$  is the closing market index price on the day  $t$ .

We also use detrended values of trading volume obtained as residuals of the regression equations.

We analyze the stationarity of the returns and of the detrended trading volume using the Augmented Dickey Fuller (ADF) test.

We employ two types of regressions to analyse the relation between the prices and the volume.

In the first equation the detrended values of the trading volume ( $V_t$ ) represent the dependent variable, while the returns compose the independent one:

$$V_t = \alpha + \beta R_t + \varepsilon_t \tag{2}$$

The second equation describes the dependence of the detrended values of the trading volume by the absolute values of the returns:

$$V_t = \gamma + \delta \text{abs}(R_t) + v_t \tag{3}$$

We also investigate the interactions and causalities between the two variables using Vector Autoregression (VAR) models (the number of lags is chosen based on the Akaike Information Criterion) and the Granger causality method.

### 3. Empirical Results

The descriptive statistics of BET and RASDAQ returns are presented in the Table 1. The means of BET returns are negative for the third sub sample, while the means of RASDAQ returns are negative for the third and fourth sub samples. The highest volatility, measured by the standard deviation, occurred in the third sub sample. For all the sub samples the skewness is negative, while the kurtosis exceeds the normal value. The Jarque-Bera tests indicate that all the time series are not normally distributed.

**Table 1: Descriptive Statistics for Returns**

Indicator	Mean	Std. Dev.	Skewness	Ex. kurtosis	Jarque-Bera test	p-value for Jarque-Bera test
BET Returns						
First Sub-sample	0.00188088	0.0126980	-0.416985	6.68844	2337.79	0.0000
Second Sub-sample	0.00113000	0.0129814	-0.295533	1.62679	31.2063	0.0000
Third Sub-sample	-0.0054978	0.0269849	-0.413382	3.62795	155.762	0.0000
Fourth Sub-sample	0.00154913	0.0185706	-0.366924	4.47750	451.189	0.0000
RASDAQ Returns						
First Sub-sample	0.0008478	0.00796909	-0.348741	20.2458	21117.5	0.0000
Second Sub-sample	0.00270147	0.0116866	0.174541	1.97247	41.7968	0.0000
Third Sub-sample	-0.0031882	0.0241675	-0.967427	79.6733	71455.2	0.0000
Fourth Sub-sample	-0.0002492	0.0118135	-8.86945	149.389	496013	0.0000

Source of data: BSE

In the Table 2 there are presented the descriptive statistics of the trading volume. The means were highest for the second sub-samples. For all the sub samples the skewness is positive and the kurtosis exceeds the normal value. According to the Jarque-Bera tests all the time series are not normally distributed.

**Table 2: Descriptive Statistics for Trading Volume**

Indicator	Mean	Std. Dev.	Skewness	Ex. kurtosis	Jarque-Bera test	p-value for Jarque-Bera test
BET Trading Volume						
First Sub-sample	41.9187	79.6776	17.5724	443.505	1.01935e+007	0.0000
Second Sub-sample	56.9398	51.4133	3.91750	18.4965	4203.2	0.0000
Third Sub-sample	51.3295	49.9390	5.32106	39.3897	18729	0.0000
Fourth Sub-sample	55.7533	160.255	17.4009	343.899	2.61855e+006	0.0000
RASDAQ Trading Volume						
First Sub-sample	5.76907	32.2491	32.0899	1086.67	6.10264e+007	0.0000
Second Sub-sample	17.2461	64.6072	12.0839	163.932	286020	0.0000
Third Sub-sample	7.64525	15.9682	7.73734	67.8584	54497.5	0.0000
Fourth Sub-sample	5.67661	9.97088	12.2527	206.979	952078	0.0000

Source of data: BSE

We analyzed the stationarity of the variable using the Augmented Dickey-Fuller Tests. For all the sub samples we used constants as deterministic terms, while the number of lags was chosen by the Akaike Information Criterion. The results of the unit root tests, reported in the Table 3, indicate that all the time series are stationary.

**Table 3: Results of Augmented Dickey-Fuller Tests**

Indicator	First Sub-sample	Second Sub-sample	Third Sub-sample	Fourth Sub-sample
BET Returns				
Number of lags	32	20	18	21
Test statistic	-6.91655	-3.5014	-15.9087	-5.46401
Asymptotic p-value	5.549e-010	0.00798	2.053e-029	2.086e-006
RASDAQ Returns				
Number of lags	35	10	12	17
Test statistic	-5.46368	-3.04971	-15.8842	-21.9267
Asymptotic p-value	2.09e-006	0.03053	4.296e-028	4.73e-038
BET Detrended Volume				
Number of lags	29	8	21	14
Test statistic	-4.35426	-13.8382	-2.88843	-4.95802
Asymptotic p-value	1.443e-005	1.212e-024	0.04669	2.486e-005

value				
RASDAQ Detrended Volume				
Number of lags	31	10	2	16
Test statistic	-35.1186	-3.86483	-6.13944	-21.7158
Asymptotic p-value	7.849e-022	0.002321	5.493e-008	4.56e-038

Source of data: BSE

The regression results for the detrended trading volume on the stock returns are shown in the Table 4. We didn't find any significant coefficient.

**Table 4: Regression for Detrended Trading Volume on Stock Returns**

Indicator	First Sub-sample	Second Sub-sample	Third Sub-sample	Fourth Sub-sample
BET				
$\alpha$	-0.0766994 (-0.0343)	-0.178551 (-0.0547)	0.960188 (0.3136)	-0.279871 (-0.0400)
$\beta$	45.1566 (0.2591)	158.01 (0.6296)	174.65 (1.5680)	180.663 (0.4808)
$R^2$	0.000054	0.001596	0.009091	0.000441
RASDAQ				
$\alpha$	0.00464832 (0.0050)	-0.00716297 (-0.0017)	0.00643996 (0.0066)	0.00187664 (0.0044)
$\beta$	0.524203 (0.0045)	2.65151 (0.0076)	2.01991 (0.0502)	7.53172 (0.2077)
$R^2$	0.00000001	0.00000001	0.000009	0.000082

Source of data: BSE

In the Table 5 there are presented the regression results for the detrended trading volume on the absolute stock returns. The regression coefficients are significant only for the BET market on the first and the third sub-samples.

**Table 5: Regression for Detrended Trading Volume on Absolute Stock Returns**

Indicator	First Sub-sample	Second Sub-sample	Third Sub-sample	Fourth Sub-sample
BET				
$\gamma$	-8.49568*** (-2.7768)	-5.26057 (-1.0746)	-8.70274** (-2.0938)	-0.801775 (-0.0826)
$\delta$	952.849*** (3.9962)	539.665 (1.4336)	451.706*** (2.9875)	61.9167 (0.1188)
$R^2$	0.012786	0.008219	0.032229	0.000027
RASDAQ				
$\gamma$	0.457783 (0.3939)	4.62744 (0.7410)	-0.0162523 (-0.0153)	-0.229709 (-0.4652)
$\delta$	-92.1837 (-0.6354)	-510.318 (-0.9783)	1.64966 (0.0378)	38.9099 (0.9301)
$R^2$	0.000327	0.003844	0.000005	0.001648

Note: \*\*\* and \*\* indicate statistical significance at 0.01 and 0.05 per cent level respectively.

Source of data: BSE

The results of the Vector Autoregression analysis for the BET market are shown in the Table 6. The interactions between the two variables are significant for the first and for the third sub-samples.

**Table 6: Vector Autoregression analysis for the interactions between the Stock Returns and the Detrended Trading Volume from BET market**

First sub - sample

Equation 1: $V_t$	Coefficient	Std. Error	t-ratio	p-value
const	-0.749941	2.30794	-0.3249	0.74528
$V_{t-1}$	0.0588195	0.0286511	2.0530	0.04029**
$V_{t-2}$	0.0483181	0.0287207	1.6823	0.09276*
$V_{t-3}$	0.0461002	0.0287617	1.6028	0.10923
$V_{t-4}$	0.0926318	0.0286757	3.2303	0.00127***
$V_{t-5}$	0.115451	0.0286624	4.0279	0.00006***
$V_{t-6}$	0.00589222	0.0288306	0.2044	0.83810
$V_{t-7}$	0.0117568	0.0287635	0.4087	0.68280
$V_{t-8}$	0.0838992	0.0287312	2.9201	0.00356***
$R_{t-1}$	83.7992	177.985	0.4708	0.63785
$R_{t-2}$	331.02	181.116	1.8277	0.06785*
$R_{t-3}$	-77.9989	181.298	-0.4302	0.66711
$R_{t-4}$	-1.54574	181.208	-0.0085	0.99320
$R_{t-5}$	155.32	180.877	0.8587	0.39067
$R_{t-6}$	-23.6137	180.843	-0.1306	0.89613
$R_{t-7}$	-16.1624	180.656	-0.0895	0.92873
$R_{t-8}$	-11.0776	177.309	-0.0625	0.95019

Adjusted R-squared = 0.047676; F(16, 1210) = 4.836092; P-value(F) = 1.09e-09

Equation 2: $R_t$	Coefficient	Std. Error	t-ratio	p-value
const	0.00143625	0.00037234	3.8574	0.00012***
$V_{t-1}$	6.19733e-06	4.62229e-06	1.3407	0.18025
$V_{t-2}$	-4.42833e-06	4.63352e-06	-0.9557	0.33941
$V_{t-3}$	1.18263e-05	4.64012e-06	2.5487	0.01094**
$V_{t-4}$	1.488e-06	4.62625e-06	0.3216	0.74778
$V_{t-5}$	-4.51917e-06	4.6241e-06	-0.9773	0.32861
$V_{t-6}$	3.45933e-06	4.65124e-06	0.7437	0.45718
$V_{t-7}$	-7.84401e-06	4.64041e-06	-1.6904	0.09121*
$V_{t-8}$	1.34764e-06	4.6352e-06	0.2907	0.77130
$R_{t-1}$	0.223359	0.0287143	7.7787	0.00001***
$R_{t-2}$	-0.0341774	0.0292195	-1.1697	0.24236
$R_{t-3}$	0.0118758	0.0292488	0.4060	0.68480
$R_{t-4}$	-0.0743448	0.0292342	-2.5431	0.01111**
$R_{t-5}$	0.0237303	0.0291809	0.8132	0.41626
$R_{t-6}$	0.0207309	0.0291754	0.7106	0.47749
$R_{t-7}$	0.108838	0.0291452	3.7343	0.00020***
$R_{t-8}$	-0.0300223	0.0286053	-1.0495	0.29414

Adjusted R-squared = 0.063210; F(16, 1210) = 6.170282; P-value(F) = 2.45e-13  
Source of data: BSE

Second sub – sample

Equation 1: $V_t$	Coefficient	Std. Error	t-ratio	p-value
const	-0.231	3.21773	-0.0718	0.94283
$V_{t-1}$	0.123177	0.0636161	1.9363	0.05400*
$V_{t-2}$	0.0951049	0.0634751	1.4983	0.13535

<b>R<sub>t-1</sub></b>	-476.948	256.345	-1.8606	0.06401*
<b>R<sub>t-2</sub></b>	659.457	249.694	2.6411	0.00880***

Adjusted R-squared = 0.043427; F(16, 1210) = 3.803375; P-value(F) = 0.005097

Equation 2: R <sub>t</sub>	Coefficient	Std. Error	t-ratio	p-value
<b>const</b>	0.00084265	0.000809163	1.0414	0.29873
<b>V<sub>t-1</sub></b>	1.70183e-05	1.59976e-05	1.0638	0.28847
<b>V<sub>t-2</sub></b>	3.52607e-06	1.59621e-05	0.2209	0.82535
<b>R<sub>t-1</sub></b>	0.0892814	0.0644633	1.3850	0.16732
<b>R<sub>t-2</sub></b>	0.0316713	0.0627906	0.5044	0.61444

Adjusted R-squared = -0.001592; F(16, 1210) = 0.901874; P-value(F) = 0.463482

Source of data: BSE

Third sub – sample

Equation 1: V <sub>t</sub>	Coefficient	Std. Error	t-ratio	p-value
<b>const</b>	0.691672	3.04356	0.2273	0.82040
<b>V<sub>t-1</sub></b>	0.138305	0.0609176	2.2704	0.02400**
<b>V<sub>t-2</sub></b>	0.136881	0.0608042	2.2512	0.02521**
<b>V<sub>t-3</sub></b>	0.20266	0.0607578	3.3355	0.00098***
<b>R<sub>t-1</sub></b>	62.8801	107.904	0.5827	0.56057
<b>R<sub>t-2</sub></b>	120.32	108.396	1.1100	0.26803
<b>R<sub>t-3</sub></b>	-70.2858	108.265	-0.6492	0.51678

Adjusted R-squared = 0.100016; F(16, 1210) = 5.926800; P-value(F) = 8.10e-06

Equation 2: R <sub>t</sub>	Coefficient	Std. Error	t-ratio	p-value
<b>const</b>	-0.00537514	0.00174927	-3.0728	0.00235***
<b>V<sub>t-1</sub></b>	-3.21423e-06	3.5012e-05	-0.0918	0.92692
<b>V<sub>t-2</sub></b>	2.96084e-05	3.49469e-05	0.8472	0.39764
<b>V<sub>t-3</sub></b>	3.34914e-05	3.49202e-05	0.9591	0.33841
<b>R<sub>t-1</sub></b>	0.0963588	0.062017	1.5537	0.12146
<b>R<sub>t-2</sub></b>	-0.0246311	0.0623001	-0.3954	0.69290
<b>R<sub>t-3</sub></b>	-0.0596896	0.0622245	-0.9593	0.33832

Adjusted R-squared = -0.001763; F(16, 1210) = 0.921982; P-value(F) = 0.479550

Source of data: BSE

Fourth sub-sample

Equation 1: V <sub>t</sub>	Coefficient	Std. Error	t-ratio	p-value
<b>const</b>	-0.165876	7.01384	-0.0236	0.98114
<b>V<sub>t-1</sub></b>	0.00796986	0.0437718	0.1821	0.85559
<b>R<sub>t-1</sub></b>	154.266	376.961	0.4092	0.68253

Adjusted R-squared = -0.003440; F(2, 522) = 0.101871; P-value(F) = 0.903164

Equation 2: R <sub>t</sub>	Coefficient	Std. Error	t-ratio	p-value
<b>const</b>	0.00151928	0.000815357	1.8633	0.06298*
<b>V<sub>t-1</sub></b>	1.11952e-07	5.08847e-06	0.0220	0.98246
<b>R<sub>t-1</sub></b>	0.0186978	0.0438216	0.4267	0.66979

Adjusted R-squared = -0.003480; F(2, 522) = 0.091498; P-value(F) = 0.912578

Note: \*\*\*, \*\* and \* indicate statistical significance at 0.01 and 0.05 and 0.1 per cent level respectively.

Source of data: BSE

In the Table 7 there are presented the results of Vector Autoregression analysis for the RASDAQ market. The interactions between the two variables are lowest for the fourth sub-sample.

**Table 7: Vector Autoregression analysis for the interactions between the Stock Returns and the Detrended Trading Volume from RASDAQ market**

First sub – sample

Equation 1: $V_t$	Coefficient	Std. Error	t-ratio	p-value
<b>const</b>	-0.141736	0.934585	-0.1517	0.87948
<b><math>V_{t\_1}</math></b>	0.00075181	0.0285706	0.0263	0.97901
<b><math>V_{t\_2}</math></b>	- 0.00352538	0.028521	-0.1236	0.90165
<b><math>V_{t\_3}</math></b>	- 0.00026582 5	0.0285227	-0.0093	0.99257
<b><math>R_{t\_1}</math></b>	-21.6163	116.311	-0.1859	0.85259
<b><math>R_{t\_2}</math></b>	251.292	118.246	2.1252	0.03377**
<b><math>R_{t\_3}</math></b>	-49.5817	118.043	-0.4200	0.67454

Adjusted R-squared = -0.001160; F(16, 1210) = 0.762217; P-value(F) = 0.599724

Equation 2: $R_t$	Coefficient	Std. Error	t-ratio	p-value
<b>const</b>	0.00066392 2	0.00022881 7	2.9015	0.00378****
<b><math>V_{t\_1}</math></b>	1.2622e-06	6.99502e-06	0.1804	0.85683
<b><math>V_{t\_2}</math></b>	-2.65723e-06	6.98288e-06	-0.3805	0.70361
<b><math>V_{t\_3}</math></b>	1.7441e-06	6.98329e-06	0.2498	0.80282
<b><math>R_{t\_1}</math></b>	0.0907762	0.0284767	3.1877	0.00147****
<b><math>R_{t\_2}</math></b>	0.0474058	0.0289504	1.6375	0.10179
<b><math>R_{t\_3}</math></b>	0.0846101	0.0289008	2.9276	0.00348****

Adjusted R-squared = 0.015586; F(16, 1210) = 4.248394; P-value(F) = 0.000304

Source of data: BSE

Second sub – sample

Equation 1: $V_t$	Coefficient	Std. Error	t-ratio	p-value
<b>const</b>	1.31598	4.24631	0.3099	0.75689
<b><math>V_{t\_1}</math></b>	-0.000917082	0.0639417	-0.0143	0.98857
<b><math>V_{t\_2}</math></b>	-0.0381102	0.06368	-0.5985	0.55009
<b><math>R_{t\_1}</math></b>	-918.158	369.739	-2.4833	0.01369**
<b><math>R_{t\_2}</math></b>	467.845	371.089	1.2607	0.20861

Adjusted R-squared = 0.010524; F(16, 1210) = 1.656747; P-value(F) = 0.160739

Equation 2: $R_t$	Coefficient	Std. Error	t-ratio	p-value
const	0.00177636	0.000723589	2.4549	0.01479
$V_{t-1}$	-1.6383e-05	1.08959e-05	-1.5036	0.13399
$V_{t-2}$	-2.7163e-05	1.08513e-05	-2.5032	0.01297**
$R_{t-1}$	0.224725	0.063005	3.5668	0.00044***
$R_{t-2}$	0.150585	0.0632351	2.3813	0.01802**

Adjusted R-squared = 0.119067;  $F(16, 1210) = 9.346159$ ;  $P\text{-value}(F) = 4.84e-07$   
 Source of data: BSE

Third sub – sample

Equation 1: $V_t$	Coefficient	Std. Error	t-ratio	p-value
const	0.0289976	0.985004	0.0294	0.97654
$V_{t-1}$	0.00237231	0.0613108	0.0387	0.96916
$R_{t-1}$	9.9068	40.4204	0.2451	0.80657

Adjusted R-squared = -0.007285;  $F(2, 266) = 0.030817$ ;  $P\text{-value}(F) = 0.969656$

Equation 2: $R_t$	Coefficient	Std. Error	t-ratio	p-value
const	-0.00304582	0.0013819	-2.2041	0.02838**
$V_{t-1}$	0.00057427	8.60152e-05	6.6764	0.00001***
$R_{t-1}$	0.027223	0.0567073	0.4801	0.63158

Adjusted R-squared = 0.137785;  $F(2, 266) = 22.41362$ ;  $P\text{-value}(F) = 1.01e-09$   
 Source of data: BSE

Fourth sub – sample

Equation 1: $V_t$	Coefficient	Std. Error	t-ratio	p-value
const	0.0116348	0.428485	0.0272	0.97835
$V_{t-1}$	0.0513635	0.043689	1.1757	0.24027
$R_{t-1}$	28.0362	36.2673	0.7730	0.43985

Adjusted R-squared = -0.000007;  $F(2, 522) = 0.998044$ ;  $P\text{-value}(F) = 0.369302$

Equation 2: $R_t$	Coefficient	Std. Error	t-ratio	p-value
const	-0.000264063	0.000515731	-0.5120	0.60885
$V_{t-1}$	4.12911e-05	5.25847e-05	0.7852	0.43267
$R_{t-1}$	0.0429428	0.0436518	0.9838	0.32569

Adjusted R-squared = 0.137785;  $F(2, 522) = 0.799110$ ;  $P\text{-value}(F) = 0.450278$

Note: \*\*\*, \*\* and \* indicate statistical significance at 0.01 and 0.05 and 0.1 per cent level respectively.

Source of data: BSE

The results of the Granger Causality Tests are presented in the Table 8. For the second sub-sample, on the BET market returns Granger-cause volume, while for the RASDAQ market we found a bidirectional causality. For the third sub-sample, on the RASDAQ market volume Granger-cause returns.

**Table 8: Results of the Granger Causality Tests**

Indicator	First Sub-sample	Second Sub-sample	Third Sub-sample	Fourth Sub-sample
BET, H0: $V_t$ do not Granger-cause $R_t$				
Test statistic	1.6681	0.6259	0.6891	0.0005
pval-F	0.1011	0.5352	0.5590	0.9825
BET, H0: $R_t$ do not Granger-cause $V_t$				
Test statistic	0.6059	4.8192	0.6778	0.1675
pval-F	0.7736	0.0085	0.5659	0.6824
RASDAQ, H0: $V_t$ do not Granger-cause $R_t$				
Test statistic	0.0798	4.2367	44.5740	0.6166
pval-F	0.9710	0.0150	0.0000	0.4325
RASDAQ, H0: $R_t$ do not Granger-cause $V_t$				
Test statistic	1.5190	3.2437	0.0601	0.5976
pval-F	0.2076	0.0399	0.8065	0.4397

Source of data: BSE

### 3. Conclusions

This paper approached the changes occurred in the relation between the stock market returns and the trading volume from two main components of BSE: BET and RASDAQ. We found significant differences between these segments that could be considered as a reflection of the size impact on this relation. We also identify an asymmetrical behavior on the BET market for the first and the third sub-sample, when the returns experienced the highest, respectively the lowest means.

On the BET market the results showed that returns Granger caused the volume only for the second sub-sample. In this period of time the significant inflows of the foreign capital encouraged the speculative transactions. In these circumstances the information contained in evolution of the returns influenced the volume of transactions. For the same period of time on the RASDAQ market we found bidirectional causality, suggesting that in comparison with the BET market the returns were more sensitive to the trading volume.

For the third sub-sample on the RASDAQ market the trading volume Granger caused the returns. In this period of time the financial markets were affected by the global crisis and the investors from the RASDAQ market, considered riskier than the BET markets, were very sensitive to the evolution of the trading volume.

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## EUROSYSTEM VERSUS FEDERAL RESERVE SYSTEM. A COMPARATIVE ANALYSIS

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**Abstract:** *Central banks have always been responsible with conducting the monetary policy. But what happens when several countries unite to form a union? The need of a superior central institution becomes imperative. Through this paper we intend to analyze both the Eurosystem and the Federal Reserve System, together with the European Central Bank and Federal Reserve, as central banks of the European Union, respectively the Unites States. We will focus on analyzing the structure of the two systems and the instruments they use to intervene on the financial market, pointing out the similarities and the differences.*

**Key words:** Eurosystem, Federal Reserve

**JEL Clasification:** E58.

### 1. Introduction

United States of America and the European Union each represent about 20% of the total world production, being considered two powers in the economic world. With such developed economies, they must rely on strong banking systems within the central role is played by their national central banks - the Federal Reserve, respectively, European Central Bank.

Starting with January 1<sup>st</sup> 1999, responsibility for monetary policy in the European Union is no longer a task of the Economic and Monetary Union (EMU), but Eurosystem's one. From that moment on, when speaking of national central banks, an immediate correlation is made between the European Central Bank and Federal Reserve (FED), the two most important central banks supporting some of the largest economies globally.

Federal Reserve System, also known as FED, created out of necessity, had the initial purpose of ensuring a more stable and flexible financial and monetary system in an economy marked by major imbalances at that time.

Although designed much later, the European Central Bank took over the Federal Reserve System model and has the same title as the FED in the United States of America. It was conceived as an independent institution considering that its decisions affect the entire European Union. What distinguishes the European Central Bank of any other banking institution is that no other modern central bank has ever been created by the political will of 12 developed and independent states, under a treaty, as of this point of view the European Central Bank is a singular institution.

### 2. Eurosystem's and FED's structures. Differences and similarities

Creating the Economic and Monetary Union within the European Union required the emergence of an independent institution to conduct monetary policy for the whole area. European Central Bank has been, since 1999, the institution to meet these requirements, as the central bank of the Eurosystem. As a banking system, the Eurosystem comprises the European Central Bank and national central banks of the 17 European Union member states that currently use the euro as currency (see Figure 1). Although the monetary policy decisions of the European Central Bank are

naturally applicable to all euro area countries, in reality, the Eurosystem, taken as a whole, is the one that performs the functions of a central bank for the euro area. In doing so, the European Central Bank and the national central banks together contribute to achieving the common objectives of the Eurosystem.

Eurosystem's characteristic is that its composition changes from one period to another, meaning that EU member states that are not part of the Eurosystem will join in time the euro area, as they fulfill the convergence criteria, and therefore will become part of the Eurosystem.

Federal Reserve System, on the other hand, also known as the FED was created to provide a national financial and monetary system more stable and flexible. Amid severe financial problems in the late nineteenth and early twentieth century, which led to bank failures and business bankruptcy, exacerbated by the severe crisis of 1907, came the need to create an institution that would prevent economic crises and would manage the national economy, and this was Federal Reserve. Over the years, its role in the banking system and economy grew.

**Figure 1 – Members of the Eurosystem**



Source: <http://www.ecb.int>

Federal Reserve System consists of 12 regional Federal Reserve Banks (see Table 2) and 24 branches. Federal Reserve performs the specific duties of a central bank, such as conducting monetary policy, operating with the national payment system, distribution of money, supervising member banks and banker for the U.S. Treasury. As a central bank, FED acts as the bank of banks and the bank for the federal government.

Based on the american model, European Central Bank is very similar to the United States' central bank, Federal Reserve. Firstly, both promote the doctrine of separating the politics from monetary policy formation - politics is not aloud to interfere neither in European Central Bank's decisions, nor in FED's ones. Regarding this aspect, the European Central Bank, which represents the interests of all European Union member countries, does not allow the governments to manipulate the central bank for its own purposes. Another similarity is the fact that both European Central Bank and Federal Reserve are not entirely independent. Therefore, Federal Reserve is reviewed by Congress and the European Central Bank is accountable to Parliament and the Council of Ministers. Moreover, Parliament names the President, Vice-President and four other members of the executive board of the bank, whose appointment must then be approved by the Council of Ministers. Also, European Central Bank President must report annually to Parliament.

**Table 2 – Members of Federal Reserve**

Number	Letter	Location	Branch
1	A	Boston	
2	B	New York	Buffalo, New York
3	C	Philadelphia	
4	D	Cleveland	Cincinnati, Ohio; Pittsburgh, Pennsylvania;
5	E	Richmond	Baltimore, Maryland; Charlotte, North Carolina
6	F	Atlanta	Birmingham, Alabama; Jacksonville, Florida; Miami, Florida; Nashville, Tennessee; New Orleans, Louisiana
7	G	Chicago	Detroit, Michigan;
8	H	St. Louis	Little Rock, Arkansas; Louisville, Kentucky; Memphis, Tennessee
9	I	Minneapolis	Helena, Montana
10	J	Kansas City	Denver, Colorado; Oklahoma City, Oklahoma Omaha, Nebraska
11	K	Dallas	El Paso, Texas; Houston, Texas; San Antonio, Texas
12	L	San Francisco	Los Angeles, California; Portland, Oregon; Salt Lake City, Utah; Seattle, Washington

Source: [http://en.wikipedia.org/wiki/United\\_States\\_Federal\\_Reserve](http://en.wikipedia.org/wiki/United_States_Federal_Reserve)

Both FED and the Eurosystem enjoy independence, but still it is questioned whether Federal Reserve System's independence is somewhat lower than that of the Eurosystem. United States' Constitution granted Congress the right to "coin and to regulate it". Because Congress has delegated this responsibility to Federal Reserve, it could, in principle, revoke it at any time. Congress intention when composing the Federal Reserve Act also aimed to maintain politics separate from monetary policy. There are a number of provisions designed to protect the Fed's independence. For example, the Fed is independent from other agencies and branches of government. It is financed from own sources is therefore not subject to Congress's budget process. Mandates of the seven members of the Board of Governors, appointed by the President and approved by the Senate, cover several presidential and congressional mandates, as a full term lasts 14 years. In practice, the period may be even longer. Hence, although a member who has completed a full term may not be re-elected, it is possible for a member to be reelected in case he hasn't fully completed his mandate. Council's President and Vice President are elected by United States' President, and must be approved by the Senate. They have a 4-year mandate and may be re-elected before their mandates expire.

Article 108 of the Treaty states that the Eurosystem is independent of any political influence. First, the ECB's financial interests are separate from those of the European Community. ECB has its own budget and its capital is subscribed and paid by the Euro area national central banks. Secondly, a potential political influence on individual members of the ECB is minimized: members of the Government have relatively long-term mandates, while a rule stipulates that members of the Executive Committee may not be re-elected. Thirdly, the Eurosystem's independence is strengthened by the prohibition of granting credit to the public, as the Treaty firmly states. Finally, the Eurosystem has a functional independence. ECB has all the tools and skills necessary to conduct monetary policy and is authorized to decide independently how and when to use them.

As shown, many similarities in the structures of the Eurosystem and the FED exist, but there are also important differences. A first difference is how they were created. While the U.S. central bank was created out of necessity to counter the crises in the banking system, the European Union's central bank was created by the political will of 12 developed and independent states, which makes the European Central Bank a unique institution in the world.

Another difference between the two systems is the right to vote. Eurosystem's national central bank governors have an equal right to vote in all policy decisions adopted by Governors Council. The right to vote in the Federal Open Market Committee (FOMC), under contract, is more restrictive. All seven members of the FED's Board of Governors are permanent voters, together

with New York’s Federal Reserve president, while the right to vote of Chicago’s Federal Reserve president and Cleveland’s branch president alternate annually. The other nine reserve banks presidents share only four votes on a rotation basis (still, they are present at all FOMC meetings and participate in discussions even when they cannot vote).

Another element that distinguishes the two systems is related to the powers delegated to them. Considering the European Central Bank, its attributions are more numerous than Federal Reserve’s ones because it fulfills a double role: that of bank of banks and that of supranational institution. Euro area national central banks did not disappear when Economic Monetary Union was formed, they continued to operate, but in close connection with the European Central Bank. Hence the ECB’s competences differ from those of the Federal Bank; still, the ECB’s primary objective is price stability, as FED’s one, and other objectives related to targeting inflation and economic growth, maximizing the employment rate are common.

### 3. Required reserves

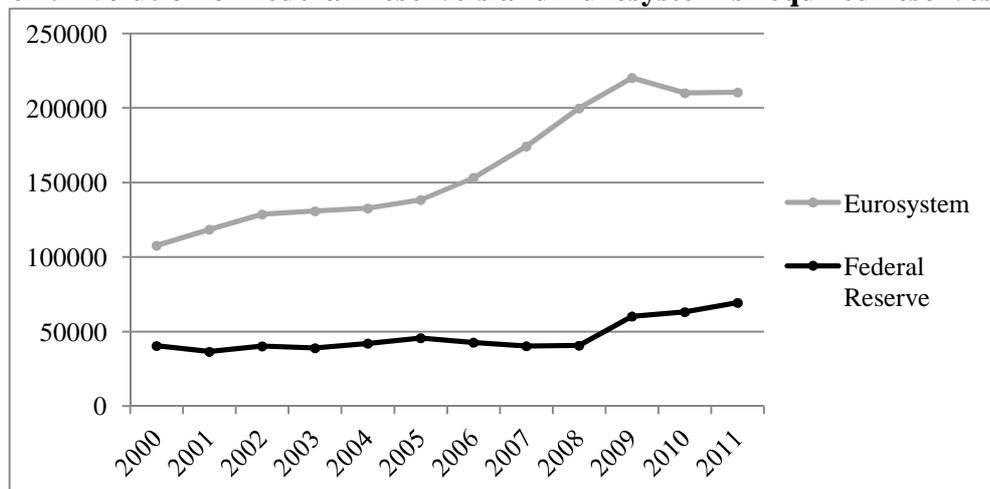
From a structural point of view, reserves are considered taxes on banking system, imposed in order to make banks pay for the services central bank offers and to compensate their privileges: access to central resources and the right to collect deposits from the public, remunerated at a low, insignificant level. Article 19.1 of the Statute of the European System of Central Banks establishes that European Central Bank must require credit institutions of member states to hold minimum reserves at national central banks.

In both Federal Reserve and European Central Bank cases, an increase in the minimum reserve rate influences the demand for credit, without any changes in the monetary market interest rate, that will immediately affect the cost of financing enterprises, given the fact that they do not have direct access to the monetary market. When the minimum reserve rate is relatively stable, reserves allow maintaining medium term balance on the capital market.

The reserves system is similar in the two banks. In European Central Bank’s case, reserves are deposited in accounts at national central banks within the Eurosystem’s reserve requirements, and in FED’s case reserves are represented by the funds that credit institutions must submit for specified deposit liabilities. Moreover, credit institutions must meet reserve requirements on average, based on daily balances for determined periods of time (one month for the Eurosystem, and for two weeks for FED).

In the United States of America, credit institutions must maintain required reserves for net transaction accounts. The required reserve ratio is set at 3% for transactions of more than \$10.7 million to \$58.8 million, and at 10% for the ones that outrun \$58.8 million. Transactions of less than \$10.7 million do not require reserves (required reserve ratio is zero).

**Figure 2: Evolution of Federal Reserve’s and Eurosystem’s required reserves levels**



Source: <http://sdw.ecb.europa.eu>, <http://www.federalreserve.gov/release>

In the Eurosystem, credit institutions must hold minimum reserves for a wide range of liabilities (overnight deposits, deposits with a maturity of up to two years, debt securities with a maturity up to two years, money market paper). The required reserve ratio is set at 2%. But the main difference between the two systems is that the ECB remunerates deposits for reserve requirements and FED does not remunerate or remunerates reserves at low levels.

As noted above, the euro area credit institutions are obliged to hold minimum reserves on accounts with national central banks, with a stabilizing effect on short-term interest rates and expanding liquidity deficit. Analyzing the evolution of reserve requirements in both European Union and United States, it can be observed that the minimum reserve level of the Federal Reserve System is well below the level of the Eurosystem's reserve requirements (see Figure 2).

While in European Central Bank's case, the minimum reserve level has been increasingly larger between 2000-2008, due to the increasing number of members of the Eurosystem, reaching in January 2008 a level of 201.60 billion, Federal Reserve's required reserves have had an oscillatory evolution in the same period. Since 2008, however, the evolution shows a significant decrease in the amounts of European Central Bank's required reserves, indicating its attitude towards the financial crisis: by lowering reserve requirement ratios, ECB aimed to increase liquidity on the market, in order to stabilize the financial market, and to eventually lead to a credit recovery. By comparison, Federal Reserve took a contrary position to that of the European Central Bank, meaning that since 2008 it has acted by increasing the required reserve ratios, which led to an increase in their level. The reason was that Federal Reserve decided to intervene in order to prevent the collapse of the American banking system, its interventions consisting of large amounts placed by the Federal Reserve on market. The example of nationalization of the world's largest group insurance, American International Group (AIG), is eloquent: Federal Reserve, together with the U.S. government have agreed on an \$85 billion aid in exchange for 79.9% of AIG actions.

#### **4. Open market operations**

In terms of open market operations, the initiative for the euro area belongs to the Eurosystem. Traditionally, these operations involve the purchase and sale of securities (government bonds), but the Eurosystem uses a wider range. Eurosystem's most important free market operations are refinancing operations and the operations of long-term refinancing. The first are short-term financing transactions with a maturity of two weeks (offered daily), and the latter are long-term financing transactions with a maturity of three months (offered monthly). To receive a loan from the European Central Bank, banks must either provide a pledge or transfer securities under a repurchase agreement.

In contrast to the Eurosystem, Federal Reserve uses open market operations in the traditional sense. In this case, open market operations are only purchases and sales of bonds that may occur as direct sales or purchases or through repurchase agreements. In the American system, the Bureau arranges repo transactions (repurchase transactions) to add temporary reserves to the balance and final sale transactions to temporarily decrease the reserve balance, while the European Central Bank opens an auction every week for banks and financial institutions in the euro area, through which the latter ones can lend money (conditioned by a security deposit) for a period of one week.

Euro area banks are required to inform the ECB on interest rate they are willing to pay for the amounts they intend to borrow and is well known that the loan will be those offering the best rate, so they will buy at higher price. They are used somewhat differently to manage the total supply of reserves. To define them in terms of maturity, we can say that the repo transactions with a maturity of up to six days are considered short term, while those with maturity of over seven days are called long-term transactions.

For Federal Reserve, short-term repo transactions may be used to make daily adjustments to the federal reserve. In fact, repurchase transactions for a day (overnight) are the most common. They can be quickly created or removed by daily entries on the market to balance short-term changes in autonomous factors and the net liquidity demand.

Therefore, open market operations are used in a much broader sense by the Eurosystem. Eurosystem considers injecting liquidity into the market, largely throughout short-term loans in the form of reverse transactions, while FED prefers buying government bonds.

## 5. Conclusions

European Union, together with the United States of America are two major players on the global economic scene. Their monetary authorities, represented by the Federal Reserve and European Central Bank play a central role within their economies, as they are responsible with monetary policy. The analysis conducted by comparison on the Eurosystem and Federal Reserve System lead us to the conclusion that similarities do exist, a fact obvious if considering that European Union's central bank was based on the American model. As a consequence, the European Central Bank promotes a non-interference of the politics in monetary policy, as Federal Reserve does, and aims a similar prior objective, that of price stability.

Not surprisingly, the Eurosystem differs from Federal Reserve System. Main differences include structure of the two systems, regulations regarding attributions, competences and the right to vote within European Central Bank and Federal Reserve, respectively.

Analyzing reserve requirements in the Eurosystem, we conclude that credit institutions in the euro area must hold reserves for a wider range of liabilities than those imposed by Federal Reserve, while required reserve ratio in the Eurosystem is lower than Federal Reserve's one.

Regarding instruments of monetary policy, both European Central Bank and Federal Reserve use open market operations because they play an important role in monetary policy, aiming to control interest rates, managing the liquidity situation in the market and indicating the monetary policy stance.

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## STUDY CONCERNING USEFULNESS OF ACCOUNTING INFORMATION IN EVALUATING THE SUCCESS OF A STRATEGY

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**Abstract:** *Managers are using a large volume of accounting data and information in order to substantiate their decisions-making. The Balanced Scorecard provides managers with a process to describe strategy – both what the organization wants to accomplish and how it intends to realize its strategic outcomes. Taking all the objectives and measures together into a strategy map of cause-and-effect relationship across the four perspectives provides a comprehensive picture of the organization's value creating activities. This writing is proposing to study the way and degree the accounting information is understood, analysed and used by managers of the companies located in Constanta County in evaluating the success of a strategy.*

**Key words:** the balanced scorecard, accounting information, managerial decisions, strategy

**JEL classification:** M41

### 1. Introduction

Management of the entity and settlement of the multiple matters occurred within the production and economic-financial activity permanently imply advanced scientific decisions making.

Within the economic activity in order to make a decision it is necessary a thorough knowledge of some data and deeds that should substantiate it and conferring this one a justification and a sense. In present conditions characterised by a large volume of information and growth of complexity of the economic problems it is imposed the separation of the information from decision, the two ones reciprocally conditioning each other viewing to achieve efficient actions of the management and organisation of the economy.

Information represents the most valuable product of the activity carried out in the financial accounting field and, considering the primordial role in decisions-making, this one is the element of which quality makes that success of an entity in the market to depend on.

### 2. Accounting information used at evaluating the success of a strategy

Management accounting offers reports that help managers follow the progress made in strategy implementation. Since the early 90's, American companies have been using a new steering and performance tracking tool: **the balanced scorecard**. Currently it is being adopted by companies worldwide, to manage the implementation of their strategies, as it is based on a concept according to which "strategy is transcribed into action".

The balanced scorecard transcribes the mission and strategy of an entity into a set of performance indicators that ensure the framework for implementing the strategy.

The balanced scorecard focuses not only on reaching financial goals, but also on highlighting non-financial objectives that an organization must reach in order to fulfill its financial targets.

This situation balances the use of financial and non-financial indicators with the purpose of evaluating short term and long term performances in one single report. Thus, managers direct their attention on more than short term performances, such as quarterly proceeds, due to the fact that non-financial and operational indicators measure the changes that a company can achieve on the long run. The benefits of these long term changes may not immediately be reflected in short term profits, but the solid improvements of non-financial indicators represent an indicator for creating future economical value. By balancing the percentage of financial and non-financial indicators, the balanced scorecard increases the management's attention on short term performances as well as long term goals.

The balanced scorecard measures an entity's performances in four directions:

**1. The financial perspective** – evaluates the profitability of the strategy. The most commonly used indicators are: the exploitation profit, income growth, income obtained from new products, percentage marginal share, cost reduction in key areas, added economical value, investment profitability.

**2. The clients' perspective** – indicates the target market segments and measures the entity's success on these segments. Entities use indicators such as market share, the number of new clients, the customers' level of satisfaction, the level of customer continence, the time necessary to cover customer demands and the number of customer complaints.

**3. The perspective of the internal economical process** – focuses on operations that carry on the client's perspective by creating customer value and financial outlook, increasing shareholders' value. The indicators used are: abilities concerning production, the number of new products or services, development time for new products and the number of new patents, efficiency, the number of defects, the time necessary to deliver the product to the customer, the percentage of real time deliveries, the average time necessary to realize production according to demands, the necessary time for assembly and adjustment and the actual production time, necessary time for replacement or repair of defective products, customer training sessions to show the proper use of the product.

**4. Learning and growth perspective (expertise development)** – establishes the abilities which the organization must excel in, in order to bring betterment to internal economical processes, which in return lead to a higher customer satisfaction and higher market shares and ultimately to superior financial performance. The indicators used here are employee training and qualification levels, numbers that indicate employee satisfaction levels, employee efficiency, the availability of informational systems, the number of advanced controls processes and the percentage of implemented employee suggestions.

The indicators used for performance evaluation in either of these directions must be a tightly linked to the strategy of the entity. Thus, assuming that the strategy is well planned, the entity focuses on actions that must be launched in order to achieve success.

In order to evaluate the success of implementing the strategy, an entity compares the target performances with actual performances on the balance scorecard.

Some entities are tempted to highlight the success of their strategies by measuring the annual changes of the exploitation profit. This approach is not adequate, as the exploitation profit may grow either as a result of general development of markets, or due to other agents independent of the strategy. This is why managers and accountants must evaluate the success of a strategy by making the connection between the sources of the increase in exploitation profits and strategy.

The management accountant makes a thorough analysis of the exploitation profit giving managers more information in order to evaluate policies and thus, adds value to the management team in evaluating the efficiency of strategy implementation.

It is considered that an entity has successfully implemented its strategy when the value of the components apposite to product differentiation, the cost leader position and exploitation profit growth is regular to the strategy in question.

### 3. The research regarding the opinions and attitudes of the managers regarding accounting information collecting, analysis and utilisation in evaluating the success of a strategy

This writing is proposing to study the way and degree the accounting information is understood, analysed and used by managers of the companies located in Constanta County in evaluating the success of a strategy.

During the research the opinion survey has been chosen as a method of obtaining the primary data. This involves the existence of a questionnaire and consideration of a representative sample of population.

Performance of this survey involved mailing of the questionnaire forms to a sample of short-listed respondents. They filled in the forms and mailed them back. There were selected 400 managers of limited liabilities companies, stock companies, collective companies avoiding authorized individuals and family associations due to the premise that the latter ones are not basing their activity on accounting information and reports.

We randomly selected 400 entities with the headquarters in Constanta, we wrote them letters regarding this research and mailed to the respondents together with the questionnaire. 352 managers of selected ones answered to us this meaning a percentage of about 88%.

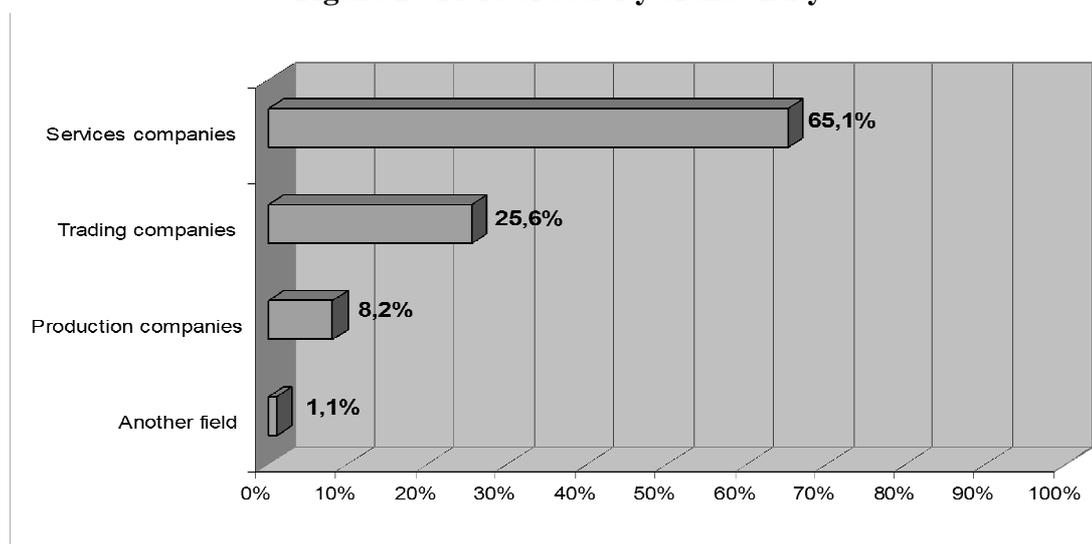
This study is a pilot one. By this empirical research I was going to collect information from managers acting in small, middle and large companies covering all large fields of activity (production, trading and services). Due to the fact that answers rate was not of 100% - this being one of the limits of the opinion surveys performed on mailing basis - collected information mainly refer to the managers of the small and middle entities.

In order to analyse and process the statistical data I used the statistic analysis program SPSS.

#### 3.1. General information about respondents

The first question was referring to **the field of the activity of the company** of which manager was interviewed.

**Figure 1: Field of activity of the entity**

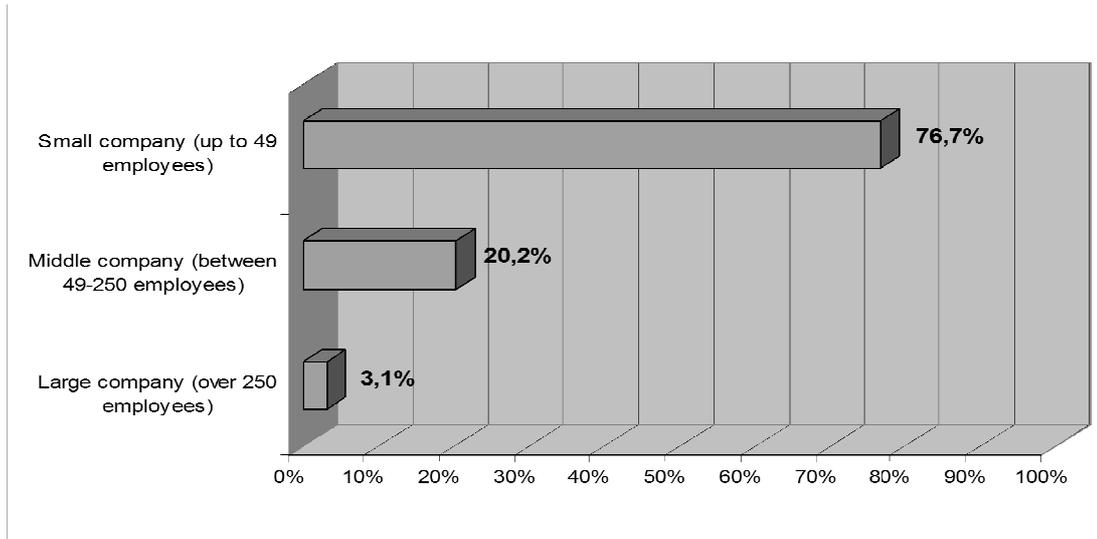


Out of the 352 received answers it can be noticed that services companies prevail this meaning 65.1% and then trading companies follow with 25.6%. The companies performing their activity in the production area represents about 1/10 of total.

**Structurally approach of the size categories of the companies** was achieved by considering the criteria of the number of employees.

The answers were grouped as follows: small company (up to 49 employees), middle company (between 49-250 employees), and large company (over 250 employees).

**Figure 2: Size of the entity**



Analysing the information from the above chart it results that great part of the interviewed managers are carrying out their activity in small and middle companies.

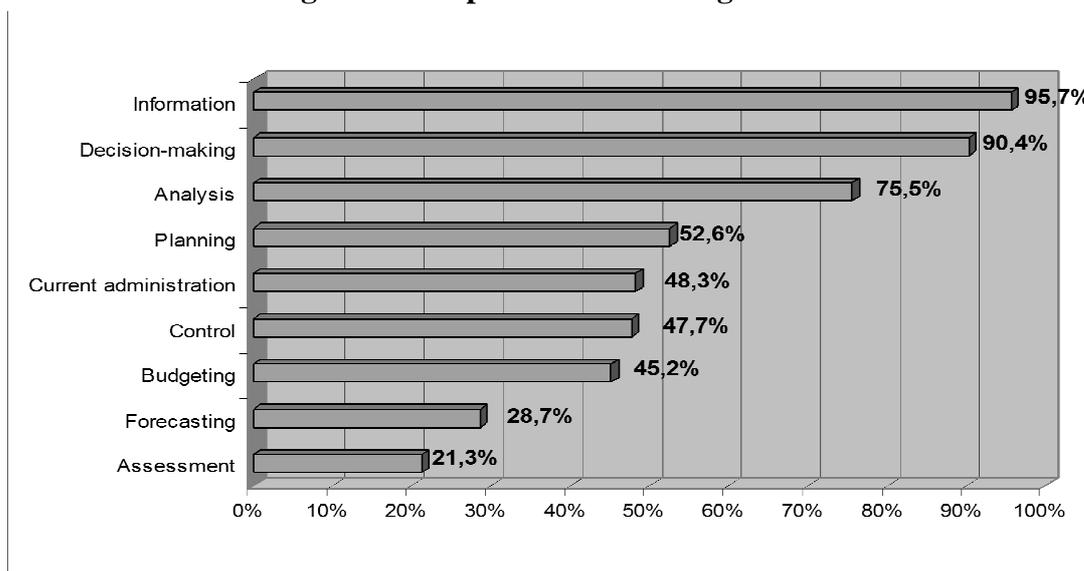
**3.2. Accounting information**

We intended to find out **if the accounting information is used or not for decisions substantiation**. All 352 interviewed subjects stated that they are using the accounting information in their activity. We have to specify that respondents were selected thus to avoid small traders, stalls managers, family associations or authorised individuals as these considerably do not base their activity on accounting information.

The answers to this question were thus codified: 0-not at all, 1- little, 2-much, 3-very much and cases of non answer/ I do not know were expelled of the analyses. The average value for the sample is 2.08(standard deviation: 0.83), possible maxim value being 3. Data show that *managers are much using the accounting information* in their activity.

**The purposes for which the accounting information is used** is subject to the next question. Further the analysis of the answers to this question it may be easily noticed the existence of diversified opinions regarding purpose of the accounting information use.

**Figure 3: Purposes of accounting information use**



The answer to this question is proving the role played by the accounting information for reaching the managerial targets regarding control, analysis, planning, etc. The conclusion is that the accounting information is useful for managers and answer to substantiation necessities of their decisions.

Thus managers are using financial accounting information for: information, planning, budgeting, control, assessment, current administration, forecasting, analysis and decision-making.

Analysing the answers it is found out that almost all (more than 90%) are using the accounting information for information and decisions-making while less than ¼ of them (21.3%) are using it for activity assessment. A high enough percent (75.5%) is using the information for the analysis of the activity of the entity.

Also less than 1/3 (28.7%) of the managers are using the accounting information for making forecasts and surprisingly, those who use the information for other purposes is lower thus 52.6% use it for planning, 48.3% for current management and 47.7% for control of the development of the activities they are administering. Less than half of the managers use the accounting information for budgeting.

### 3.3. Accounting reports

We wanted to identify preferences of respondents for certain **accounting reports used in the activity of the managers**.

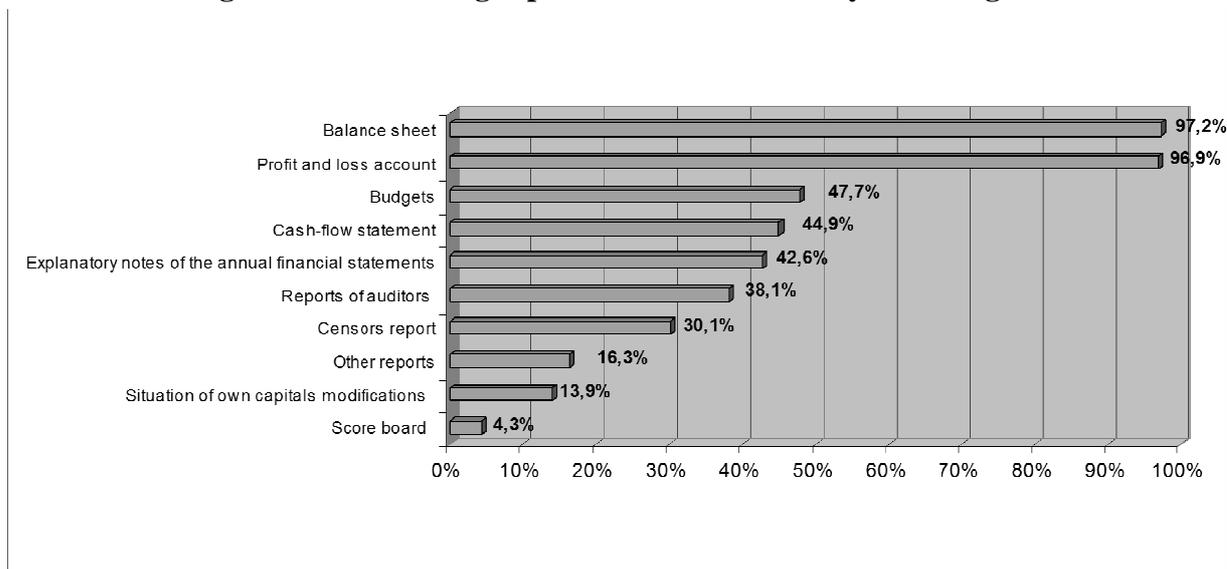
The accounting reports are those that make connection between accounting information producer and user having an important role in sustaining the substantiation and decisions-making process within an entity.

These include the documents that are at the basis of a diagnose ascertainment regarding financial statement, performances of the entity permitting confirmation and denial of strengths and weaknesses of manifestation of all functions of an entity.

Most of managers asked for a more concise and clear form of presentation of the accounting reports. They request that certain elements that are found in the balance sheet or in the profit and loss account to be distinctly presented in an accessible format.

In their analysis and decisions managers often rely on the reports of the auditors, censors and internal control bodies due to the fact that they contain a more accessible language and help them to find out the strengths and weaknesses of the accounting system. The result of centralisation of obtained data is as follows:

**Figure 4: Accounting reports used in the activity of managers**



Data analysis points out that the most studied report, the most important accounting information source contributing to decisions substantiation is the balance sheet (97.2%), followed by the profit and loss account (96.9%), the budgets (47.7%), cash-flow (44.9%), explanatory notes of the annual financial statements (42.6%), reports of auditors (38.1%), censors report (30.1%),etc.

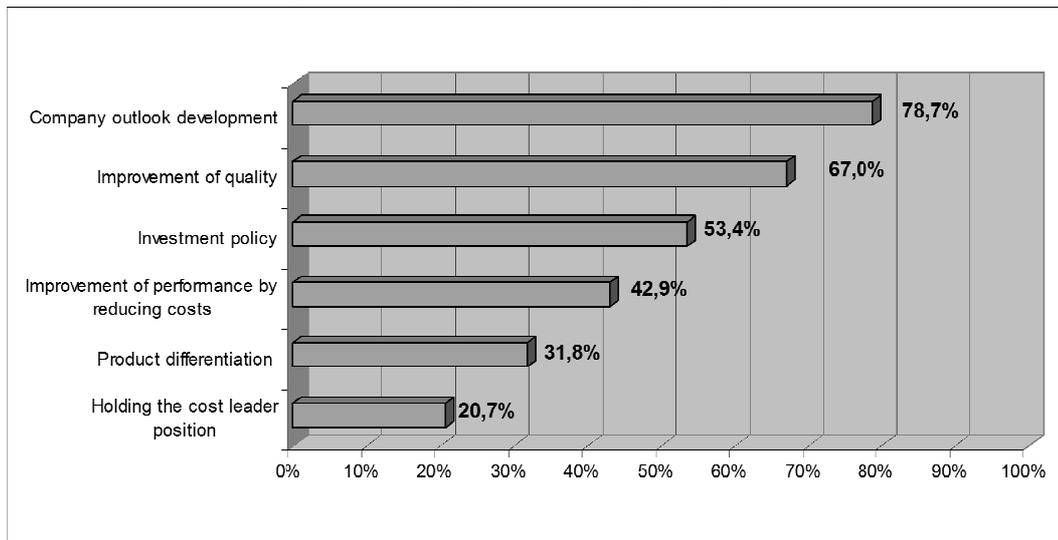
Out of the annual covered financial statements, situation of own capitals modifications is the least used by managers (13.9%) and a few managers heard about the score board although they ask for certain information contained in this report .

We may appreciate that degree of accounting reports use is good enough but that of understanding is rather low. Managers do not limit only to information contained in the financial statements but they consider other documentation modalities to be useful too as they offer a complete and complex image upon the environment within which they carry out their activity.

### 3.4. Implementing and evaluating the success of a strategy

**Long term strategic objectives** followed by managers in adopting strategic decisions represented the subject in question during the interview. The result of summarizing the data obtained is as follows:

**Figure 5: Long term strategic objectives**



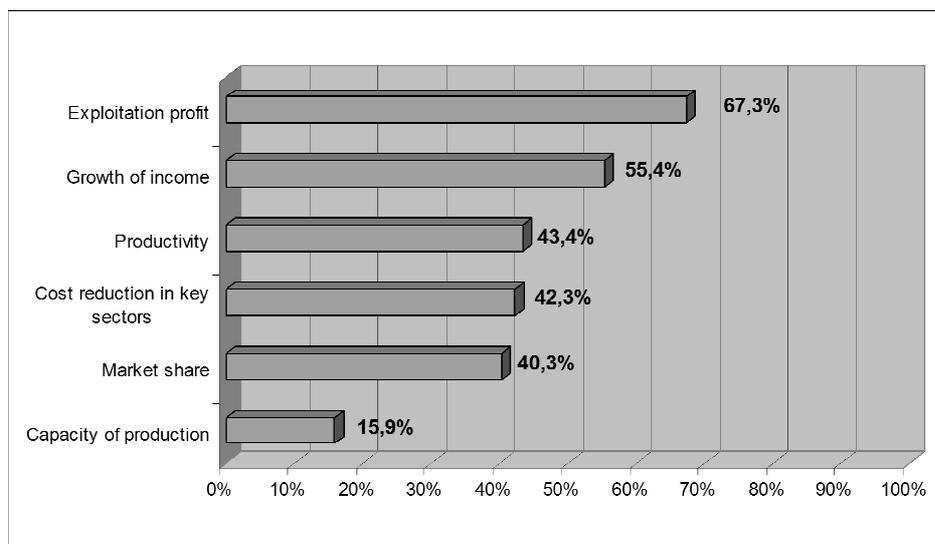
We may observe that most managers’ primary strategic objectives are company outlook development (78.7%) and improving quality (67). Approximately half of all managers prioritize on investment policy as an objective and a third of them on product differentiation.

The objective of the following two questions is **the identification of performance indicators used for tracking the progress of long term and short term strategy implementation.**

In order to manage their strategy’s implementation, managers use a set of performance indicators that ensure the frame for the implementation of the strategy. Financial (exploitation profit, growth of income, cost reduction in key sectors, productivity, and investment profitability) and non-financial indicators (product quality, customer satisfaction, employee satisfaction level, market share) are used for the purpose of evaluating long term and short term performances.

First we wanted to find the preferences of the respondents regarding performance indicators used in tracking the progress of implementing the strategy on the short term. The results recorded are as follows:

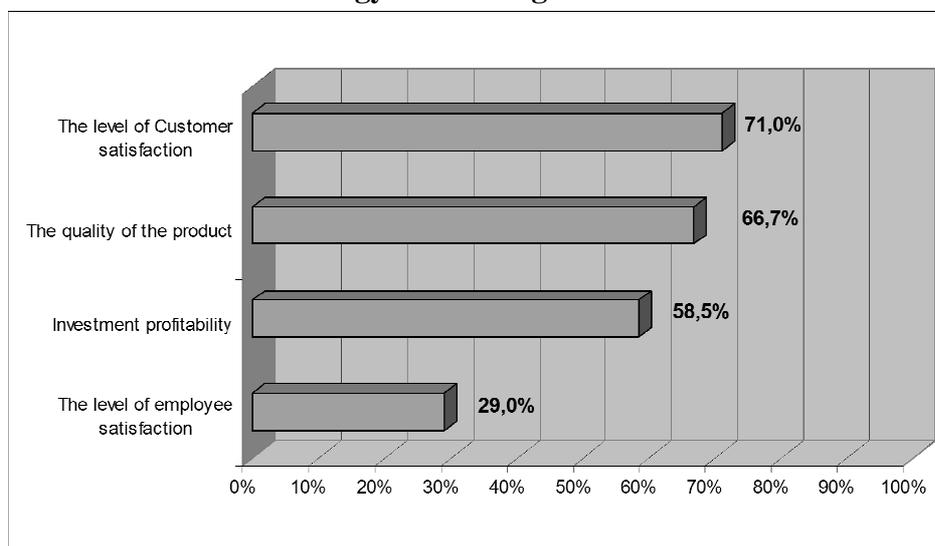
**Figure 6: Performance indicators used in tracking the process of implementing the strategy on the short term**



Managers seem to prefer tracking two financial indicators, namely exploitation profit (67.3%) and the growth of income (55.4%).

Secondly, we wanted to find out the preferences of the respondents regarding performance indicators used in the process of implementing the strategy on the long term. The results of the research are as follows:

**Figure 7: Performance indicators used in tracking the process of implementing the strategy on the long term**



Based on the analysis of the data gathered, we can state that most respondents primarily use two non-financial indicators: the level of customer satisfaction (71%) and quality of the product (66.7%).

**Connections between long term strategic objectives and performance indicators used to track the process of strategy implementation on the long term.**

Managers who consider the company's outlook development are mainly interested in investment profitability and employee satisfaction. Those who use the quality of the product as a strategic objective confirm that they use product quality as a performance indicator. What is

interesting is that the customer satisfaction level is not significantly correlated to any of the indicators used for the implementation of the strategy on the long term.

**Table 1. Connections between long term strategic objectives and performance indicators used to track the process of strategy implementation on the long term**

<i>For tracking the progress made in strategy implementation on the long term, use the indicator:</i>	<b>Investment profitability</b>	<b>The quality of the product</b>	<b>The level of customer satisfaction</b>	<b>The level of employee satisfaction</b>
Does the <i>company outlook development</i> represent a strategic objective from the company on the long term?	$r = 0,28^{**}$ $p = 0,006$	$r = 0,09$ $p = 0,35$	$r = -0,01$ $p = 0,92$	$r = 0,19$ $p = 0,06$
Does the <i>investment policy</i> represent a strategic objective from the company on the long term?	$r = 0,45^{**}$ $p = 0,00$	$r = 0,17$ $p = 0,09$	$r = 0,16$ $p = 0,13$	$r = -0,06$ $p = 0,60$
Does the <i>product differentiation</i> represent a strategic objective from the company on the long term?	$r = 0,08^*$ $p = 0,46$	$r = 0,32^{**}$ $p = 0,002$	$r = -0,02$ $p = 0,86$	$r = 0,08$ $p = 0,43$
Does the <i>holding the cost leader position</i> represent a strategic objective from the company on the long term?	$r = 0,13$ $p = 0,23$	$r = 0,10$ $p = 0,32$	$r = 0,15$ $p = 0,15$	$r = 0,30^{**}$ $p = 0,004$
Does the <i>improvement of performance by reducing costs</i> represent a strategic objective from the company on the long term?	$r = 0,21^*$ $p = 0,04$	$r = 0,23^*$ $p = 0,02$	$r = -0,06$ $p = 0,59$	$r = 0,26^*$ $p = 0,013$
Does the <i>improvement of quality</i> represent a strategic objective from the company on the long term?	$r = 0,13$ $p = 0,21$	$r = 0,19^*$ $p = 0,03$	$r = 0,02$ $p = 0,88$	$r = 0,04$ $p = 0,69$

\* The association is significant when  $p < 0,05$

\*\* The association is significant when  $p < 0,01$

Consequently, the predominant selection/use of certain performance indicators on the long term varies based on the strategic objectives of the company.

#### 4. Conclusion

One instrument that is instrumental and more accessible to managers is the balanced scorecard, which translates the strategy of an entity into a set of performance indicators that ensure the frame for strategy implementation.

The balanced scorecard contains pertinent operational indicators that only follow the implementation of the entity's strategy. The balanced scorecard is a complex instrument for measuring and managing performance, by ensuring balance between: short term and long term (it identifies the sources of long term success and leads to a short term decision), the outside and inside of the entity (considers external objectives – clients and internal objectives – the personnel, which it analyzes within internal processes), value and cost (leads to cost management from the perspective of generating customer value) and between the financial aspect and non-financial aspects of performance.

Majority of interviewed managers are carrying out their activity in small and middle entities of which the predominant field of activity is that of services followed by trade and production.

As regards purpose of accounting information use, answers were enough diversified and refer to: information, planning, budgeting, control, assessment, current managing, forecasting, analysis,

decision making. Thus it was reached the conclusion that information proves to be useful in decisions substantiation being capable to answer to multiple objectives.

Data analysis demonstrated that standardised reports are more used than those non standardised although the latter started to gain importance in comparison with the others as they use a more familiar language for managers and present clearer and more concisely the economic-financial activity of the entity.

Most managers' main strategic objectives are the company's outlook development and improvement of quality. Approximately 50% of managers use investment policy as an objective and a third of them use product differentiation.

In order to manage the enactment of their strategy, managers use a set of performance indicators that set the frame for strategy implementation.

Financial indicators (exploitation profit, growth of income, cost reduction in key sectors, productivity and investment profitability) and non-financial indicators (product quality, customer and employee satisfaction levels and market share) are used for the evaluation of long term and short term performances. Performance indicators used for tracking the process of implementing strategies are mainly financial, namely exploitation profit and growth of income. Managers prefer to use non-financial indicators, such as customer satisfaction levels and product quality in tracking the progress of long term strategy implementation.

Managers who provide for the company's outlook development are interested, mainly, in investment profitability and employee satisfaction. Those who use strategic objectives such as product quality improvement confirm that they use product quality as a performance indicator. It is interesting that the "customer satisfaction level" is not significantly associated with any of the indicators used to implement strategy on the long term.

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## COURT OF AUDITORS, 'GUARDIAN' OF THE INTERNAL PUBLIC AUDIT

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**Abstract:** *This article is meant to be a comparative study on the implementation level of the internal public audit of Romania's pre-accession and post-accession period to the EU. We try to give an answer to a series of questions related to the need for additional oversight of the internal audit, comparing the requirements of the European Commission with the measures taken by Romania for the smooth running of the audit activity. A comparative analysis was performed regarding three years of reporting the public internal audit to highlight the current level of its implementation. There was noticed a number of positive and negative aspects related to Romania's perception on the public internal audit system and was outlined a series of actions to be taken to increase its level.*

**Key words:** public internal audit, Court of Auditors, financial professionals.

**JEL classification:** M42, M48

### 1. Introduction

Financial scandals that took place both in the 90s as well as in the contemporary period have led to a decline of trust in bankers, managers, professionals and institutions responsible for supervising and regulating the economic activity. The growing demands of the market determine the regulatory bodies to find ways of improving the economic activity and performance so as to enhance the lost confidence in the professional accountants as a consequence of the economic collapse. The risk, the error or bad performance should be minimised to ensure a fast and sustainable growth.

Reforms have been established in the auditing, accountability and shared leadership fields. Substantial efforts have been made to complete the guiding methodologies and procedures in order to support the professional accountants. The U.S. federal Sarbanes-Oxley Act, enacted in 2002 represents an example of legislation that had repercussions throughout the world by determination of other nations to study its provisions and act to their benefit, adopting the standards belonging to foreign trade companies on the U.S. market. Another reform that brings changes to the public domain is the "White Paper" of management reforms within the services of the European Commission. Published in 2000, it emerged in response to the scandal that took place in 1996 when the European Parliament refused to grant the financial management discharge to the European Commission for the Community budget related to that year by asking for an analysis to a committee of independent experts on body practices.

In 2009, at Brussels was held a conference organised by the European Commission concerning the *Public Internal Financial Control (PIFC)*. Within the framework of the conference it was debated that the majority of the 12 new member states have not continued the PIFC development after the accession process. In other words, the harmonisation central units, which

were meant to implement and develop the PIFC have stopped making significant efforts for this purpose. Therefore, the Commission recommends that the Supreme Audit Institutions to act in this direction in order to assess the implementation status of PIFC and help to the continuous and operative development of PIFC.

***Which are the changes brought by these recommendations to Romania and what actions are taken?***

In 2011 was published *Guidelines for Internal Control Standards in Public Entities*, a tool used to develop methodology and procedures applicable to the activity of the Court of Auditors. Elaborated with guidance purpose, the Guidelines offer to the public external auditors of the Court of Auditors recommendations for improving the assessment of internal control system implemented in the audited entities. Basically, the European Commission suggests the achievement of a double assessment on the public internal audit (part of national public control), the first achievement being performed by the Central Harmonizing Unit for Public Internal Audit (CHUPIA) or the Audit Department of the superior hierarchical entity, based on Law no. 672 of 2002 and the second assessment carried out by the Court of Auditors, based on its legal duties. The main objective of the assessment performed by CHUPIA is to measure the effectiveness of the audit structure and propose its improvement. In terms of the Court of Auditors which has an important role in the Romanian Public Administration Reform, it is intended to improve the management, the organisation of the public system and a more efficient use of public funds.

## **2. Research methodology**

The purpose of this paper is to highlight a series of recommendations elaborated by the European Commission on the development and supervision of public internal audit activity within the new Member States. The study represents an approach as an analysis of the standards that are regulating this activity, the national regulations in force and the practical guidelines for assessing the internal control system adopted by the Court of Auditors in 2011. Moreover, it was performed a comparative analysis of three-year report, considered to be significant in the implementation and development of the public internal audit activity in order to determine the current level of implementation and possible actions to be taken so as to improve the activity.

## **3. Moving from a ‘culture of suspicion’ towards a ‘culture of responsibility’.**

The scope and the activity of public institutions are important because they give credibility to the government and a reasonable assurance that the assets of the government are protected; the reporting is transparent and the financial operations comply with the ethical characteristic. Taking responsibility, establishing priorities, an achieving and efficient use of resources, all these are necessary, while a way of implementing these is represented by the decentralization of the control activity so as the managers of departments to be held responsible for the management of allocated funds.

Starting with the issue of the first volume of White Paper in 2000, the members of the Prodi Commission, stated: “The challenges of globalization and the future extension require *a better governance* at all levels, including the European Union. *All European political institutions have to cope with this challenge, including the Commission*”. Starting with the acceptance of new member countries within the European Union and the allocation of funds to these countries, it was intended to comply with the principles set out in the White Paper and to implement a unit framework for internal control in all public entities in order to analyse the way these are managed.

### ***Romania’s evolution!***

The Community acquis on financial control of the European Commission requires transparent and effective control and financial management systems; functional independent internal audit systems; harmonization central units for these two fields, responsible with the coordination and harmonization of methodologies; an independent external audit of public internal financial control system within the public sector (Supreme Audit Institution).

3. in the Opinion drafted in 1997, the Commission concluded that major efforts are needed to strengthen internal financial control functions;

4. in 2004, no significant legislative progress was registered in the field of public internal financial control;

5. in 2006 “Romania has adopted a global strategy for the development of public internal financial control in accordance with the standards and practices of the European Union. The implementation of PIFC is in progress, in advanced stage, being performed in accordance with the *acquis*.”

Why does the Court of Auditors’ ‘guard’ become necessary?

In order to achieve a comparative analysis of the existing level in terms of public internal financial control in each EU country and to appreciate the own level of development. Thus, it becomes necessary that the public external auditors to identify the weakness in the internal control systems of public institutions and to support the internal audit structures so as to eliminate these weaknesses and shortcomings (through recommendations), to assess whether the activity carried out by the public entities is in compliance with specific regulations of the field, manuals and guidelines developed for audit and internal control by those who are designated to implement the internal control within the entity.

Considering things from this point of view, the Court of Auditors is interested as well in establishing an efficient internal control system within the audited entities, because it can prevent errors and omissions, fraud and irregularities starting with the early stages as opposed to the time in which an external audit can achieve it;

#### **4. Implementation level of public internal audit.**

Within the framework of this research I have conducted an analysis on three years considered to be relevant to the development of the internal audit activity in Romania, believing that after performing this research we shall obtain an overview of the audit implementation level regarding the post-accession period, the moment of accession and the current situation.

The years taken into account were 2004 - post-accession, 2007 - the year of accession and 2009 - the last year reporting the public internal audit activity.

In terms of regulation and methodological framework related to the internal audit activity, there is:

Year 2004 with the following:

1. *Government Ordinance no. 37 of 29 January 2004* on amendments and addition to the regulations regarding the internal audit activity by which was achieved the harmonization of the provisions of Law no. 672 of 2002 on public internal audit with the provisions related to financial audit so that it was accurately defined the legal framework of internal audit organisation within government business enterprises, national companies and economic entities, i.e. majority state-owned businesses.

2. *Ordinance of the Public Finances Ministry no. 252 of 2004* regarding the approval of the Code of Ethics for internal auditors, the new ethical framework being drafted accordingly to recent legislation.

3. *Ordinance of the Public Finance Ministry no. 423 of 15 March 2004* amending and supplementing the general standards regarding the exercise of internal audit activity; it supplements the initial regulations, enhancing the internal audit process in terms of planning, conducting, reporting and monitoring this activity, as a result of the activity testing performed in 2003.

Year 2007 with:

✓ “Practical Guide to conduct internal audit mission regarding the financial-accounting activity”;

✓ “The framework of skills related to the internal auditors of the public sector”;

✓ The implementation of the twinning project “Strengthening the internal audit function” which had the objective to develop the audit function in order to ensure the protection of the European Commission’s interests, as well as the national interests against irregularities and fraud.

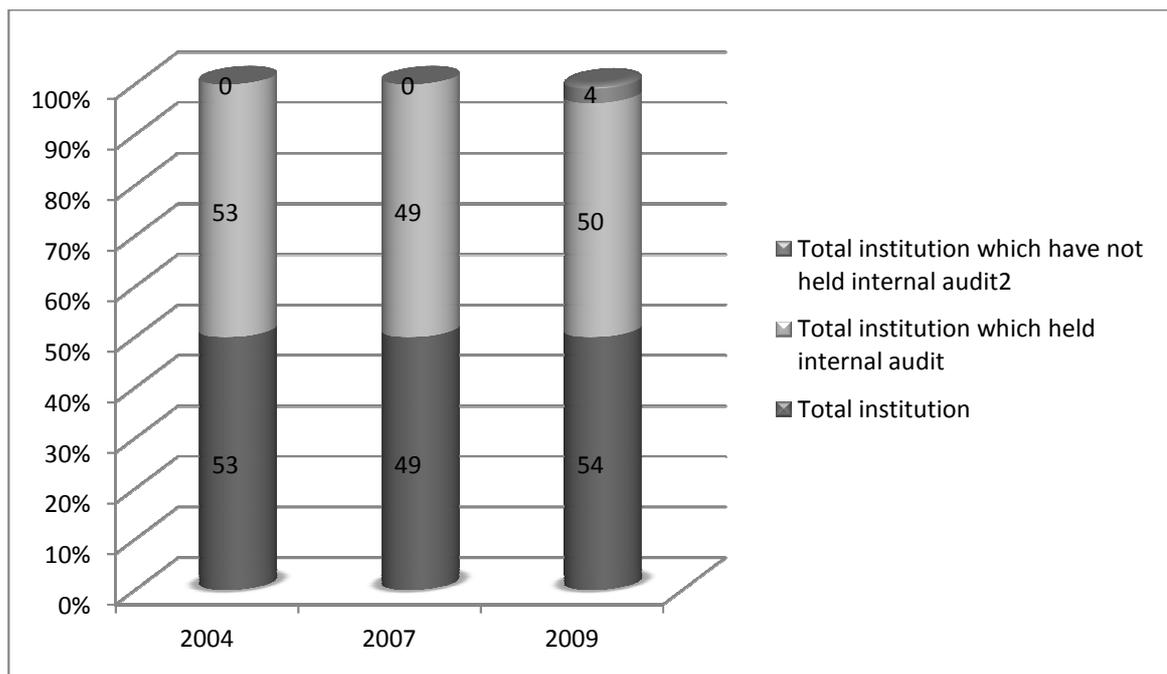
The **public internal audit system** at national level maintains the same ‘architecture’ throughout all those three years of analysis, respectively:

3. **Public Internal Audit Committee**, a professional body, with advisory characteristic, comprising specialists in the field of internal audit within public entities other than the Public Finance Ministry, whose role, as an independent observer, is to improve development strategy of internal audit, to help increase the overall quality of internal auditing within public entities, to develop cooperation with external audit and promote the exchange of experience with the private sector in this field.

4. **Central Harmonizing Unit for Public Internal Audit** works as general department within the Ministry of Public Finance and is responsible for developing and managing a unit strategy in the field of internal auditing in the public sector, ensuring the development of the regulatory and procedure framework for exercising the internal audit activity, assessing its functionality in order to identify the course of action so as to increase the contribution of internal audit to the improvement of public entities activity and coordinating the professional training system for internal auditors.

5. **The internal audit departments** within public entities represent the basic link in the architecture of the decentralised internal audit system; these are actually the units that perform the actual work of internal audit in order to provide to the management of the organisation which includes them, a reasonable and objective assurance on the management system functionality, based on risk identification and management, internal control and management processes.

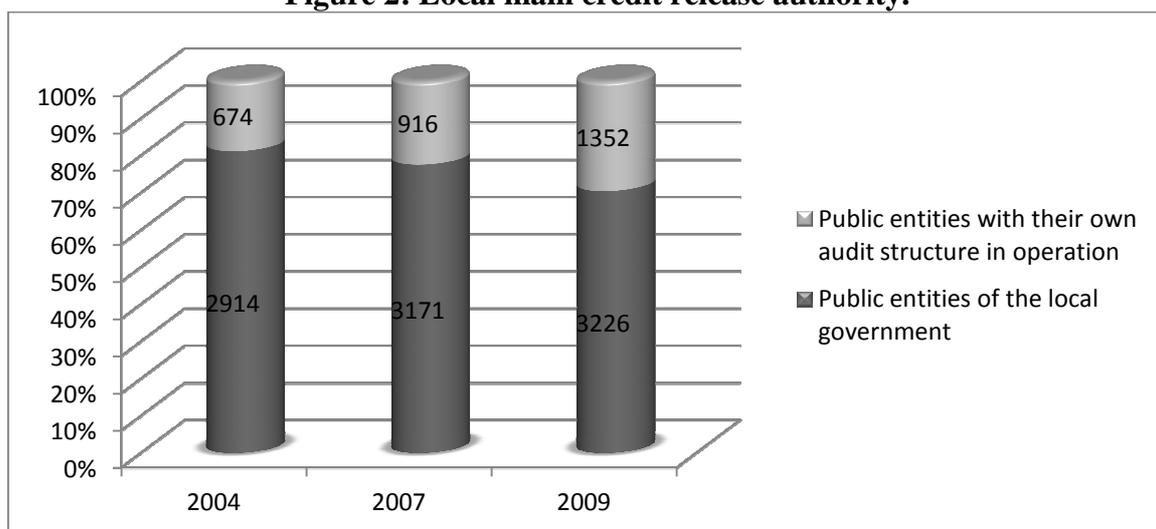
**Figure 1: Central government, the status on the organisation of the audit activity.**



Source: Author projection

\*In 2009 at 15 central government entities, the audit activity is conducted by a single auditor, this situation being likely to have an impact on the quality of audit work, and at 30 central government entities there is not designated any person to ensure the management of internal audit activity.

**Figure 2: Local main credit release authority.**

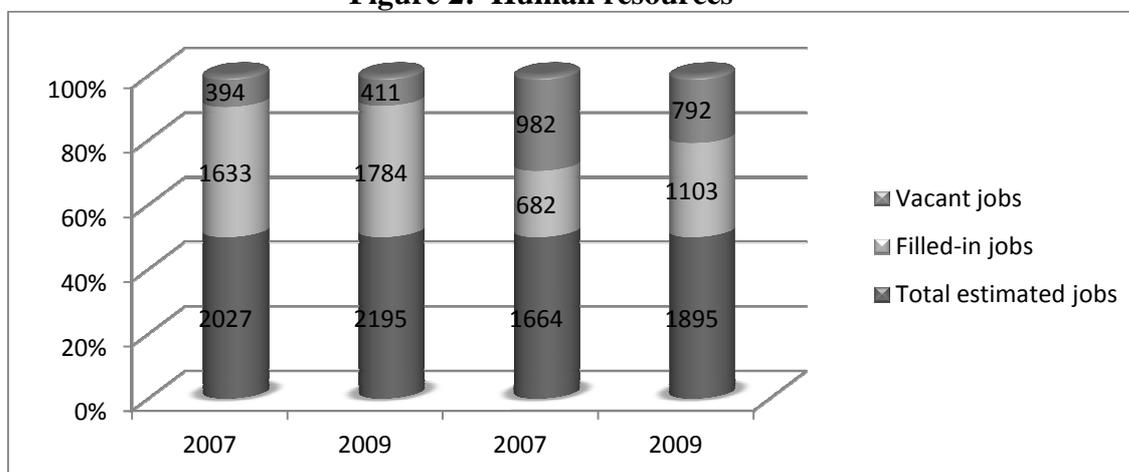


Source: Author projection

It can be noted that from the extensive process of administrative reorganisation that has faced a series of restrictions on:

- small volume of budget funds that were allocated ( specific for 2004);
- lack of qualified personnel with professional training necessary to perform the internal audit activity, especially in village and small town halls;
- some leaders' lack of understanding the role of internal audit which is still regarded as an additional level of internal control and as such useless.

**Figure 2: Human resources**



Source: Author projection

In 2004 the lack of qualified personnel with professional training necessary to perform the internal audit activity, especially in village and small town halls;

In 2009 the size of the audit field has increased considerably but a structure with a single auditor cannot cover the entire activity within three years provided by the law;

*Analysis of the development degree on the three years in terms of data analysis.*

The main problem the internal audit structures are facing with is the *work carried out by a single auditor*, situation that is found throughout the entire analysed period, even if the size of the field that needs to be audited has increased considerably (2009).

If in 2004 we were facing a restrained field that needed to be audited, offering a small amount of work insufficient to justify hiring an internal auditor, in 2007 in the case of over 80% of

local public entities, which had organised the audit activity, the same problem persists causing a number of drawbacks:

- failure to exercise managerial powers in the internal audit activity;
- inability of carrying out supervision of the missions, an essential activity for ensuring the quality of internal audit work;
- limitation of the audit, since a single internal auditor may not have the necessary competence for all activities that constitute the field which needs to be audited within an institution.

Also in 2009 within the local public entities, it was determined that it is maintained a significant distance between the total number (3226) and the total number of jobs provided by their organisation charts, reaching a ratio of 1 auditor to 3 public local entities. Also, out of the 1264 institutions subordinated to the local government unit, only 339 have held an internal audit and this was effectively exercised only in 121; thus results a percentage of the exercise below 10%, with direct influence on the audit activity at the superior hierarchical level.

The causes which stand at the basis of the audit activity performed by a single auditor are generally: budgetary restrictions leading to the financing of maximum one job as internal auditor (2004, 2007, 2009), the lack of qualified personnel and difficulties in staff selection with professional training necessary to perform the internal audit activity, especially in villages and small town halls (2004, 2007), ceasing the employment competitions regarding public functions (2009).

Comparing the reference years in terms of range of specialities belonging to the internal auditors, it can be noticed that:

– In 2004 there were not qualified staffs with professional training necessary in performing the internal audit activity.

– In 2007 the functions and areas which include the internal auditors diversify, the economic speciality being prevalent (70%), plus the other specialties such as legal advisers, engineers, architects, chemists, doctors, teachers.

– And in 2009, regarding the structure of professional staff, 84% of the internal auditors within central government are economists and 16% have other speciality (legal advisers, engineers, doctors etc).

Also in 2009 there was registered a decline from previous years concerning the participation of auditors in professional trainings, particularly in the agencies and national authorities, where the predominant form of training was represented by self-study. The motivation may be to reduce budget spending, cease the employment competitions regarding vacant jobs that have influenced to a greater extent the professional training process.

*Management awareness on strengthening the internal audit activity.*

The year 2004 was facing a lack of understanding the role of internal audit by the managers of entities, this being still regarded as an additional level of internal control and as such useless.

Significant changes have emerged in 2007 when the experience level of internal auditors had exceeded the 5-year maturity threshold and at that time started to increase the degree of understanding the internal audit activity by the management regarding the need to implement a new internal control system, covering most areas of the institution. It also increased the number of advisory missions by means of which the internal auditors contribute to the improvement of the institution and the demands of performing ad-hoc audits increased, so as to cover some additional needs of objective information for the management.

2009 is the year that caused an increase of the level of understanding on behalf of the managers of public entities, both on the objectives and purpose of the audit and the results thereof, so that there can be identified some positive aspects such as:

a) the management's approval regarding the recommendations made by internal auditors as a consequence of the reporting process;

b) request of advisory missions and related services related to the counselling provided to management;

c) management's request of ad-hoc audits, covering in some areas certain additional needs for the management.

## 5. Conclusion.

Throughout the analysed period, at national level, it was intended to harmonize the public internal audit with the provisions of Law no. 672 of 2002, the standards and regulations taken from national and international regulatory bodies, trying to make a clear-cut of the legal framework which regulates the activity, as well as the conduct principles and regulations. It was implemented the new system on public internal financial control established by the European Commission in agreement with Member States and candidate countries so as to bring Romania to the level of being analysed, compared with other Member States regarding the development and improvement directions on public internal audit. Despite the efforts, Romania is a country with shortcomings regarding the degree of implementation of the public internal audit. In 2009 at the local government level only 42% of the entities had their own audit structures in function.

Action must be taken immediately to improve the activity; audit regulatory bodies need to “guard” the public internal audit so as to provide coordination, advice and help with the problems they face. Also, the possibility to perform this activity as a cooperation may allow entities to ensure the audit function, the continuous harmonization of the regulatory framework, the increase of specialised courses that are necessary to ensure understanding of the techniques and tools which are used, specific to the profession, performing an exchange of information on the risks faced by a number of entities within the same branch or the extension of applying the results from internal audit activity may help develop the implementation and knowledge level of the public internal audit.

The internal audit should contribute to fair and efficient use of public funds, provide support and solutions necessary to achieve performance to the management, but primarily it has to be coordinated to receive viable solutions on professional development and to ensure competent, competitive and successful staff on a European market in progress.

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## TAX TREATMENT OF RELIGIOUS AFFAIRS IN ROMANIA

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**Abstract:** *This paper wants to elucidate a number of issues regarding taxes owed by Religious Units to the State Budget, the Church being regarded as a legal person without lucrative purpose. In terms of objectives, we aimed to analyze the legal documents that regulate the status of church institutions as contributors and payers of taxes and annual contributions. The usefulness of this paper is obvious in the context in which it finds its interest among tax authorities, as well as among ecclesiastical authorities, because there is a diversity of rules that regulate taxes and duties for religious denomination units.*

**Key words:** church, taxes, duties, denomination, taxation.

**JEL Classification:** H2

### 1. Introduction

The purpose of this paper is to try to elucidate an area of interest with a fairly wide range, but still insufficiently approached and punctuated by Romanian taxation authorities, as well as by religious denomination units in our country. To approach taxation aspects regarding denomination units, we turned to a specialized bibliography, which included texts from the Fiscal Code with its application rules (Law no. 571/2003, published in Official Gazette no. 927/23.12.2003), the Constitution of Romania (Official Gazette no. 767 of October 31, 2003) and the law on the religious denominations recognized in Romania (Law no. 489/2006 on the freedom of religion and the general status of denominations, published in Official Gazette, Part I, no. 11/08.01.2007).

Romanian Constitution from 2003, like that of 1991, defines State-Church relationship or, more accurately, the State-Denominations relationship (Art. 29), using the following terms: *"Religious denominations are free to organize according to their own statutes, under the law (...). Denominations are autonomous from the State and enjoy its support, including by facilitating religious assistance in the army, in hospitals, in prisons, in nursing homes and orphanages (Art. 29.5)."*

Getting over the less pleasant aspects of history regarding the Church-State relationship, today, there is a successful collaboration between these institutions. The state acknowledges the Church's role in history through the law of religious denominations (Law no. 489/2006 on the freedom of religion and the general status of denominations, published in Official Gazette, Part I, no. 11/08.01.2007) as follows:

*"The Romanian State recognizes the denominations' spiritual, educational, social-charitable, cultural and social partnership role, as well as their status as factors of social peace" (Art. 7.1)*

*"The Romanian State recognizes the important role of Romanian Orthodox Church and that of other churches and denominations as recognized by the national history of Romania and in the life of Romanian society" (Art. 7.2)*

The paper will approach various aspects regarding taxes and duties owed by the Church to the State Budget, following certain taxation particularities and viewing Church as a legal person without lucrative purpose.

The usefulness of this paper is obvious in the context in which it finds its interest among tax authorities, as well as among ecclesiastical authorities.

## 2. Key aspects of the taxation of Church

In light of what was mentioned, it may be said the State supports acknowledged religious denominations by regulating *assistance of places of worship from state funds, by paying salaries for priests, and also by imposing several tax exemptions.*

The tax facilities that will be addressed in this study are:

- 2.1. **Income tax** facilities
- 2.2. **Value added tax** facilities
- 2.3. Other facilities

For a better understanding of the issues regarding taxes that are regulated for known religious denominations, it is necessary to **define from an accounting perspective the incomes** which may be earned by Churches, in accordance with **Order of the Ministry of Public Finance no. 1969/2007, which establishes the basic accounting principles and rules, the form and content of annual financial statements for the accounting of religious denominations –legal persons without lucrative purpose.** The Order of the Ministry of Public Finance no. 1969/2007 for the approval of Accounting regulations for legal persons without lucrative purpose includes associations, foundations, political parties, employer's association, unions and **religious denominations**, and establishes a uniform microeconomic accounting system, which takes into consideration the accounting regulations that comply with the 4<sup>th</sup> and 7<sup>th</sup> Directives of the European Economic Communities. This Order establishes the accounting regulation form for religious denominations also, and stipulates:

- A specific accounting terminology and principles;
- The definition of the information contained by synthesis financial statements;
- The presentation manner (form) of annual financial statements;
- The development of a uniform chart of accounts and of an accounting model of various operations.

**Income accounting** is kept separately on types of activities, namely **activities without lucrative purpose, special-purpose activities according to law and economic activities**, and these activities are differentiated on income, according to their nature (Annexes no. 1 and 2 to the **Order of the Ministry of Public Finance no. 1969/2007 for the approval of Accounting regulations for legal persons without lucrative purpose**, section VI.10.1., published in Official Gazette., part I, no. 846/10.12.2007, p. 47).

Incomes from **activities without lucrative purpose** include:

- incomes from fees and contributions in money or in kind from members and supporters;
  - incomes from registration fees established in accordance with the legislation in force;
  - incomes from donations or goods received through sponsorships;
  - incomes from interests and dividends earned by placing the liquid assets resulted from activities without lucrative purpose;
  - incomes for which an entertainment tax must be paid;
  - resources obtained from the state budget and/or from local budgets or income subsidies;
  - incomes earned from occasional activities, used for social or professional purposes, according statute of organization and functioning;
  - incomes resulting from the transfer of tangible assets owned by organizations without lucrative purpose, other than assets that are or have been used in an economic activity;
  - other incomes from activities without lucrative purpose, including:
    - incomes from quota received in accordance with the statute;
    - domestic and external aids and non-reimbursable loans and income subsidies;
    - incomes from insurance compensations – damages and subsidies from special events and other similar occurrences;

- incomes from exchange rate differences resulted from activities without lucrative purpose;
- incomes from provisions and depreciation adjustments regarding the operating activity;
- financial incomes from value losses adjustments;
- incomes obtained from sports visas, fees and penalties or from participation in sports competitions and demonstrations
- incomes obtained from advertising and publicity, according to law;
- other incomes from activities without lucrative purpose

**Special-purpose incomes** include the incomes regulated by special laws and comprise of: incomes from the application of the literary, cinematographic, theatrical, musical, folkloric and plastic arts, architecture and entertainment stamp and other special-purpose incomes, according to law.

**Incomes from economic activities** are similar with the incomes stipulated in the common classification, including operating incomes, financial incomes and extraordinary incomes.

Thus, *Law no. 489/2006* on the freedom of religion and the general status of denominations, published in Official Gazette, no. 11/08.01.2007, stipulates the following:

*“(1) Expenditures for maintaining denominations and for their activities shall be financed primarily from their own income, as created and managed under their bylaws.*

*(2) The denominations can set contributions from their worshipers in order to support their activities.*

*(3) The State shall promote citizen support for denominations through tax breaks, and shall encourage sponsorship of denominations, under the law.*

*(4) On request, the State shall support the pay funds for the clerical and nonclerical staff of recognized denominations through contributions, based on the number of their worshipers who are Romanian citizens and based on their genuine needs of subsistence and activity. The State shall grant higher contributions for the pay fund of denomination employees to denomination units that have a low income, under the law.*

*(5) No one can be coerced, through administrative measures or other methods, to contribute to the funds of a religious denomination.*

*(6) Recognized denominations can receive material support from the State, on request, for expenditures related to the operation of denomination units, for repairs and new buildings, based on the number of worshipers as resulting from the latest census and based on their genuine needs.*

*(7) The State shall also support the activity of recognized denominations in their capacity as providers of social services.”*

From *Law no. 489/2006* on the freedom of religion and the general status of denominations, **we emphasize the following stipulations of taxation:**

1. The state promotes the support granted by citizens to religious denominations through **income tax deductions and encourages sponsorships, under the law;**

2. On request, the state **supports pay funds for the clerical and nonclerical staff of recognized denominations through contributions, based on the number of their worshipers who are Romanian citizens and based on their genuine needs of subsistence and activity** (The payment of the personnel is done by allocating funds from the state budget or from local budgets. According to the provisions of *Law no. 142/1999*, the number of positions for the clerical and non-clerical personnel for which the state pays salaries by allocating funds from the state budget for each religious denomination is approved annually by the State Secretariat for Religious Affairs, based on the proposals of the leaders of recognized denominations, taking into consideration the number of followers for each religious denomination and the funds allotted for this purpose);

3. The recognized religious denominations may benefit, on request, from **material support from the state for expenditures related to the operation of denomination units, for repairs and new buildings, based on the number of worshippers;**

4. The state **supports the activity of recognized denominations in their capacity as providers of social services.**

#### 2.1. Facilities regarding profit tax

*The Fiscal Code* regulates taxation facilities for religious denominations, such as:

*“The following taxpayers are exempt from the payment of profit tax:*

*f) religious cults, for incomes obtained from the production and sale of objects and products necessary for the cult activity, according to law, and for incomes obtained from rents, other incomes obtained from economic activities, incomes from cash compensations obtained as a result of reparatory measures as provided by laws regarding the reconstitution of the right of ownership, provided that the respective amounts are used, during the current year or following years, for the maintenance and operation of the cult units, for construction, repair and consolidation works of cult houses and ecclesiastic buildings, for education and actions specific to religious cults, according to Law no. 489/2006 on the freedom of religion and the general status of religious denominations”.* (Law no. 571/2003 – Fiscal Code of Romania, with amendments and completions, published in Official Gazette no. 927/23.12.203)

This article of the Fiscal Code regulates the framework of profit tax exemptions for religious denominations. Nevertheless, in the same article, **paragraph 3**, the following is written:

*“Non-profit organizations, trade unions and owners associations are exempt from the payment of profit tax for incomes realized from economic activities that do not exceed the equivalent in ROL of 15,000 euro for a fiscal year, but not more than 10 percent of the total incomes exempt from the payment of profit tax as provided in par. (2). The organizations provided in the present paragraph owe profit tax for the portion of the taxable profit that corresponds to incomes other than those provided in par. (2) or the present paragraph, a tax that is computed by applying the rate provided in art. 17, par. (1), or art. 18, as the case may be.”* (Law no. 571/2003 – Fiscal Code of Romania, with amendments and completions, published in Official Gazette no. 927/23.12.203)

At the same time, the procedures of the aforementioned article from the Fiscal Code stipulate that:

*„8. Nonprofit organizations that obtain other incomes than those mentioned in art. 15 para. (2) of the Fiscal Code and exceed the limit stipulated in para. (3) pay the appropriate taxes on their profit. Determining the taxable income is done in accordance with the provisions in Chapter II, Title II of the Fiscal Code. In this sense, the following will be taken into consideration:*

*a) establishing tax-exempt incomes stipulated in art. 15 para. (2) of the Fiscal Code;*

*b) determining tax-exempt incomes stipulated in art. 15 para. (3) of the Fiscal Code by taking the following steps:*

*- Calculating the equivalent in lei of 15.000 euro by using the average exchange rate EUR/ROL reported by the National Bank of Romania for that tax year;*

*- Calculating the value of the 10% share of the incomes stipulated in lett. a);*

*- establishing tax-exempt incomes stipulated in art. 15 para. (3) of the Fiscal Code as being the lowest value of the amounts stipulated by aforementioned provisions;*

*c) establishing tax-exempt incomes by adding up the amounts at lett. a) and b);*

*d) determining tax-exempt incomes by subtracting from total incomes the ones stipulated at lett. c);*

*e) calculating the taxable profit correspondent to taxable incomes at let. d), taking into account the following:*

*(i) expenses incurred for the purpose of achieving taxable incomes at let. d). It's necessary for taxpayers to use appropriate keys for allocating common expenses;*

- (ii) *establishing the deductible amount of expenses incurred according to provisions at para. (i), taking into account the provisions of art.21 of the Fiscal Code;*
- (iii) *Establishing taxable profit as a difference between taxable incomes at lett. d) and the deductible expenses at para. (ii);*
- f) *Calculating profit tax by applying the rate stipulated by art. 17 para. (1) or art. 18 of the Fiscal Code, as the case may be, for the taxable profit stipulated at lett. e).” (Law 571/2003 in conjunction with GD 44/2004 regarding the Fiscal Procedures Code, updated according to Government Decision no. 150/23.02.2011)*

It may be noted that religious denomination units have to pay a profit tax for the taxable profit that *exceeds the exemption threshold of 15.000 euro* or the taxable profit corresponding to other incomes, except tax-exempt incomes.

Therefore, the calculus of taxable income obtained from **economic activities (other activities than those that support denominations mentioned below)** includes the following operations:

1. Transforming 15.000 euro in its equivalent in lei;
2. Calculating 10% of the total income from tax-free activities, without lucrative purpose;
3. Taking into account the lowest of the two amounts to deduct it from Total Taxable

Incomes (*other than those mentioned below!*)

The flat tax in force currently is **16 %** (*Professor PhD Hada Teodor, Taxation in Romania in 2011, Alba-Iulia, Aeternitas Publishing House, 2011, pp. 26-28*).

Religious denominations are exempt from the payment of profit tax for the following **types of incomes** (Fiscal Code, art. 15, para. 2):

- dues and registration fees of members;
- contributions in cash or in kind by members and supporters;
- registration fees established according to legislation in force;
- donations, money or goods received through sponsorship;
- dividends, interest and incomes realized from the sale-assignment of participation titles, obtained from the investment of exempt incomes;
- resources obtained from public funds or from non-reimbursable financing;
- exceptional incomes resulting from the transfer of tangible assets owned by non-profit organizations, other than assets that are or have been used in an economic activity;
- amounts received as a result of non-compliance with the conditions of the donation/sponsorship, according to the law, provided that these amounts will be used in the current year or the coming years to achieve their goal and objectives, according to their statutes or canonical codes, as the case may be;
- incomes obtained from compensations received from insurance companies for damages occurred to their tangible assets, others than those used in the economic activity;
- amounts received from income tax paid by natural persons.

## 2.2. **Facilities regarding value added tax**

**The Value added tax is an indirect tax paid to the state budget** (Fiscal Code, art. 127). Like in the case of profit tax, in order to understand the scope of VAT, it's necessary to remember how incomes are classified in terms of accounting for religious denomination establishments. Therefore, religious denomination establishments are complying with the following taxation provisions:

Article 127 para. (1) stipulates: “*A taxable person is any person that carries out, in an independent manner and regardless of the place, economic activities of the nature of those provided in para. (2), regardless of the purpose or the result of such activities*”. (Law no. 571/2003 – Fiscal Code of Romania, with amendments and completions, published in Official Gazette no. 927/23.12.2003)

Chapter 9, article 141, lett. 1, para. (m) of the Fiscal Code regulates exemptions for the operations inside the country as follows: “*art.1 - The following operations of public interest are*

*exempt from the value-added tax: [...] – lett. k - supplies of cultural services and/or deliveries of goods closely related to such services performed by public institutions or other cultural bodies without lucrative purpose, acknowledged as such by the Ministry of Culture and Religious Affairs”* (Law no. 571/2003 – Fiscal Code of Romania, with amendments and completions, published in Official Gazette no. 927/23.12.2003)

In terms of the valued added tax, the delivery of items of religious worship (liturgical vessels, metallic or lithographed icons, crosses, crucifixes, etc.) **is not considered an economic activity**.

The services and/or goods supplied by members of a religious denomination in the interest of supporting the religious activity are exempted from the value added tax, but they must be identified according to their own statutes.

The supply of personnel for religious institutions is exempted from VAT for the following activities:

- Hospitalization, medical care and operations closely related to the medical field, carried out by units authorized for such activities, regardless of their organizational form, such as: hospitals, nursing homes, rural or urban health centres, dispensaries, private practices and medical labs, health care and medical diagnosis facilities, treatment and recovery centres, rescue stations and other units authorized to run such activities;
- Education, vocational training of adults, as well as providing services and goods related to these activities (carried out by public institutions or other authorized entities);
- Providing services and/or delivering goods are closely related to the social assistance and/or protection (conducted by public institution or other entities acknowledged as having a social feature), including those activities carried out by nursing homes;
- Providing services and/or delivering goods are closely related to child and youth protection (conducted by public institution or other entities acknowledged as having a social feature).

Religious denomination units that **conduct economic activities** (other than those exempted), whose annual turnover is **below 35.000 euro are exempted from VAT, according to the Fiscal Code, art. 152, para. (1)**. *“The taxable person with a special exemption regime and whose turnover, stipulated in para. (2), is higher or equal to the exemption threshold stipulated in para. (1) (s.n. 35.000) or, as the case may be, in para. (5), is required to request registration as a payer of value added tax within 10 days after reaching or exceeding the threshold, according to art. 153. The date of reaching or exceeding the threshold is considered to be the first day of the following calendar month after reaching or exceeding the threshold. The special exemption regime is applied until the date of registration as a payer of the value-added, according to art. 153.”* (Law no. 571/2003 – Fiscal Code of Romania, with amendments and completions, published in Official Gazette no. 927/23.12.2003, art. 152, para. 1)

It is important to mention that although there are facilities for the exemption from VAT, religious denomination units can't deduct VAT for purchases.

### 2.3. Facilities regarding tax on buildings

Art. 250, para.3, of the Fiscal Code stipulates: *“buildings that by their destination are halidom of worship belonging to religious denominations recognized by law and parts of their local components, with the exception of enclosures that are used for economic activities”* and para. 4 *“buildings of institutes of pre-university or university education, provisionally authorized or accredited, with the exception of enclosures that are used for economic activities”* are exempted from the tax on buildings. (Law no. 571/2003 – Fiscal Code of Romania, with amendments and completions, published in Official Gazette no. 927/23.12.2003, art. 250, para. 3 and 4)

The **Fiscal Procedures Code** of article 250 of the Fiscal Code stipulate: *“The phrase buildings that by their destination are halidom of worship mentioned in art. 250 para. (1) section 3 refers to*

*churches – sanctuary of worship, prayer rooms – and their extensions. The term halidom is a variant of the term sanctuary.*

*(2) The extensions of churches refer to any enclosure that has the elements of a building owned by any officially recognized denomination in Romania, such as: belfry, parish office, mortuary chapel, parish house with its extensions, intended as a home of the priest/priests and service staff, the room for lighted candles, the room where candles are sold, crucifix, the deposit for various objects of worship, the social-charitable institute, xenodochium, cell, refectory, management office room, the residence of the bishop, and others; the social-charitable institute may be a children home, a nursing home, a social canteen or any other room intended for such activities” (Law no. 571/2003 – Fiscal Code of Romania, with amendments and completions, published in Official Gazette no. 927/23.12.2003)*

Regarding the tax on buildings, it may be concluded that religious denomination units are exempted for the following buildings:

- Buildings that are halidom of worship, with the exception of the rooms that are used for economic activities;
- Buildings that constitute the patrimony of religious education units and institutions, with the exception of the rooms that are used for economic activities;
- Funerary buildings from cemeteries and crematories;
- Buildings given back to religious denominations in Romania, according to law;
- Buildings used for social and humanitarian activities, according to the local council decision;
- Any land belonging to an officially recognized religious denomination unit and to one of its local units, with legal personality;
- Any land belonging to a cemetery or crematorium;
- The land pertained to buildings that were given back, according to law, for the period during which the owner is required to maintain the public interest status of the building.

As mentioned, the classification of the building is the one that establishes the potential exemption from tax, a tax being imposed only for the space used for economic activities.

### 3. Conclusions

The study reflected legislative aspects of the relationship between State and Church today, a relationship that has been monitored especially by analyzing the provisions of the Constitution of Romania, of the Fiscal Code and of the religious affairs law. This relationship is based on the State’s acknowledgement of the Church’s merits, of its role in various aspects of daily life: social, spiritual, economic, etc.

At the same time, the main objective of the paper has been achieved, namely to elucidate the aspects regarding taxation of religious denomination units, in light of the current legislation. We extracted and interpreted the legal bases for facilities regarding income tax, value added tax, tax on buildings and other taxes.

The analysis of the taxation principles for profit tax, value added tax, tax on buildings and other taxes led to the following idea. The major criterion of the taxation interpretation for religious denomination units is *whether or not they conduct an economic activity*, according to the regulations mentioned above. The entire taxation and exemption regime depends on this criterion, except direct incomes considered non-taxable, according to the Fiscal Code in force.

The motivation behind choosing this subject consists of the fact that it is a field of interest for taxation authorities, as well as for the ecclesiastical authorities, the tax issue for religious denomination units being deficiently elucidated due to the numerous regulations in force.

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## COMPUTING OPERATIONAL RISK APPROACHES FOR CREDIT INSTITUTIONS

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**Abstract:** *In the mid 2004, the Basel Committee recognizes the existence of operational risk that may result from errors of the technologies used, fraud, and the low level of security or transactions. In order to measure and manage this risk there were developed three approaches: the basic indicator approach, standardized approach and the advanced approach. The study aims to compute the operational losses of 52 credit institutions using the standardized approach. The results show that the riskiest lines are business line for retail and commercial banking. In terms of number of loss events the most risky event is external fraud for the retail banking business line and the events such as delivery and execution.*

**Keywords:** operational risk, basic indicator approach, standardized approach, business line

**JEL Classification:** C13, C81, D24

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### 1. Introduction

As regards banking, it should be noted that all the attention is directed toward how credit institutions operate. They must meet capital requirements, market discipline, and also all the restrictions imposed by the supervisory authority. If in the mid-80s - 90s of the last century all the attention was concentrated to credit risk, market risk or exchange rate risk, the twenty-first century has brought increasingly to the fore a new aspect of risk: the possibility of gain losses due to the lack of control or because of ineffectiveness of this control as a result of employees, procedures, systems or due to external events.

In the mid 2004, the Basel Committee recognizes the existence of operational risk that may result from errors of the technologies used, fraud and embezzlement, breach of statutory requirements, the low level of security or transactions. At that time, banks were allowed to determine their level of required capital based on its own estimates. To achieve these estimates it can be used the basic indicator approach, standardized approach or the advanced models. The first two methods do not really reflect the bank's exposure to operational risk capital required because the computation is made based on operating income. If the case of basic indicator approach, the minimum capital required to be maintained is determined by weighting with a coefficient of 15% of the average gross operating profit achieved in the last three years (excluding years in which gross operating income was negative). Standardized approach brings a segmentation of banking in eight

business lines and the minimum capital required to be maintained is determined by weighting the average gross operating profit achieved in the last three years (and in this case we exclude years in which gross operating income had negative values) for each business line by a factor between 12% and 18%. The advanced approach gives banks the opportunity to determine not only the capital required to be maintained, but also operational risk exposure.

In the case of the advanced approach, the Basel Committee offers to each bank the possibility to implement a model to compute the exposure to operational risk. The models should satisfy a number of qualitative terms (represented, for instance, by the need of a scenario-based analysis) and quantitative terms (model chosen must correspond to a confidence interval of 99.9%). In accordance with Belhaj (2010), the capital requirement for advanced models is much more sensitive to risk because the capital requirement is equal to a percentage of expected loss for each business line and for each type of risk. Expected losses are represented by the product of exposure indicator specified by the supervisory authority, the likelihood of loss event and the resulting loss. According to the same author, including operational risk in the computation of capital requirements calculation has been harshly criticized because, unlike credit and market risk, there is no evidence that banks would assume an excessive operational risk. Moreover, banks have excess liquidity, in order to absorb any losses caused by operational risk. The author believes that the imposition of additional capital for operational risk is counterproductive if is not induced to the banks the desire limit their exposure to operational risk and not only to measure this exposure.

In order to measure operational risk using advanced approaches it has been made and submitted a large amount of work. The main obstacle in implementing the models is represented by the multiplicity and diversity of events that may lead to operational risk. Operational risk episodes are difficult to model also because of the occurrence of extreme losses that are difficult to model by using the statistical tools available. Mc Connell (2006) argues that the large operational risk episodes that occurred in the past can not be fully characterized by the relatively simple classification proposed by Basel II; this classification can not cover all events that occur in everyday activities banks. Furthermore, Mc Connell points out that in some cases, using only the level of capital to manage operational risk it can be generated moral hazard as it encourages managers to apply inappropriate modelling techniques, only to create the illusion that all the risks are covered by the capital.

## **2. The problem**

Unlike market risk and credit risk, operational risk presents some major conceptual differences that we will present in the following pages. Operational Risk is generally identified at financial institutions resulting in the absence of a comprehensive statistical and appropriate database, and because of the differences in financial activities, practices and internal controls for a bank, loss events are not necessarily transferable to other banks, while the market risk is independent of the credit risk taken by the institution as operational risk. For example, two credit institutions with the same market position, with the same portfolio and exactly the same clients have the same credit risk and the same market risk, but the operational risk is different. Credit risk, typically developed using a consistent process, influences the probability for completing the obligations. Similarly, market risk arises from price fluctuations of financial assets, displaying properties that are normally administered in a consistent manner and modeled after a joint process. In the case of operational risk, between risk and income it can not be established a clear relationship because a higher risk it does not mean a higher income. Heterogeneous nature of operational risk is very difficult using limited data. While validation of models for credit risk (it is done on a time horizon) and market risk (VAR comparing observed daily profit and loss - backtesting) is done easily, for operational risk it is difficult to be done because of the lack of a consistent database. Exposures to credit risk and market risk are explicit, easily identified and expressed quantitatively. The risk models for them allow prediction of potential impact on an institution of different positions and in different situations.

In contrast, taking into account the novelty of the operational risk, there are few institutions that make an appropriate operational risk management. Therefore, it can not be said that there are solutions for solving this problem. But there can be tracked operational risk tools, such as case-links analysis effect, risk classes sharing, creation of exposure scenarios, adjust statistical distributions, databases containing information related to transactions, events, controls and reference points, exceptions, variations, process maps, reports on management, etc. The role of bank management is to assess the institution's exposure to risk and to develop methods and techniques of management and controls having as main objective to maximize the profitability and minimize the risk. Hence, the purpose and ultimate goal of any risk management process is to identify and to eliminate possible risks, which involve costs and is strongly related to benefit, reflecting improving financial performances and insurance against future losses. Operational risk quantification techniques in the literature were presented in various forms, but have not made a clear distinction between operational risk measurement and its modeling.

The basic principle of a pro-active management is that "it is better to prevent than to note a fact".

The data have a vital influence in the management of operational risk. Data are scarce and of poor quality due to the following causes: lack of data on some lines of business and / or types of events, internal data are biased for low severity losses because extreme events are hardly represented in the national database, only losses significant are reported, i.e. over a certain threshold, symmetrical internal data, external ones are biased for high severity losses until they are published, the vital practical combination of these types of data in order to achieve a statistical efficiency.

Lack of data and absence of a flexible information system resulted in a difficult measurement of operational risk, so financial institutions are very often put in situations to require the hiring of new personnel, improvement of technological process and specialized entities in this area, which involves very high costs. Even if there is a perfect data collection process there are several areas of business that do not generate sufficient internal data to enable complete understanding of risk profile and therefore it is necessary to supplement the internal database with external information.

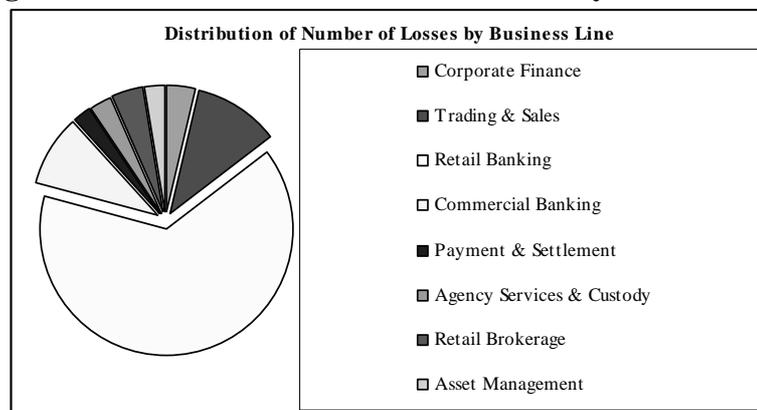
External data includes information on the amount of loss, causes and circumstances that occurred events of loss and any other relevant information for purposes of the assessment of loss for a credit institutions. The existence of a systematic process is vital for determining events in which the use of data and methodologies work to quantify the operational risk. Therefore it is needed a regular review, formalized and a regular independent review. For preparation of external database the problems that may be encountered are reports done by the media of such data that are not achieved in full.

In the current study were used as data information provided by the report of ORX Association from November 2009. This report is based on Global ORX Operational Risk Loss Database. The database currently contains 142.041 of individual loss events that worth 46.761 million euro. This data were from 52 financial institutions in 18 countries. The 52 members are divided into three regions: North America, Western Europe and Others. For this work data were processed so as to obtain information related only individual loss events across Europe. The losses occurred because of operational risk have been identified and correlated by international standards the eight business lines: Corporate Finance, Trading and Sales, Retail Banking, Commercial Banking, Payment and Settlement, Agency Services and Custody, Retail Brokerage, Asset Management, and seven types Event: Internal Fraud, External Fraud, Employment Practices and Workplace Safety, Clients, Products and Business Practices, Damage to Physical Assets, Business Disruption and System failures, Execution, Delivery and Process Management.

The two charts above presents the number of loss distributions and the value of the business lines. This presentation is made in order to make an analysis of their types of activities performed by financial institutions. The separation lines of business activities are realize considering certain basic principles, such as: sharing of all the activities in the eight business lines are provided in a mutually exclusive and exhaustive; an activity which is subject to a work function included in this

framework that may not be included in the business lines should be allocated to business line support; dividing lines of business activities should be defined by a line used for computing capital in other risk categories such as credit risk or market risk; if an activity is not attributable to a line of business then, in order to set her in a business line, it is done by dividing the gross income and the highest value would be assigned; the process of achieving the plan must be well documented; the general manager is responsible for this activity; this process is subject to individual assessment.

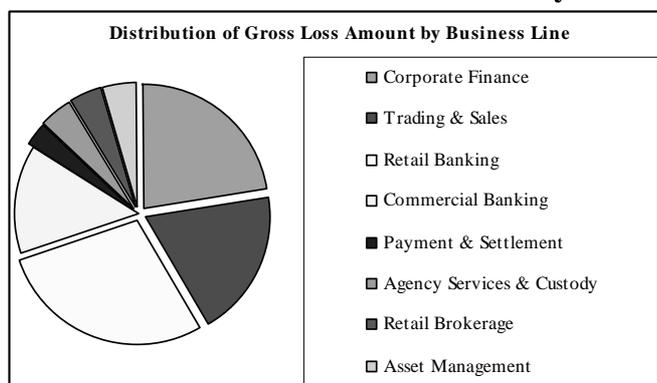
**Figure 1: Distribution of Number of Losses by Business Line**



Source: authors calculations

Following we present the number of losses and distribution of their values by type of activity, trying to assess their situation within Europe.

**Figure 2: Distribution of Gross Loss Amount by Business Line**

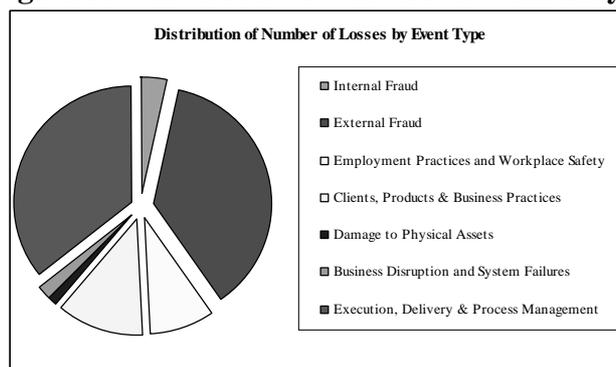


Source: authors calculations

The Figures number 1 and 2 can easily express that the riskiest lines are business of the retail and the commercial banking business, due to processing and trading errors, such as errors such as incomplete documentation, misclassification of customer, un discharged customer signature, wrong data entry in the system, lack of signatures, issuing of non-compliant documents in case of foreign exchange, delayed transmission of payment orders, errors occurred in moment of payment, late payments, non foreign exchange regulations, lost checks, compensation false debt instruments, systems downtime, misunderstanding the meaning of exchange, IT errors, counterfeiting information, acceptance of incomplete files, the use of false identification documents, transferring inaccurate data released in the process of lending fraud, delays in sending notices, violating regulations and internal rules, lock, unlock unauthorized accounts, acquisition or delayed reporting by departments authorized complaints, forwarding complaints, etc. late responses.

Below is the distribution of the number of losses and value of the types of events to study the causes of these events.

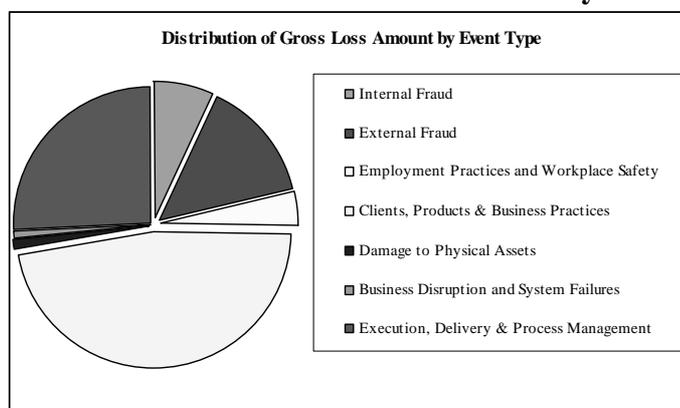
**Figure 3: Distribution of Number of Losses by Event**



Source: authors calculations

A significant number of losses were recorded due to external fraud, particularly the fraud of cards such as cloning, theft, inadequate protection systems, situations of "chargeback", as well as activities such as robbery and robbery at ATM desk, counterfeiting documents chasing institution fraud, cash deposit in the amount recorded in documents. The next place is occupied by events that happened due to execution, delivery and management processes, mainly caused by errors like trading, inoperative systems, storage and updating of data, loss or damage created due to customer negligence, partial or total lack of legal documents, inadequate preservation of databases, property damage to customers, disputes with partners, introducing errors, operation, storage and updating of data, loss of data, inaccurate communication, failure deadlines or responsibilities as well as reporting obligations, outsourcing processes, communications erroneous, negligent in keeping the databases, failed deliveries etc.

**Figure 4: Distribution of Gross Loss Amount by Event Type**

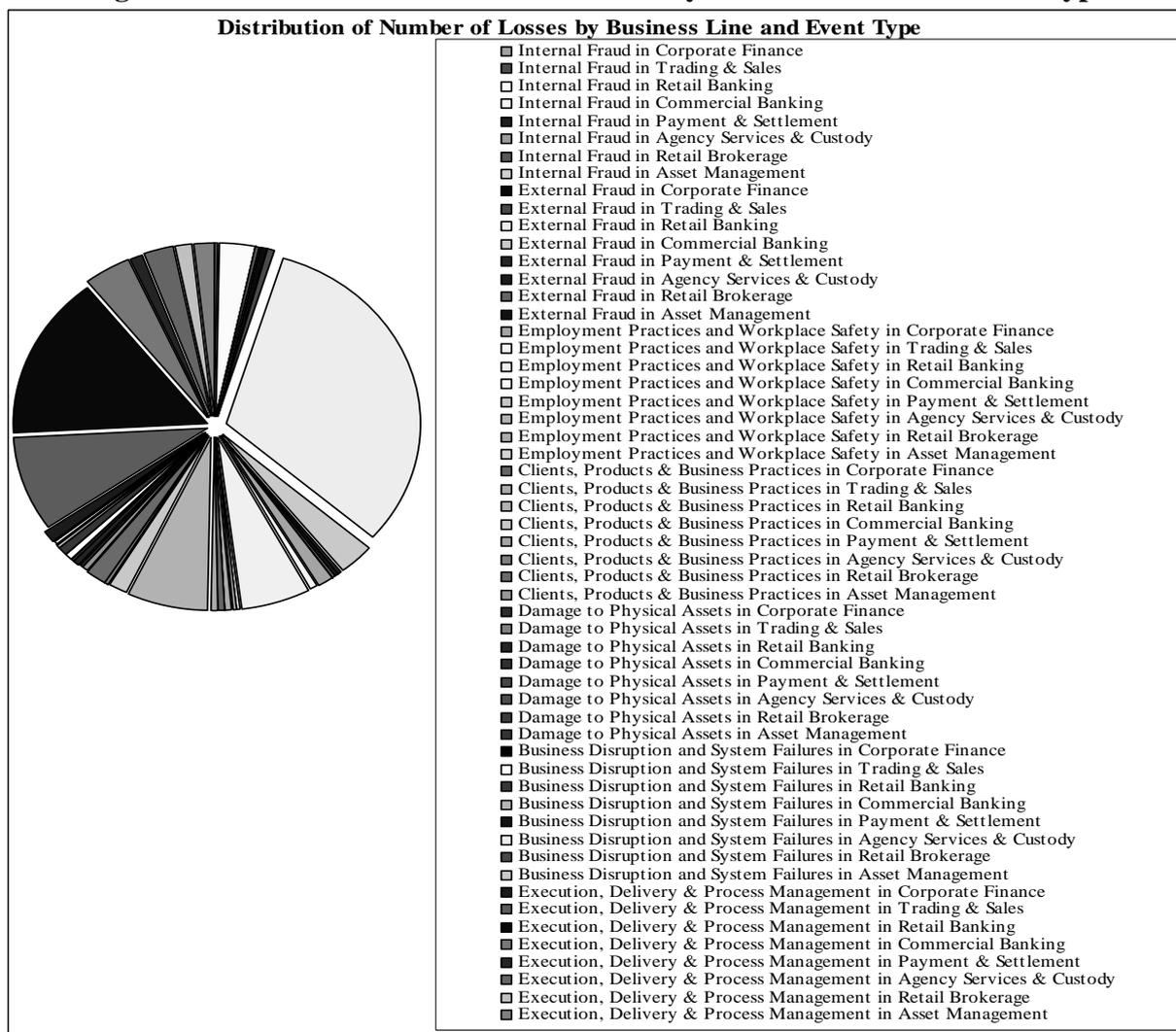


Source: authors calculations

Analyzing the value of the type of loss event, as shown in Figure 4, the worst situations were encountered due to what looked events customers, products and business practices, negligence, poor preparation or no professionalism due to the fact that more than half the bank's employees are students, non-compliance or violation of conduct towards customers confidence because staff did not resist "blackmail" the customer, non-compliant products, inappropriate, improper use of confidential information, exceeding exposure limits, sale products using aggressive strategies. Also in the previous figures we can see this in a relatively low proportion of internal fraud and employment practices and job security that can be explained by an efficient management of financial institution have helped create this database.

In the next figure we tried to plot operational risk matrix consisting of 56 cells corresponding to the seven types of events and eight business lines mentioned above, achieving a ranking as the most risky activities carried out in accordance with the reasons for occurrence of loss.

**Figure 5: Distribution of Number of Losses by Business Line and Event Type**

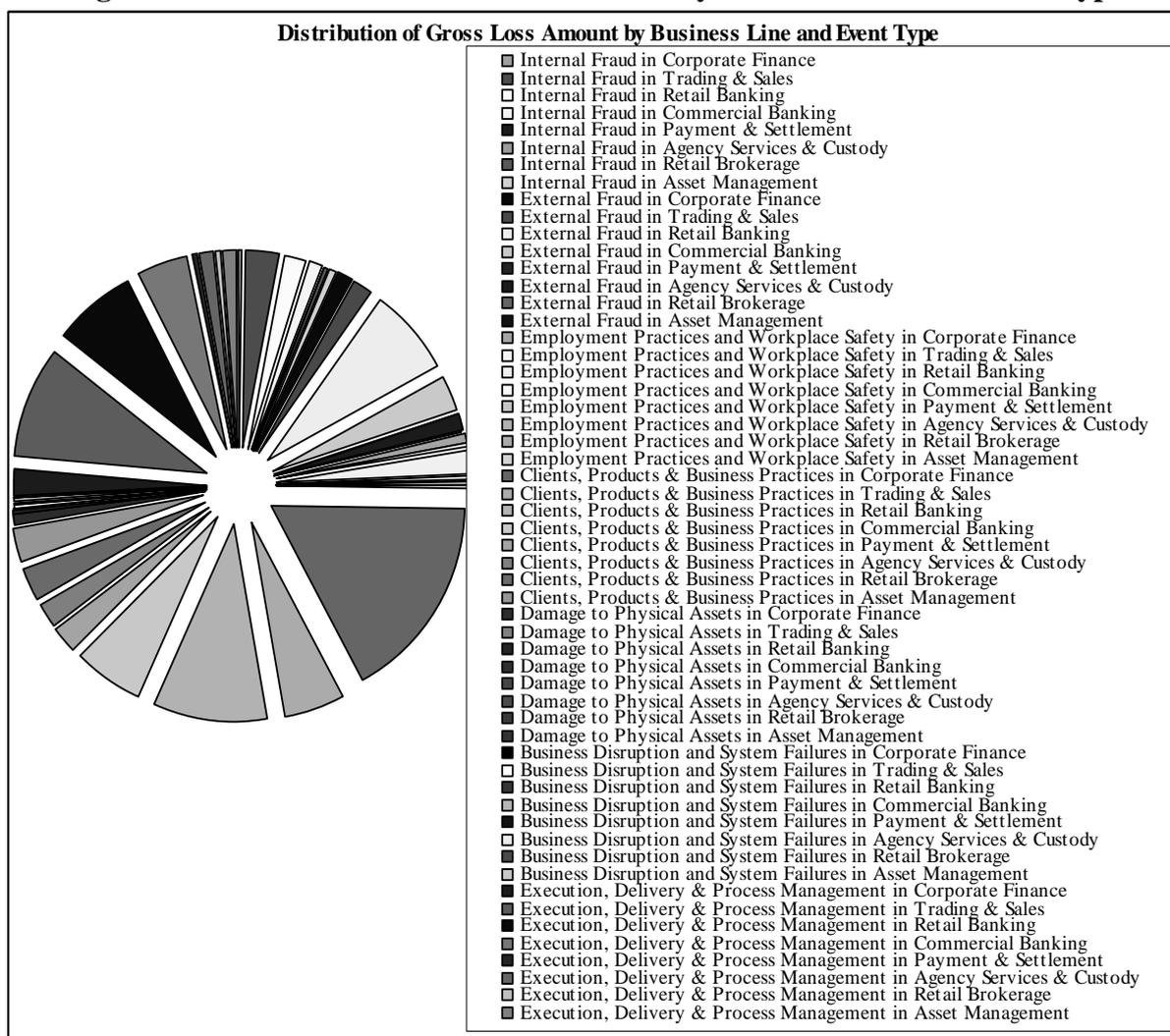


Source: authors calculations

In terms of number of loss events the most risky event is External Fraud published in the Retail Banking business line, followed by events due to Execution, Delivery and Process Management, all in the same business lines, and related events Execution, and Delivery and Process Management, published in the Trading and Sales business line.

The costs of operational risk, i.e. establishing and maintaining a system control, protection insurance are considered by most of financial institutions costs of the work done that supports the current revenues obtained. As an institution with its effective operational risk management it will reduce the amount of money you will need to keep as a reserve. Adopting a proper management of operational risk a financial institution may receive a number of advantages, such as the possibility of: identifying operational losses that are exposed and for which no experience is necessary, such as: low impact events, the set of events with high frequencies; promoting a framework for modeling extreme events: analysis of scenarios for low frequency, high impact events such as: business interruption; pay-offs potential for banks: help quantify the incorporation of risk mitigation decision making process whether to make a particular technology investment, banks manage and measure this risk can significantly reduce costs and are less likely systemic problems, incorporating quantitative risk reduction in policy-making, capital allocation for operational risk sizing; providing modeling of the extreme losses; identifying the sources and losses of this risk, although the experience does not allow them to measurement;

**Figure 6: Distribution of Gross Loss Amount by Business Line and Event Type**



Source: authors calculations

Due to the evolution of operational risk modeling techniques they were stimulated to adopt one of the methods to quantify operational risk.

### 3. Conclusions

In conclusion we state that the most important benefits derived from quantification of operational risk are identification of operational losses that are exposed and for which no experience is necessary. Also because of the importance of the risk events, the financial institutions started to pay high attention to operational risk events and also took measures to mitigate them: the departments involved in activities related to operational risk were provided trainings, normative documents, details regarding regulations and market conditions; the departments concerned with collecting and reporting operational risk events resulting in loss was learned how to reduce operating errors, to develop the information systems and to strengthen the bank's security systems; methods of risk mitigation were evaluated constantly in terms of costs and benefits.

It is very important to mention that once the banks use a more complex operational risk capital requirement the risk diminishes, because they can identify measures and manage operational risks more effectively. Therefore, they are able to discover what business lines generated a higher operational risk and which the major risk factors are. The worst situations were encountered due to products and business practices, registering losses due to negligence, poor preparation or no professionalism, due to the fact that more than half of the bank's employees are students, non-

compliance or violation of conduct towards customers confidence because staff did not resist "blackmail" the customer, improper use of confidential information or exceeding exposure limits. In terms of severity the most important elements are the events occurring due Clients, Products & Business Practices in the Corporate Finance business line and the business lines in Retail Banking.

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## THE LOGISTICS MANAGEMENT PROCESS IN SUPPORTING THE DECISIONS ON FINANCING EDUCATION IN MILITARY UNITS

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**Abstract:** *The decision making component regarding the financing of military education is extremely important and has a pronounced impact on the entire national defense system. The managerial decision regarding the financing of the education system of military units is based on the structural design of two categories of funding: unit finance and auxiliary finance, which are based on algorithmic optimization techniques using modern indicators substantiating the necessary funds. The mechanism provided by the study in supporting the decision for funding the education within the military defense units is a tool dedicated to administrative structures in general.*

**Key words:** budget, financial indicators, logistics management, military education

**JEL Classification:** H83

### 1. Introduction

The present study offers a profound and comprehensive analysis of logistics system performance of efficiency expenditures incurred to finance military education, of military education institutions optimizing their budgets and funding based on performance indicators and last but not least, of the interface between them in the main chief budgetary appropriations.

Completion of the above mentioned components should lead to an overview of the cost calculation methodologies of the core activities and of the operational activities by exploiting the information from the synthetic accounting records of calculating the estimated value of support staff training in the next period and estimated financial resources to supplement the resources of education in military institutions, with allocations corresponding to qualitative performance indicators.

At the moment the following indicators can be easily determined and used:

- Funds allocated for a person trained, determined by the ratio of total net cash payments of tuition and turnover in a certain period of time;
- Financing costs of training a student, as determined by the ratio of total expenditure during the scholarship period and number of trained personnel.

The motivation of our study is based on several historical landmarks that are detailed as follows:

- thoroughness of the long term budget implementation issues, at the level of military unit in the defense system;
- long term theoretical and practical preparation in the state budget financing of military units, and public accounting, and management;
- enforcement of the preventive financial control proposed by the tertiary credit sequencer of the national defense structure;
- lack of an effective methodology for determining unit costs of education in the structure of the defense system;
- lack of a coherent and structured process of financing the military educational institutions of the defense system, based on performance indicators.

The further proposed methodology for calculating and delineating indicators “total cost of schooling per object” in military educational institutions are based on actual expenditures recorded in the public accounting, detailed in correspondence with the budgetary classifications and divided into the calculation elements of core and operational activities.

## **2. Budgetary process as an instrument of quality management in military education.**

The key to profitable activities that would ensure a clear, concise and complete image of management activities, providing information on current needs in money, raw materials, time schedule of the capital, is represented by the creation of an effective budget (Needles, Anderson, Caldwell, 2001).

Modern management is based on budgeting and budgets.

The budgeting process translates the program in terms of responsibility of those who run the actual completion of the overall program, unlike the internal planning which only dimensions the size of costs.

The budget as an instrument of public financial resources management can have three approaches as follows:

- legal approach, in which the budget as a document of inclusion of revenues and expenditures, planned for a budget year, requires prior authorization from the national legislative power or the superior power of the local administrative level, being bind after approval;
- economical approach, in which the budget reflects economic relations, expressed in currency, which arise in the distribution process of gross domestic product to meet the state duties in accordance with the economic, social or other objectives promoted for a certain period of time;
- financial approach, through which the budget becomes a micro-level financial plan that makes predictions on short-term or medium-term within multi-annual budgets.

The role of budgets expresses itself both at financial and economical level.

As a compulsory estimating document, which compares the income and the expenses of the period it refers to, the budget accurately reflects the resources that can be attracted as well as their destination, and compares the income with the actually incurred expenses, in the context of analyzing the income by the source and the expenditures by their destination (Dascălu, 2006).

Five general objectives are tracked through the budget when measuring education funding initiatives:

- increase the absolute level of financing;
- diversify sources of income of universities;
- increase efficiency through appropriate use of resources;
- provide additional funding sources for excellency research and professional training;
- provide aid for students as allowances, guarantees and loans.

Financial resources involved in military education process are foreseen in the budget of the defense system as incomes and expenditures.

For 2010, these funds represent 3.13% of the defense budget and 0.22% of the state budget forecast, with the following structure and are expressed in billion lei:

The estimated public funds necessary to sustain the military educational process between 2010 and 2013 are based on background notes prepared by the military educational institutions and individual objectives established by the main credit sequencer, complying with the actual supply and consumption norms, fully exploiting the limited resources within the proposed budget.

Assignment and attracting top-level resources is not sufficient, requiring the pursue of its opportunity and efficiency, establishing multi-annual investment programs in military schools, the role of the budget being that of establishing the optimal ratio between public expenditure, transfers and productive costs.

Military education budget is in a relative dependency to the degree of the overall economic development, the economic and financial policy, to the importance given to public interests areas of the economy. This thing enforces a policy of budget financing of the education system based on

defining its priorities, reducing waste of resources by exercising budgetary control and fighting corruption, by strengthening budgetary discipline, fiscal discipline closely related to control of resources involved in the process.

**Forecast of State Budget of military education**

Year	2010		2011		2012		2013	
State Budget of military education	Execution		Forecast		Forecast		Forecast	
	218,95		201,54		201,83		206,57	
	State Budget	Internal revenues						
Personnel costs	144,52	14,15	137,14	9,04	136,20	8,91	139,51	9,02
Goods and services	41,05	5,66	42,36	2,98	43,46	2,91	44,47	2,92
Social assistance	0,53	-	0,62	-	0,67	-	0,73	-
Shares Refinancing	6,28	6,76	6,48	2,92	6,65	3,03	6,80	3,12

In most democratic countries, from the education budgets in general and military education budgets in particular, sums are allocated for relocating the personnel and professional training.

**3. The methodology for determining the cost of the activity in military educational institutions**

Determining the total value of each element of the underlying cost of the work carried out in educational institutions will take into account that the aggregate turnover of each account of expenses that is the object of the calculus basis, will be distributed on the two structures of the educational process, the main activity and the operational activity.

Within the main activity the values taken from the accounting system in relation to the category of staff that have been made will be highlighted: management personnel, military and civilian teachers, trained personnel, auxiliary and non-teaching staff, translated into centralized monthly reports and summed up on the budgetary exercise.

Centralization will be made taking into consideration the values recorded in financial accounting, the turnover of the expenditure accounts of the staff money and other rights, in correspondence with the assignment of expenditure by functional classification of economic articles.

The annual financial average value of the rights granted in money and nature of the military teaching staff (AFAV mtp) is determined as the ratio between the total value of the rights of teachers and military personnel (TVR mtp) and the average sum of tuition (AST) as follows:

$$AFAV\ mtp = TVR\ mtp / AST$$

where: TVR mtp is taken from the accounting value of the rights granted in cash and others and AST is determined from the composition of expenditures in the summarizing table.

The annual financial average value of the rights granted in money and nature of the military teaching staff (AFAV mtp) is determined as the ratio between the total value of rights granted to trained personnel (TVR tp) and average sum of tuition (AST) as follows:

$$AFAV\ mtp = TVR\ tp / AST, \text{ data being taken from the same summarizing table.}$$

The expenses on equipment and materials in the inventory to be granted to students of military education are subject of the calculus basis of the main activity. Schooling materials, household goods for hygiene and washing, maintenance and current repairs materials, are distributed and recorded in the accounting records along with their distribution based on the Allocation Tally Sheet document.

The annual financial average amount for textbooks (AFAM tb) is determined as the ratio between the total value of expenditure allocated to textbooks (TV tb) and the average sum of tuition (AST), as follows:

$$\text{AFAM tb} = \text{TV tb} / \text{AST}$$

where (TV tb) is taken from the centralizing table of recorded textbooks value.

The annual financial average amount of feeding the personnel (AFAM fp) is determined as the ratio between the total value of feeding costs (TV fp) and average number of staff trained (ANS) as follows:

$$\text{AFAM fp} = \text{TV fp} / \text{ANS}$$

Main activity cost (MAC) is determined using summing up tables of expenditures of any nature, representing the total expenditure of the teaching-learning activity ( $\Sigma$  AFAM) for a trained person, as follows:

$$\text{MAC} = \Sigma \text{AFAM}$$

Within the operational activity, activity that includes most of the expenditures in the military education and ensures the proper conduct of the educational-training process, the cost of activities is based on summing up tables of operational activity expenditure and on spreadsheets translating the monthly values of the aggregated expenditure in the category of the budgetary exercise.

The summing up is based on the corresponding amounts taken from the financial accounting in respect with the nature of the expenditure and the category of the personnel, with framing them on the economic classification items, corresponding to the military.

Expense items that are base of the calculus of operational cost are as follows:

- material assets to ensure teaching activities and lab activities;
- stocks of functional assets, for utilities, building maintenance and repair, logistics and support services;
- stocks of fuel, lubricants, spare parts, military training equipment, etc.
- depreciation of fixed assets.

Total expenditure on operational activities (TVoa) is determined as the sum of the values of the components of the operational activity ( $\Sigma$  TVoa) and is taken from the related summing up tables as follows:

$$\text{TVoa} = \Sigma \text{TVoa}$$

After totalizing the expenditure incurred during a budgetary exercise we can analyze the cost components of the educational process in military educational institutions and we can quickly and efficiently determine the economic effect training personnel had on the financial year.

Thus, the summing up tables for distribution of the related expenses associated with teaching-learning activities, which are a basic component, in the financial accounting records provides a detailed picture of the value of resources consumed for carrying out the educational process.

The components that are subject to operational activity cost study conducted in military educational institutions represent insurance costs arising from the activities within the educational process and were determined on the basis of expenditure incurred exclusively for ensuring the proper conduct of activities.

By centralizing the expenses elements taken from financial accounting, it is to ensure proper data to calculate the indicator “cost of schooling” (CS), determined for an accounting period, in accordance with the next mathematical model:

$\text{CS} = \text{CMA} + \text{COA}$ , in which:

CMA = cost of the main activities

COA = cost of operational activities.

The cost of the main activities (CMA) is determined as the sum of annual average values of the main activities and the cost of operational activity (COA) is determined as the ratio between operational rate of tuition (ORT) and the average sum of tuition (AST).

#### **4. Substantiation of managerial decision on financing military education institutions.**

For military education system's logistics, the management component holds a significant share, with a particular impact over intentions and actions of people who are part of the military structures and have different responsibilities.

The decision on financing the military education institutions is based on the following elements:

- determining the financial needs of military educational institutions;
- comparative analysis of the necessary funds taking into consideration the type of expenses, depending on the funded activities;-
- defense budget projection on educational activities;
- control system as a function of the financing decision system.

Two categories of funds have been established to finance military educational institutions:

- funds for unitary financing;
- funds for auxiliary financing.

Unitary financing or financing based on the number of trained personnel represents the total funds requested for schools, based on historical background in terms of performing the activity on a continuous basis, necessary for the coverage of expenditure exclusively intended for the carrying out of the educational process for the next period of time, corrected by the quality performance indicators for main and operational activities.

Auxiliary financing is about funds that ensure the development of activities associated with educational process in terms of capital and social expenditure.

Whatever the form of financing the main or operational activities, funds requirement is based on modern indicators of financing.

In the unitary financing, the establishment of the necessary funds must take into consideration the following indicators:

- the number of trained personnel;
- unitary cost of activity;
- quality performance indicators for university education that may be:
- quality of teachers;
- the potential for scientific development;
- the prospect of performance consumption in educational activity;
- the level of performance in scientific research;
- national and international awards;
- follow-up military training.

The necessary funds for auxiliary financing are based on the following indicators

- stock expenditure;
- cost of repair, rehabilitation and consolidation;
- travel expenses;
- social expenses;
- costs of mobilization;
- stock and conservation expenses;
- fees and other occasional activities expenses.
- Using the average annual financial values and the distribution of the operational activity cost on the main activity, determined by the values of the previous budgetary exercise, but also for shorter periods of time, the decisions will be based on real possibilities of funding, scientifically and rigorously calculated.

No opinion can be expressed on the ideal proposal of financing the two activities but we can say that the more the financial resources necessary for carrying out the activity, the more they emphasize on the quality of education. In other words, managerial decision is to achieve the main educational objectives through an optimum support of the activities directed towards the trained

staff, while making savings for the indirect activities and other activities involved in carrying on the educational process.

### 5. Conclusions

The hereby methodology is based on collecting the actual expenses recorded in financial accountability during an accounting period, when the types of expenses set to form the basis for determining the cost of schooling in military educational institutions are highlighted.

Based on the present study we can state that for the expenditures structured on other criteria than those of budgetary classification, analyses can be made, certain rules of use may be changed, terms of use may be reduced for some goods, types of goods stipulated in legislation may be modified, all these do not apply to the current historical stage because they don't have beneficial consequences on the structure of budgets in execution.

In terms of how to apply the category of expenditure from the study on the activities and how to determine the unit cost of tuition depending on the period, we appreciate that the managerial act in military educational institutions can increase efficiency in budget execution.

We consider that, for further continuation of the structural and qualitative transformational process within Romanian military education, quantitative funding should be adopted respecting the fundamental principle according to which "the resources will follow the trained staff", resulting in further replacement of items and in-line budget with the overall funding of educational institutions using quality performance indicators to increase financial need as a financial incentive both in terms of global finance, as well as the current funding methodology.

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## “HOME BIAS” IN EMU COUNTRIES: PORTFOLIO REALLOCATIONS BEFORE AND AFTER THE FINANCIAL CRISIS

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**Abstract:** *Our paper explores the “home bias” phenomenon within the European and Monetary Union, by identifying the main trends in foreign portfolio allocations after 1999 and the recent evolutions induced by the global financial crisis. We find that Eurozone investors have reallocated their portfolios in favor of EMU assets after 1999, while decreasing their relative holdings in the other EU countries that are not EMU members. At the same time, neighborhood plays a role in investors’ decisions, as the higher financial market integration in the EU area is not able to sufficiently discourage investors to be present in EU markets.*

**Keywords:** European and Monetary Union, home bias, portfolio investments

**JEL classification:** G11, G15

### 1. Introduction

The past decades have seen an intensification of portfolio investments, as investors were seeking to reduce risk by globally spreading their holdings. Solnik (1974) was the first to brought international diversification to the attention of investors, as he showed there is a limit to the risk reduction that may be achieved on a single domestic market, due to the same macroeconomic factors that influence stock prices; domestic diversification is capable of almost completely eliminating firm-specific risks but it leaves systematic risks untouched. However, further risk reduction is possible by adding foreign securities to a domestic portfolio, building on the less than full synchronization of economic cycles among countries that leads to low correlations between international capital markets. Research conducted in the past decades has shown that the overall risk of an internationally diversified portfolio, unhedged or hedged against currency risk, has been proven to be lower than that of a benchmark domestic portfolio – see, for example, Grauer and Hakkanson (1987), Jorion (1989) and Eaker and Grant (1990).

The introduction of the euro and the disappearance of exchange rate risk in the EMU area imply that investors should be concerned with the benefits of their diversification strategies, especially when before the introduction of the euro they hold diversified portfolios at the European level. From a theoretical perspective, the introduction of the Euro should have as effects a reallocation of portfolio’s weights in favor of EMU assets as a result of the complete elimination of currency risk, as well as a higher weight for assets outside EU, as a direct consequence of increased financial market integration between European Union countries. Overall, one would expect to see a significant decline in “home bias” and a higher preference for assets within EMU and outside EU as a result of these processes. Moreover, the recent financial crisis has also induced changes at the

level of portfolio holdings at the global level, as the retrenchment in international capital flows led to increases in portfolio home bias, i.e. a reduction of the share of foreign assets in investors' portfolios.

Our paper explores the "home bias" phenomenon within the European and Monetary Union, by identifying the main trends in foreign portfolio allocations after 1999 and the recent evolutions induced by the global financial crisis. The paper is structured as follows: Part 2 presents the main directions and conclusions of previous research on "home bias", Part 3 investigates the major changes in portfolio reallocations of EMU investors after 1999, and Part 4 concludes.

## 2. Literature review

The intensified international economic integration in the past decades, translated in financial markets' integration and observable at the level of increased joint movements of international financial markets, raises the question of whether the benefits that international investors may obtain from holding internationally diversified portfolios did not diminish. In such circumstances, correlations between markets and assets traded in different domestic markets are expected to increase in time due to the progressive removal of impediments to international investment and stronger economic integration, both from an economic or political point of view. Although empirical evidences generally confirm an upward trend of correlations among capital markets, their movement over the last 30 to 40 years has been less strong than expected, because the enhanced competition between national economies has frequently led to specialization. Roll (1992) argued that stronger economic integration may lead to lower correlation of asset returns if the integration process is associated with higher industrial specialization, while Heston and Rouwenhurst (1994) identified country effects as better explanatory factors for the co-movement of stock markets. More recently, Lee (2005) finds that conditional correlations between the US, Japan, and the Hong Kong stock markets are positive and increasing in the recent years. Overall, the set of evidence regarding the trend of correlations remains mixed: for example, Kaplanis (1988) and Ranter (1988) do not find consistent evidence in favor of increased cross-market correlations, but Longin and Solnik (1995) find that correlations have risen between 1960 and 1990. Bekaert and Hodrick (2006) also conclude that no evidence of an upward trend in returns' correlation across countries is observable, except in the case of European stock markets. Their findings are accompanied by research that shows that cross country correlations in stock returns change over time and are generally higher in periods of accentuated integration and of high volatility of returns – see, for example, Goetzmann et al. (2001), Books and del Negro (2002), Heaney et al. (2002), and Larrain and Tavares (2003).

One of the most researched regions in the domain of markets' integration in the past years was the European Union, with its European and Monetary Union as a core component. The studies are generally indicating a significant increase of correlations among European markets at geographical and industrial level. For example, Fratzscher (2001) analyses European equity markets since the 1980s, and demonstrates that these markets have become highly integrated only since 1998. This high level of integration between European equity markets is largely explained by the drive towards EMU through the elimination of exchange rate volatility. Reszat (2003) evidences that the contribution of the common currency to financial integration has been stronger the more national markets have in common. Garcia Pascual (2003) finds evidence of increasing integration of the French stock market, but not of the British and German markets, while Rangvid (2001) also identifies a rise in the degree of convergence among European stock markets in the last two decades. More recently, Kashefi (2006) studies the effect of the euro introduction on European equity markets and finds a significant increase in correlations among stock returns between pre- and post-euro periods, which shows that diversification opportunities within EMU, at least, have decreased at a country level for post-euro periods.

At the same time, the introduction of the euro and the subsequent disappearance of exchange rate risk in the EMU area imply that investors should be concerned with the benefits of their diversification strategies, especially when they hold diversified portfolios at the European level before the introduction of the euro. This is where the phenomenon of "home bias" enters the

picture. "Home bias" may be defined as the preference for home traded assets against foreign assets, despite better risk-return profiles of foreign investments and the process of financial markets' integration should normally lead to a fall in investors' home bias. Moreover, this process should be more pronounced at the EMU level, due to the added benefit resulting from the elimination of currency risk after the euro adoption. At the same time, as diversification benefits decrease across EMU markets, one should observe portfolio reallocations in favor of outside EMU assets, which have a higher potential of preserving or even increasing the previous EMU benefits derived from holding international portfolios.

The "home bias" phenomenon in international investments is well documented in the literature, particularly since 1990s, pioneered by the works of French and Poterba (1991) and Cooper and Kaplanis (1994). Since then, literature has shown that despite the observed and documented benefits resulted from diversifying asset holdings outside their home capital markets, investors are still reluctant to include in their portfolios foreign assets, maybe with the exception of countries with small domestic capital markets. Cooper and Kaplanis (1994) report that at end 1987 the proportion of equity investment in domestic equities and the domestic market capitalization as a proportion of the world equity market capitalization were very different: for example, US investors placed 98% of their holdings in domestic equities, while the proportion of US market capitalization at the world level was only 36.4%; comparative figures for other developed countries were 78.5% against 10.3% for United Kingdom, 86.7% against 43.7% for Japan and an astonishing 85% against just 1.9% for five continental Europe countries. The explanations provided for this phenomenon are various, but they generally fall into one of three categories: those focusing on institutional factors, such as barriers on international investments, including higher transaction costs, those focusing on investors' behavior, and those centered on investors' need to hedge against specific risk factors on their home markets, such as inflation risk. Early works, such as Black (1974) and Stulz (1981), advance restrictions on international capital flows, withholding taxes and transaction costs as responsible for home bias, but Tesar and Werner (1995) and Warnock (2005) argue that transaction costs cannot explain the observed home bias. The dissatisfaction with explanations involving institutional barriers has led research towards considering investors' behavior as motive for home bias. In this line of research, French and Poterba (1991) suggest that investors are more optimistic regarding their home markets: they calculate the required returns that explain the patterns of international equity holdings by U.S., British and Japanese investors and find that U.S. investors must expect annual returns that are 240 and 110 basis points higher than those expected by British and Japanese investors, respectively, from U.S. equities. Shiller et al. (1996) find that Japanese investors are more optimistic about the performance of their home capital markets, after investigating one-year returns on Nikkei 225 and DJIA during 1989-1992, while Tesar and Werner (1995) also suggest that investor behavior may represent the fundamental driver for the home bias phenomenon. More recently, Glassman and Riddick (2001) consider a more sophisticated explanation for home bias by taking into account adjusted expected returns that reflect transaction costs, standard deviations and correlations and find that the required adjustment of return for standard deviations is unreasonably large for investors from France, Germany, Japan and the United Kingdom. Geographical proximity seems to play a role in the preference for home assets, as reported by Suh (2005) after conducting a research on institutional investors' portfolio polls published by *The Economist*, which confirms previous findings of Coval and Moskowitz (1999), Li (2000) and Huberman (2001). The use of home assets as hedging tools against specific domestic risks is advanced in the literature as another possible explanation for home bias. Stockman and Dellas (1989) and Tesar (1993) show that price uncertainty for non-traded goods represents a reasonable incentive to invest in home assets, while Tesar and Werner (1995) suggest that investment in domestic assets may serve as a hedge against large and frequent shocks at the level of income, generated by cyclical fluctuations in labor's share of income and in governmental policies concerning income redistribution.

Recent research conducted by Balta and Delgado (2009) suggests that the extent of home bias diminished substantially at the level of EU15, while Haselmann and Herwartz (2010) that examine

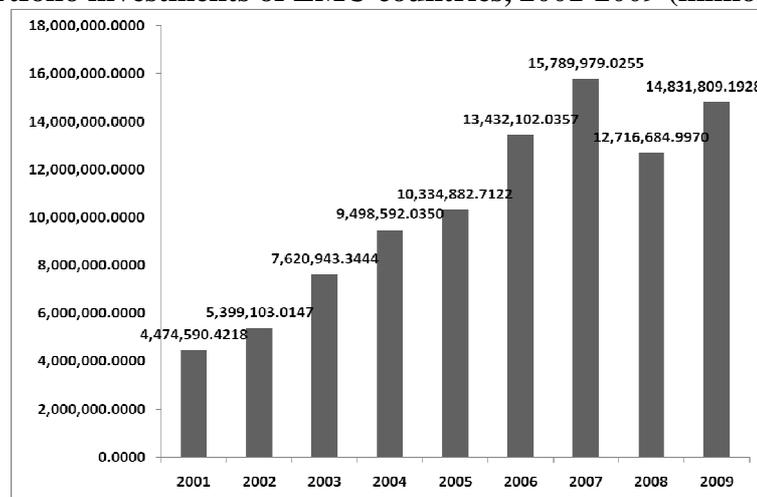
portfolio allocations of German investors based on statistics of the Deutsche Bank from 1980 to 2003 find that a significant decrease in national and an increase in EMU and rest-of-the-world investments can be observed, which signifies that investment home bias has diminished since the euro introduction. At the same time, the recent financial crisis influences the extent of home bias, in the context of a general retrenchment of global capital flows. As Milessi-Ferretti and Tille (2010) document, the crisis has been associated with a reduction of the share of assets invested abroad, as most countries experienced a reduction in this portfolio share or a stabilization after years of increases prior to the crisis. While this setback in international financial integration reflects partially declines in asset prices that could have lowered the portfolio share despite any potential actions by investors, on the other hand these evolutions are the result of repatriations of funds invested abroad. Figure 1 shows the evolution of foreign portfolio investments of EMU countries after 2001 until 2009 and allows one to observe their decline in 2008 in almost all countries, followed by an increase for some countries in 2009. Also, Figure 2 presents the quarterly evolution of foreign portfolio investments of countries in the EMU area and here the retrenchment (given by the negative value of foreign portfolio investments in the second half of 2008, as an effect of the financial crisis) is more striking.

We pursue this line of research and offer insight into the reallocation of portfolio weights for EMU investors among EMU, EU and outside EU assets after the introduction of the euro in January 1999 until March 2010. Therefore, we acknowledge the combined impact of higher financial markets integration in the EMU area and of financial crisis on portfolio reallocations.

### 3. Home bias in EMU countries: portfolio reallocations after 1999

The Coordinated Portfolio Investment Survey conducted annually by the International Monetary Fund provides information on individual economy year-end holdings of portfolio investment securities - equity and debt securities - valued at market prices, cross-classified by the country of issuer of the securities. Participants in the Survey follow definitions and classifications set out in the fifth edition of the Balance of Payments Manual of the IMF. Data is available annually since 2001 and for some countries also for 1997, which allows us to compare the holdings after 2001 and the euro introduction with the previous ones. It is worth mentioning that CPIS data is not perfectly accurate since some countries might be under-reporting and in most cases there is no clear tracking of the end investor, which is particularly disturbing for tax-heaven-like countries, such as Luxembourg or Ireland. Nevertheless, CPIS offers information that is not easily available from other sources and allows us to observe in a rather convenient manner the changes in investors' portfolio holdings.

**Figure 1: Foreign portfolio investments of EMU countries, 2001-2009 (millions of US dollars)**



Source: Authors' calculations based on data from IMF

We use data on foreign equity holdings for 14 countries that are EMU members (Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Spain) and divide the holdings among the following areas: (1) EMU area (it also includes Slovenia, but the country is not included in the analyzed panel for two reasons: it is a too recent member of the EMU and it is not a reporting economy in survey for the whole period.); (2) EU non-EMU area (Bulgaria, Czech Republic, Denmark, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Sweden, United Kingdom); (3) EU countries; (4) Non-EU countries; (5) European countries and (6) Rest-of-the-world. We analyze the distribution of equity holdings abroad first by observing reallocations among areas (1) and (2), (3) and (4) and then between areas (5) and (6).

**Figure 2: Foreign portfolio investments of EMU countries, March 2002 - September 2010 (millions of US dollars)**

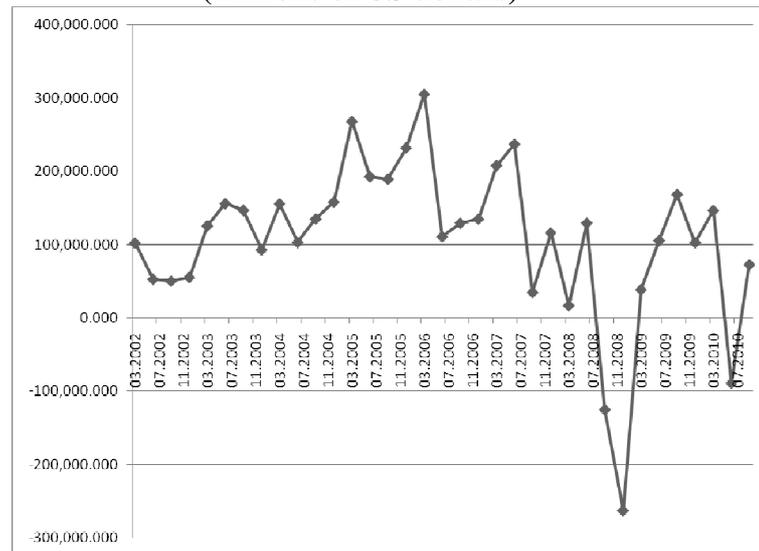


Table 1 shows the distribution of foreign equity holdings in EU assets for the 14 EMU countries under scrutiny as average of weights during 2001-2009, contrasted against the weights for 1997 (in the case of available data). We also present the weights allocated to EMU versus EU non-EMU countries in 2001 and 2009. For the nine countries with data also for 1997 we observe, with no exception, an increase (in some cases significant) of weights allocated to EMU countries: the highest is recorded for Italy (115.58%) followed by Finland (91.84 and France (71.15%). At the EMU level also, the average of the average weights during 2001-2009 is higher compared to the weights in 1997, even after correcting with the positions of Ireland and Luxembourg for reasons explained before. Also, with only four exceptions (Spain, Finland, Luxembourg and Greece), the weights allocated to EMU countries decreased in 2009 compared to 2001. By contrast, the weights allocated to EU non-EMU countries in the EMU countries' foreign portfolios declined with no exception for the nine countries with data for 1997 (the highest decline is observable for Spain – 40.76%, followed by Italy – 33.10% and Finland – 24.19%). Interestingly, when we take into account the weights in 2001 and 2009, we see that declines of weights occurred just for seven countries and they were rather small (between 0.50% to 31.41%), while for the other seven countries in our panel we observe increases in such weights, with the highest for Greece (187.97%) and Cyprus (172.98%). These results are consistent with our expectation that currency risk removal among EMU countries, coupled with higher financial market integration at the EU level would lead to a higher weight of EMU assets in the Eurozone investors' portfolios and lower weight for EU but outside EMU assets. At the same time, in more turbulent periods such as the recent financial crisis, investors tend to reallocate their portfolios towards countries that exhibit lower correlations with their domestic markets, and this phenomenon may explain the higher weights allocated in 2009 for EU non-EMU assets by half of the countries in our panel.

**Table 1: EU foreign equity holdings' weights for EMU countries, 1997-2009**

Holdings of residents from	EMU countries				EU non-EMU countries			
	1997	2001	2009	Average 2001-2009	1997	2001	2009	Average 2001-2009
Austria	47.692%	59.838%	66.087%	64.488%	13.928%	9.995%	13.710%	12.031%
Belgium	67.025%	76.876%	81.916%	78.886%	6.778%	5.784%	5.754%	6.464%
France	43.259%	56.142%	66.023%	62.378%	12.504%	11.302%	10.632%	11.033%
Germany	NA	62.418%	69.727%	67.440%	NA	12.444%	12.008%	11.064%
Italy	31.078%	56.112%	72.162%	66.999%	9.426%	7.482%	7.324%	6.305%
Netherlands	44.481%	47.233%	51.050%	49.755%	12.536%	10.479%	9.246%	10.316%
Spain	36.210%	62.922%	58.474%	61.973%	17.021%	9.953%	9.118%	10.083%
Cyprus	NA	19.702%	38.189%	28.155%	NA	14.443%	39.426%	23.132%
Finland	29.941%	58.564%	52.814%	57.438%	31.187%	19.232%	26.563%	23.641%
Ireland	31.621%	27.252%	36.897%	34.829%	27.457%	20.938%	21.340%	21.711%
Luxembourg	NA	49.040%	47.457%	48.382%	NA	11.194%	12.627%	11.815%
Greece	NA	40.379%	16.472%	32.544%	NA	17.090%	49.185%	29.744%
Malta	NA	39.092%	39.993%	35.380%	NA	9.879%	6.381%	8.805%
Portugal	45.473%	55.551%	71.166%	65.550%	9.953%	6.520%	7.719%	7.715%
<b>EMU14 average</b>	<b>41.864%</b>	<b>50.794%</b>	<b>54.888%</b>	<b>53.871%</b>	<b>15.643%</b>	<b>11.910%</b>	<b>16.502%</b>	<b>13.847%</b>
<b>EMU 12 average (excludes Ireland and Luxembourg)</b>	<b>43.145%</b>	<b>52.902%</b>	<b>57.006%</b>	<b>55.916%</b>	<b>14.167%</b>	<b>11.217%</b>	<b>16.422%</b>	<b>13.361%</b>

Note: NA – data not available

Source: Authors' calculations based on data from Coordinated Portfolio Investment Survey, IMF

Aiming at identifying the impact of higher macroeconomic synchronicity among countries that are EU members and of intensified financial market integration in the region, we examined the evolution of weights allocated to EU countries and the non-EU countries over the same period (see Table 2). In the case of seven countries out of the nine with data available for 1997 we observe an increase in the average weight allocated for EU countries in 2001-2009 compared to the weight in 1997; the highest increases are recorded for Italy (80.98%) and Spain (35.36%). For two countries (France and Ireland) we observe lower weights allocated for EU countries as a group. At the EMU level (14 countries) the weight allocated to EU countries increases from 57.50% (57.31% if Ireland and Luxembourg are excluded) in 1997 to an average of 64.20% (65.17% without Ireland and Luxembourg) in 2001-2009. By consequence, the weights allocated to countries outside the EU area decrease for all countries in our panel, which leads us to the conclusion that neighborhood plays a role in investors' decisions, as the higher financial market integration in the EU area is not able to sufficiently discourage investors to be present in EU markets.

**Table 2: Foreign equity holdings' weights in EU and non-EU countries EMU countries, 1997-2009**

Holdings of residents from	EU countries				Non-EU countries			
	1997	2001	2009	Average 2001-2009	1997	2001	2009	Average 2001-2009
Austria	61.620%	69.834%	79.797%	76.519%	29.939%	21.793%	11.911%	16.153%
Belgium	73.803%	82.660%	87.670%	85.351%	21.763%	14.510%	4.621%	10.590%
France	55.763%	67.444%	33.759%	24.203%	33.759%	24.203%	15.764%	18.656%
Germany	NA	74.862%	81.735%	78.504%	NA	21.805%	10.503%	17.132%
Italy	40.504%	63.593%	79.486%	73.305%	24.587%	23.751%	10.855%	16.816%
Netherlands	57.017%	57.712%	60.296%	60.070%	38.129%	37.402%	27.780%	34.405%
Spain	53.231%	72.875%	67.593%	72.056%	28.404%	15.795%	12.393%	12.596%
Cyprus	NA	34.146%	77.614%	51.287%	NA	63.728%	2.531%	41.158%
Finland	61.127%	77.796%	79.377%	81.079%	27.321%	18.205%	4.829%	13.257%
Ireland	59.078%	48.189%	58.237%	56.540%	36.704%	40.110%	28.334%	34.978%
Luxembourg	NA	60.233%	60.084%	60.197%	NA	33.903%	26.467%	32.406%
Greece	NA	57.469%	65.657%	62.289%	NA	20.262%	11.986%	14.472%
Malta	NA	48.971%	46.374%	44.185%	NA	46.134%	37.741%	43.901%
Portugal	55.426%	62.070%	78.885%	73.265%	25.167%	11.169%	6.840%	8.792%
<b>EMU14 average</b>	<b>57.508%</b>	<b>62.704%</b>	<b>68.326%</b>	<b>64.204%</b>	<b>29.530%</b>	<b>28.055%</b>	<b>15.182%</b>	<b>22.522%</b>
<b>EMU 12 average (excludes Ireland and Luxembourg)</b>	<b>57.311%</b>	<b>64.119%</b>	<b>69.854%</b>	<b>65.176%</b>	<b>28.634%</b>	<b>26.563%</b>	<b>13.146%</b>	<b>20.661%</b>

Notes: (1) NA – data not available; (2) The sum of weights may differ from 100% due to allocations for international organizations also taken into account by data.

Source: Authors' calculations based on data from Coordinated Portfolio Investment Survey, IMF

Investigating furthermore the role of neighborhood, we observe reallocations between Europe and the rest-of-the-world for EMU investors before and after the euro introduction. We observe that all 9 countries we considered with the exception of Ireland have increased their foreign portfolio allocations towards European countries in 2001-2009 compared to 1997. Still, if we compare allocation in 2009 and 2001, some countries have decreased their allocations in European countries (Malta, Luxembourg, Finland and Netherlands), but at the EMU level as a group the average weight increased by 5.52% (6.02% if Ireland and Luxembourg are excluded). This is another interesting result, which may indicate that (1) integration at the EU and European level has not led to a significant increase in cross-country correlations, which preserves these countries' diversification potential; (2) Eurozone investors perceive the risk-adjusted returns offered by the rest-of-the-world markets as unattractive compared to European returns; and (3) the economic integration fostered by EU and propelled in Europe might have diminished the lack of familiarity with foreign markets that previous research on the home bias phenomenon found.

**Table 3: Foreign equity holdings' weights in Europe and Rest of the world by EMU countries, 1997-2009**

Holdings of residents from	European countries				Rest of the world			
	1997	2001	2009	Average 2001-2009	1997	2001	2009	Average 2001-2009
Austria	63.889%	72.353%	80.294%	78.782%	27.670%	19.273%	11.414%	13.890%
Belgium	75.163%	83.900%	84.215%	85.942%	20.403%	13.270%	8.076%	9.999%
France	59.796%	69.432%	76.276%	74.826%	29.726%	22.216%	16.143%	17.242%
Germany	NA	78.421%	80.313%	80.842%	NA	18.246%	11.925%	14.794%
Italy	42.333%	64.911%	77.413%	74.244%	22.758%	22.433%	12.928%	15.877%
Netherlands	60.503%	60.174%	55.956%	61.306%	34.644%	34.940%	32.121%	33.168%
Spain	56.505%	74.899%	68.289%	73.233%	25.130%	13.772%	11.697%	11.419%
Cyprus	NA	40.596%	63.092%	53.136%	NA	57.278%	17.053%	39.310%
Finland	66.608%	80.558%	74.305%	82.948%	21.840%	15.443%	9.901%	11.388%
Ireland	61.595%	49.559%	57.157%	57.689%	34.187%	38.741%	29.415%	33.829%
Luxembourg	NA	62.942%	57.514%	62.363%	NA	31.194%	29.037%	30.240%
Greece	NA	58.294%	65.941%	63.383%	NA	19.437%	11.702%	13.378%
Malta	NA	51.660%	42.568%	45.475%	NA	43.445%	41.547%	42.611%
Portugal	56.625%	62.673%	77.276%	73.721%	23.967%	10.566%	8.449%	8.336%
<b>EMU14 average</b>	<b>60.335%</b>	<b>65.026%</b>	<b>68.615%</b>	<b>69.135%</b>	<b>26.703%</b>	<b>25.732%</b>	<b>17.958%</b>	<b>21.106%</b>
<b>EMU 12 average (excludes Ireland and Luxembourg)</b>	<b>60.178%</b>	<b>66.489%</b>	<b>70.495%</b>	<b>70.653%</b>	<b>25.767%</b>	<b>24.193%</b>	<b>16.080%</b>	<b>19.284%</b>

#### 4. Conclusions

From a theoretical perspective, the introduction of the Euro has an indefinite effect on portfolio decisions of Eurozone investors, as we may expect, on one hand, a reallocation of portfolio's weights in favor of EMU assets as a result of the complete elimination of currency risk, and, on the other hand, a higher weight for assets outside EU, as a direct consequence of increased financial market integration between European Union countries. Overall, it is difficult to assess the direction of portfolio reallocations of EMU investors, but one would expect to see a significant decline in "home bias" and a higher preference for assets within and outside EMU. Our paper explores the "home bias" phenomenon within the European and Monetary Union, by identifying the main trends in foreign portfolio allocations after 1999 and the recent evolutions induced by the global financial crisis.

We use data on foreign equity holdings for 14 countries that are EMU members (Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Spain) and divide the holdings among the following areas: (1) EMU area (it also includes Slovenia, but the country is not included in the analyzed panel for two reasons: it is a too recent member of the EMU and it is not a reporting economy in survey for the whole period.); (2) EU non-EMU area (Bulgaria, Czech Republic, Denmark, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Sweden, United Kingdom); (3) EU countries; (4) Non-EU countries; (5) European countries and (6) Rest-of-the-world.

Our results are consistent with the expectation that currency risk removal among EMU countries, coupled with higher financial market integration at the EU level would lead to a higher weight of EMU assets in the Eurozone investors' portfolios and lower weight for EU but outside EMU assets. At the same time, in more turbulent periods such as the recent financial crisis, investors tend to reallocate their portfolios towards countries that exhibit lower correlations with their domestic markets, and this phenomenon may explain the higher weights allocated in 2009 for EU non-EMU assets by half of the countries in our panel. Also, our findings which may indicate that (1) integration at the EU and European level has not led to a significant increase in cross-country correlations, which preserves these countries' diversification potential; (2) Eurozone investors perceive the risk-adjusted returns offered by the rest-of-the-world markets as unattractive compared to European returns; and (3) the economic integration fostered by EU and propelled in Europe might have diminished the lack of familiarity with foreign markets that previous research on the home bias phenomenon found.

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## TRENDS IN THE INVESTMENT BANKING INDUSTRY

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**Abstract:** *The paper aims to present several key points along the long history of the investment banking industry. With more than two centuries behind, the investment banking industry finds itself at a crossroad. The paper is therefore structured to primarily present a short history of the investment banking industry pointing out the major moments and changes in how this industry developed. Afterwards we were addressing the current financial crisis and its main causes by showing that what happened at the end of 2008 is of no surprise. Crisis is more the rule and not the exception in a capitalist system. Finally we try to figure out the reform that is going out in the investment banking industry as a result of the current financial crisis and how the business model of this industry tends to evolve.*

**Key words:** financial crisis, investment banks, financial innovation, financial regulation

**JEL classification:** E44, G01, G24

### 1. Introduction

As the economic system was designed for many decades, investment banking is in the heart of the capital allocation process at the global level. Investment banks have played a central role in market transactions on behalf of corporations, investors, governments. It is enough to take a look at the large revenues that this industry produced to understand the place of this industry. Global investment banking revenue increased year by year reaching in 2007 85 billion dollars, an amount 22% higher than in 2006, and double compared to 2003. But despite this record year, many players in this industry registered large losses due to their exposure to the US sub-prime investments. The major market in 2007 was US – the primary source of investment banking with 53% of the total, followed by Europe, Middle East and Africa that were generating 32%, and Asia with 15%. The industry was mostly concentrated in few major financial centres: London, New York, Hong Kong and Tokyo.

Many researchers examined the history of investment banking, the rules and laws that were determining the configuration of this industry. Still there is not available a coherent theory to explain the existence of investment banking. Investment banking succeeded over its long history to gain power and visibility and repeatedly was accused of exercising excessive power in an irresponsible way. This always attracted a regulatory intervention.

We can still identify at least several benefits that are justifying the need for an investment bank as an intermediary in the issuing process. One of the major problems of an issuer that intends to raise money directly in the market by selling securities lies in the *fragmented character of the market* (the large dispersion of the investors). The investment banker, as a professional has the needed organization and expertise to reach all the potential investors. Also there is a problem of *asymmetric information* between the issuer and the investors. The issuer is in a better position to understand the intrinsic value of the security issued compared to the investor. The investment bank can reduce this asymmetry by gathering, analyzing and disseminating the relevant information

between the two parties. There is also the *issuing risk* problem. By underwriting the issue the investment bank is helping issuer in managing this risk.

## 2. A short history of investment banking

A short historical review of the investment banking industry will help to understand the changes that can be expected in this industry. Over the last decades the investment banking industry went through important changes. The trends that shaped this industry involved not only macroeconomic issues, but also globalization, increased deregulation of the industry, massive change in technology. All these changes have determined increased competition and the repositioning of important players. As a result some investment banks have consolidated their participation in markets separately from traditional investment banking, while others specialized in traditional investment banking services and sold their divisions not providing such services.

The history of investment banking is spread over almost two centuries. The mid of the nineteenth century in the US was characterized by an important economic growth that needed to be financed. The most of the financial services at that time were provided by auctioneers and merchants from Europe. Investment banking began in this period in the United States, but was linked to the European banks. The investment banker with highest influence for more than half a century (from the mid of the nineteenth century to the early twenties century) was J.P. Morgan. Morgan played an important role in financing the railroad, General Electric and United States Steel, largely through bond issues. Morgan was also responsible for a number of stock panics (like the one in 1901) and was also subject of some investigations alongside with other powerful investment bankers (1905 – Armstrong investigation; 1909 – Hughes investigation; 1912 – Money Trust investigation). These investigations had several consequences: the establishment of the Investment Bankers Association with a major role in ensuring prudent practices among investment banks; the creation of Federal Reserve System in 1913; the adoption of different laws.

United States was a debtor nation until the World War I. But afterwards US became a creditor nation and Europe and United States switched roles: companies around the world turned to the US for investment banking. In the '20s, a variety of emerging industries like automotive, aviation and radio needed important amounts of money that were raised in the capital market. As a consequence, the volume and value of securities traded increased. One could see issues of more than 20 million dollars more frequently. Many investors started to borrowed money in order to buy stocks to speculate the evolution of securities prices. In October 29, 1929 the stock market crashed, and in less than 2 weeks the losses for both commercial and investment banks ranked 30 billion dollars. US government asked for a new investigation (known as Pecora investigation) that brought to light corrupt practices of both commercial and investment banks and determined the set up of the Securities and Exchange Commission (SEC). SEC was responsible to regulate and monitor the investment activities.

Most of the legislation that is governing the investment banking industry is dated back in the '30s and is associated with the Great Depression:

- *Banking Act of 1933* (known as Glass-Steagall Act) that prohibited to conduct commercial and investment banking activities in the same entity;
- *Revenue Act of 1932* increased tax on stocks and imposed taxes on bonds in order to make the practice of raising prices in the different tiers of the underwriting syndicate impossible;
- *Securities Act of 1933* and *Securities Exchange Act of 1934* required full disclosure of the issuer and its offerings, regularly update of financial statements and charged SEC with its implementation.

After World War II, investment banking has started to recover in parallel with the economy. Large corporations were raising huge amounts of money by issuing securities (like General Motors that raised 325 millions dollars in 1955).

The recession of the '70s determined a series of mergers among investment brokers. The players in this industry have begun to expand their services into international markets. They also started to invest in venture capital and were setting up retail operations. SEC had as an option in 1975 to deregulate investment banking fees and as a result there was a rise to discount brokers who undercut prices. Also the implementation of computer technology starting in the '70s made the industry more competitive. The new technology provided an important support for investment banks in receiving, processing, organizing and disseminating large amounts of relevant information, helping in making transactions more quickly and making this business more efficient.

In the '80s another important development took place in the investment industry. SEC decided to permit well-known companies to register securities without setting a sale date and to delay the sale until the securities' prices in the market are strong – registrations known as “shelf registrations”. This alternative of financing is helping the mature companies to quickly take advantage of any investment opportunity in their business, being able to raise important amounts of capital on short notice. It has also contributed to the reduction of the historic connection between corporations and investment banks, this alternative allowing a company to ask different investment banks to bid for the underwriting price, making the process more efficient for the issuer.

Last decades were also characterized by the development of institutional investors as key players in the capital market. Their importance grew from 25% of securities traded in the '60s to 75% in the '90s. The trend of consolidation in the industry continued in the '80s and '90s, so that the landscape was dominated by few investment banks with large amounts of capital that were offering a wide range of services becoming “financial supermarkets”. This trend changed the structure of the industry and the role of syndicates that become important mostly in very large offerings. In addition, investment banks became more involved in arranging transactions as mergers and acquisitions as well as corporate restructurings. They provide advice, negotiate on behalf of their clients, and guarantee the purchase of bonds when there are leveraged buyouts.

Innovation is also an important trend that can be identified for this market. New financial instruments were introduced for both issuers and investors. The financial euphoria in the last years, the unprecedented financial innovations, the development of new financial instruments, with high risk, not always sufficiently tested, the globalization and the interconnectivity between markets and industries, all these have created a situation in which the way these markets operate has to be changed.

As described independent investment banks have a long history, but originally they were small private partnerships that were offering corporate finance and investment advice, and some other basic services. Their success was mainly built on long term relationships with their clients. They were aligning themselves with their clients' best interest. For many decades they operated mostly with the partners' own money, not getting involved in riskier ventures. But the opportunities that were seen in the market determined them to go public in the '80s and '90s. So they received important infusion of capital that they invested in more risky deals. As investment banks decided to go public they started to enter business lines with a very high risk profile, their relationship approach was abandoned and became more transaction-based as opposed to relation-based entities.

Starting with the '30s, as the Glass-Steagall Act related to the separation between commercial banking, investment banking and insurance was adopted, the US banking industry was closely regulated. But there were pressures in the last decade to relax this state. So the FED has allowed commercial banks to sell insurance and issue securities. This opened the way for big banks to start competing with Wall Street for what was once traditionally the area of competence of investment banks. As a result firms from Wall Street had to react by expanding their services using more leverage and undertaking more risks. When risks bring high profits and some people are rewarded with large bonuses for that, they tend to undertake further risks. The firms from Wall Street have reached leverages three-four times higher than commercial banks but they were operating under less stringent regulations. And this in the end has proved to be destructive.

### **3. The current financial crisis and its impact over the investment banking industry**

Economic history presents us the different forms in which economic crisis took place. Before capitalism was born, they were more in the form of monarch's abuses over creditors: depreciation of the currency in which payment should have been done, or even simpler, by declaring insolvency.

Capitalism is launching a new type of crisis: assets speculative bubble. A series of tragic events can be seen as capitalism matures. The differences between these events are given mostly by complexity, scale and the nature of speculative assets: from the tulip bulbs in 1630 in Holland to the Mississippi Company of John Law (which was controlling the whole public debt in France between 1710 and 1719). We may remember crisis that had a global spread in 1825 when there were speculations of shares and bonds in Peru, in 1827 when in US there were speculations on railroad shares, land, slaves and financial instruments or in 1873 when there were huge investments made in the railroads in Latin America and US.

Speculative transactions with stocks and land have reached a pick from were there was a plunge in 1907 in the first important crisis of the XX century. It is the event who convinced many people of the necessity of a central bank, as a last instance creditor, so that in 1913 Federal Reserve was created. Still, during the crash of 1929, Federal Reserve was not able to exercise its role for which it was designed (prevention role, or treatment for the crisis effects) so that the world had to take part to a huge economic depression until 1933.

Starting 1971, after renouncing to the restrictions imposed at Breton Woods, financial authorities have gained the freedom to issue money with an immediate result the increase in the inflation rate. The oil shocks of 1973 and 1979 combined with inappropriate monetary policies have brought afterwards stagflation.

The '80s have been marked by the debt crises in Latin America. Japan has entered in a speculative game in the stock market and real estate which has determined specialists to call the period of 1991 to 2000 as "the lost decade". Locally financial quakes were experienced like: the stock exchange crash in 1987 or the recession of 1990-91, both in US; crises of current account in emerging markets (1997-98 in Korea, Thailand, Malaysia, and Russia), national debt crises, monetary crises, dot.com crisis in US.

Even after this very short story one can say that crises are not the exception, but the rule. Roubini and Mihm (2010) are sustaining this idea with arguments and believe that in the genetic formula of capitalism crises is playing a major role. The power of innovation and the tolerance for risk which give power to capitalism ensure the combustion of the speculative bubbles and relax the credit conditions with a disastrous end.

What has determined the conditions of the most recent financial crises and why the experience of the Great Depression did not produce sufficient lessons in order to avoid the current crisis? Same speculations, in the real estate market and in the stock exchange, same minimal financial regulation, and same appetite for financial innovation without limit have created the bubble which once crashed it brings the financial system in collapse and produces a brutal economic downturn. Looking this way to the financial crisis we can identify the investment banking industry, one of the major players in the financial system, as an important responsible for the current crisis. Investment banks have an important role in the financial innovation, were institutions that went through an important process of deregulation and were engaged in high risk, speculative deals. Investment banks are also heavily hit by the current financial crisis and are undergoing a deep restructuring process.

Probably investment banks will continue to play an important role in the financial system, but the way Wall Street will function will be changed maybe forever by the current economic crisis. The credit crisis has shown that the business model of the investment bank no longer works. For decades we were used to see in the market high-profile investment banks, but out of the five major investment banks that we were aware of at the beginning of 2008, now we see no one. Lehman Brothers went bankrupt. Bank of America bought Merrill Lynch. Bear Stearns was bought as a bargain by JP Morgan. Goldman Sachs and Morgan Stanley became bank holding companies (these are umbrella organizations that run commercial banks and are regulated by FED and monitored by

FDIC) – and this can be considered an historic change in the financial services industry, the end of a securities firm model that we were seeing on Wall Street since the Great Depression. Even if the change appears to be a technicality, the effect is that Goldman Sachs and Morgan Stanley have now equal and permanent rights to access emergency funds from Federal Reserve.

The separation created between commercial and investment banks in 1933 was disintegrated by the US Congress in 1999 through the Gramm-Leach-Bliley Act which allowed the two types of banks to consolidate. The consequence was the efforts of companies to integrate the manufacturing and the financial services to consumers and businesses. The subprime crisis put under question the idea of the financial services holding companies. The big losses faced by investment banks affected also the governments and the investors. So, we can see *in the future more boutiques and fewer big banks*, forcing the repositioning of large investment banks that will be threatened by the stiff competition from small firms. *The current recession will not make the investment banking industry to disappear but it will make it smaller and less profitable.*

The changes that we may see will be in *more regulation* for this market. FED becomes the primary regulator. But this doesn't mean that investment banking comes to an end. Their role in the market will be much the same but more regulated. Politicians and regulators will made more restrictive laws and regulations in order to limit the aggressive market strategies of investment banks and to allow them to develop a better risk management framework. The heavier regulations will impose investment banks to curb their borrowing and in consequence the huge profits that were seen in the last years will shrink. In terms of regulatory changes there will be more tighten claw-back provisions (these provisions require those who's trading determine losses to pay back their bonuses) that will protect the volatile market of investment banking from imprudent individual transactions. This may result in changing the status of traders from big names to less well-known boutiques.

The high leverage and the short-term financing has allowed investment banks to adopt aggressive strategies. In the future we may see *less dependence on short-term funding* that brought an important mismatch between assets and liabilities that became difficult to manage.

#### 4. Conclusions

The investment banking industry will not disappear. As long as companies and governments need to raise money in the market, as long as demand exists for their services, investment banking industry will survive, but it will look probably in a different way that it used to look until the current recession, mainly there will be fewer big banks and more boutiques. As Jose Roncal points out in his article "Investment Banking and the Future of Wall Street" a more transparent financial system, a stronger business model that will put again in the centre the client can bring more stable and consistent growth in the future. Do not add any text to the header and footer, not even page numbers.

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## FISCAL BURDEN OF DIRECT TAXATION IN EUROPEAN UNION BETWEEN UNITY AND DIVERSITY

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**Abstract:** *This article realizes an analysis of education expenditure trend in EU member states. Based on indicators like percentage in GDP of the education expenditure and the share in total expenditures this study reveals the importance of education spending between EU countries and for the Romania case. The aim of this study is to make a comparison between EU countries concerning of how much is spent on education and what is the share of the government's expenditure.*

**Key words:** tax burden, direct taxation, fiscal policy

**JEL classification:** H3, H24, O23

### 1. Introduction

Governments actively use fiscal policies, whether public spending or taxation, to address market failures and achieve redistributive goals. While the provision of public goods and services may promote growth, both the inefficient provision of these goods and revenue raising mechanisms that distort the allocation of resources may impede growth.

Building a strong fiscal position requires a sustained fiscal consolidation effort. Such consolidations have been undertaken across the whole EU region, but with varying degrees of success. Successful fiscal adjustment is an important prerequisite for growth. Unsustainable fiscal consolidations are counterproductive and may undermine investor confidence because they fail to set the government's financial position on a sound footing. Sustained fiscal adjustments are needed also to create long-term fiscal space for expenditures that promote growth. There is extensive evidence from Organization for Economic Co-operation and Development (OECD) countries that the composition of fiscal adjustments matters for their sustainability: consolidations that have relied primarily on tax increases and cuts in public investment have not been sustainable, while those underpinned by structural reforms in public expenditure programs have had more lasting effects, because they have tackled the main types of expenditures.

Beyond the fiscal deficit, the size of government spending may have an impact on economic growth. High levels of public spending can adversely affect resource allocation and growth through various channels. They may add to rigidity in the budget, making it more difficult to keep the fiscal balance under control. They also usually lead to high levels of taxation that may reduce incentives to save, invest, innovate, and participate in the labor force. Large government spending programs are often supported by intrusive regulations that may stifle private participation and investment. Moreover, as they become larger, expenditure programs may become counterproductive if they are poorly designed as a result of limited government effectiveness or if they create more opportunities

for corruption and rent seeking. The effect of government expenditure programs on growth may thus be particularly sensitive to the quality of governance.

Empirical evidence suggests that the composition of expenditures also matters for growth. Government spending that enhances the efficiency and quantity of factors of production is considered “productive,” in the sense that it contributes to higher growth. In contrast, large expenditures on general public services (which may be a sign of bloated bureaucracies and low government effectiveness) and on defense are likely to be less conducive to growth and in this sense may be termed “unproductive.” Similarly, sizeable spending on transfers and welfare services may create disincentives for participation in the labor force, while subsidies may distort the allocation of resources toward low-productivity activities.

## 2. The Fiscal Burden of Direct Taxation

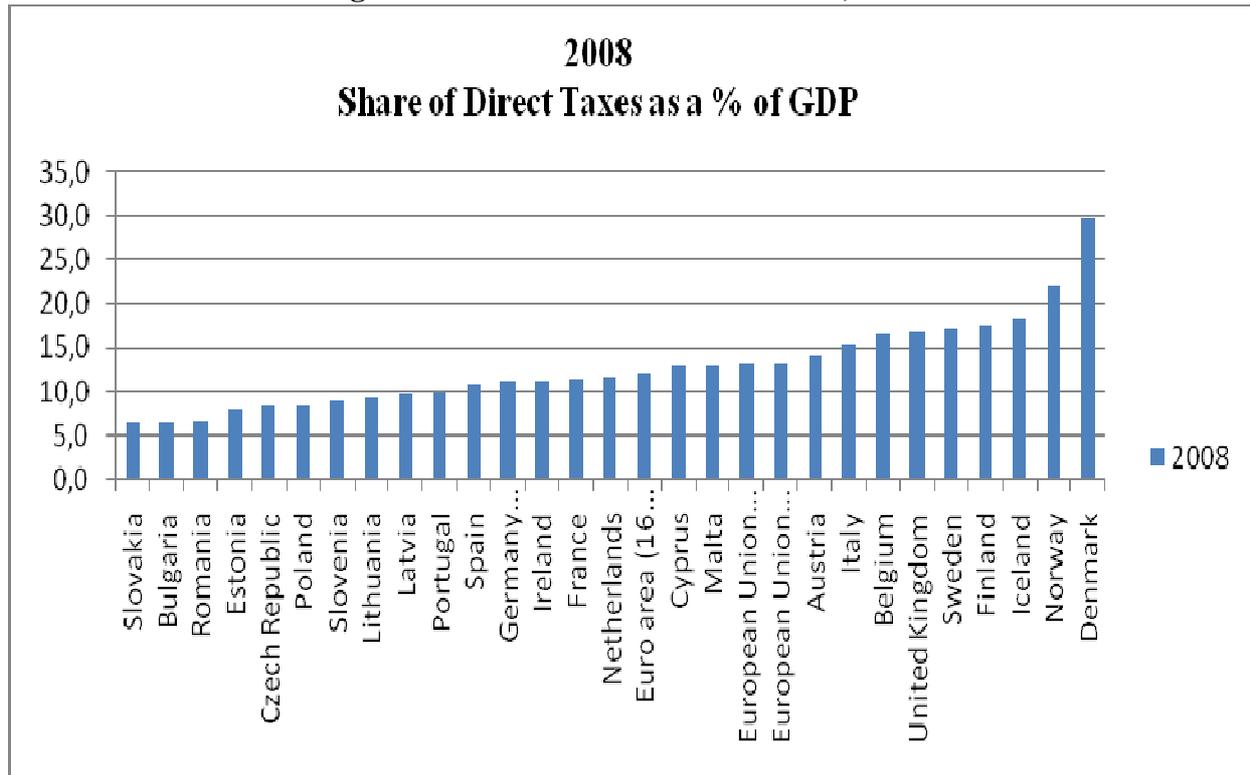
In the late 1990s, most European Union members engaged in a process of tax reforms which should affect virtually all the fields of taxation. The set of tax reforms implemented in the EU mostly relies on the use of three instrument, namely *social contributions*, *corporate taxation* and *personal income taxation*, which together make up the sources used in direct taxation. In most EU countries, these taxes are to be cut, either alternatively, or together. Some of these measures intend to enhance domestic demand as this is the case for some personal income tax cuts; however, most of them are supply-side oriented: they aim at reducing existing distortions in the tax systems, as well as limiting the disincentive impact of high marginal tax rates on labor, production and investment. Hence, the bulk of tax reforms aim at raising factor supply and finally potential output.

As far as medium run, supply effects are concerned, any tax cut (either on social security contributions, personal income or corporate taxes) ends in higher production in the reforming country, the major difference across tax tools being the impact on the relative use of capital and labor, as these tax instruments differently affect the relative cost of factors. Despite the rise in output, tax cuts create a sizeable fiscal deficit which could prove inconsistent with the Stability Pact requirements. Notwithstanding the difficulties in meeting Stability Pact requirement in the short and medium run, a rise in tax revenues or a cut in public spending needs to be implemented in the long run. The Marmotte model, a macro econometric model, shows that efficiency gains are preserved if the compensatory tax increase or spending cut is lump-sum, i.e. if it does not introduce new distortions in suppliers incentives (but it should be considered that such lump-sum reform is difficult to implement in practice) ( The Report of Taxation in the EU Members, April 2001).

As expected, tax cuts in one country hurt the economy of partner countries. This is because a tax cut allows prices to decline in the reforming country relative to its partners. The impact of tax cuts is shown to depend on the membership of the reforming country to EMU: in this case, the adjustment of the real exchange rate falls on prices, whereas for non-EMU countries the nominal exchange rate depreciates relative to non-reforming countries. The size of the reforming country is relevant too. Namely, while large countries are not much affected by the externalities from small countries, the reverse is not true for small countries, which are negatively affected by a tax cut in a central EU country.

Going further on with the distribution of taxes at the European level, the weight of direct taxation is usually lower in the case of new members. As we know, taxes are traditionally classified as direct or indirect; the first group as a rule allows greater redistribution as it is impractical to introduce progressivity in indirect taxes. Therefore, the recourse to direct taxes, which are more 'visible' to the electorate, tends to be greater in the countries where tax redistribution objectives are more pronounced; this usually results also in higher top personal income tax rates. Social security contributions are, as a rule, directly linked with a right to benefits such as old age pensions or unemployment and health insurance.

The structure of tax revenues by major type of taxes (i.e. direct taxes, indirect taxes and social contributions) is shown in the following figure:

**Figure 1. Evolution of Direct Taxation, % of GDP**

Source: Eurostat database

Generally, the new Member States have a different structure compared to the old Member States; in particular while most old Member States raise roughly equal shares of revenues from direct taxes, indirect taxes, and social contributions, the new Member states often display a substantially lower share of direct taxes in the total. The lowest shares of direct taxes are recorded in Slovakia (only 6,4 % of the GDP), Bulgaria (6,5%) and Romania (6,7%); in Poland the share of direct taxes shrank by one third between 1995 and 2004 but has now increased again and currently stands at 8,6% out of the GDP. One of the reasons for the low direct tax revenue can be found in the generally more moderate tax rates applied in the new Member States for corporate tax and personal income tax. Several of these countries have adopted flat-rate systems which typically induce a stronger reduction in the rates of direct taxes than in those for indirect taxes.

Also among the old Member States (EU-15) there are some noticeable differences. The Nordic countries as well as the United Kingdom and Ireland have relatively high shares of direct taxes in total tax revenues. In Denmark and, to a lesser extent, also in Ireland, Malta and the United Kingdom the shares of social contributions to total tax revenues are low.

There is a specific reason for the extremely low share of social contributions in Denmark: most welfare spending is financed out of general taxation. This requires high direct tax levels and indeed the share of direct taxation to total tax revenues in Denmark is by far the highest in the Union. Among the old Member States, Germany's system represents in a sense the opposite of Denmark's; Germany shows the highest share of social contributions in the total tax revenues, while its share of direct tax revenues on the total is among the lowest in the EU-15.

### 3. Fiscal Burden of Social Contributions

Payroll and social security taxes typically are assumed to be fully shifted to workers, regardless of who is legally liable to pay them. Most or at least a portion of these taxes is paid by employers. In the presence of a ceiling for contributions – a frequent feature in tax systems – the taxes tend to be regressive. In developing countries, however, where only workers in the formal sector pay such taxes, the financial incidence can be progressive (Martinez-Vazquez, 2002).

Actual compulsory social contributions are paid by employers and employees on the basis of a work contract, or by self- and non-employed persons. They include three subcategories:

**a) Employers' actual social contributions (D6111):** are paid by employers to social security funds, insurance enterprises or autonomous as well as non autonomous pension funds administering social insurance schemes to secure social benefits for their employees. Since employers' actual social contributions are made for the benefit of the employees, their value is recorded as one of the components of the compensation of employees together with wages and salaries in cash and in kind. The contributions paid by employers represent a percentage of wages and salaries determined by law.

**b) Employees' social contributions (D6112):** these are social contributions payable by employees to social security, private funded social insurance schemes.

**c) Social contributions by self-employed and non-employed persons (D6113):** these are social contributions payable for their own benefit by persons who are not employees- namely, self-employed persons, or non-employed persons.

Payments of actual social contributions may be compulsory through regulation, or they may be paid as a result of collective agreements in a particular industry or agreements between employer and employee in a particular enterprise, or because they are written into the contract of employment itself. In certain cases, these contributions may be voluntary.

The voluntary contributions referred to cover:

a) Social contributions which persons who are not, or who are no longer legally obliged to contribute, continue to pay to a social security fund.

b) Social contributions paid to insurance enterprises

c) Contributions to friendly societies with membership open to employees or self-employed workers.

Actual social contributions to social security funds or other government agencies are recorded at their gross value. On the other hand, social contributions paid under private funded schemes to insurance companies and to autonomous pension funds, are recorded at their net value, after deducting that part of the contribution which represents the value of the insurance service provided to resident and non-resident households.

In what the time of recording is concerned, employers' actual social contributions (D6111) and employees' actual social contributions (D6112) are recorded at the time when the work that gives rise to the liability to pay the contributions is carried out. In the case of social contributions by self-employed and non-employed persons (D6113), they are recorded at the time when the liabilities to pay are created.

Voluntary contributions vary in their purpose (e.g. the purchase of 'extra years' for pensions and the wish to complete a gap in the social contributions due to years worked abroad) and may vary in the degree to which they are voluntary in a real economic sense, but, as they are essentially a form of household saving they should not be considered as compulsory levies imposed by the government. Imputed social contributions mainly relate to a number of EU governments, which do not pay actual contributions for their employees but nevertheless guarantee them a pension upon retirement; imputed social contributions represent the contributions the government should pay to a pension fund in order to provide a pension of an equivalent amount to the employees.

In 2007 about 59 % of the 'ultimately received' aggregate tax revenue in the EU-27 (including social contributions) was claimed by the central or federal government, roughly 29 % accrued to the social security funds, and around 11 % to local government. Less than 1 % of tax revenue is paid to the institutions of the European Union. There are considerable differences in structure from one Member State to another; for instance, some Member States are federal or grant regions a very high degree of fiscal autonomy (Belgium, Germany, Austria, Spain). In the United Kingdom and Malta, the social security system is not separate from the central government level from an accounting viewpoint, whereas in Denmark most social security is financed through general taxation.

From an economic point of view, it is often thought that in the long run both components of the SSC are shifted to labor, whereas in the short run the impact may differ as increases in employers'

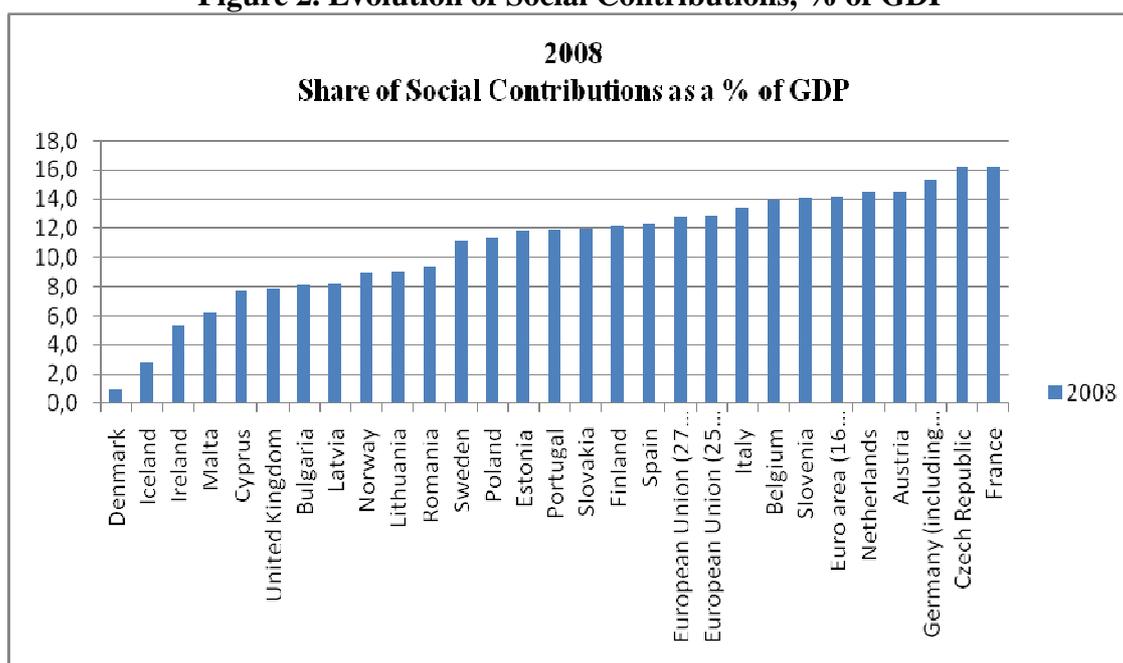
social contributions have an immediate impact on the cost structure, while the impact from employees' social contributions is more indirect.

**Table 1. Social security contributions as % in GDP**

D611- Actual social contributions as percentage of GDP									
GEO/TIME	2000	2001	2002	2003	2004	2005	2006	2007	2008
European Union (27 countries)	12.9%	12.8%	12.7%	13.0%	12.8%	12.8%	12.7%	12.5%	12.7%
European Union (25 countries)	12.9%	12.8%	12.7%	13.0%	12.9%	12.8%	12.7%	12.5%	12.8%
Belgium	13.9%	14.1%	14.3%	14.2%	13.9%	13.7%	13.5%	13.6%	13.9%
Bulgaria	10.7%	9.9%	9.3%	10.2%	10.2%	9.7%	8.3%	8.1%	7.8%
Czech Republic	14.2%	14.2%	14.9%	15.1%	16.1%	16.1%	16.3%	16.3%	16.2%
Denmark	1.8%	1.8%	1.2%	1.3%	1.2%	1.2%	1.1%	1.0%	1.0%
Germany (including former GDR from 1991)	17.3%	17.1%	17.1%	17.2%	16.8%	16.6%	16.2%	15.4%	15.4%
Estonia	10.9%	10.7%	11.0%	10.6%	10.4%	10.3%	10.1%	10.6%	11.7%
Ireland	4.4%	4.5%	4.4%	4.4%	4.6%	4.7%	4.8%	5.0%	5.4%
Greece	10.5%	10.6%	11.6%	11.7%	11.2%	11.2%	10.6%	11.1%	11.0%
Spain	12.0%	12.2%	12.1%	12.2%	12.2%	12.1%	12.1%	12.2%	12.3%
France	16.1%	16.1%	16.2%	16.4%	16.2%	16.3%	16.4%	16.2%	16.2%
Italy	12.1%	12.0%	12.2%	12.4%	12.4%	12.6%	12.5%	13.0%	13.5%
Cyprus	6.5%	6.8%	6.7%	7.0%	7.7%	8.3%	7.8%	7.5%	7.7%
Latvia	9.9%	9.2%	9.3%	8.9%	8.7%	8.4%	8.8%	8.7%	8.2%
Lithuania	9.4%	8.9%	8.6%	8.5%	8.4%	8.1%	8.4%	8.6%	9.0%
Luxembourg	10.1%	11.0%	10.9%	10.8%	10.8%	10.5%	10.0%	9.9%	10.1%
Hungary	13.0%	12.8%	12.8%	12.6%	12.2%	12.6%	12.5%	13.6%	13.7%
Malta	6.4%	6.9%	6.5%	6.5%	6.5%	6.4%	6.1%	5.9%	6.1%
Netherlands	15.4%	13.7%	13.3%	13.8%	13.9%	12.9%	14.0%	13.5%	14.5%
Austria	14.9%	15.0%	14.8%	14.8%	14.8%	14.7%	14.6%	14.3%	14.4%
Poland	12.9%	13.4%	12.9%	12.8%	12.3%	12.3%	12.2%	12.0%	11.3%
Portugal	9.9%	10.1%	10.4%	10.7%	10.8%	11.0%	11.1%	11.3%	11.5%
Romania	11.1%	10.9%	10.7%	9.5%	9.2%	9.7%	9.8%	9.8%	9.4%
Slovenia	14.3%	14.5%	14.3%	14.2%	14.2%	14.2%	14.0%	13.7%	14.0%
Slovakia	14.1%	14.3%	14.6%	13.8%	13.2%	12.7%	11.8%	11.7%	12.0%
Finland	12.1%	12.2%	12.0%	11.9%	11.8%	12.2%	12.4%	12.0%	12.2%
Sweden	12.9%	12.4%	11.4%	11.1%	10.9%	10.5%	9.6%	9.7%	8.7%
United Kingdom	6.8%	6.9%	6.6%	7.2%	7.6%	7.8%	7.8%	7.7%	7.9%
Min	1.8%	1.8%	1.2%	1.3%	1.2%	1.2%	1.1%	1.0%	1.0%
Max	17.3%	17.1%	17.1%	17.2%	16.8%	16.6%	16.4%	16.3%	16.2%

Source: Eurostat

**Figure 2. Evolution of Social Contributions, % of GDP**



Source: Eurostat database

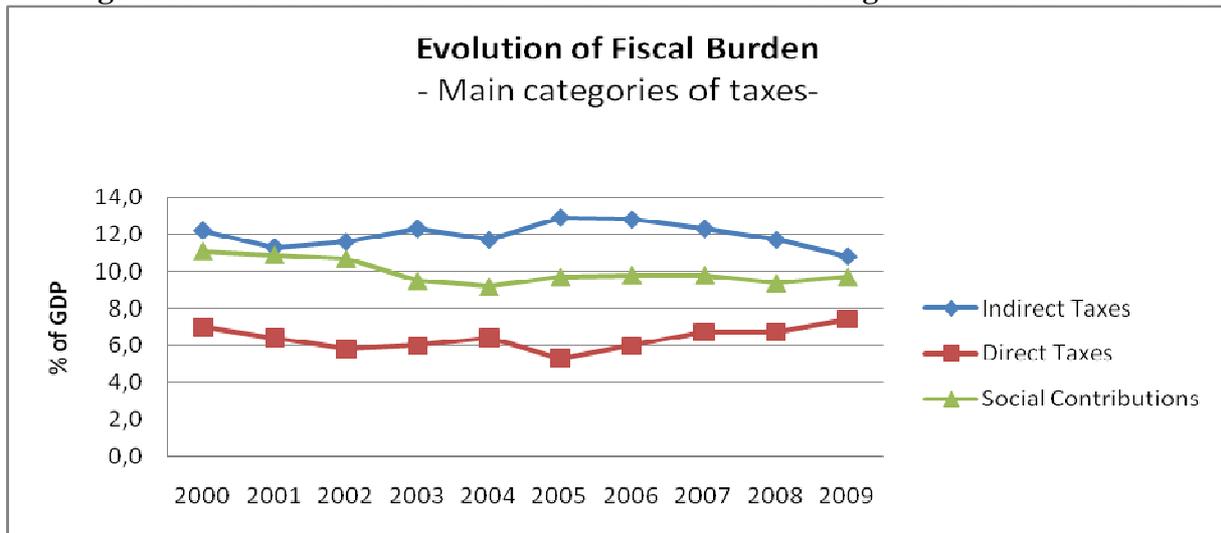
**Absolute data as percentage of GDP:** Germany is the country with the highest average share in GDP for the D611 revenue throughout the years 2000-2008 (16.6%). The top five for the average share in GDP is completed by France (16.2%), the Czech Republic (15.5%), Austria (14.7%), Slovenia (14.2%), Belgium and the Netherlands both with an average of 13.9%. Malta (6.4%), Ireland (4.7%) and Denmark (1.3%) are the countries with the lowest average share of the revenue from actual social contributions in their GDP.

Denmark has a very low share of social contributions in GDP, because the social contributions are very low as most welfare spending is financed out of general taxation, notably personal income taxation. In Romania the average share is 10%, with a maximum of 11.1% observed in the year 2000.

**4. Analysis of the main components of tax burden in Romania and EU**

The analysis of the fiscal burden on the main types of taxes in Romania provides us a clearer image and more information with regard to the weight that different types of taxes take as a percentage of GDP. To begin, I have represented the evolution of the tax burden on direct taxes, indirect taxes as well as social contributions. In Romania, the most important weight in taxation is represented by indirect taxes with values that vary between 11% and 13% of GDP as we can see from the below figure for the period under consideration.

**Figure 3. Evolution of the Fiscal Burden on the main categories of taxes in Romania**



Source: Eurostat database

Judging from the above figure, the weight of direct taxation is much lower, with small variations around the value of 7% of GDP. As we can see, the smallest value was registered in 2005, reaching only some points above 5% of GDP. The cause for this reduction can be explained on the economic context of that year which has brought serious cuts in the profit tax rate together with the adoption of the flat rate.

On the other hand, this is the year that stands out for significant growth in the revenue collected from indirect taxes as a result of increasing consumption due to the fact that individuals were left with more money from direct taxation, they were willing to allocate much more for consumption, therefore boosting revenues from indirect taxation.

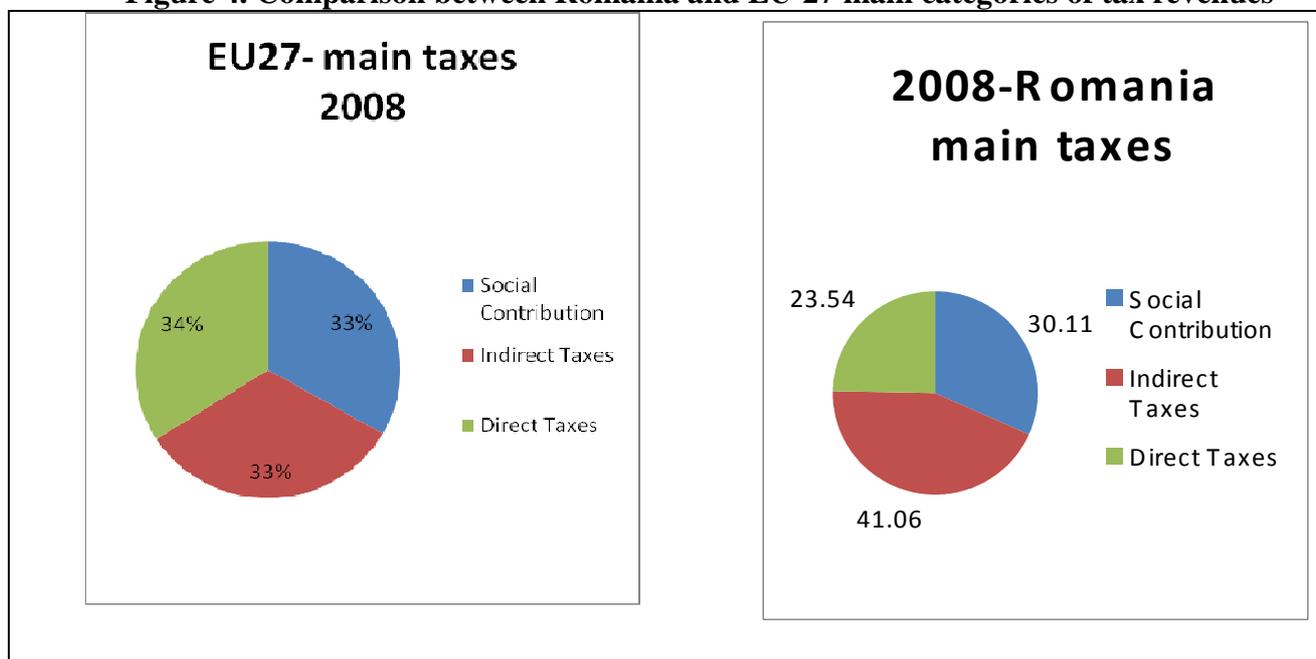
However from 2007 we are faced with an upside down situation, as the role of taxes seems to change with a decrease in the weight of indirect taxation and an increase in total value collected from direct taxes. If in 2007, indirect taxes were accounting for 12,3% of GDP and direct taxes stood for 6,7%, in 2009 due to severe reductions in VAT, indirect taxes are brought to the level of almost 10% while direct taxes increase to 7,4% of GDP due to higher rates of taxation applied in the case of personal income.

If we were to comment upon the position of our country in the context of other EU countries, we can observe that the tax structure of Romania stands out in several respects. Romania has the fourth highest reliance on indirect taxes in the EU after Bulgaria, Cyprus and Malta. Indirect taxes supply 41.06 % of total tax revenue compared to a 33,4 % EU-27 average, while the share of social contributions account for 30.11 % (EU-27 33 %) and direct taxes only for 23.0 % (EU-27 34 %).

Because of this structure, the share of VAT on total tax and social contributions revenue in 2008 (27.7 %) was the third highest in the Union. The low level of direct taxes is mainly due to low personal income taxes (merely 3.3 % of GDP), amounting to around 40 % of the EU-27 average. The share of taxes collected by local government is two thirds of the share of the central government (25.8 % and 39.9 % of total tax revenue, respectively), representing a relatively high value in comparison with the other EU Member States. The share of funds accruing to local government has increased by nearly two and a half times since 2000.

The revenue shares received by the social security funds account for 33.2 %, almost five percentage points above the EU-27 average. In per cent of GDP, however, the revenues of the social security funds are nearly one percentage point below the EU average.

**Figure 4. Comparison between Romania and EU-27 main categories of tax revenues**



Source: Eurostat database

To summarize these main ideas I have taken year 2008 as a base year to compare how our country relies on each type on taxes in contrast to the European Union as a whole. (“Taxation Trends in the European Union”, 2009)

## 5. Conclusions

The concept of fiscal burden is an interesting phenomenon to deal with as its dimensions are much wider than the economic aspect, much deeper than we would think of. A peculiar process takes place in any human’s mind by simply pronouncing or thinking to the implications of the word “tax”. Automatically, our brain feels the “burden „of what a tax, or a fee, or a money out of the pocket means. Therefore, we could clearly define the universe of this important economic indicator, by adding to its sphere, the complex psychological dimension.

But could the society develop without our effort of paying taxes? The answer is simple, no. Despite the negative side of the fiscal burden, taxation applied according to the needs and resources of a state is actually generating positive outcomes, such as the provision of economic growth,

maintenance of the individual's well-being, efficiency in redistribution of revenues among categories of industries and persons who may represent a valuable capital to invest in.

At the level of the European Union, the process of tax burden emerged into other dimensions, that of tax competition and tax harmonization. Judging from the conducted analysis, it is demonstrated that the budgetary policy is still varying between tax competition and tax harmonization. But, all in all, fiscal policy in the case of EU is designed in accordance with two major objectives: to respect the compliance with the free movement of capital, individuals, goods and services in accordance with the fiscal harmonization policy, but without interfering in the state's sovereignty, thus maintaining the fiscal competition.

As for the case of Romania, it is clear that more than a global economic crisis, we still have to deal with an internal crisis. What is more interesting to consider, is that a crisis which has plunged as a problem of supporting the financing of the current account through private debt derived into a budgetary crisis financing through applying for the short-term public debt.

As a final conclusion, we still have to learn to turn the odds in our favor, we still have to change visions in order to consider taxation and the burden of taxation an ally which could help us build a strong, efficient and effective budgetary system, in the conditions in which the health of the fiscal system represents a must when it comes to dealing with the economic crisis.

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## ASSOCIATED RISK MANAGEMENT ACTIVITY VS INTERNAL AUDIT IN RISK MANAGEMENT

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**Abstract:** *This paper proposes to treat possible identification, analysis and assessment of risks through risk management activities by customizing the internal audit activity. Romanian entities are now faced with a decision of the extension based on uncertainty and risk as a result of the continuous process of transformation of the economy, and as a result of activities related to privatization, restructuring and internationalization. Therefore we believe that improvements in risk management should be a permanent priority of all activities and especially of internal audit. A model of the proposed risk register for the internal audit activity.*

**Key words:** risk management, internal audit, evaluation and risk analysis

**JEL classification:** M42, H83, G32

### 1. Introduction

Global economic literature, the risk was associated with the same meaning and concept of "flexibility". Thus it appears that the equilibrium point (break even) flexibility sized entity in relation to its business fluctuations. As we know, is the breakeven point at which operating income covers the entire amount of operating expenses, so the point where operating income is zero. The entity has a lower degree of risk when its activity level is at a distance (greater) than the equilibrium (critical) operational risk and greater the activity level is positioned in close proximity.

Risk assessment assumes that each objective will be assigned a risk to be assessed to determine how it will be managed. A risk is a dysfunction of the description and the manner in which this dysfunction may occur. Vulnerabilities body are points where it can be attacked. Vulnerability analysis is a diagnostic of the state of security. State security (safety) must be evaluated.

### 2. Identification and Risk Assessment

Risk management is the existence of processes of identification, or mitigation measures in anticipation of their regular review, monitoring progress and setting responsibilities. Permanent objective of policy makers in the mastery of risk an entity is, by constantly adapting to technology and work methods of penetration of the market dynamic.

Summarizes the performance and risk management issues related to determining the objectives of management, planning, programming and performance. Risk management encompasses a wide range of activities rigorously defined and organized based on the conditions of existence and objectives of the public entity and the analysis of risk factors operating in an optimal and efficient design

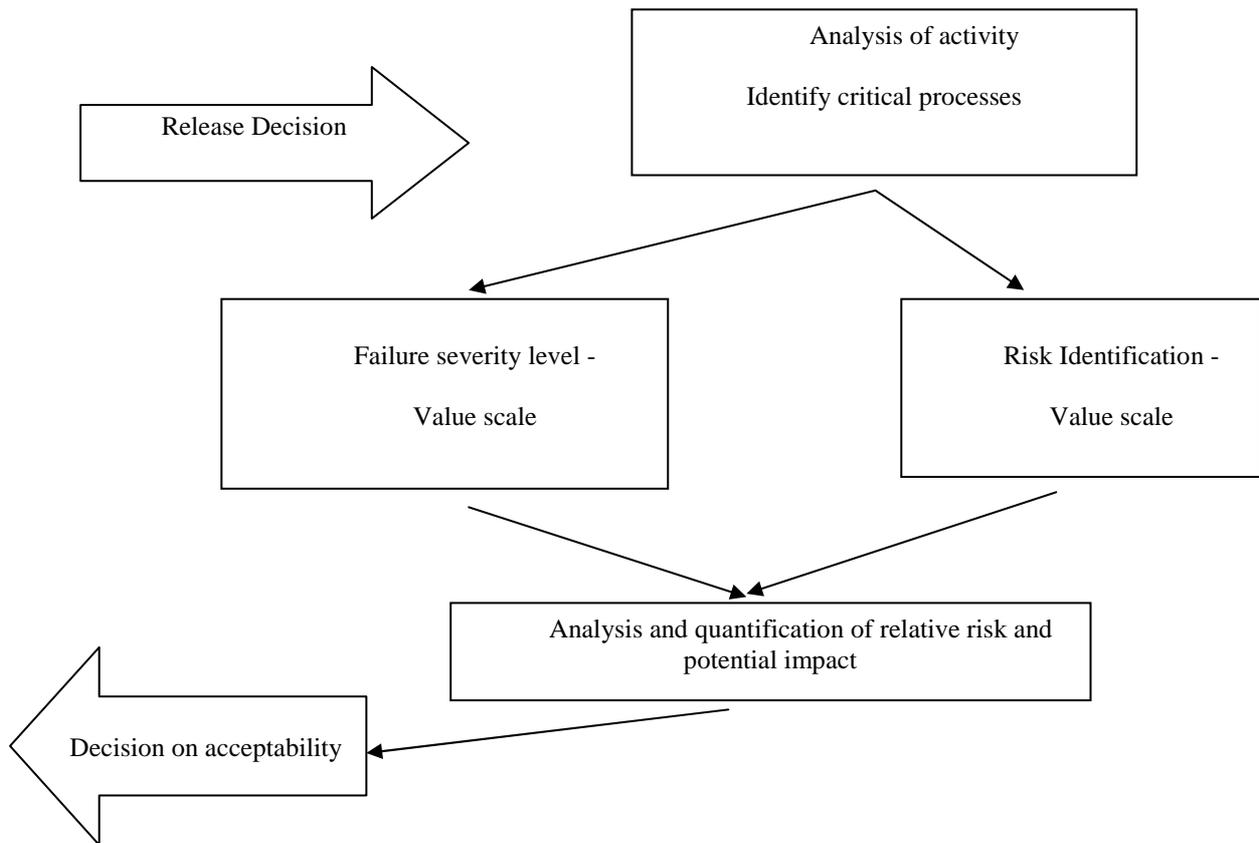
Risk factors identified in economic entity may be: internal control system quality, management competence, integrity management, company size, recent changes in the accounting system, the complexity of operations, liquidity of assets, recent changes to key personnel, the company's economic status, rapid growth, the quality of existing information systems, the time elapsed since the last audit engagement, the pressure on management to meet the objectives, the extent to which the company is legally regulated activity, the morale of employees, independent auditors' audit

plans, exposure to policymakers, Working distances between different points and the headquarters of the entity.

In order to analyze risk causes and its origin must be identified namely: accident - in which case the nature and circumstances must be evaluated, the error - which should be evaluated case nature, the author appeals (event) outside - in which case the nature and the author evaluated.

In Figure 1 we present the analysis of risk from the decision to launch the stream until the decision on its acceptability.

**Figure 1: Risk Analysis**



Risk assessment process at the entity includes the following steps:

- 1 - Planning the risk assessment;
- 2 - Collect information and identify risks;
- 3 - The risk assessment;
- 4 - Design and implementation of action plan and risk reduction;
- 5 - Monitoring of Action Plan implementation and mitigation.

In relation to risk assessment is based on the idea that decision-making process are encountered three situations:

- Certainty, characterized by maximum likelihood using the method to achieve the intended objective. In this case, the variables are controllable, their known characteristics and trends can be predicted with high accuracy;

- Uncertainty, the likelihood of achieving the objective is great, but there are reservations on how to act. This situation is characterized by many variables, largely controllable, some poorly studied, so the anticipation of development which is approximate;

- Risk, when the objective is feasible, with an appreciable probability, but the most appropriate ways forward have high uncertainty.

Decision entities are faced with situations of certainty, uncertainty and risk, their appearance and their completion within the decision was inevitable and necessary. Example of such a situation may be the risk generated by the large number of uncontrollable variables or difficult to control, which is manifested in actions that will increase efficiency by introducing scientific and technical activities for new market penetration international market or new markets, and where privatization and restructuring. The period within which such a decision can be taken and its effectiveness can be expected is limited.

Once beyond the optimum, predetermined in terms of the existence of exogenous and endogenous factors influence the management system, this decision will be delayed and ineffective.

Any entity is subject to risks that may be its own risk of the establishment itself, risks of each activity, but also external risks. Some risks are acceptable and inherent in each activity, but the risks are unacceptable.

Risk assessment involves defining the objectives and conditions which must have particular regard to change management, taking into account the fact that people change, change procedures, organization and policies change, so the risks are changing and therefore the internal control is condemned to a permanent adaptation to new conditions.

Risk assessment involves knowing where to find risks in the entity. If you do not know what is risky in our entity will not be able to assess and track them properly. Once known risks involving control activities need to be mastered or at least diminished the tolerable limits, which involves communication and mutual information. Risk assessment is the fact that any decision taken by the entity that carries a certain risk.

Depending on when considering the risks, the goal may be manifested in two ways:

- Pre-event, before the risk to materialize, the procedure is to prevent risks;
- Post-event risk has already materialized, it is intended to ensure business continuity.

In Table 1 we present a comparison of treatment of risk-based audit compared to the conventional.

**Table 1 Comparison of risk-based audit - audit conventional**

Audit	Conventional	Based on risk
The focus of the engagement	Internal Control System	Business Risks
Focus test	Internal control activities	All risk management activities
Focus reports	Adequacy and effectiveness of internal control	Adequacy and effectiveness of risk management
Audit Result	A new control system or improve the existing	Risk Management

To improve the efficiency of their internal auditors to identify risks to achieving specific objectives and the overall operation. It is necessary that the structure of internal audit to be made an operational procedure to define the steps that need to be taken to manage risk. The procedure is intended to structure the internal audit staff to manage the risks that may hinder the achievement of specific objectives.

This procedure covers how to draw up risk register and its annex forms that form of risk warning, Minutes of the meeting, risk analysis, risk tracking sheet. Risk Register is the document inclusive of risk management, including a summary of decisions taken following information and risk analysis. At the level of internal audit structure to be designated a person who is responsible for analyzing, evaluating and prioritizing the risks identified by the internal auditors. The appointee will prepare, update and modify the risk register.

The objectives of internal auditors to audit the allocation of resources in an optimal manner, the audits with the highest risk for recovery activities / sub-activities.

All staff within the structure is required to identify risks that affect their specific objectives as follows:

The person identified risk should perform the following operations:

1) Preliminary Analyses of risk identified by:

- Defining risk correctly, observing their definition as specified Minister of Public Finance Order no. 946/2005 for the approval of internal control implementation methodology presented in standard 11 "Risk Management";

- Analysis of the causes or circumstances that favor the occurrence / recurrence risk;

2) Evaluate the risk exposure by:

- Estimate the chances of occurrence / recurrence risk on a scale of five steps as: 1 - rare, 2 - unlikely, 3 - possibly, 4 - very likely, 5 - almost certain;

- Estimated impact of risk on a scale of five steps as: 1 - minor, 2 - minor, 3 - moderate 4 - Major, 5 - critical;

- Estimation of exposure.

Consequences of exposure is a combination of probability and impact, you can feel the organization in relation to predetermined objectives if the risk materializes.

Risk assessment is to evaluate the consequences of the materialisation of risks in combination with risk assessment of the likelihood of materializing.

3) Make an opinion on the measures to be taken to control the risk identified;

4) Fill in the form of risk warning risk attaching to this documentation, it will forward the Responsible risks.

Officer risks should perform the following activities:

- Collect hazard alert forms and documents related to those identified risks;

- Analyze each form of risk warning and make proposals for:

Rank form a risk warning, if the risk is irrelevant;

An escalation of risk at higher levels of management if:

- ✓ risk affects a higher goal that set the structure;

- ✓ risk are external causes generating structure;

- ✓ measures which ensure the satisfactory control of risk beyond the jurisdiction structure.

Remember, to debate the risks pertaining to internal audit structure, in which case proposes an alternative approach for the following risks:

- ✓ Accept risk where it is assessed that the risk exposure is reduced and the benefits of controlling risks are low compared to the costs of control measures should be introduced (opportunity cost);

Surveillance of risk, if it considers that, although risks have a significant impact, the chances of occurrence / recurrence are very small and limited resources can be allocated to postpone the implementation of measures requiring immediate control;

- ✓ Avoiding risk by removing / restricting activities that generate risks;

- ✓ Transferring risk when the possibility of a third party risk management specialist;

- ✓ Treatment risks when taking control measures is assumed and is considered to be appropriate.

Regular meetings held responsible for the risk of risk analysis, analyzes the data contained in forms alert to new risks reported risk, resources can be allocated to the actions proposed to counter risks.

The meeting is led by the head of internal audit structure and in its place the following actions:

- Validate or invalidate the solution is to rank risks considered irrelevant;
- The proposals do increase risks to the next higher hierarchical level or proficiency level they can control where:

- ✓ Resources are scarce;

- ✓ Internal control measures exceed its decision-making skills;

- ✓ Identify external risks structure, but whose impact affects the objectives set for it;

- Analyze external evaluation reports, whichever is the risks identified by them and recommended measures to be implemented;

- Rank priorities risks and develop risk profile as a result of action risk group identified by the exposure.

At the end of the meeting on risk analysis, risks Officer:

- Recorded in the minutes of the meeting all the decisions. Minutes approved by the head structure;

- Send alert to risk forms and documentation to the risks responsible for the risks escalate the levels of competence in which it was agreed, in which case the head structure is one that motivates and supports the documentation of risks escalated to this level;

- Hazard alert forms archives classified;

- Based on the information / data contained in the report, completed risk register;

- Risk Register archives a copy after it has been previously signed by the structure.

### **3. Response of the risk - Risk Control**

In this phase, fixed attitude towards risk (acceptance, monitoring, outsourcing, transfer or treatment).

If risks are to be treated, identifies possible measures to be taken so that the risks to be managed satisfactorily, the alternatives are grouped, it chooses the most advantageous in cost / benefit analysis.

The person who has identified a risk, in addition to an estimate of the likelihood and impact of identified risk, make proposals for action / control instruments, which will include risk warning form.

During the meetings of the risk analysis for each risk identified and evaluated, internal auditors are proposals on the most appropriate type of response and those responsible will vote for the option chosen:

- Tolerance of risk, where it is assessed that the risk exposure is low;

- Acceleration of risk, which means postponing the establishment of control measures and ongoing monitoring of the probability of occurrence of risk;

- Eliminating the risk of aggravating circumstances;

- Outsourcing risk, where it is assessed that the effective management of risk is necessary specialized expertise to a third party;

- Risk Mitigation, indicating instruments / devices to be implemented internal controls to keep that risk within the risk tolerance acceptable.

In the same context, proposals are made regarding the deadlines for implementation of actions / measures established, as well as leaders in monitoring their implementation;

The final decision on choosing the most appropriate type of response to risk, and the appointment of officers to monitor the implementation of actions / measures established, the structure belongs to the driver.

At the end of the meeting on risk analysis, risks Officer recorded in minutes of meeting all the decisions made in relation to risk control and sends officers assigned to monitor implementation of internal controls, risk alert forms and documentation.

Based on the information contained in the process - verbal complement / update / modify the risk register and risk archives a copy of the Register after it was signed by the head structure.

#### **4. Implementation and monitoring of actions / control measures**

In this phase, monitoring the implementation of measures to evaluate the effect of measures implemented on the risk measures be reconsidered if they have not improved risk.

The driver provides the organizational and procedural structure for implementation by responsible persons, actions / set control devices.

Based on the information contained in the forms of risk warning and documentation, responsible for monitoring the implementation of control measures open for each risk identified and assessed risk monitoring sheet.

Responsible for monitoring the implementation of control measures develop information / periodic reports on the status of implementation of actions and measures to control the risks posed Officer.

On the basis of information / reports, risks Officer shall report on the status of implementation of internal controls previously arranged, it will present for consideration and decision, the head structure.

At the same meeting monthly risk analysis, assess the state of implementation of actions and control measures shall, where appropriate, new measures / risk control tools to counter specific new deadlines for their implementation, and which risks need to be escalated to the next higher hierarchical level.

At the end of the hearing, Officer risks:

- Recorded in - minutes of meeting all the decisions taken;
- Submit responsible for monitoring the implementation, modification or terms for risk measures already under implementation of internal control measures;
- Based on the information / data contained in the process - verbal, completed risk register.

#### **5. Reviewing and reporting risks**

At this stage activities / actions / operations review of risk ratings (the exposure), the risk prioritization and reporting on the process of risk management.

During the meetings of risk analysis based on data contained in forms alert at-risk reported considering new risks, and risks of changes occurring in the original, recorded in the risk monitoring records.

In the same framework, revised risk ratings, based on information contained in the tracking sheet risk and establishes a new hierarchy of priorities based on risk, risk tolerance limits readjusting less priority. At the same time establish risk closure resolved.

At the end of the meeting on risk analysis, risks Officer:

- Recorded in the minutes of the meeting all the decisions taken;
- Based on the information / data contained in the report, completed risk register. Risks Officer prepare a report on the process of risk management in the structure.

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## THE ANALYSIS OF THE HOUSEHOLDS DEPOSITS OF THE POPULATION IN THE ROMANIAN BANKING SYSTEM WITH THE HELP OF THE CORRELATION COEFFICIENTS

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**Abstract:** *The paper aims at analyzing the deposits of the population's households in the Romanian banking system using the Pearson correlation coefficient. The population's deposits were divided into two categories: overnight deposits and on term deposits. The statistical processing of the information is the most important and elaborated feature from the present paper. An essential effect of the presented data is increasing the amount of information initially gathered from the collected data which were realized by: centralization, systematization and grouping the individual data, on one hand, and the presentation of the results through tables and graphs on the other hand. A close correlation is found on both deposits.*

**Key words:** overnight deposits, on term deposits, interest rate, correlation coefficients

**JEL classification:** G21, C44

### 1. Introduction

The most common way to keep our savings in a bank is by using the bank deposit. We entrust our surplus money to that institution in order to be kept and in exchange we receive an amount of money, conventionally called *interest* which is nothing else but the price that the bank pays us for using our money.

Bank deposits have a dual character. On one hand, bank deposits are obligations of some banks to their depositors resulted from the mobilization of the temporary available capitals, important ways of forming the bank's credit resources. On the other hand, for the depositors, banking deposits represent creditor claims against the bank, means of payment which they can use in any moment, especially for payments toward third parties by operating in the account.

Forming and using the banking deposits is the main function of banks in general and the deposit in particular. Bank deposits represent the main form of mobilization of the capitals and temporary available savings.

In most countries, *deposit* accounts are *classified* as follows:

- a) the time of the deposit until the moment of withdrawing the sources;
- b) the category of the depositors;
- c) the category of foreign currency in which the deposit account is opened;
- d) the way of calculation and payment of the interest;
- e) the banking department involved in the formation of a deposit;

**a) According to the withdrawal way and the purpose of placing deposited funds we can distinguish:**

- Deposits on sight – are the funds deposited in the deposit account by a natural or legal person without specifying their withdrawal term. These deposits have a high degree of liquidity for their holders and that is why the bank pays low interests or no interest at all (in the case of on sight

deposits in foreign currency). The given resources are used by the bank for lending, usually on short term.

- Deposits on time – are the funds deposited in the deposit account by a natural or legal person with a withdrawal period mentioned with the purpose of saving. The person who deposits has the right to withdraw the funds deposited in this account only at the term indicated in the contract. On time deposits can be with accumulation, if the deponent has the right to feed the account during the entire period of the deposit contract.

**b) According to the category of depositors we distinguish:**

- Deposits of natural persons are also called personal deposits. Natural persons can deposit their money both in deposit accounts in national currency and foreign currency, both on sight and on term deposits.

- Deposits of legal persons, meaning the economic agents and state organizations. The highest weight of the economic agents' deposits is represented by the on sight deposits and cash resources placed in current accounts.

- Deposits of banks and other financial institutions. Deposits attracted from the banks represent short term resources that usually vary from one day to a year and appear as an effect of reciprocity in the settlement relationships between banks and inter-banking market. Deposits attracted from banks represent the main way to complete the resources of a bank on short term. Usually, the bank's deposits are called banking investments.

**c) Depending on the monetary unit in which we have the deposit we distinguish:**

- Deposits in national currency;
- Deposits in foreign currency.

**d) According to the model of calculating the interest, deposits are classified in:**

- Deposits on sight and current accounts without interests;
- Deposits with interests.

**e) Depending on the banking department involved in setting up a bank deposit, it can be differentiated as follows:**

- Deposits constituted by the banking officials from the front office area – are the deposits present in the current offer of banking services;

- Deposits constituted by the banking officials from the back office area – refers to deposits negotiated by the customers with the bank and to collateral deposits.

**2. Analysis of household deposits**

According to the table below, the households' deposits attracted by the banks increase monthly and implicitly from year to year. As it can be seen, household deposits had a positive and growing development starting from the amount of 663.945,2 in 2007 and reaching the amount of 1.210.680 in 2010, meaning that the banks attracted deposits from the population more and more every year.

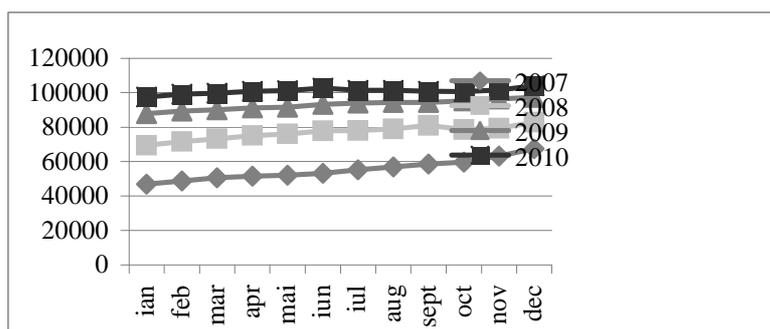
**Table 1: Structure of households deposits in the years 2007-2010 (million lei)**

No.	Month	2007	2008	2009	2010
1.	January	46963,2	69332,5	87799,0	97475,0
2.	February	48805,4	71651,3	89425,2	99088,7
3.	March	50533,7	73273,2	90145,9	99752,0
4.	April	51504,7	75182,8	91187,9	100850,4
5.	May	52042,1	75971,7	91511,7	101227,0
6.	June	53185,4	77929,6	93153,7	102561,8
7.	July	55272,2	78162,7	93903,1	101348,2
8.	August	56880,5	79028,4	94365,3	101309,8
9.	September	58546,2	81085,1	94271,2	100808,2
10.	October	59697,2	78611,0	95341,6	100685,9

<b>11.</b>	November	63199,0	79465,5	96325,4	101558,4
<b>12.</b>	December	67315,6	82888,5	97305,1	104014,6
<b>Total</b>		<b>663.945,2</b>	<b>922.582,3</b>	<b>1.114.735,1</b>	<b>1.210.680</b>
The annual increase (December – January of the same year)		20.352,4	13.556	9.506,1	6539,6

Source: www.bnr.ro, monthly bulletins 2007, 2008, 2009, 2010 National Bank of Romania

**Figure 1: Evolution population households deposits on months between years 2007-2010 (million lei)**



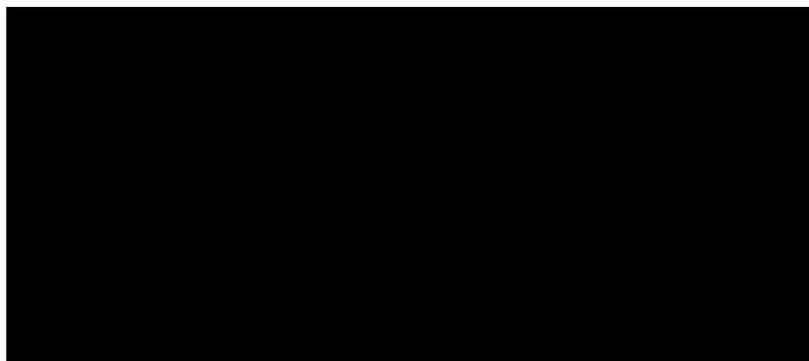
Source: own creation based on the monthly bulletins 2007, 2008, 2009, 2010 National Bank of Romania

Households' deposits increased significantly during every months of each year. The only month where a decrease was registered was October 2008.

According to the graph above, showing the situation of population households, we can see that in January was registered the largest increase of deposits during those four years, an increase of 50.511,8 million, deposits starting from the sum of 46.963,2 million lei in 2007 and ending in 2010 to the sum of 97.475,0 million lei.

Also, one important aspect that emerges from the analysis of population households' deposits during the four years is that they have registered the largest increase in December of each year, due to higher wages and the fact that municipalities redistribute payments to companies.

**Figure 2: Evolution of population household deposits in the years 2007-2010 (million lei)**



Source: own creation based on the monthly bulletins 2007, 2008, 2009, 2010 National Bank of Romania

According to the table and graphs, we can see a major increase in bank deposits attracted from the public so that in 2007 the sum of these deposits was 663.945,2 million and till 2010, nearly doubling in the amount of 1.210.680 million lei.

From the analysis of deposits on the 4 years we can see that they increased during these years, reaching maximum values in 2010, the value of 1.210.680 million, and the largest increase was recorded in 2007, when population household deposits increased by 20.352,4 million, starting from the amount of 46963,2 million lei in January and ending in December to 67315.6 million lei.

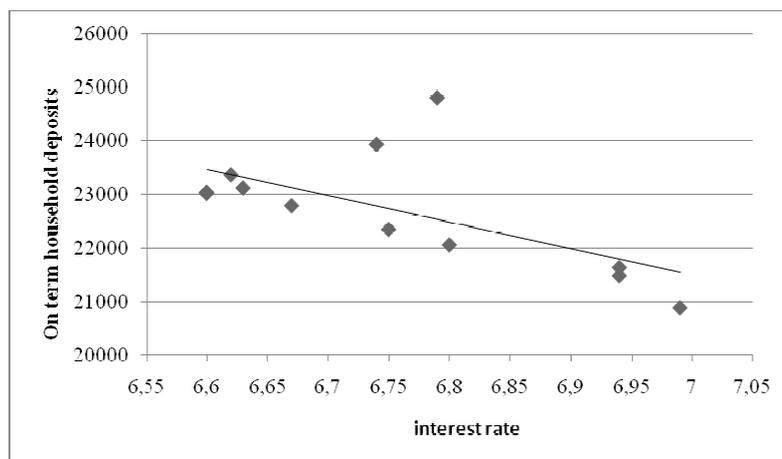
**2.1. Analysis of on term deposits in lei from the population households deposits according to the interest rate**

**Table 2: Pearson correlation coefficient between the interest rate and the volume of on term deposits volume in January 2007 - December 2007**

No.	Month	On term deposits in 2007 (mil lei)	Interest rate (on term deposits%)
1.	Ian	20891,3	6,99
2.	Feb	21478,6	6,94
3.	Mar	21634,8	6,94
4.	Apr	22062,5	6,80
5.	May	22351,5	6,75
6.	Jun	22786,1	6,67
7.	Jul	23119,6	6,63
8.	Aug	23017,3	6,60
9.	Sept	23041,4	6,60
10.	Oct	23370,1	6,62
11.	Nov	23929,2	6,74
12.	Dec	24805,2	6,79

Source: www.bnr.ro, monthly bulletins for the year 2007, National Bank of Romania

**Figure 3: Pearson correlation coefficient between the interest rate and the volume of on term deposits volume in January 2007 - December 2007**



Source: own creation based on the data from the table based on the data from table 2

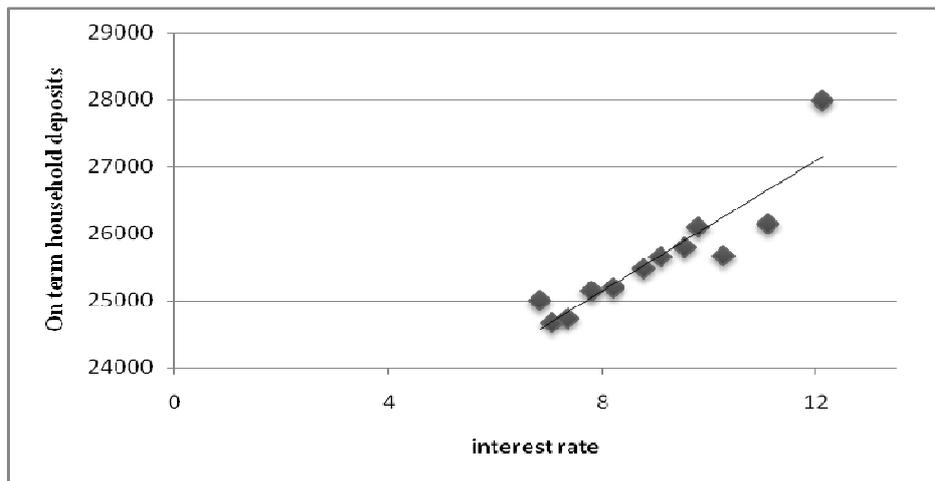
In 2007, the total number of on term deposits (with maturities up to one year and more than one year) was 272,487.6 million lei and the average interest rate was 6.75%.

**Table 3: Pearson correlation coefficient between the interest rate and the volume of on term volume in January 2008 - December 2008**

No.	Month	On term deposits in 2008 (mil lei)	Interest rate (on on term deposits% )
1.	Ian	24996,8	6,83
2.	Feb	24675,6	7,05
3.	Mar	24740,2	7,34
4.	Apr	25145,5	7,80
5.	May	25185,4	8,20
6.	Jun	25473,2	8,77
7.	Jul	25657,3	9,10
8.	Aug	25796	9,55
9.	Sept	26091,5	9,79
10.	Oct	25676,6	10,27
11.	Nov	26139,9	11,11
12.	Dec	27982,6	12,12

Source: www.bnr.ro, monthly bulletins for the year 2008, National Bank of Romania

**Figure 4: Pearson correlation coefficient between the interest rate and the volume of on term volume in January 2008 - December 2008**



Source: own creation based on the data from the table based on the data from table 3

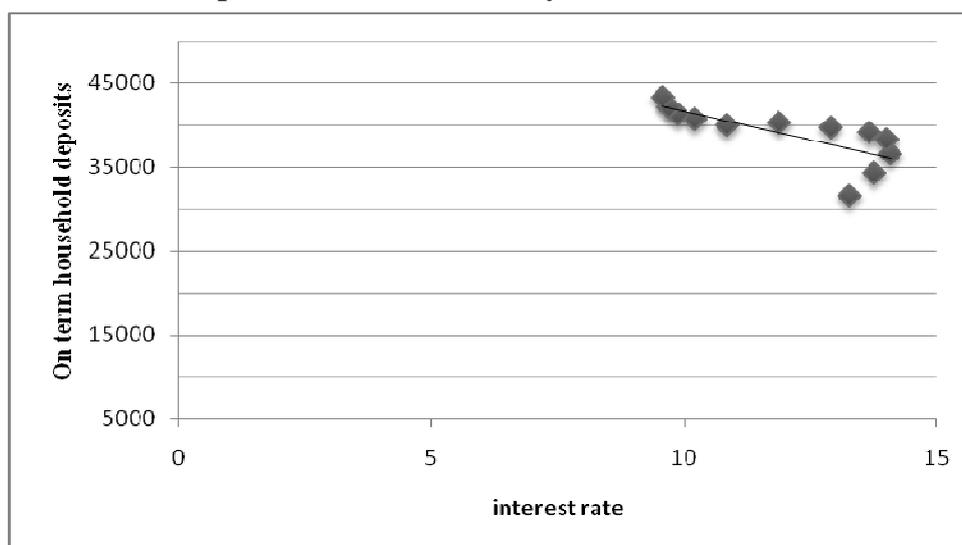
**Table 4: Pearson correlation coefficient between the interest rate and the volume of on term deposits volume in January 2009 - December 2009**

Nr.	Month	On term deposits in 2009 (mil lei)	Interest rate (on on term deposits %)
1.	Ian	31630,3	13,27
2.	Feb	34267,7	13,75
3.	Mar	36589,2	14,08
4.	Apr	38300,6	14,01
5.	May	39169,7	13,66
6.	Jun	39780,1	12,89
7.	Jul	40264,2	11,87
8.	Aug	39964,6	10,84
9.	Sept	40668,2	10,21
10.	Oct	41291,5	9,86
11.	Nov	42169	9,70
12.	Dec	43238,7	9,57

Source: www.bnr.ro, monthly bulletins for the year 2009, National Bank of Romania

In 2008, the total number of on term deposits (with maturities up to one year and more than one year) was 307560,6 million lei and the average interest rate was 8,99%.

**Figure 5: Pearson correlation coefficient between the interest rate and the volume of on term deposits volume in January 2009 - December 2009**



Source: own creation based on the data from table 4

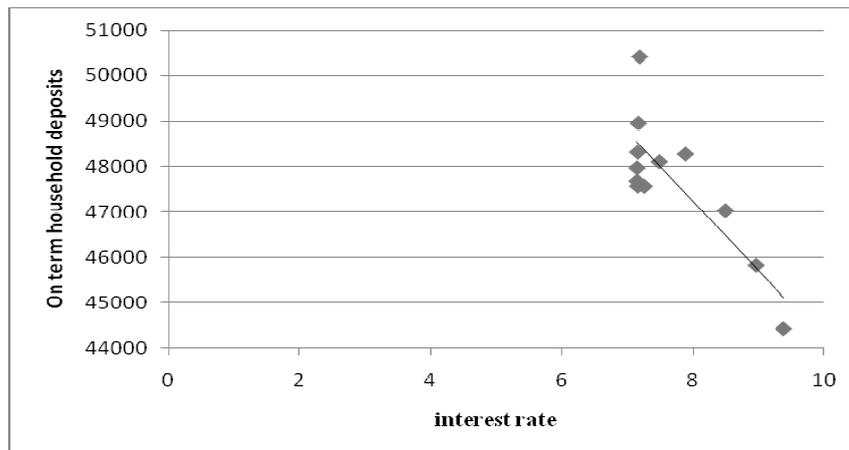
In 2009 the total number of on term deposits (with maturities up to one year and more than one year) was 467333,8 mil lei and the average interest rate was 11,97%.

**Table 5: Pearson correlation coefficient between the interest rate and the volume of on term deposits in January 2010 - December 2010**

No.	Month	On term deposits in 2010 (mil lei)	Interest rate (on term deposits%)
1.	Ian	44427	9,39
2.	Feb	45831,9	8,96
3.	Mar	47036,4	8,49
4.	Apr	48277,9	7,88
5.	May	48109,6	7,48
6.	Jun	47571,9	7,25
7.	Jul	47577,1	7,15
8.	Aug	47686,1	7,14
9.	Sept	47973,7	7,14
10.	Oct	48320	7,15
11.	Nov	48969,5	7,16
12.	Dec	50431,1	7,18

Source: www.bnr.ro, monthly bulletins for the year 2010, National Bank of Romania

**Figure 6: Pearson correlation coefficient between the interest rate and the volume of on term deposits in January 2010 - December 2010**



Source: own creation based on the data from the table based on the data from table 5

In 2010, the total number of on time deposits (with maturities up to one year and more than one year) was 572212,2 million lei and the average interest rate was 7,69%.

**2.2. Analysis of overnight deposits in lei from the population households deposits according to the interest rate**

**Table 6: Pearson correlation coefficient between the interest rate and the volume of overnight deposits in January 2007 - December 2007**

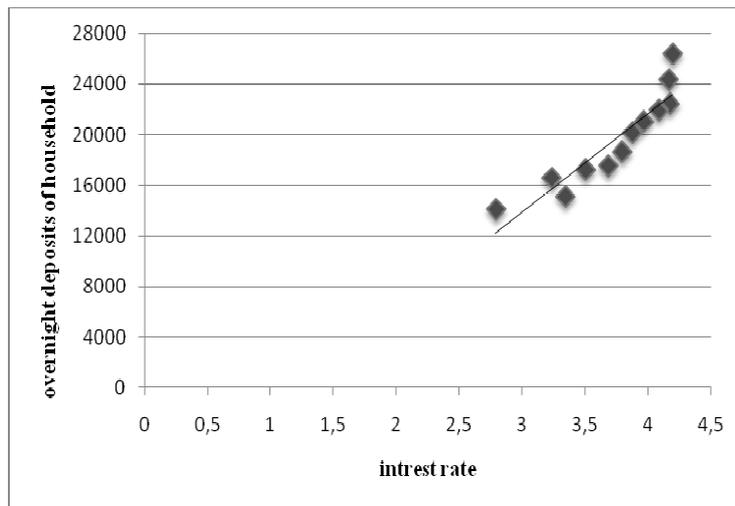
No.	Month	Overnight deposits in 2007 (mil. lei)	Interest rate (on overnight deposits%)
1.	Ian	14 080,2	2,79
2.	Feb	15 112,9	3,34
3.	Mar	16 580,8	3,23
4.	Apr	17 241,3	3,50
5.	May	17 519,3	3,68
6.	Jun	18 645,8	3,79
7.	Jul	20 157,6	3,87
8.	Aug	21 041,2	3,96
9.	Sept	21 942,9	4,08
10.	Oct	22 456,0	4,17
11.	Nov	24 338,5	4,16
12.	Dec	26 371,9	4,19

Source: monthly

year 2007, National Bank of Romania

www.bnr.ro, bulletins for the

**Figure 7: Pearson correlation coefficient between the interest rate and the volume of overnight deposits in January 2007 - December 2007**



Source: own creation based on the data from the table based on the data from table 6

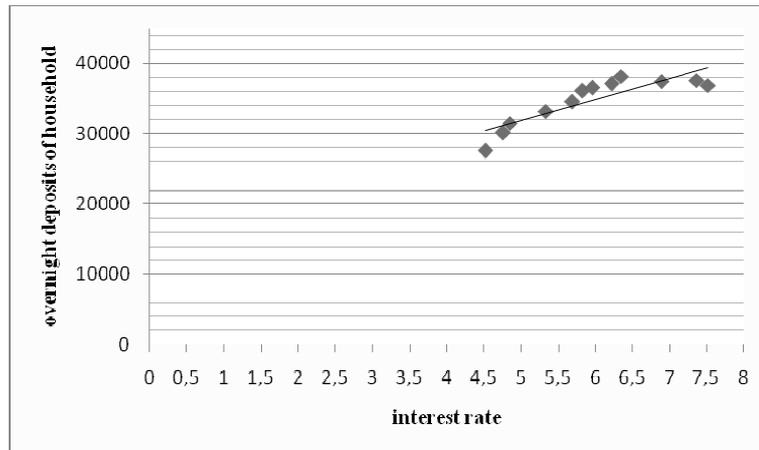
In 2007, the total number of overnight deposits was 235488,4 million lei and the average interest rate was 3,73%.

**Table 7: Pearson correlation coefficient between the interest rate and the volume of overnight deposits in January 2008 - December 2008**

No.	Month	Deposits in 2008 (mil. lei)	Interest rate (on overnight deposits%)
1.	Ian	27 582,7	4,51
2.	Feb	30 157,3	4,75
3.	Mar	31 500,9	4,84
4.	Apr	33 186,9	5,33
5.	May	34 497,3	5,68
6.	Jun	36 099,0	5,82
7.	Jul	36 549,6	5,95
8.	Aug	37 082,9	6,21
9.	Sept	38 161,6	6,34
10.	Oct	37 453,9	6,88
11.	Nov	37 624,6	7,37
12.	Dec	36 893,1	7,52

Source: www.bnr.ro, monthly bulletins for the year 2008, National Bank of Romania

**Fig. no. 8: Pearson correlation coefficient between the interest rate and the volume of overnight deposits in January 2008 - December 2008**



Source: own creation based on the data from the table based on the data from table7

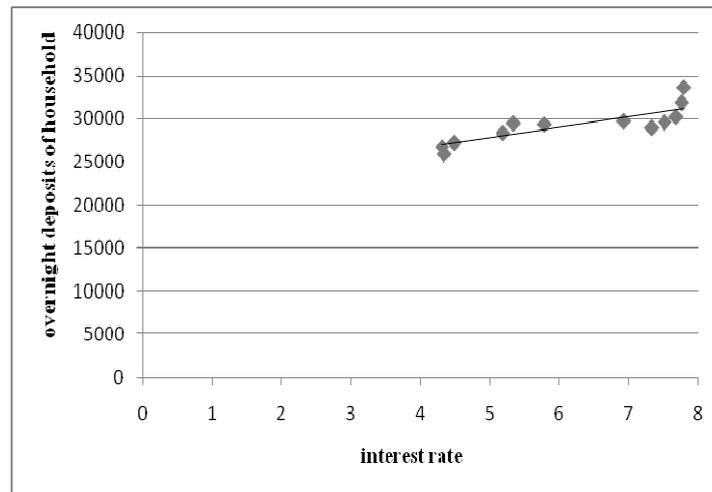
In 2008, the total number of overnight deposits was 416789,8 million lei and the average interest rate was 5,93 %.

**Table 8: Pearson correlation coefficient between the interest rate and the volume of overnight deposits in January 2009 - December 2009**

No.	Month	Overnight deposits in 2009 (mil. lei)	Interest rate (on overnight deposits%)
1.	Jan	33 657,8	7,79
2.	Feb	31 852,6	7,76
3.	Mar	30 207,3	7,68
4.	Apr	29 572,0	7,51
5.	Mai	28 906,1	7,33
6.	Jun	29 668,5	6,93
7.	Jul	29 374,0	5,78
8.	Aug	29 434,3	5,34
9.	Sept	28 281,8	5,19
10.	Oct	27 166,3	4,49
11.	Nov	26 730,3	4,31
12.	Dec	25 984,8	4,34

Source: www.bnr.ro, monthly bulletins for the year 2009, National Bank of Romania

**Fig. no. 9: Pearson correlation coefficient between the interest rate and the volume of overnight deposits in January 2009 - December 2009**



Source: own creation based on the data from the table based on the data from table 8

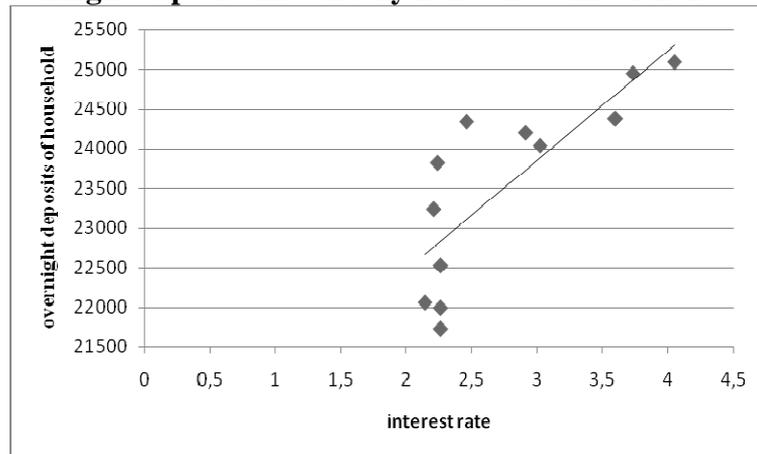
In 2009, the total number of overnight deposits was 350835,8 million lei and the average interest rate was 6,20%.

**Table 9: Pearson correlation coefficient between the interest rate and the volume of overnight deposits in January 2010 - December 2010**

No.	Month	Overnight deposits in 2009 (mil. lei)	Interest rate (on overnight deposits%)
1.	Jan	25087,7	4,05
2.	Feb	24944,9	3,73
3.	Mar	24374,5	3,60
4.	Apr	24035,3	3,02
5.	Mai	24198,9	2,91
6.	Iun	24336,2	2,46
7.	Iul	23816,3	2,24
8.	Aug	23232,2	2,21
9.	Sept	22518,9	2,26
10.	Oct	21987,1	2,26
11.	Nov	21718,9	2,26
12.	Dec	22050,3	2,14

Source: www.bnr.ro, monthly bulletins for the year 2010, National Bank of Romania

**Fig. no. 10: Pearson correlation coefficient between the interest rate and the volume of overnight deposits in January 2010 - December 2010**



Source: own creation based on the data from the table based on the data from table 9

In 2010, the total number of overnight deposits was 282301,2 million lei and the average interest rate was 2,76%.

Concerning the interest paid by banks on population deposits, banks do not face difficulties in attracting deposits. Although in 2010 the interest rate decreased significantly, it did not affect the deposits attracted by the banks.

As we noted in our analysis, a lower interest rate given by the bank on the banking deposits did not had a significant influence, causing no problems for the banks in attracting deposits. However, a possible explanation for the ascending evolution of the deposits could be that there were slight increases in industrial production, labor productivity in industry, foreign trade, but also an increase in the volume of the turnover.

### **2.3. Analysis of the correlation between interest rates and the volume of deposits, with "Pearson" correlation coefficient**

Pearson correlation coefficient is a dimensionless index ranging between [-1 to 1] and reflects the extent of a linear relation between two sets of data.

The study is based on data from January 2007 – December 2010, and for their interpretation we used statistical methods, which allowed the calculation of the correlation coefficient between the two variables: **the independent variable** – the interest rate of on term and overnight deposits on the last years and the **dependent variable** – the volume of on term and overnight deposits.

In this effect, in order to obtain linear correlation between the two data sets, we used Pearson correlation coefficient.

Pearson correlation coefficient indicates the expansion of the relating degree through a number between 1.00 and - 1.00. Correlation is made up of pairs of scores (outcomes) for each piece of information from the sample; each piece of information has a pair of scores, one for each of the two variables from which the correlation is composed of. A correlation of one indicates a perfect relating, so if we know that the outcome has the highest score on one variable, we also know that it has the same score over the other. With a negative correlation, they would imply each other in reverse proportion. A correlation of less than one, either positive or negative, indicates the fact that each result of a pair has the same score on the other and draws her less than perfect, so the highest score of a variable in a positive correlation could be accompanied by an average score on the other variable. The fact that the relating exists through a correlation, as it was shown, does not allows us to conclude that the relationship is causal. Often the relationship is the result of a third variable or a combination of other variables. Whether the relating is causal, a correlation allows prediction; therefore, such relating is extremely useful.

In the case of Romanian banking system, we would obtain the following Pearson correlation coefficient between interest rate and volume of deposits based on the formula:

$$r = \frac{\sum_{i=1}^n (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^n (X_i - \bar{X})^2} \sqrt{\sum_{i=1}^n (Y_i - \bar{Y})^2}}$$

- If the Pearson coefficient correlation result is negative then → a high correlation where x increases and y decreases;
- If the coefficient is positive then the result is a direct correlation where both x and y increase;
- If the result coefficient = 0 then there is a weak correlation.

The figures ..... show the graphic representations of correlation between variable X - the interest rate of on term and overnight deposits in the last 48 months and the variable Y - volume of on term and overnight deposits, from the indicators presented in the table below.

**Table 10: Analysis of the correlation between interest rates and the volume of deposits, with "Pearson" correlation coefficient**

Correlation Index	On term deposits	Overnight deposits
2007	-0,634113494	0,918248587
2008	0,908165862	0,867198232
2009	-0,742383112	0,834460974
2010	-0,817642999	0,800747002

Source: calculated after [www.bnr.ro](http://www.bnr.ro), monthly bulletins 2007, 2008, 2009, 2010 National Bank of Romania

We have calculated the correlation index for both on term deposits and overnight deposits and we have found the following:

a. Pearson correlation coefficient between interest rate and value of deposits is different depending on the type of the deposit (at on term deposits is mostly negative and at overnight deposits is only positive and very close to 1);

b. Mostly it is negative at on term deposits, and this means that there is a close reverse correlation between interest rate and the volume of on term deposits. This suggests that there is a reverse correlation between the average interest rate at on term deposits (variable cause) and the value of on term deposits (variable effect), but in 2008 Pearson indicator is positive, which means that there is a direct correlation between the two.

c. For overnight deposits, the correlation index is positive and it is close to 1, which means that there is a direct and very tight correlation between the overnight interest rate and the volume of deposits. As we can see, this correlation is weakening as we go away from the year 2007, because from year to year the index tends to depart from 1 more and more, which reflects the fact that other factors influence the volume of overnight deposits, not just the interest rate.

### 3. Conclusions

The analysis of the study carried out on a data sample from January 2007 - December 2010, allowed the calculation of correlation coefficient between the two variables: independent variable – interest rate from last years and the dependent variable – the volume of deposits (overnight and on term). In this regard, in order to obtain the linear correlation between the two data series, we used Pearson correlation coefficient whose method of calculation is based on the calculation of covariance. In the case of the data sample used in the paper we have a linear correlation between variables X and Y. Pearson linear correlation coefficient registers values between -1 and +1. With the independent variable: the interest rate on deposits (overnight and on term) and the dependent variable: the volume of deposits (overnight and on term) in the last 48 months, overall the Pearson index is positive (less than 3 years at on term deposits).

In the years 2007, 2009 and 2010 Pearson index for deposits is negative. This means that there is an inverse correlation between the average interest rate (the cause variable) and the value of on time deposits (the effect variable). Namely, the lower the average interest rate on term deposits, the higher the value at on term deposits. This fact is explained by population’s tendency of saving. The only year in which the index was positive was in 2008, the year that triggered the financial crisis.

In the case of overnight deposits, Pearson index is positive and very close to 1 in all analyzed years which means that there is an extremely closed direct correlation between overnight interest rate (the cause variable) and the value of overnight deposits (the effect variable). Namely, the high (or low) the interest rate on overnight deposits, the high (or low) the value of overnight deposits.

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## IMPLEMENTING ACCOUNTING IN AGRICULTURAL FARMS IN KOSOVO

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**Abstract:** *This paper is t present the existing situation of accounting application in agricultural farms in Kosovo thereby to analyze and recommend the development process of accounting in agricultural farms. The study has been done through a research in 100 agricultural farms in Kosovo. The research questions answered by this paper include the following: Do agricultural farms in Kosovo apply accounting? What is the level of education? What kind of accounting method do they use? For which period do they prepare financial statements?etc. Data derived from research will be processed in statistical software SPSS. The study will give us evidences of a poor situation.*

**Keywords:** Kosovo, farms, accounting.

**JEL classification:** M.41

### Introduction

Farm accounting is not just accounting, but an example of a management information system (<http://in.answers.yahoo.com/question>). How much is accounting important we may understand by relying on the fact that everyone need to apply accounting including profit or non-profit organization and even religious institutions. Even though accounting is one of the oldest fields applied, its development didn't happen with huge steps as in other fields for instance information technology has been discovered very lately but its development was unbelievable fast. "Accounting is a fundamental field of economy in which the health of an enterprise is expressed by it" (Feldman, 2007). Therefore financial information in agricultural farms must have intensive application and with newest standards and methods of accounting. Understanding and interpretation of financial analysis has a very high sensitivity and importance therefore I will study this issue pertaining to agricultural farms since agriculture has a high perspective in development of the state. Agriculture is not developed very well in Kosovo even though it has a very favorable potential.

Studying general development of accounting in agricultural farms in Kosovo is completely different comparing to developed states. This happens because agricultural farms in Kosovo have been left aside since after war period.

Research will be conducted through questionnaires in different kinds of farms including: poultry farms, dairy-farms, meat farms etc. in order to understand the application level of accounting, farmer's knowledge for importance of accounting, Kosovo and International Accounting Standard, transformation of past accounting to modern nowadays accounting.

### Research Methodology

The aim of this study is to reflect the application of accounting in agricultural farms, with a detailed concentration in Kosovo Accounting Standard and International Accounting Standard. Research questions from questionnaire were asked to accountants directly from students of agro economics of University of Pristina during November, 2010. Data analyzing and processing was

done with statistical software SPSS v15.0. There were n=0.100 realized questionnaires by random sampling of respondents. Mostly respondents of survey were farmers from dairy and poultry farms. The statistical analysis used include: Chi- Square ( $\chi^2$ ), Ordinal Regression, Probit Analysis and present in Graph about the question on what kind of accounting do the farms use.

### **Presentation of Research questions and Stated Hypotheses**

Statistical analysis in this study is focused in four main questions:

1. Application level of accounting,
2. Awareness of the role and importance of financial information,
3. Accounting transformation from old to modern
4. Willingness for accounting advancement.

These questions are compiled in detailed manner where for instance the application level of accounting shows as well education qualification, age, monthly payment of an accountant, additional advancements in accounting etc. which helps us in reaching a clear view and giving exact conclusions.

### **Results and Interpretation of tested hypotheses**

Research shows that the application level of accounting is of secondary importance, even though in a question "Do you apply accounting?" 81.8% of respondents were answered with "Yes", whereas 18.2% of respondents do not apply accounting at all.

But this fact didn't have a positive impact in the applying level of accounting because in question "When did you start applying accounting?" 48.1% of the answers were "after the third year of farm's activity", 39.2% "after the second year of farm's activity", 11.4% "after a year of farm's activity" and only 7.6% were "from the beginning of farm's activity".

As regards to frequency related to accounting presence in farms, 28.6% of respondents have categorized accounting "to be in the same time important and unimportant", 13.2% "important", 7.1% "unimportant" and only 1% of respondents did not gave any answer.

Due information in due time today is one of the key successes of business (Binaj, Kalemi, 2010) therefore accounting information is one which fulfills these criteria. But in Kosovo accounting information does not happen in satisfying level in agricultural farms. In a question "What kind of accounting do you apply?" 18.7% of respondents answered that they use accounting information, 31.4% apply advanced accounting, and 48.6% apply ordinary accounting (input/output). Maybe this is due to the education qualification of accountants because 61.7% of accountant in farms are ranked with secondary school, 37.3% with superior qualification and 17.3% are certified accountants.

This situation is not due to the lack of certified accountants in Kosovo but it is due to the poor payment from farmers. In a question "How much do you pay for an accountant", 97.7% of respondents were determined to the sum up to 200€, whereas only 2.3% were determined for payment from 201€ to 400€, meanwhile there were nrespondents for the value above 400€.

The important think for an employee's retention is to invest on them, so this happens also to accountant. Apart from its payment it is necessary to invest in accountants by providing them advanced trainings, and this matter is very good presented from this research by asking the respondents whether they have financed any training for their accountants or not where 82.8% of them responded negatively and only 17.2% have financed a training for their accountants.

Since the sector of agriculture has its own special characteristics then accounting being applied in this sector needs to have a special standards of its application. Despite the fact that Kosovo Accounting Standards have their flaws pertaining to this sector in a question "How much do you have knowledge about Accounting Standards?" 52% of respondents answered "little", 27.3% "fairly enough", 17.7% "not at all", and only 3% "a lot".

When you don't have enough knowledge you cannot give exact answer, this happened in the question "What do you think about Kosovo Accounting Standards" and 43.8% answered "Are totally completed", 28.4% "are relatively completed", 24.7% think that "are not enough completed" and 3.1% say "are not completed at all".

### Concluding comments

From the research I have conducted we can notice an unenviable situation in farms in Kosovo. Taking into consideration the fact that accounting plays an important role in development of a healthy business and it will have a positive effect for farms and as well for Kosovo. Therefore the cooperation should be mutual in supporting the development of this field which at the moment is not being used in Kosovo yet. Methods and manner of farmers' awareness for the role and importance of accounting should be different and from different sources from the state side but as well from governmental and non-governmental organisations in Kosovo. We see that different organisations have been given their contribute in holding many financial trainings but this happens in very small numbers of farms in Kosovo. Therefore it has to be done more about this issue in order to achieve a stabilised situation for this group of businesses which has a high perspective for the future of Kosovo. If we do a comparison of these types of farms with those in developed countries we will see an unbelievable differences but I am very optimistic that in future after 3 to 4 years this kind of research will give much better results and will have small difference with those in development countries pertaining to the level of accounting.

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**Appendix**

**Table 1: Chi-Square Test, What kind of accounting?**

	Observed N	Expected N	Residual
Simple	46	26.3	19.7
Advanced manually	10	26.3	-16.3
Advanced with computer	23	26.3	-3.3
Total	79		

**Table 2: Test Statistics**

	What kind of accounting
Chi-Square(a)	25.241
Df	2
Asymp. Sig.	.000

a 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 26.3.

**Table 3: PLUM - Ordinal Regression Case Processing Summary**

		N	Marginal Percentage
When did you started to apply accounting	From the beginning of activity	6	7.6%
	After first year of activity	9	11.4%
	After second year of activity	26	32.9%
	After third year and onward	38	48.1%
Valid		79	100.0%
Missing		23	
Total		102	

**Table 4: Model Fitting Information**

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	12.084			
Final	12.084	.012	0.5	0.2

Link function: Logit.

**Parameter Estimates**

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Kkfmk = 1.00]	-2.499	.425	34.616	1	.000	-3.331	-1.666
	[Kkfmk = 2.00]	-1.451	.287	25.579	1	.000	-2.013	-.889
	[Kkfmk = 3.00]	.076	.225	.114	1	.736	-.365	.517

Link function: Logit.

**Parameter Estimates**

Parameter	Estimate	Std. Error	Z	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
PROBIT What kind of accounting	-.222	.188	-1.179	.238	-.590	.147
Intercept	1.165	.439	2.653	.008	.726	1.604

a. PROBIT model:  $PROBIT(p) = \text{Intercept} + BX$

**Table 5: Probit Analysis**

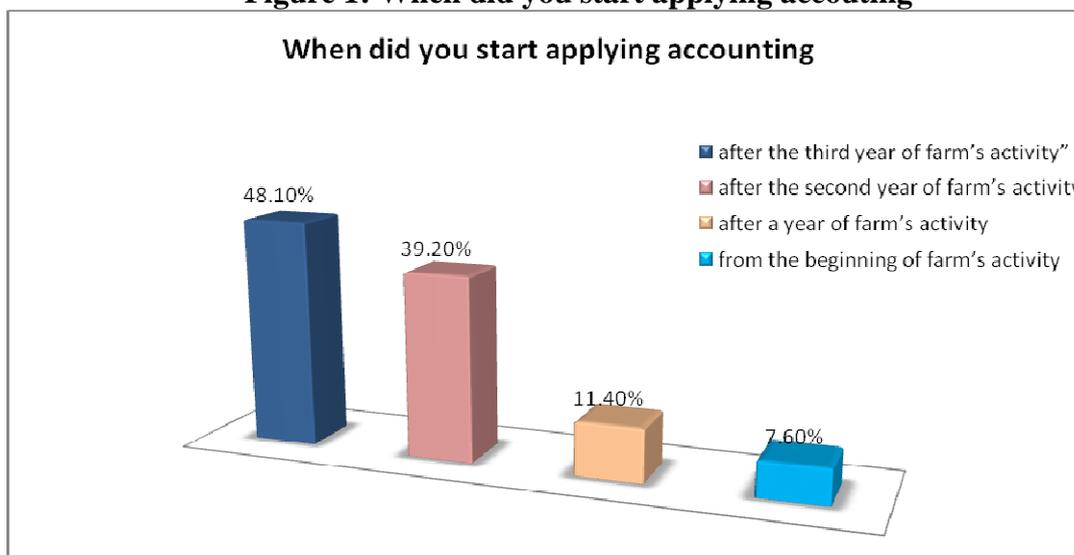
**Chi-Square Tests**

	Chi-Square	df <sup>a</sup>	Sig.
PROBIT Pearson Goodness-of-Fit Test	21.701	16	.153 <sup>b</sup>

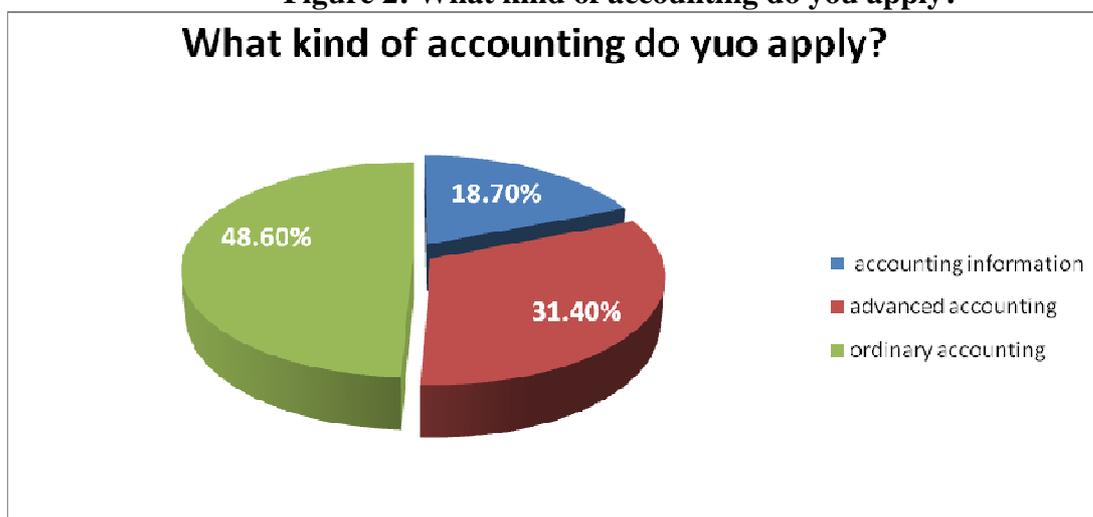
a. Statistics based on individual cases differ from statistics based on aggregated cases.

b. Since the significance level is greater than .150, no heterogeneity factor is used in the calculation of confidence limits.

**Figure 1: When did you start applying accounting**



**Figure 2: What kind of accounting do you apply?**



## BUSINESS CYCLE CHANGES AND ECONOMIC SLOWDOWN IN THE POLISH BANKING SECTOR<sup>3</sup>

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**Abstract:** *G. Soros wrote in 2008 “We are in the midst of the worst financial crisis since the 1930s” (G. Soros, 2008, p. vii.). However, if the notion “crisis” was to be understood as significant failures of financial institutions then such a crisis did not occur in Poland within the last few years. Here the author’s intention is to prove the thesis that despite the lack of financial crisis in 2007-2009, changes in the intensity of banking activity were deepest in the period 1996-2010. The article aims to present, analyze and evaluate changes which were taking place in the Polish banking sector under the influence of the business cycle.*

**Key words:** bank, banking sector, Poland, business cycle

**JEL classification:** E24, M54, E32, G21

### 1. Introduction

G. Soros wrote in 2008 “We are in the midst of the worst financial crisis since the 1930s” (G. Soros, 2008, p. vii.). The statement regarded western economies rather than the Polish economy. However, if the notion “crisis” was to be understood as significant failures of financial institutions then such a crisis did not occur in Poland within the last few years. According to A. Gospodarowicz situation in Poland at that time was not generating factors which could have led to a crisis similar to the one which hit the USA and Western Europe (However, one could observe that the increment of equities tended to make Polish banks more stable and stronger (Gospodarowicz, 2009, p. 20).

This does not mean that the “second dip” of the crisis (It should not be forgotten that banks generally tended to lag behind the general economic situation (Iwanicz-Drozdowska, 2002, p. 256), predicted by some economists, may not arise in the near future. A crisis may also be understood, as it was proposed by L. von Mises, as a phase of a business cycle (von Mises). If we accept this point of view, we may say that Poland after 1996 did experience a banking crisis a few times: e.g. in the period of economic slowdown after 1998 and between 2009-2010.

Author intends to prove the thesis that despite the lack of financial crisis in 2007-2009, changes in the intensity of banking activity were deepest in the period 1996-2010 (Until 1996, the Polish banking sector was experiencing dramatic changes which resulted from the implementation of the market principles of the economy – economic transformation). The article aims to present, analyze and evaluate changes which were taking place in the Polish banking sector under the influence of the business cycle. The author carried out an analysis of indexes which characterize a business cycle in banking. These include:

- real dynamics of bank assets,
- number of banks,
- ROA, and ROE indicators,
- solvency ratio,
- non-performing loans ratio,

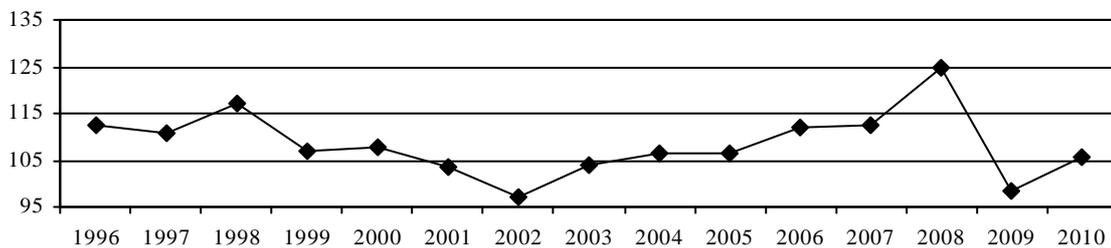
<sup>3</sup> The author is a scholar within Sub-measure 8.2.2 Regional Innovation Strategies, Measure 8.2 Transfer of knowledge, Priority VIII Regional human resources for the economy Human Capital Operational Programme co-financed by European Social Fund and state budget. Results of the research form part of a broader research conducted in the Department of Macroeconomics and National Economy Research of the Poznan University of Economics.

- number of branches,
- the level of employment in banks.

## 2. Dynamics of changes in the Polish banking sector

The overall increment of the commercial banking sector may be characterized by the dynamics of asset changes in this sector. During nearly the entire analyzed period the dynamics hovered above 100. Only in 2002 and 2009, due to a weaker performance of the whole economy, a decline of real asset value was observed. A considerable growth of assets managed by commercial banks was recorded in 1996-1998 and 2006-2008, i.e. during the years of high increases of total GDP generated in Poland. This means that during the analyzed period the biggest fluctuations of assets' dynamics were observed between 2008 and 2009.

**Figure 1: Real dynamics of commercial banks' assets in Poland in 2006-2010 (as of the end of each year, December of the preceding year=100, in per cent)**

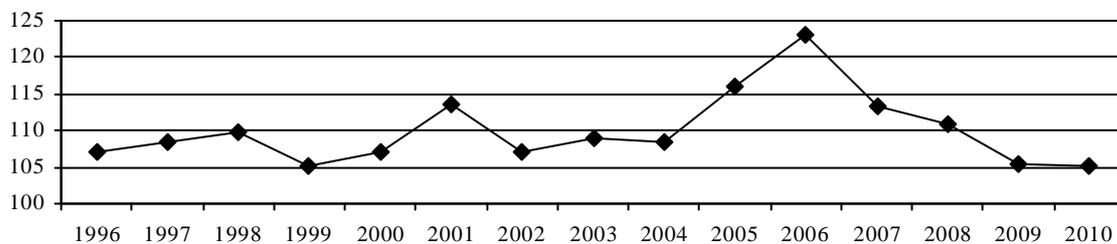


Comment: for 2010 provided value was as of 09.2010.

Source: own calculations based on: *Raport o sytuacji finansowej sektora bankowego w okresie styczeń - wrzesień 2007 r.*, KNF, Warszawa, January 2008, p. 37; *Raport o sytuacji banków w 2007 roku*, KNF, Warszawa 2008, p. 79, 81, 84, 86; *Raport o sytuacji banków w 2009 roku*, KNF, Warszawa 2010, p. 20-22, 66; <http://www.knf.gov.pl>, as of 8.03.2011, <http://www.stat.gov.pl>, as of 8.08.2010.

Between 1996 and 2004 changes in the dynamics of assets of commercial and cooperative banks were similar. Later, large increases in assets occurred earlier in cooperative banks than in commercial banks. On the other hand, while in 1998 commercial banks' asset dynamics experienced strong growth and a strong decline in 2002, changes observed in the dynamics of cooperative banks assets were much more subtle. Undoubtedly, however, decline of cooperative and commercial banks' assets dynamics in 2009 was one of the deepest in the analyzed period.

**Figure 2: Real dynamics of cooperative banks' assets in Poland in 1996-2010 (as of the end of each year, December of the preceding year=100, in per cent)**

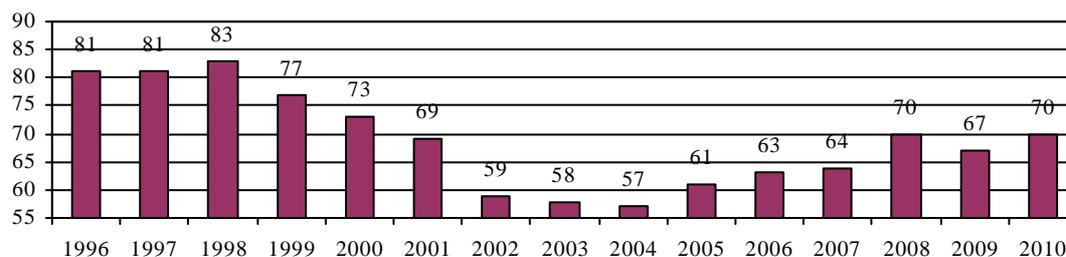


Comment: for 2010 provided value was as of 09.2010.

Source: own calculations based on: *Raport o sytuacji finansowej sektora bankowego w okresie styczeń - wrzesień 2007 r.*, KNF, Warszawa, January 2008, p. 37; *Raport o sytuacji banków w 2007 roku*, KNF, Warszawa 2008, p. 79, 81, 84, 86; *Raport o sytuacji banków w 2009 roku*, KNF, Warszawa 2010, p. 20-22, 66; <http://www.knf.gov.pl>, as of 8.03.2011 oraz <http://www.stat.gov.pl>, as of 8.08.2008.

Number of banks operating in Poland only to a limited extent reflects changes taking place in the banking business cycle. At the end of the 1990s the process of transformation and restructuring triggered in Poland a number of mergers and acquisitions of banks. It should be noted that the number of banks rose after the year 2004. On the one hand, it was a consequence of Poland's accession to the European Union, and on the other hand, resulted from good performance of the whole economy. The subsequent weakening of the upward tendency in the number of commercial banks in 2009 and 2010 may be attributed to the consequences of the economic slowdown.

**Figure 3: Number of commercial banks in Poland (including divisions of credit institutions) 1996-2010**

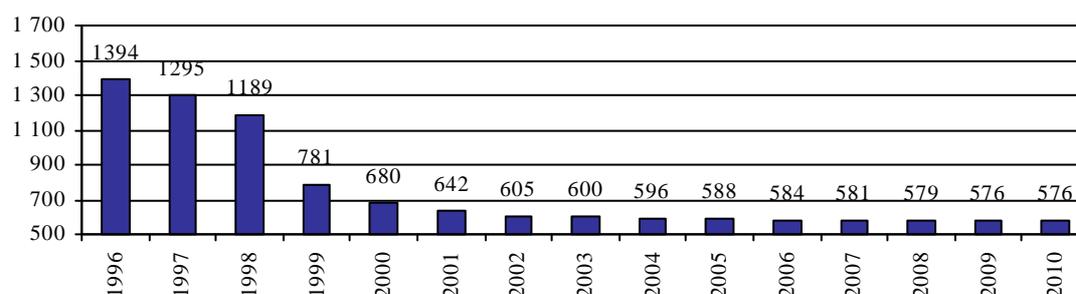


Comment: for 2010 provided value was as of 09.2010.

Source: *Raport o sytuacji finansowej sektora bankowego w okresie styczeń - wrzesień 2007 r.*, KNF, Warszawa, styczeń 2008, p. 30; *Raport o sytuacji banków w 2007 roku*, KNF, Warszawa 2008, p. 79, 84, 86; *Raport o sytuacji banków w 2009 roku*, KNF, Warszawa 2010, p. 22, 66, 69; <http://www.knf.gov.pl>, as of 8.03.2011.

A significant decline of the number of cooperative banks stemmed primarily from the weakness of their capital and mergers which were usually a consequence of the weakness. In this context it may be concluded that in the analyzed period changes in the number of cooperative banks was only to a limited extent shaped by business cycles fluctuations.

**Figure 4: Number of cooperative banks in Poland in the period from 1996 to 2010**

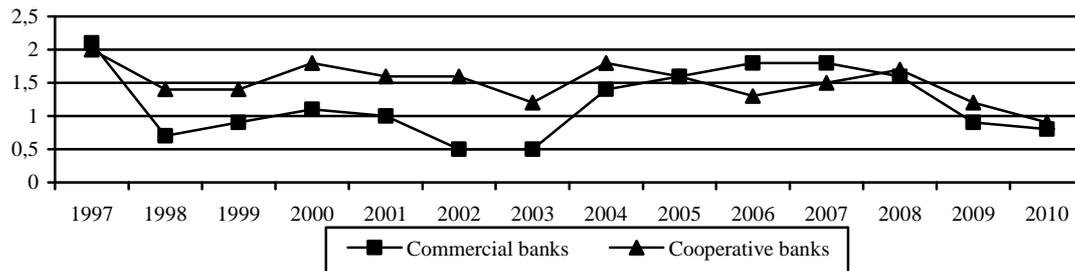


Comment: for 2010 provided value was as of 09.2010.

Source: *Raport o sytuacji finansowej sektora bankowego w okresie styczeń - wrzesień 2007 r.*, KNF, Warszawa, styczeń 2008, p. 30; *Raport o sytuacji banków w 2007 roku*, KNF, Warszawa 2008, p. 79, 84, 86; *Raport o sytuacji banków w 2009 roku*, KNF, Warszawa 2010, p. 22, 66, 69; <http://www.knf.gov.pl>, as of 8.03.2011.

ROA and ROE ratios may be used as a tool to measure the banking sector's efficiency. Figures 5 and 6 show the difference between banking services provided by commercial and cooperative banks. During ten out of fourteen analyzed years ROA indicators were higher in cooperative banks. In turn, for eight years the ROE ratio for cooperative banks was higher than for commercial banks. Moreover, ROA and ROE, both for the commercial and cooperative banks, were relatively low in 1998, 2002-2003 and 2009-2010. In the rest of the years the ratios tended to remain at rather high levels.

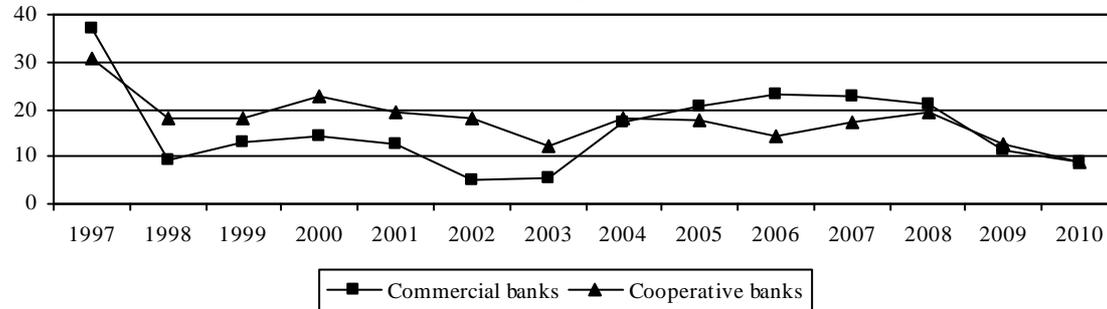
**Figure 5: Indicator ROA in the commercial and cooperative banks in Poland in 1997-2010 (in per cent)**



Comment: for 2010 was given the value for 09.2010.

Source: *Raport o sytuacji finansowej sektora bankowego w okresie styczeń - wrzesień 2007 r.*, KNF, Warszawa, January 2008, p. 52; *Raport o sytuacji banków w 2007 roku*, KNF, Warszawa 2008, p. 79, 84, 86; *Raport o sytuacji banków w 2009 roku*, KNF, Warszawa 2010, p. 20-22, 66, 69; <http://www.knf.gov.pl>, as of 8.03.2011.

**Figure 6: Indicator ROE in commercial and cooperative banks in Poland in 1997-2010 (in per cent)**



Comment: for 2010 provided value was as of 09.2010.

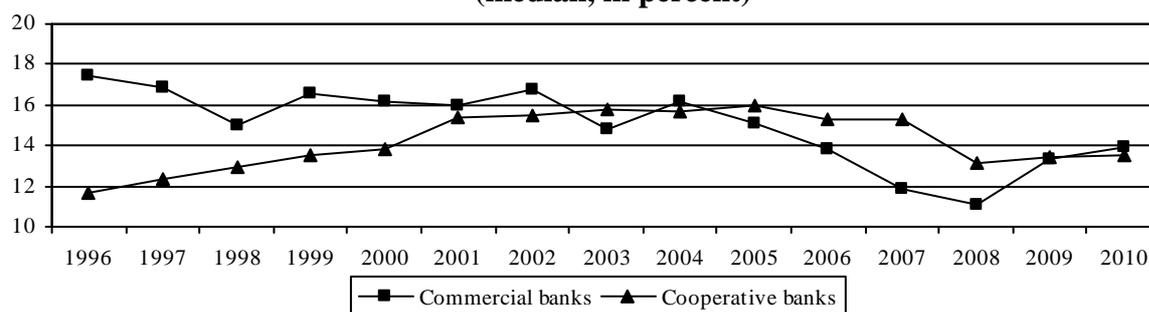
Source: *Raport o sytuacji finansowej sektora bankowego w okresie styczeń - wrzesień 2007 r.*, KNF, Warszawa, styczeń 2008, p. 52; *Raport o sytuacji banków w 2007 roku*, KNF, Warszawa 2008, p. 79, 84, 86; *Raport o sytuacji banków w 2009 roku*, KNF, Warszawa 2010, p. 20-22, 66, 69; <http://www.knf.gov.pl>, as of 8.03.2011.

Another indicator used in the analysis is the solvency ratio. It informs about the ratio of bank equity to the scale of undertaken activity. In the Polish banking supervision the minimum value of this indicator equals 8% (In the first year of the activity this indicator amounts to 15%, in the second 12%. In particular cases (e.g. bad financial condition of a given bank), the banking supervision may order a bank to keep at higher level of this indicator (Ustawa z dnia 29 sierpnia 1997 r., Prawo bankowe, z późn. zm., Dz. U. nr 72, poz. 665, art. 128). Lower values of this ratio indicate a relatively low level of bank equities and show that activities undertaken by the bank run higher risk (Wąsowski, 2004, p. 283).

The solvency ratio for commercial banks in 1996-1997 was high. In 2008 local minimum tended to hover at 15%, which far exceeded the minimum threshold set by banking regulations. At the same time different banks had different values of the ratio. In the next years, the ratio remained close to 16%. Since 2005 a systematic decrease of this ratio was observed (till 2008), indicating increase of the scale of the activities conducted by banks, what in turn, is specific to growth trends in the development of the Polish economy.

In addition, as stated by A. Gospodarowicz, a decrease of the indicator in 2008 resulted partially from a changes in the methodology of calculation (Gospodarowicz, 2009, p. 20). The solvency ratio of cooperative banks was highest in 2001-2007 and resulted from the fact that capital of these institutions was stronger. However, its decline after 2007 may be attributed to the fact that cooperative banks started to extend the scope of their activities. The indicator rose again in 2009 what may had a lot to do with the introduction of a stricter credit policy.

**Figure 7: Solvency ratio of commercial and cooperative banks in Poland in 1996-2010 (median, in percent)**



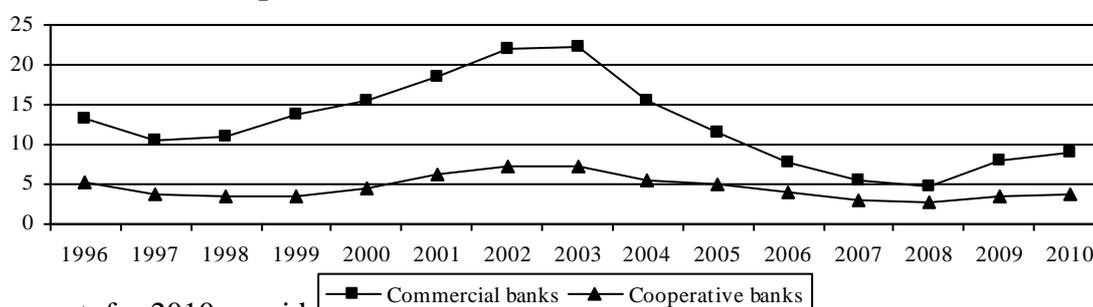
Comment: for 2010 provided value was as of 09.2010.

Source: *Raport o sytuacji finansowej sektora bankowego w okresie styczeń - wrzesień 2007 r.*, KNF, Warszawa, January 2008, p. 60, 71; *Raport o sytuacji banków w 2007 roku*, KNF, Warszawa 2008, p. 79, 84, 86; *Raport o sytuacji banków w 2009 roku*, KNF, Warszawa 2010, p. 46, 66; <http://www.knf.gov.pl>, as of 8.03.2011.

Another indicator that tends to illustrate trends in banking business cycle relatively well is the ratio of non-performing loans in claims of the non-financial sector. An increase of this index usually signals a worse condition of debtors what tends to negatively affect the situation of banks. Throughout the analyzed period, banks' activity risk which is measured by this indicator was higher in commercial banks and lower in the cooperative ones, particularly in the period from 1999 to 2005. Due to the fact that commercial banks were more prone to follow market tendencies, increases and decreases of the indicator in these banks were sharper.

In the years of favorable business cycle (1996-1997), non-performing loans ratio was characterized by a downward tendency. Slowing economy (after 1998 (Kołodko, p. 6; Iwanicz-Drozdowska, 2002, p. 219)) increased the percentage of non-performing loans. The highest number of such loans was recorded in 2002 and 2003. Later economic growth and improvement of households' financial conditions helped reduce the percentage of endangered loans to the lowest (in the researched period) level. In 2008 the ratio's value for commercial banks amounted to 4.8%, and for cooperative banks to 2.8%. After 2003, thanks to a large extent to the development of evaluation tools used in the assessment of potential borrowers, the indicator was not increasing so fast as during the slowdown of 2002-2003.

**Figure 8: Share of non performing loans from the non-financial sector in commercial and cooperative banks in Poland in 1996-2010 (in %)**

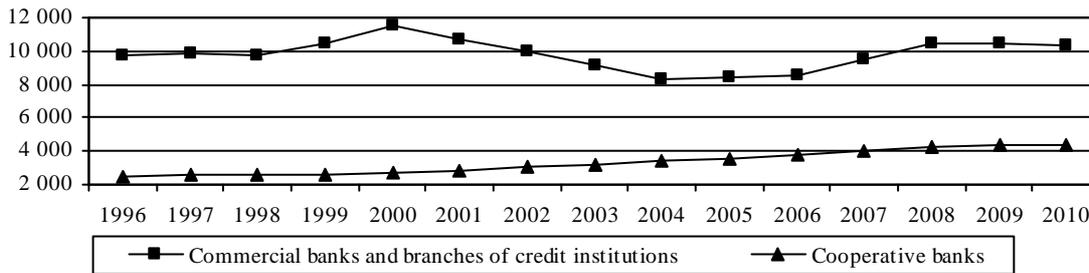


Comment: for 2010 provided value was as of 09.2010.

Source: own calculations and compilations based on *Raport o sytuacji finansowej sektora bankowego w okresie styczeń - wrzesień 2007 r.*, KNF, Warszawa, January 2008, p. 56; *Raport o sytuacji banków w 2007 roku*, KNF, Warszawa 2008, p. 79, 84, 86; <http://www.bs.net.pl/?dzial=00059&strona=01415>, as of 23.07.2010; <http://www.knf.gov.pl>, as of 8.03.2011.

In the analyzed period cooperative banks had been constantly increasing the number of their branches. From 2001 commercial banks started closing some of their branches (figure 9) and focused on new distribution channels, such as the Internet (More about electronic banking in: (Kotliński, Zygmunt, 2002, p. 76). This change was largely caused by a downturn in the banking sector. Banks wanted to reduce costs by closing unprofitable branches. Improvement in the condition of the sector and several new banks which entered the market, again made banks in Poland create new branches. Years 2009 and 2010 saw little changes in the number of bank branches in the country and witnessed restructurization of some of them.

**Figure 9: Number of branches of commercial banks (including branches of credit institutions ) and cooperative banks' branches in Poland in 1996-2010**



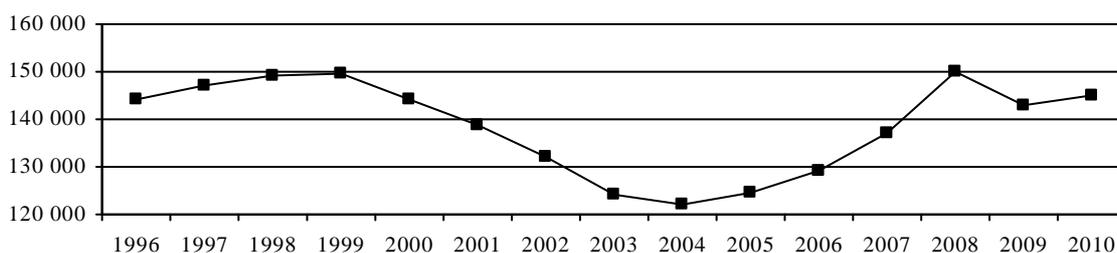
Comment: for 2010 provided value was as of 09.2010.

Source: *Raport o sytuacji finansowej sektora bankowego w okresie styczeń - wrzesień 2007 r.*, KNF, Warszawa, January 2008, p. 29; *Raport o sytuacji banków w 2007 roku*, KNF, Warszawa 2008, p. 79, 84, 86; *Raport o sytuacji banków w 2009 roku*, KNF, Warszawa 2010, p. 64, 66; <http://www.knf.gov.pl>, as of 8.03.2011.

Changes in the Polish banking business cycle were followed by changes in employment level in this sector (figures 10 and 11). Because of an increasing demand for banking services up until 1999 commercial banks were raising employment and extending their branch network. At that time also foreign banks, which were opening their branches in Poland, were creating workplaces in the sector (Branches of the foreign banks are understood here not only as branches of credit institution but also as banks which have their seat in Poland but are owned by foreigners.). Employment growth in commercial banking collapsed in 2000 because of weakening economic growth and the consequences of privatization of banks, including their restructuration.

While the Polish economy began to falter earlier (in 1998); employment in the banking sector started to decline with delay (It is a normal phenomenon that workers are not dismissed simultaneously with changes which take place in business cycles. Layoffs usually are a consequence of the changes and happen later in time). Another increase of employment in the sector started in 2005, i.e. in the period when the whole economy experienced a dynamic GDP growth. In 2003 and 2004 the economy grew by 3.9% and by 5.3% respectively (Ministerstwo Gospodarki, p. 59), employment in commercial banks incremented with delay – in 2005 (by 2.2% y/y). While another economic slowdown took place in 2008-2009, employment decline in commercial banks started at the end of this period. It confirms the opinion that banks tend to keep “workers in reserve” (Makowski, 2002, p. 78). Employment level in cooperative banks changed less dramatically and from 1998 was growing steadily (figure 11).

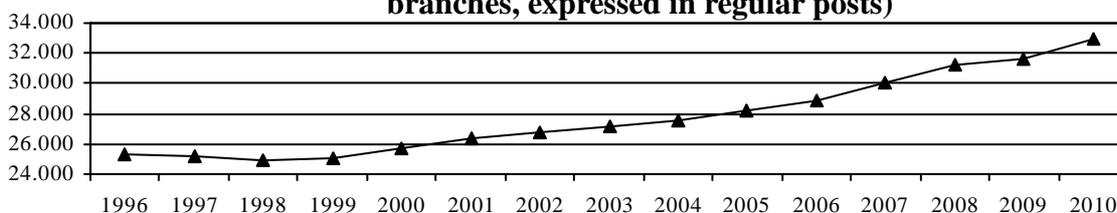
**Figure 10: Employment in commercial banks (including branches of credit institutions) in Poland in 1996-2010 (without foreign branches, expressed in regular posts)**



Comment: for 2010 was given the value for 09.2010.

Source: *Raport o sytuacji finansowej sektora bankowego w okresie styczeń - wrzesień 2007 r.*, KNF, Warszawa, January 2008, p. 28; *Raport o sytuacji banków w 2007 roku*, KNF, Warszawa 2008, p. 79, 84, 86; *Raport o sytuacji banków w 2009 roku*, KNF, Warszawa 2010, p. 64, 66; <http://www.knf.gov.pl>, as of 8.03.2011.

**Figure 11. Employment in cooperative banks in Poland in 1996-2010 (without foreign branches, expressed in regular posts)**



Comment: for 2010 was given the value for 09.2010.

Source: *Raport o sytuacji finansowej sektora bankowego w okresie styczeń - wrzesień 2007 r.*, KNF, Warszawa, styczeń 2008, zał. 6 *Liczba zatrudnionych w bankach (bez placówek zagranicznych)*, p. 28; *Raport o sytuacji banków w 2007 roku*, KNF, Warszawa 2008, p. 79, 84, 86; *Raport o sytuacji banków w 2009 roku*, KNF, Warszawa 2010, p. 64, 66; <http://www.knf.gov.pl>, as of 8.03.2011.

### 3. Years of economic increase and decrease in the banking sector – conclusions

The article provides an analysis of upward and downward tendencies of selected indicators characterizing development of the Polish banking sector. In order to recap on the findings and indicate which of the analyzed years were characterized by positive and which by negative market signals two bank groups were defined: commercial banks (including branches of credit institutions) and cooperative banks.

It was assumed that a given ratio (analyzed in the text) had undergone a significant positive change if the ratio's value in a given year was equally favorable (equal) or more favorable (higher/lower) (depending on the character of a given indicator; more information will be provided below) than the value this indicator in the previous two years. And it was understood that an indicator had undergone a significant negative change if the indicator's value in a given year was equally favorable as its value in the previous two years (table 1).

**Table 1: Values of the indicators characterizing development of the banking sector in Poland in 1996-2010**

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
DA BK	<b>112,41</b>	110,79	<b>117,23</b>	106,8	107,83	103,7	96,97	<b>103,75</b>	<b>106,53</b>	106,29	<b>111,96</b>	112,36	<b>124,77</b>	98,51	105,5
BK + OIK	81	81	<b>83</b>	77	73	69	59	58	57	<b>61</b>	<b>63</b>	<b>64</b>	<b>70</b>	67	<b>70</b>
ROA BK	.	2,1	0,7	0,9	<b>1,1</b>	1	0,5	0,5	<b>1,4</b>	<b>1,6</b>	<b>1,8</b>	<b>1,8</b>	1,6	0,9	0,8
ROE BK	.	37	9,2	12,9	<b>14,5</b>	12,8	5,2	5,4	<b>17,1</b>	<b>20,8</b>	<b>23,1</b>	22,9	21,2	11,2	8,7
WW BK median	<b>17,5</b>	<b>16,9</b>	<b>15</b>	16,6	16,2	<b>16</b>	16,8	<b>14,8</b>	16,2	15,1	<b>13,8</b>	<b>11,9</b>	<b>11,1</b>	13,3	13,9
UNZ BK	<b>13,2</b>	<b>10,5</b>	10,9	13,7	15,5	18,6	22	22,2	<b>15,6</b>	<b>11,4</b>	<b>7,7</b>	<b>5,5</b>	<b>4,8</b>	8	9
LP BK + OIK	9787	9883	9746	<b>10 428</b>	<b>11 470</b>	10 721	9965	9162	8359	8378	<b>8592</b>	<b>9464</b>	<b>10473</b>	<b>10477</b>	10 304
ZBK + ZOIK	<b>144</b>	<b>147</b>	<b>149</b>	<b>149</b>	144	138	131	124	122	<b>124</b>	<b>129</b>	<b>137</b>	<b>150</b>	142	145
	<b>201</b>	<b>095</b>	<b>067</b>	<b>638</b>	237	822	878	093	005	<b>689</b>	<b>027</b>	<b>057</b>	<b>016</b>	845	047
Bolded - increases	4	3	4	2	3	1	0	2	4	5	8	6	6	1	1
Underlined - decreases	1	1	1	3	3	5	8	5	3	0	0	0	2	5	5
More <b>positive</b> indications/ negative	<b>3</b>	<b>2</b>	<b>3</b>	1	0	4	8	3	<b>1</b>	<b>5</b>	<b>8</b>	<b>6</b>	<b>4</b>	4	4
DA BS	<b>107,14</b>	<b>108,54</b>	<b>109,86</b>	105,13	107,09	<b>113,68</b>	106,93	108,92	108,36	<b>115,98</b>	<b>123,23</b>	113,31	110,9	105,47	105,26
BS	1394	1295	1189	781	680	642	605	600	596	588	584	581	579	576	576
ROA BS	.	2	1,4	1,4	<b>1,8</b>	1,6	1,6	1,2	<b>1,8</b>	1,6	1,3	1,5	<b>1,7</b>	1,2	0,9
ROE BS	.	30,8	17,9	17,9	<b>22,8</b>	19,4	18,2	12,2	<b>18,3</b>	17,6	14,5	17,2	<b>19,3</b>	12,7	8,9
WW BS median	<b>11,7</b>	12,4	12,9	13,5	13,8	15,4	15,5	15,8	15,7	16,0	15,3	<b>15,3</b>	<b>13,1</b>	13,4	13,5
UNZ BS	<b>5,3</b>	<b>3,7</b>	<b>3,5</b>	3,6	4,5	6,2	7,3	7,2	<b>5,5</b>	<b>4,9</b>	<b>4</b>	<b>3</b>	<b>2,8</b>	3,4	3,8
LP BS	2530	2550	<b>2587</b>	<b>2619</b>	<b>2708</b>	<b>2878</b>	<b>3046</b>	<b>3162</b>	<b>3388</b>	<b>3598</b>	<b>3799</b>	<b>4010</b>	<b>4205</b>	<b>4374</b>	4389
ZBS	25 333	25 132	24 977	25 110	<b>25 697</b>	<b>26 403</b>	<b>26 819</b>	<b>27 161</b>	<b>27 600</b>	<b>28 265</b>	<b>28 904</b>	<b>30 105</b>	<b>31 175</b>	<b>31 722</b>	<b>32 938</b>
Bolded – increases	3	2	3	1	4	3	2	2	5	4	4	4	6	2	1
Underlined - decreases	1	1	3	5	3	3	6	4	1	2	3	2	1	5	6
More <b>positive</b> indications/ negative	<b>2</b>	<b>1</b>	0	4	<b>1</b>	0	4	2	<b>4</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>5</b>	3	5

Comment: for 2010 was given the value for 09.2010; following abbreviations were used: DA – real assets dynamics (preceding years = 100), BK – commercial banks, OIK – credit institutions branches, BS – cooperative banks, ROA – return on assets (in per cent), ROE – return on equity (in per cent), WW – solvency ratio (in per cent), UNZ – share of the non-performing loans in total non financial liabilities (in per cent), LP – number of branches, ZBK – employment in the commercial banks, ZOIK – employment in the branches of credit institutions, ZBS – employment in the cooperative banks. In the columns for 1996-2010 bolded values are for incrementing years, underlined for declining years.

Source: own calculations and compilations based on figures 1-11.

It was assumed that the dynamics of assets, the number of banks, ROA, ROE, the number of branches and employment level are positively correlated and associated with the growth of the banking sector. In the case of the solvency ratio (it was assumed that in the years of positive business cycle, banks tend to unlock their capital, and the increase of the credit action contributes to the decrease of the solvency ratio and vice versa) and the share of non-performing loans it was assumed that their value is negatively correlated with the growth of the sector. These conclusions led to the definition of further positive and negative changes of indicators which were later included in the analysis. The next step consisted in summing up of all the positive and negative changes indicated in each and every of the analyzed years. Years which gathered more positive than negative indications were recognized as years with general upward tendency and years which got greater number of negative indications were considered to be years of economic slowdown in the banking sector. In the case of equal number of positive and negative indications a given year was treated as a neutral period.

Results provided by the conducted analysis lead to the following conclusions:

- changes in business cycle in the banking sector caused different reactions in commercial banks than in cooperative banks,
- years 2005-2008 were best for commercial banks,
- years 2004-2008 were best for cooperative banks,
- periods 2001-2002 and 2009-2010 were toughest for commercial banks,
- years 1999, 2002, 2009-2010 were toughest for cooperative banks,
- volatility of the banking sector after 2000 was stronger than ever before. Both negative and positive indicators did not tend to appear so often before 2000, both in commercial as well as in cooperative banks.

It should be noted that the most profound changes in the banking business cycle in Poland were observed in 2009. At that time the predominance of positive indications (recorded in 2008) gave way to negative indications – change by eight points in the case of commercial banks (from four positive indications to four negative indications) and by eight points in the case of cooperative banks (from five positive indications to three negative). In no other analyzed period changes in the nature of indications were so radical.

R. Campbell suggests that the economy needs an anti-crisis plan (Campbell, 1999, p. ix). A similar plan would definitely come in useful in the management of the Polish banking sector. And it seems that the next development phase of the sector in Poland will very much focus on the creation of such plans. In fact, stress tests organized by the European Banking Authority seem to be a good starting point for this kind of initiatives (<http://in.reuters.com/article/2011/03/08/idINIndia-55400320110308>, as of 8.03.2011).

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## MOBILE BANKING: BANKS TURN TO MOBILITY IN TIMES OF GLOBAL FINANCIAL CRISIS!?

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**Abstract:** *In the domain of creating innovative mobile banking business solutions, designers and business model developers focus on comprehending and meeting people's specific requirements. The financial crisis of our time can not be the end of innovation. Mobile banking can be seen as a catalyst for improving bank performance, and in that sense it is necessary to focus on the role of innovative business solutions, enabling a better understanding of the potential for gain, the business case, and the attributes of successful implementations. But the question that arises is how the global financial crisis affected the mobile banking market.*

**Key words:** Bank, Financial Crisis, Innovation in Banking Sector, Mobile Banking, Utility

**JEL classification:** O10- Economic Development, Technological Change, and Growth; General

### 1. Introduction

The spread of mobile phones across the world is one of the most remarkable technology stones of the past decade, and combined with the wide-ranging economic developments and integration of world economies, it has played a definite role in people's social lives. The mobile banking market is characterized with a history of numerous tried and failed solutions, and a future of promising but yet uncertain possibilities and innovations.

The financial crisis cannot mean the end of innovation and further progress in this domain. Let's remember that some of the greatest innovations of the past century were created and improved during times of economic hardship, why shouldn't this be the case with mobile banking?! The use of mobile banking is an increasingly important component of national and regional economic development, which can help bring the large unbanked population in developing countries into the formal financial sector, enable faster and more efficient financial transfers, and increase the volume of trade and subsequent payments. Continued economic integration and the new delivery channels for financial services, will increase opportunities for banks to deliver financial services to remote areas. But it is time to start asking the right questions, like, how is the behavior of customers changing, how can they be better engaged and when does that engagement occur? The use of mobile banking should be an absolute priority for the banking market, and with this comprehensive analysis we will point out the role of innovative business solutions and their position in today's world economies, by pointing out the pros and contras for mobile banking mass adoption.

### 2. Movements in the Banking Sector

The creation of an EU-wide single domestic market has led to intensification of competition in the EU in all business fields including the banking sector. The ongoing globalization has further

intensified the competition. Technical developments, particularly the Internet, coupled with the process of globalization, have made it possible for banks (credit- as well as financial institutions) to offer their services in far-flung areas without investing money to build branches and hire additional staff (Tiwari; Buse, 2007, p. 110). In this sense the bank gets access to new markets, but it also faces with increased competition on its home turf. It is necessary to retain the existing customer base while simultaneously trying to acquire new, economically prosperous customers. The globalization and the technological development have reduced entry barriers so that the number of available reputed brands has increased significantly, thereby intensifying the competition.

A strategic shift for banks is a new focus on bringing financial services to the unbanked- those without easy access to traditional banking channels. Very poor people in emerging economies not only have a surprising degree of interest in financial services but also, when possible, use them enthusiastically. Mobile banking is gaining more popularity with the under-banked than it is with conventional bank customers. For the under-banked, which use the service with prepaid cards, the attraction of mobile banking lies in its price, ease-of-access and portability, compared to other means of going online. Banks in emerging economies have a unique opportunity, to acquire an untapped population of unbanked and under-banked customers, and revolutionize the way banking and payment services are delivered. In parts of Latin America, Africa, the Middle East and Asia, more than 90 percent of people typically carry at least one mobile phone, a technological tether that had to be exploited. Most regions will roughly retain their percentage of global mobile banking users in the next three years, with Western Europe accounting for the second-highest percentage of users and the Middle East and Africa and North America tying for the third-highest percentage. Mobile banking has been going on strong in Asia. The number of mobile banking users worldwide is forecasted to grow in the next few years with Asia accounting for over half that number. The combination of large bases of phone savvy consumers and low internet penetration makes the mobile phone the obvious choice over internet banking as the self service channel.

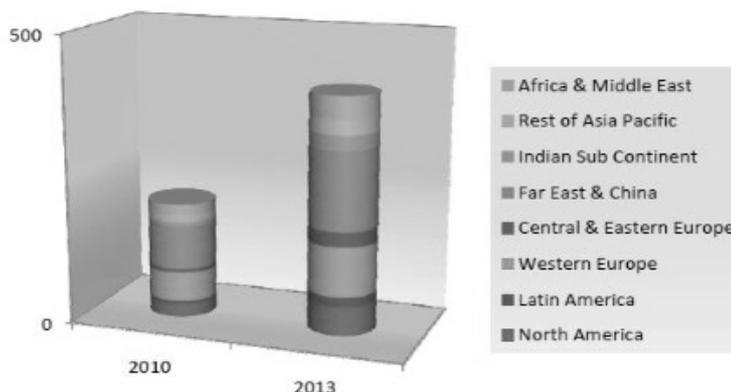
### **3. Financial crisis as the catalyst of Mobile Banking**

The financial crisis from 2007 to the present is considered by many economists to be the worst financial crisis since the Great Depression of the 1930-s. Although there have been aftershocks, the financial crisis officially ended in 2008. In these difficult times of crisis there were some brave tries to induct some innovative business solutions. So was also WING, a business that has been established by ANZ, one of the top 40 global banks, to create a mobile payments capability in an emerging market. WING was launched on 21 January 2009 by ANZ Chief Executive Officer, Mike Smith, and the Deputy Governor of the National Bank of Cambodia, Her Excellency Neav Chanthana. This followed a two month pilot period, where a small number of customers completed transactional activity and WING tested systems and business processes. Since the launch, WING has been actively increasing its customer base through a mix of marketing and sales activities. Like the rest of the world, Cambodia was seeing the flow-on effects of the global financial crisis (Rosenberg, 2009). Although they were in an early stage of development and growth, they did not notice a huge impact on their business. Establishing WING during this period meant that they are going to be well-placed to continue to grow their business as the business environment picks up.

Some research predicted that Mobile Banking would go mainstream as consumers seek more immediate access to their financial status. That happened during the financial crisis, where the mobile channel is increasingly being perceived by consumers and banks as a way for people to track and control their financial status in a more immediate manner during the financial crisis. In "Mobile Banking Goes Mainstream," Juniper Research forecasts that slightly more than 200 million mobile phone users will have made use of their mobile device for banking information purposes by the end of 2010 (Juniper Research, 2010). This technology is now established and widely available. By

2013, Juniper expects that number to hit 400 million, which indicates the crisis had a positive influence on the development of mobile banking.

**Figure 1: Total Mobile Phone Users (m) who use Mobile Banking Information Services Split by 8 Key Regions 2010 & 2013**

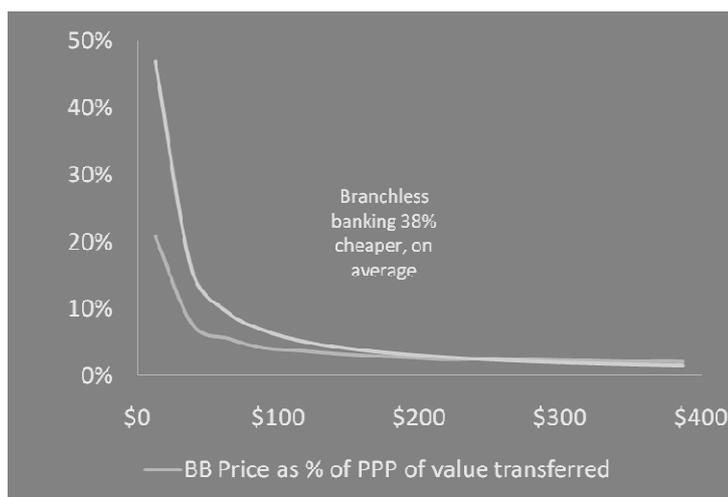


Source: Juniper Research

Financial crisis affects the customers not only economically but also psychologically. People become more money minded. They do not want to spend money on premium products anymore, even if they still could afford to do so. They only buy necessities, switch to cheaper brands and have a more rational view on promotion. They start to compare different products and select based on price compromising quality (Nistorescu and Puiu, 2009).

At that point the comparison of mobile banking and traditional ways of payment revealed mobile banking to be cheaper in comparison to formal banks. CGAP studied prices at 16 branchless banking providers and 10 traditional banks across 10 countries and 8 use cases and found that branchless banking is 19% cheaper than traditional banking overall and 38% cheaper at lower values at which poor people are likely to transact. Customer usage is influenced not only by absolute prices but by the way a service is priced. The study done by CGAP also elaborates on how three billion mobile users living in developing countries have fewer options of transferring money and accessing banks as there is less formal banking infrastructure.

**Figure 2: CGAP analysis- Comparison of branchless and traditional banking**



Source: CGAP analysis; PPP-Purchasing Power Parity

The social impacts of the financial crisis can be seen more obvious in the developing countries where the poor are being severely hurt during the crisis as demand for their labor falls, prices of essential commodities rise substantially and social services are cut. A significant number of people using new technologies such as mobile phones to access financial services in developing countries

are completely new clients for the financial services industry, according to new research by CGAP. The growing interest of mobile banking in recent years has, until now, largely lacked data showing whether it delivers on potential to bring the poor into the formal economy.

Banks and Financial institutions have an incredibly important role to help avoid another financial crisis by simply explaining to their clients the nature and features of their financial products. The most prosper marketing strategy promising of long term growth and customer loyalty is the one that allows the integration and innovation among the various marketing mix components such as, non-traditional payment ways with fair pricing. The less personal the product is the lower the need to remain loyal to that brand. It is known that in the situation of a financial crisis, consumers can only afford to remain loyal to fewer products; therefore every brand must strive to be among these brands.

The question that logically follows is why banks should even in the first place consider turning to mobility, i.e. mobile banking. Let's start with the stimulating factors:

### 1. Sophisticated Technology

It seems like mobile banking has been the next big thing and the banking way of the future for quite a number of years, what is different this time? Perhaps have mobile devices finally reached the level of sophistication required for a user-friendly experience, beyond the text message alerts and WAP navigation. Over the past several years, consumers have made smartphones their preferred mobile devices. Smartphones allow users to make calls send and receive e-mail and text messages, browse the Web, and perform many other tasks by downloading free or low-cost software applications or "apps." Like automated teller machines "ATMs" and online banking services, smartphones are giving consumers more options. By being able to access account information and perform transactions without requiring access to bank branches, ATMs, or computers, consumers are able to "bank" wherever and whenever they want- and they are learning to expect such convenience.

### 2. Synergy of delivery channels

Most large banks have made substantial investments in mobile banking capabilities, and smaller financial institutions are not far behind. Banks are recommended to leverage other delivery channels to create synergies with the self-service model and utilize the full spectrum of device capabilities. It is important to think outside the bank's customer base, and to build stronger ties with customers that currently do not have a relationship with a bank, such as current unbanked customers with no bank accounts, ethnic markets and new generational users.

### 3. Broader view of customers habits

Unlike supermarkets, department stores, and other businesses that see only one dimension of consumers' spending habits, banks have a broader view of what their customers buy and where they like to shop. This puts banks in a specific position to develop a new line of business focused on bundling data analytics for retailers and other entities, while maintaining the privacy of individual customers' information.

### 4. Real-time access

Mobile banking is delivering greater real-time access to products and services and makes it possible to offer discounts and to purchase incentives to bank customers. Despite the popularity of mobile banking among younger market segments, many customers are unaware of the powerful value proposition that mobile channel affords. Banks need to educate their customers to the benefits of mobile banking and make sure they differentiate themselves from other competing solutions.

But the situation isn't superbly as it seems, there are also "problems" that occur during the implementation of mobile banking business models, like:

#### 5. Partnership model complexity

To achieve operational efficiencies and realize the full growth potential, banks will need to work on the complex integration and efficient partnership model, which means that banks need to manage a multitude of partners, such as telecom operators, retailers, mobile device manufactures and many other stakeholders. The attention should be paid on the customer and his needs, so it is important to make a user-centric working business solution.

#### 6. Lack of cooperation and standardization

It is generally accepted that cooperation between stakeholders (at the least financial institutions and mobile network operators) is required to bring mobile payments to the mass market. While mobile network operators have tried in the past to address the market independently they have generally found it difficult as they lack the financial and risk management expertise of the financial institutions. Thereby the result was a partly success. The lack of standardization has been detected as the main cause of inability of establishing cooperation between the stakeholders. It is difficult to achieve collective standards, because of the large number of stakeholders in the mobile banking market. Each of them has its own standards and rules, so there is a need for a technological and organizational consensus between the players in the industry. This aspect has to be treated as a national and international question, but it may be complicated to determine the responsibilities and division of work between the national and international legislative bodies.

#### 7. Resistance among consumers

One of the major causes for market failure of innovations is the resistance they meet among consumers. Some authors suggest functional and psychological barriers to innovation adoption. They divide functional barriers into usage, value and risk barriers, while psychological barriers include tradition and image barriers. (Tiwari, Buse, 2007).

The usage barrier is probably the most common cause for customer resistance to innovations, considering that it refers to the compatibility with existing practices and habits.

The value barrier, for its part, is based on the monetary value of an innovation referring to an idea that if the innovation does not offer a strong performance-to-price compared to its substitutes, it is not worth while for consumers to change their ways of performing their tasks.

Among psychological barriers, the tradition barrier mainly implies the change an innovation may cause in daily routines. If the routines are important to a consumer, the tradition barrier will most likely be high. So it is necessary to adjust the innovative payment way to the daily consumer habits.

The image barrier, for its part, arises since innovations attain a certain identity from their origins like the product category to which they belong, the country of origin or brand.

Least but not last, we are going to describe the risk barriers, which represent one kind of functional barriers, and require additional attention. The risk barrier refers to the degree of risks of an innovation. In the complex process of adaption and establishment of new mobile banking business models there is a whole range of risks and issues that come to mind, like shown in the next table.

**Table 1: Risk barriers**

<b>Physical</b>	<b>Functional</b>	<b>Social</b>	<b>Economic</b>
<b>Privacy issues-</b> user skepticism can be explained by the demand of necessary personal data during the payment process	<b>Testing of the business model-</b> if it is a clear and appropriate business model that will lead to mass acceptance	<b>Identity theft and theft of mobile devices-</b> the higher quality and more secure authentication	<b>Profitability of the payment solution-</b> for both vendor and customer
<b>Fraud-</b> one of the great risks that come with the emergence of global remittance of money via mobile. As the mobile banking business models emerge they process is followed with spam, and steal of personal financial information. Fraud Management will require additional cost and complexity of the process, which will further complicate entering the mobile banking market	<b>Financial regulations and legislation-</b> necessary when we know that in some countries, telecom operators are not allowed to assume the role of financial institutions. It is precisely that the regulations are the main reason that many non-financial organizations had been kept away from these services	<b>Customer experiences-</b> one of the crucial and basic issues in creating a reliable and successful business model. Customers are looking for reliable and easy ways to pay, and if they are not satisfied with the offered business models, there is no intention to withdraw from traditional payment methods. A lot of work still has to be done in this field, in order to improve the acceptability of the user	<b>The traditional banking risks-</b> such as credit risk, liquidity risk, interest rate risk and market risk can also arise from activities related to electronic money and mobile banking. Therefore this kind of risks is essential in mobile banking risk management process, which consists of three main elements: risk assessment, exposure control and risk monitoring. It is necessary to perform continuous measurement, assessment and management of all risks to which the business model is exposed
<b>Security-</b> remains an important question, which is necessary to solve during the establishment of mobile banking business models. Security is more related to the fear of financial loss, whereas privacy is connected to the ethical treatment of the personal information of the customer	<b>Lack of technological interoperability-</b> that might find a solution in the NFC technology, as it will make it possible to move payments from one bidder to another and from one country to another		<b>The cost and pricing issues-</b> are issues like expensive tariffs of mobile networks which the carriers are willing to lower only if, and when, banks can increase the volume of the utilization. Banks on the other hand demand lower tariffs in order to increase the volume. This contradiction is yet to be solved

#### 4. Utility of Mobile Banking

After listing the pros and contras of mobile banking the question of utility of mobile banking imposes as crucial to describe. We emphasize the utility with reference to mobile banking as a distribution channel, a source of revenue, a business model and an image product. In order to examine the utility of mobile banking for banks it is imperative to at first understand the business environment in which banks operate and to identify customer groups that the banks seek to target via mobile banking.

##### 4.1. Target Customer Groups

It is necessary to detect the core customer groups, which might be specifically targeted by banks with Mobile Banking services. Core target groups of Mobile Banking can be divided in three categories (eResult, 2004, p. 72):

1. *The Youngsters*: The segment of 14–18 years old youth has acquired an important role in the growth of mobile telecommunications and related services. This group is reported to be technology-savvy and willing to experiment with innovative products and services. The youngsters, often on the move, demand ubiquitous, anytime service. Though the youngsters as a group are hardly relevant for banks from a financial perspective, they represent the prospective clientele of tomorrow and need to be cultivated in the middle to long-term marketing strategy of the banks.

2. *The Young Adults*: eResult refers to the group of young adults, i.e. students and trainees, as “on liners”. Also this segment is thought to be technology- and innovation friendly. Though this group is financially not very strong either, many members of this group are known to be involved in stock market activities and are increasingly attractive for banks. Further, this group can be expected to enter in short to middle-run a professional carrier so that it needs to be cultivated in order to retain customers of this age-group once they enter professional lives.

3. *The Business People*: this group of customers, generally in the age group of 25–36 years, is thought to be the most important one for Mobile Banking. Members of this group are generally well educated and economically well-off. They need to be often on the move for professional reasons. Therefore, they carry mobile devices to ensure accessibility. For this reason they are ideal candidates to use services offered via mobile devices (eResult, 2004, p. 72). From the banks’ perspective this group is particularly attractive on account of its relative economic prosperity and the need for financial services, e.g. home loans for young families. Such a group of customers is generally looking forward to do business with known and trusted brands that simultaneously offer individual advisory services (Mustafa et al., 2002, p. 358).

In order to cater to requirements of these above-mentioned customer groups banks tend to look at mobile banking as a promising option. However, these services apart from being an add-on feature for the targeted customer groups also have their own utility for the banks.

##### 4.2. Mobile Banking as Distribution Channel

Mobile Banking enhances the number of existing channels of distribution that a bank employs to offer its services. The term ‘distribution channel’ hereby indicates a medium of delivery that a vendor employs to deliver his products or services to customers. One of the primary tasks of a distribution channel is to increase the volume of demand for products at profitable prices (Luber, 2004, p. 142).

Mobile Banking can contribute to achieve this goal by following means (Luber, 2004, pp. 142-143):

1. Anytime, anywhere access to banking services;
2. Availability of push services to suggest transactions on an urgent basis, e.g. to sell certain stocks when a crisis erupts;
3. Face-to-face talks with the personal consultant via video telephony.

The role of a distribution channel is to efficiently reduce distribution costs and to optimize business processes by rationalizing organizational structures and increasing productivity.

Mobile Banking may help a bank increase the customer satisfaction ratio by adopting the following means (Luber, 2004, pp. 146-148):

1. Streamlining of business processes to increase efficiency;
2. More attention and better consulting for individual customers due to automation of routine processes;
3. Innovative “anywhere, anytime” services customized for individual preferences and the current geographic location of the customer provide value-added to the customer;
4. The collected data can be utilized to create customer profiles.
- 5.

#### **4.3. Mobile Banking as Source of Revenue**

Mobile Banking can be seen as an enormous source of revenue. Mobile Services can be offered on a premium basis, but attention should be paid on a reasonable price, so that customers are willing to pay them. But from the financial point of view the cost should be higher than the cost incurred by the bank.

Additional revenues can be generated in two ways:

1. Offering innovative, premium services to existing customers;
2. Attracting new customers by offering innovative services. New customers contribute to revenue generation not only by utilizing mobile services but also by using other conventional distribution channels.

#### **4.4. Mobile Banking as Business Model**

The idea of using Mobile Banking as business model seems to have been derived from the business model of direct banks that offer their services exclusively via Internet or telephone and that do not run or maintain branch offices. Mobile Banking as a stand-alone business model means that banking- and financial services are to be offered exclusively via the earlier mentioned mobile distribution channel, all other distribution channels are, as a consequence, dismantled. The business viability of such an option is, however, questionable. Until now Mobile Banking was offered as an additional service in combination with other distribution channels, e.g. Internet Banking. It represented a kind of upgrade of the earlier services.

#### **4.5. Mobile Banking as Image Product**

Finally, Mobile Banking can be also used as an image product to gain strategic advantages. The bank may hope to win or retain a positive image amongst technology-savvy sections of the society and strengthen the brand reputation of being innovative and visionary (Georgi/Pinkl, 2005, p. 60). The image of being a technology leader can help the bank win customers who are looking for modern products and services and at the same time help it retain its own existing base of technology-savvy customers, some of whom otherwise might have switched to other banks while looking for such a product. But the risk of incurring financial and image losses in the case of a failure of the propagated technology should not be overlooked. It is necessary to make a clear business analysis before releasing pilots or even final business solutions.

### **5. Conclusion**

The aim of our paper was to describe how the global financial crisis impacted innovative business solutions, precisely mobile banking. Business Intelligence is a vital need for the banking industry, in that sense we conclude that valiant actions in terms of investments in innovative payment solutions represent the right way to go. The financial crisis provoked mobile banking to go mainstream as consumers seek more immediate access to their financial status. Mobile banking is increasingly being perceived by consumers and banks as a way for people to track and control their financial status in a more immediate manner during the financial crisis. In that sense a few factors should be utilized, first, the everyday growing number of mobile subscribers. Second, the cost and time reduction of mobile banking in compared to traditional banking. Finally, a special focus should be put on the unbanked and under-banked. Banks in emerging economies have a unique opportunity, to acquire an untapped population of unbanked and under-banked consumers, and revolutionize the way banking and payment services are delivered. These categories are being severely hurt during the crisis, thus the moment is right to provide them qualitative services that

they can afford. Such opportunities are the right moment to win new clients, increase the customer base and ultimately overcome the financial crisis in the best manner.

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## TAX WEDGE AND EMPLOYEES ALTERNATIVE REMUNERATION: AN ASSESSMENT OF THE INCIDENCE ON ROMANIAN COMPANIES

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**Abstract:** *The paper uses data from Bucharest Stock Exchange in order to assess if companies who use alternative remuneration of employees that minimizes the tax wedge enjoy higher rate of returns than companies who did not use such tools. We have focused on meal vouchers granted to employees, as these are the most common tool used by Romanian companies when comes to reduce the tax wedge. We have found significant differences in ROA and ROE for the two groups of companies, although the effect size is quite small.*

**Key words:** tax wedge, alternative remuneration, rates of return

**JEL classification:** H22, H25

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### 1. Introduction

Fighting the crisis in Romania could mean searching for ways to diminish the labour costs that a company has to bear, especially when social contributions for which the statutory incidence fall on companies themselves are relatively high. From this point of view, Romania impose high social contribution rates for companies, that poses a supplementary fiscal strain, in spite of the fact that corporate income tax is relatively low (16%). Thus, the main motivation of the study resides in the fact that despite the low corporate income tax, the main problem that companies complain about it when doing business is still related to the excessive fiscal burden as perceived by executives, but also by several well-established reports. The World Bank Global Competitiveness Report 2009–2010 identifies among the most problematic factors for doing business in Romania tax regulations (ranked no. 1 out of 15) and tax rates (ranked no. 4 out of 15). Also, there are several indigenous surveys (CNIPMMR, 2007) that point out the increased social contributions borne by companies as the major difficulty for small and medium enterprises. So, it is quite unusual that companies from a country with very low wages to complain about labour costs. This intrigues us and made us eager to search for possible remedies to overcome this problem.

Generally speaking, Romania is perceived abroad as a country of new enlarged Europe, which generously embraced flat tax, and thus enjoying a friendly taxation both for companies and individuals. A deeper look at the issue, triggered by the surveys mentioned above, reveals the fact that labour is quite heavily “taxed”, thus increasing the labour costs that a company has to cope with. Indeed, when analyzing the tax wedge (i.e. the difference between the employer's labour costs and the employee's net take-home pay, including any cash benefits from government welfare programmes - Eurostat), one can easily see that Romania is on eighth position in Europe, behind countries like Belgium, Hungary, Germany, France, Austria, Italy, Sweden, but ahead of Finland, Denmark, Greece, Spain, Netherlands, Portugal and United Kingdom (Eurostat). When comparing the annual average and monthly minimum wage, Romania is placed on the second position from the

bottom, just ahead of Bulgaria (5464 EUR for 2008, respectively 137 EUR for July 2010 as oppose to 3328 EUR, respectively 123 EUR for Bulgaria, while the top rated countries are Denmark with an annual average wage of 55001 EUR and Luxembourg with the minimum monthly wage of 1725 EUR (Eurostat). So, Romania “enjoys” a top ten position for tax wedge, while scoring very poorly on annual average and monthly minimum wage. This situation is quite common among ex-communist countries and needs further insights, but this is beyond the scope of this paper.

In this framework, we try to identify the tools that a company can use in order to diminish the tax wedge and thus reducing the labour costs, without the corresponding reduction in the take-home payment of the employees. Basically, we will focus on the most common fiscal incentives that Romanian companies may use, i.e. meal vouchers, and try to evaluate their impact and, on this basis, to see if the companies who have chosen to make use of such tools enjoys higher returns than companies who did not use such incentives. For the scope of this paper we will use INFIN database, a database that was created by the author through a research grant and which contains detailed financial data reported by the Bucharest Stock Exchange listed companies for the period 2000 – 2009. The meal vouchers that a company benefits were reported starting from 2004, thus our analysis will cover 2004 – 2009 period. The paper contributes to the existing literature in several ways: i) it is the first who tries to evaluate the impact of alternative employees’ remuneration for the most representative Romania’s companies; ii) it uses the data from financial reports for companies listed at Bucharest Stock Exchange for 2004 – 2009 period. Evaluating the impact of alternative employees’ remuneration is not an easy task, merely due to the difficulty of acquiring the data, which are not currently available in specific databases (Amadeus, BACH etc.)

We find that on average companies who additionally pay their employees using meal vouchers enjoys higher rates of returns than companies who choose not to do so. Also, we have find that companies in the hotels and restaurant sector enjoys the higher meal vouchers to turnover ratio, while those from energy sector enjoys the lowest. Also, we have find that rate on assets, rate on equity and net profit margin are on average negative for companies that did not use meal vouchers, while for companies who made use of them, they all are positive.

The paper is organized as follows: section 2 briefly discuss alternative employees’ remuneration in Romania focusing on tax savings generated by meal vouchers, section 3 presents the methodology used and results and section 4 concludes.

## **2. A brief description of alternative employees’ remuneration in Romania**

There are several alternative tools that companies may use in order to remunerate their employees without being charged too much under existing social contributions schemes. The most internationally spread is the so-called Employee Stock Options plan, under which employees have the right, but not the obligation, to buy a certain amount of company’s stocks at a predetermined price, and thus becoming interested in increasing the profitability of company. This type of option is not generally traded on an exchange, being merely targeted to increase the overall remuneration of employees. Although permitted by the law, Romanian listed companies do not provide such an alternative remuneration of employees, mainly due to the lack of financial education, thus they do not meet the scope of our paper.

The most common employees’ alternative remuneration used in Romania consists in granting special vouchers to employees, which do not fall under social contributions scheme. Moreover, these special vouchers were not taxed under personal income tax until July 2010, which made a fiscal tool very appealing both for employers and employees. In fact, for this type of remuneration, the tax wedge has been effectively reduced to zero. These vouchers are of many types (meal vouchers, gift vouchers, childcare vouchers). On this paper, we will focus on meal vouchers, which are the most common.

Beside these vouchers, employees can also receive a series of fringe benefits such housing, company cars, private insurances, etc., but these are taxed under personal income tax and are generally available only for management positions. Moreover, some of these fringe benefits are only partial deductible at company level (when computing taxable profits). All these make that this

kind of alternative remuneration to be not so widespread, and its impact to be generally insignificant.

For the scope of the present paper, we will focus on meal vouchers that companies granted to their employees and try to establish if the companies that use such alternative remuneration enjoy a higher returns than companies that choose not to use it. The companies taken into study are non-financial companies traded at Bucharest Stock Exchange. The period surveyed is 2004 – 2009. Even if these type of alternative remuneration was instituted starting from 1999, companies began to report them explicitly since 2004, so this will be the first year taken into survey.

Trying to assess the impact of alternative remuneration on company's performance must take into account the fiscal savings generated by such a decision. Not bearing social contributions, meal vouchers remuneration reduces the labour costs and thus increases the profit by comparisons to the situation in which a company opt for cash remuneration instead of vouchers. This can be illustrated by a very simple example, when company decides to increase the gross salaries of employees with 1000 monetary units.

**Table no.1. Fiscal savings generated by meal vouchers remuneration by comparison to cash remuneration**

	Cash remuneration	Vouchers remuneration
Gross wages	+1000	+1000
Labor costs	+1000(1+e)	+1000
Gross profits	-1000(1+e)	-1000
Corporate income tax	-1000(1+e)*t	-1000*t
Net profits	-(1-t)*1000(1+e)	-(1-t)*1000
e = aggregate social contribution rates for which the statutory incidence falls on company itself; t = corporate income tax rate		

Source: own computations

When company decides to pays its employees by granting them meal vouchers instead of cash, it records fiscal savings of  $(1-t)*e$ . Thus, the net profit will be with  $(1-t)*e$  larger in the case of meal vouchers remuneration than in the case of cash remuneration.

The same reasoning can be made for employees. By receiving meal vouchers instead of cash they enjoy fiscal savings of  $p+c(1-p)$ , where  $p$  = personal income tax rate and  $c$  = aggregate social contribution rates for employees. Thus, the vouchers offer fiscal incentives for both employers and employees, making them one of the most desirable forms of alternative remuneration.

### 3. Methodology and results

Bearing this as the major motivation for our study, our paper tries to reveal if the company who made use of such tools enjoys higher returns than the companies who did not make use of meal vouchers at all. In order to accomplish this we choose to perform an independent t-test for companies traded at Bucharest Stock Exchange.

Thus, since our research question is: "Are companies that made use of meal vouchers enjoying higher rates of return than companies that did not make use of them?" we choose to perform relevant statistic tests concerning means comparisons between the two groups of companies. The rate of returns that we choose to investigate are the most common ones, respectively returns on asset (ROA) and returns on equity (ROE). Supplementary, we investigate the net profit margin (NPM) seen as after tax profit to sales ratio.

Using INFIN database, a database that was created by the author and which covers non-financial companies traded at Bucharest Stock Exchange we have been able to compute the rates of return for sixty non-financial companies regularly traded in 2000 – 2009 period. As meal vouchers were reported starting from 2004, we have focused our analysis only for the 2004 – 2009 period. Our database contains 600 company-years (60 companies \* 10 years period). For some companies we have been able to gather data for meal vouchers prior to 2004, while for others we did not get

the data from financial reports, because of different standard of reporting. Not even an express demand could not provide the missing data. Nevertheless, from the maximum 360 company years for the period 2004 – 2009 we have been able to get 342 company-years, representing 95% of the total cases. So, our sample consists in 342 company-years which we consider that is just enough to reveal the picture.

In order to eliminate the disturbances inducted by the size class of the companies we decide to present the items taken from the balance sheet as a percentage of total assets, while the items from profit and loss account were presented as a percentage of turnover. This is the general procedure when dealing with the micro-backward looking methodology based on data from companies financial reports. For details, see Nicodeme G. (2007), which made use of the BACH database.

INFIN database groups companies on their sector of activity, which allows further intersectoral comparisons.

Descriptive statistics for meal vouchers granted by Bucharest Stock Exchange traded companies are presented in the following table:

**Table no.2. Descriptive statistics for meal vouchers granting companies**

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Meal vouchers	342	,0000	6,7069	1,162919	1,1294999
Valid N (listwise)	342				

Source: INFIN database

The maximum amount of meal vouchers granted to employees is 6.7069% of the turnover, while there are 8 companies and 39 companies-years that not provide meal vouchers at all. The situation is depicted in the following table.

**Table no. 3. The number of companies which did not grant any meal vouchers**

Year	2004	2005	2006	2007	2008	2009
No. of companies	8	7	9	5	6	4

Source: INFIN database

The year 2009 was the one with the minimum number of companies which chosen not to use such an alternative form of remunerating its own employees. We put this on the effect of the economic crisis that constrained companies to make use of every fiscal incentive available in order to overpass the financial distress. The maximum amount of meal vouchers as percent of the turnover was also attained in the year 2009. In the actual framework of major financial distress every saving the company made could pave the way towards surviving and over passing the crisis.

When performing a sector analysis we have found that companies from hotels and restaurants have the highest ratio of meal vouchers, while energy sector has the lowest ratio.

The situation depicted in table above can be explained by the fact that sectors that are more labour intensive are more likely to make use on a larger scale of these fiscal incentives than companies who are more capital intensive.

In order to see if the companies who have higher meal vouchers to turnover ratio enjoy higher rates of return we will compare means for the two groups of companies. The assumption of normality was not met (see table no.5, so we decide to perform a Mann-Whitney U test) on the two groups of companies. Mann-Whitney test uses ranks of data for the independent variable (meal vouchers - MV), which made us to create a categorical variable (e.g. MVc). This variable takes the value of 1 if there is no meal vouchers value for any given company-year, and the value of 2 if the meal vouchers value for any given company-year is greater than 0.

**Table no.4. Descriptive statistics for meal vouchers granting for NACE activities**

<b>Descriptive Statistics</b>						
NACE activities		N	Minimum	Maximum	Mean	Std. Deviation
Extractive industry	Meal vouchers	10	,0000	,7958	,407998	,2858274
	Valid N (listwise)	10				
Manufacturing industry	Meal vouchers	242	,0000	6,7069	1,264889	1,1548501
	Valid N (listwise)	242				
Energy	Meal vouchers	6	,1159	,2670	,161749	,0551718
	Valid N (listwise)	6				
Construction	Meal vouchers	24	,0000	2,8718	,727434	,7511045
	Valid N (listwise)	24				
Commerce	Meal vouchers	24	,0000	,8622	,270677	,2686250
	Valid N (listwise)	24				
Transport	Meal vouchers	18	,0000	2,6208	1,523255	,7260213
	Valid N (listwise)	18				
Hotels and restaurants	Meal vouchers	18	,0000	3,9306	1,955090	1,4902506
	Valid N (listwise)	18				

Source: INFIN database

**Table no.5. Test of normality for meal vouchers variable**

<b>Tests of Normality</b>						
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Meal vouchers	,152	342	,000	,862	342	,000

a. Lilliefors Significance Correction

Source: INFIN database

Since our tests are significant (Sig. < 0.05), this means that the scores are significantly different from a normal distribution, therefore our data are not normally distributed (as we expect).

The results of our Mann-Whitney test are shown in table no. 6.

For return on assets ratio (ROA), the Mann-Whitney test shows significant difference ( $p = 0.025 <$

0.05) between companies who granted meal vouchers to their employees (Md = 3.10, N = 303), and companies who did not made use of such alternative remuneration (Md = 1.25, N = 39).

The same conclusion can be drawn for the return on equity ratio (ROE). The difference is also significant ( $p = 0.024 < 0.05$ ) between companies who made use of meal vouchers (Md = 5.00, N = 303) and companies who did not use it (Md = 2.63, N = 39).

When it comes to net profit margin, the test did not suggest a significant difference ( $p = 0.168 > 0.05$ ). The net profit margin expresses completely different things than ROA and ROE as both terms are taken from profit and loss account, showing how much out of every monetary unit of sales is translated into earnings. Nevertheless, under a one-tailed significance test (under which we assume that companies who made use of meal vouchers enjoy higher net profit margin – which makes absolute sense mainly due to the fiscal savings generated), the difference between the two groups of companies also became significant but at  $p < 0.1$ .

**Table no.6. : Mann-Whitney Test**

<b>Ranks</b>				
	MVc(1,2)	N	Mean Rank	Sum of Ranks
Return on assets	1,00 (MV=0)	39	138,08	5.385,00
	2,00 (MV>0)	303	175,80	53.268,00
	Total	342		
Return on equity	1,00 (MV=0)	39	137,82	5.375,00
	2,00 (MV>0)	303	175,83	53.278,00
	Total	342		
Net profit margin	1,00 (MV=0)	39	150,97	5.888,00
	2,00 (MV>0)	303	174,14	52.765,00
	Total	342		
<b>Test Statistics<sup>a</sup></b>				
	Return on assets	Return on equity	Net profit margin	
Mann-Whitney U	4.605,000	4.595,000	5.108,000	
Wilcoxon W	5.385,000	5.375,000	5.888,000	
Z	-2,243	-2,260	-1,377	
Asymp. Sig. (2-tailed)	,025	,024	,168	
a. Grouping Variable: VMc				

Source: INFIN database

Moreover, if we look at the means between the two groups of companies, we easily see that all the ratios are negative for the group who did not use meal vouchers, while for the group who made use of it, the ratios are all positive.

**Table. no. 7. Report statistic for ROA, ROE and NPM**

<b>Report</b>				
MVc		Return on assets	Return on equity	Net profit margin
1,00	Mean	-,827141	-26,810847	-,468316
	N	39	39	39
	Std. Deviation	9,9000529	147,3988367	18,2308799
	Median	1,256895	2,639325	1,656038
2,00	Mean	3,333342	5,346264	4,097780
	N	303	303	303
	Std. Deviation	8,9104595	63,5019084	12,6535387
	Median	3,107786	5,004308	3,839503
Total	Mean	2,858901	1,679225	3,577085
	N	342	342	342
	Std. Deviation	9,1099816	78,0845981	13,4517823
	Median	2,752484	4,656772	3,580199

Source: INFIN database

**Table no. 8. The effect size for ROA, ROE and NPM**

	Return on assets	Return on equity	Net profit margin
Z	-2,243	-2,260	-1,377
N	342	342	342
r	-0.1212	-0.1222	-0.0744

Source: INFIN database

Even if we provide evidence that using meal vouchers could infer significant difference between companies with regard to ROA and ROE, the Mann-Whitney does not tell anything about the effect size ( $r$ ) of this inference. As  $r = z/\text{square root of } N$ , we can compute the effect size for all ratios considered. The result are shown in the table no 8.

The data show that effect size is too small to be of any practical importance. Nevertheless, we can state that firms who made use of alternative remuneration such meal vouchers enjoys on average higher rates of return than the firms who did not chose to do so.

#### 4. Conclusions

Starting from the large tax wedge that Romanian companies have to cope with, we focus our attention on the ways of reducing it, pointing out to the meal vouchers that companies traded at Bucharest Stock Exchange decide to use them as an alternative form of remunerating their employees, without having to bear the accompanying social costs. Our results showed that companies traded at Bucharest Stock Exchange who choose to use meal vouchers in order to compensate their employees enjoys significant difference in ROA and ROE by comparison to the companies who did not use such alternative remuneration. The average ROA and ROE are higher in the former case (for ROA: Md = 3.10, Me = 3.33 by comparison to Md = 1.25, Me = -.82, and for ROE: Md = 5.00, Me = 5.34 by comparison Md = 2.63, Me = -26.81). Although the effect size is quite small ( $r$  for ROA = -0.1212,  $r$  for ROE = -0.1222), we think that we provided sufficient evidence that shows that granting meal vouchers to the employees could have a positive impact on rates of returns than companies enjoy, mainly due to the fiscal savings they generate.

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**PRESENT AND FUTURE PERSPECTIVES OF ROMANIAN ACCOUNTING VALUATION. THE COMBINATION BETWEEN HISTORICAL COST AND FAIR VALUE – REALITY OR FICTION?**

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**Abstract:** *In the last period, historical cost – regarded as valuation basis funding traditional accounting systems in the past – has no longer succeeded in offering an universal background to the forms currently accepted within accounting evaluation. Emerging as a necessity and alternative to historical cost, fair value generates, through its application, profound valuation changes. The current work aims to analyze the possibility of implementing the valuation combination – composed of historical cost and fair value – in the Romanian accounting practice.*

**Key words:** Historical cost, Fair value, Market value, Present value of future cash flows from use, Updating rate

**JEL classification:** M41

**Introduction:** In the last years, traditional management – based on the analysis and interpretation of accounting data – has turned out to be incapable to assess and express, in a clear and correct manner, real performance of the entities involved. Traditional financial indexes, such as economic profitability or other performance indexes, which do not integrate comparison with the market, with the profitability of alternative investments, can no longer meet the needs for making decisions at the moment. Under these circumstances, it has been necessary a change in the managers’ attitude. Currently, they tend to bend more focused not on the income maximization but rather on the maximization of the value provided to shareholders, and not on resorting mainly to accounting data, but rather to the dynamics of cash flows. This is also a result of the fact that the traditional instruments for measuring managers’ performance, by being based on accounting data, do not take into account neither risk or inflation influence, nor the opportunity cost.

**1. A new accounting model on value. The present and future perspectives of the concepts evolution leading to pushing the limits of the traditional accounting model**

As entities developed more and more, the competitive economic environment has become more and more complex, the activities of firms has become diverse, so that it has been necessary for new instruments and managerial techniques to emerge, to help the entities involved to overcome the obstacles which were increasingly numerous and expensive. Particularly in the last years, traditional management – based on the analysis and interpretation of accounting data – has proven to be incapable to evaluate and express in a clear and correct manner the real performance of entities.

The solution suggested for the challenges faced by traditional management systems has been the implementation of a value-based management. The central idea of the system creating share value is the cost of the capital invested, in relation to which the performance of entities is judged.

This is motivated by the fact that an obtained result has no value on its own, but only by comparing it with the resources or the capitals invested in an entity by shareholders and creditors, but also with the cost of such resources. The notion of value creation is anticipative and sees the result obtained in prospective and in a comparative manner.

The performance scored on the goods and services market – in entity, may be permanently compared with the one offered on the capital market.

Thus, given the dynamics which characterizes the current economic background, the value-based management seems to be most adequate management philosophy, by proposing instruments for measuring performance at different organizational levels – both at the level of the whole entity and of the project – so that the investment and disinvestment strategies must be modified, by taking into account, as reference point, the principle of shareholders' fortune maximization, while the capital structure and dividend policy shall be established according to the way in which value is created for shareholders, and not by pursuing to increase the income safety. Determining the measurement basis – used for acknowledging various patrimonial elements in financial circumstances – has been one of the most difficult issues faced by accounting. Within accounting theory and practice, there are known various measurement bases, such as: historical cost, replacement cost, net realization value, updated value and, of recently, fair value. There is no measurement basis to have a general applicability or to be completely satisfying, so that an option issue appears.

Accounting professionals and users of financial situations have considered that, when it comes to measuring and presenting accounting information, the most useful instrument is historical cost. Still, although historical cost has unquestionable advantages, such as reliability, prudence, continuity, verifiability and precision, its enforcement leads nonetheless to a number of deformations within financial circumstances, in the inflation context, such as (Feleagă):

- ✓ in balance-sheet: immobilizations undervaluation, stock undervaluation, distortion of the concrete economic situation (which is generally unevaluated), a.s.o.;
- ✓ in the profit and loss account: materials cost undervaluation – due to stock undervaluation, undervaluation of amortization related expenses – due to immobilizations undervaluation, increase of income tax – due to overvaluation of results (which are in their turn determined by unevaluated expenses: materials consumption, amortization related expenses, a.s.o.).

Since it offers information about the value of balance-sheet structures, at the moment when they are procured, historical cost orientates the entity account towards the past. Accounting professionals argue that the objective of accounting must not be restricted only to rendering the past financial position and performance of an entity. For investors, the future perspectives of an entity have a particular importance. Finally, going back to the concept of the faithful image, the investor – who plays an important part on the economic stage nowadays – is not attracted by the historical value, when it comes to funding his decisions, but in the dissolvable value of goods, which can be immediately accomplished.

In relation to this criticism, throughout time there have been introduced provisos – amendments of historical cost – as in the case of amortizations. Yet, these provisos have their own limits. Amortization mechanisms evince an artificial and rigid character (they are mechanisms controlled by fiscal administrations). Moreover, the option for one or another amortization method can lead to a false comparability of the enterprises results. At the same time, managers, according to the management policy they may choose, can guide and lead financial situations towards dimensioning a result to help them pursuing the results desired. For the time being, we are confronted with a creative accounting that is why amortizations have in their turn a limited application (they cannot be assigned to definitive and irrevocable values).

Another correction made to historical values, which has been implemented first in the USA and afterwards adopted by other countries, is related to inflation-based accounting, which does nothing but revaluating the past by starting from the lowest price acknowledged. The perspective created by this approach continues to be strongly connected to historical costs, even if the latter are updated. Last but not least, the IASC (International Accounting Standards Committee) has introduced, with

the provisions of the norms IAS 16 (Corporal immobilizations) and IAS 38 (Non-corporal immobilizations) the possibility of reassessing assets, provided that such reassessments are done with enough regularity, so that all assets can be assessed at their fair value, at any time.

## **2. Fair value, an alternative to historical cost**

The Romanian expression “*valoare justă*” is the imperfect, but currently consecrated translation, of the Anglo-Saxon expression *fair value*, which literally corresponds to the idea of *honest, loyal value*. The first definitions of fair value emerged quite late: FASB (Financial Accounting Standards Board) defined it around 1982, by adopting the norm FAS 87. IASB introduced fair value within its rules system only in 1995, with the norm IAS 32 (Financial instruments): “*fair value shows the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm’s length transaction...*”

As for the content of the concept, some theoreticians provide to fair value the attribute of assessment basis, while others consider it only an application of the market value, without ignoring at the same time the possibility to include it among accounting principles.

When fair value is **approached as an application of the market value**, it is important to take into account the fact that appear circumstances in which market value cannot be acknowledged as fair value, there being necessary for a new value to be created. This is also a result of the fact that fair value has various facets, being a concept much wider than the market value. The concrete cases or practical applications of fair values are represented, besides the market value, also by the use value, future flows value and replacement value.

The whole process of fair value adjustment is best rendered by the American norm FAS 157 (Fair value measurement), which identifies three estimation levels within the value scale, that is:

- ✓ *level 1 of estimation* – which uses market references, there being analyzed the active markets to which an entity has access, selecting the most advantageous market and using its prices without being necessary to resort to provisos;
- ✓ *level 2 of estimation* – appears when there cannot be found market prices for identical assets, so that there are gathered market prices for similar assets, which are adjusted in respect to differences, in information is available;
- ✓ *level 3 of estimation* – is resorted to when there cannot be found identical or similar assets and, respectively, when there cannot be objectively determined the differences between similar elements. In such case, it is resorted to valuation techniques based on result and cost, so that fair value can be estimated.

Moreover, although it provides a greater accounting objectivity and neutrality, by allowing at the same time to obtain more reliable financial situations, fair value is difficult to be measured by an entity’s staff, without the help of an assessment expert, so that its determination raises serious technical and financial problems.

If regarded from the perspective of **fair value implications upon accounting valuation**, the concept taken over generates profound valuation changes. The terms used within accounting norms, if speaking only about the acknowledgement criteria, regard the probability of generating future economic benefits and a correct, rational and credible *valuation*, by using consecrated techniques and procedures. Thus, besides the exact record of the values identified in the accounting documents, it is also possible to estimate some values – if justificatory documents lack – by taking into account all the information obtained at the valuation date. Historical cost – the valuation basis on which accounting systems were founded in past – can no longer offer an universal background for the forms currently accepted within accounting valuation. It is completed by other valuation bases – accomplishable value, actual cost and updated value, which are nothing more than fair value representations in accounting. Can we say that fair value and historical cost do not eliminate one another and that they rather complete each another? This aspect shall be debated below.

### **3. A combined valuation accounting system – reality or fiction?**

Given that both structures – historical cost and fair value – have advantages and disadvantages, we cannot speak about the application of a freestanding accounting system, based only on historical cost or only on fair value, but about a combined valuation system.

Although it provides continuity, verifiability and precision, and although is credible and reliable, historical cost, when applied, leads nonetheless to a number of deformations within financial situations, under inflation circumstances.

On the opposite side, although it provides (Deaconu, 2009) better information and comparison of the present and future performance of an entity, allows to obtain more reliable financial situations, provides a greater accounting objectivity and neutrality, reduces the difference between accounting value and stock exchange value – for rated entities, and improves managers' control upon the patrimony of an entity, fair value, from the perspective of its concrete determination, raises serious technical and financial problems, being difficult to be calculated by an entity's staff, without the help of an assessment expert.

The combined valuation system involves the use of historical cost and, in some cases, of fair value, both for the current registration of transactions and the elaboration of financial situations.

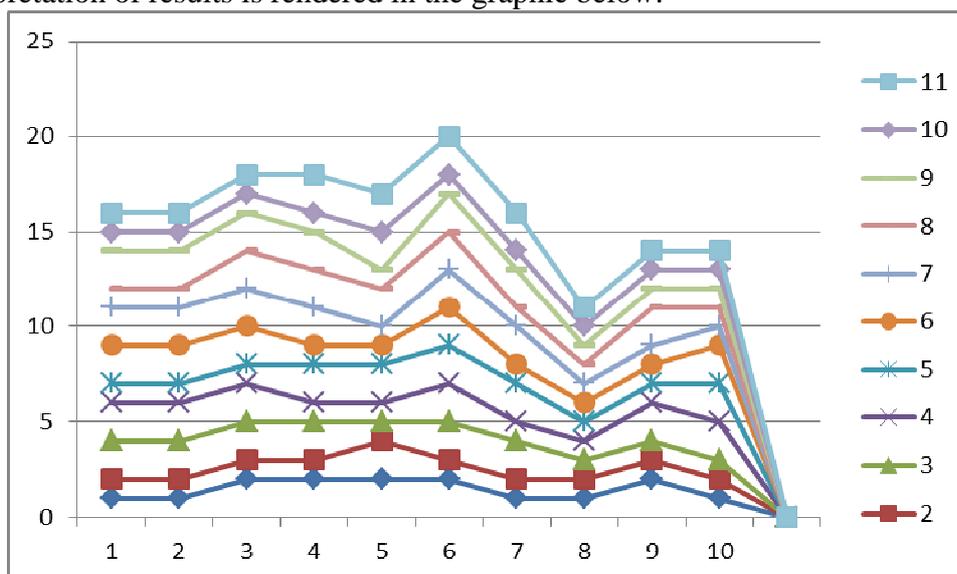
The functionality of the combined valuation system depends on the applicability degree of the fair value concept within the Romanian accounting practice. We have carried out a research by means of a survey applied among the commercial enterprises of South-Muntenia region, our research being based on gathering and interpreting the results of a questionnaire distributed to managers and accounting professionals. The objective was the identification of those entities which apply the fair value concept in their accounting practice, taking into account the provisions of the legislation in force and, respectively, the fiscal limitations which do not motivate accounting professionals to create two sets of financial situations – one in accordance with fiscal provisions and another which considers the economic reality, systems which would lead to a faithful image within accounting.

The questionnaire is composed of the 10 questions presented below:

- ✓ What valuation basis do you use for acknowledging the various patrimonial elements of financial situations? 1. Historical cost 2. Fair value
- ✓ Which of the two valuation bases do you consider to have a general applicability?  
1. Historical cost 2. Fair value
- ✓ Do you consider that the amendments brought to historical cost throughout time – such as inflation accounting and amortization mechanisms – are enough for preserving historical cost as valuation basis? 1. Yes 2. No
- ✓ The accounting professionals of your firm are familiar with the concepts and provisions of IRFS (International Financial Report Standards)?  
1. No 2. Yes
- ✓ Does your firm apply within its accounting practice the practices, policies and working instruments approved by IFRS?  
1. No 2. Yes
- ✓ Are the accounting professionals of your firm familiar with the fair value concept?  
1. No 2. Yes
- ✓ Are the accounting professionals of your firm familiar with the three levels of adjusting fair value? 1. No 2. Yes
- ✓ When it comes to adjusting fair value, do the accounting professionals of your firm have a significant contribution?  
1. No 2. Yes
- ✓ When it comes to adjusting fair value, does your firm resort to specialized evaluators?  
1. Yes 2. No
- ✓ Do you consider the combined valuation system (combination between historical cost and fair value) reliable for the Romanian accounting practice?

1. No 2. Yes

The interpretation of results is rendered in the graphic below:



#### 4. Interpretation of results

The following conclusions emerged:

- ✓ Although most accounting professionals agree with the use of historical cost as valuation basis, fair value is also accepted, at least as concept;
- ✓ Not all the entities interviewed – particularly accounting professionals – are aware of the working instruments used by IFRS norms;
- ✓ Accounting professionals are not familiar with the working steps necessary for adjusting fair value, which is, in most of the cases, the specialty of professional valuers;
- ✓ Although most of entities proceeded to the quantification of fair value, not all of them recognized these fair values in financial situations;
- ✓ In what the combined valuation system is concerned, for the time being it can be noticed in practice the application of the combination between historical cost and fair value, as valuation basis.

#### Conclusions

As it can be easily noticed, the study of specialized literature points out a double approach on the accounting valuation issue, which balances between the certainty of past expenses and the uncertainty of future values, in order to define an equilibrium between the credibility and relevance of the information provided to users when it comes to finding a ground for their decisions. Thus, we can rather speak about a combination between fair value and historical cost, as means and systems of valuation, such as: historical cost and the prudence in calculating the distributable result, fair value for calculating the global result reflecting the creation of wealth for shareholders. Within the same combined accounting system (Deaconu, 2009), there also proposals for elaborating financial situations expressed in (current) market values, which must coexist with the patrimonial balance and with the effective result accomplished.

If we consider the opinions of both those who support and criticize fair value, by debating both the arguments pro and against, it is little likely for fair value to be applied within an accounting system on itself, since it cannot be asserted for sure that it is superior to the historical cost system, which has an unquestionable advantage: it is familiar and therefore mastered. Moreover, given the fact that is a creation of the capital market, but also given the current circumstances, when the confidence in capital markets – affected by the global economic crisis – has diminished, it can be noticed a certain reluctance in using fair value as a freestanding evaluation basis.

In conclusion, even if fair value remains an important and relevant concept of accounting norms, by providing new qualities, which reflect the economic reality when it comes to an entity and its assets, and also by contributing to the growth of the role played by accounting professionals,

who therefore become genuine consultants for an entity, the same value cannot be applied in practice within an accounting system on itself, but only in combination with historical cost.

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## ANALYSIS OF EDUCATION EXPENDITURES IN ROMANIA AND EU MEMBER STATES

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**Abstract:** *This article realizes an analysis of education expenditure trend in EU member states. Based on indicators like percentage in GDP of the education expenditure and the share in total expenditures this study reveals the importance of education spending between EU countries and for the Romania case. The aim of this study is to make a comparison between EU countries concerning of how much is spent on education and what is the share of the government's expenditure.*

**Key words:** education expenditures, public expenditures, economic development

**JEL classification:** I21, I22, I23, I28, O11

### 1. Introduction

In any country education plays an important role for economic growth and developing. Financing the education is a major issue for the governments and for this reason in European countries the public funds allocated for education are substantial comparative with private funds. Education has always been a critical investment for the future, for individuals, for economies and for societies at large. The human capital is very important and any investment in education means an investment in human capital- a crucial catalyst for economic growth.

Both the economic development and the educational development of a country affect each other. An effective education causes for the positive economic development. Therefore, the country earns more potential in the form of funds and resource inputs. Then the more fund and resource inputs are available for education. Likewise, the more spending on education helps in the higher growth of human capital that is an important resource input for the economic development (Dahar, et all, 2010).

In March 2000, the European Council, in Lisbon stated The European Union main goal for 2010 so that: "The Union must become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion", ("The Lisbon Strategy" - European Council, Lisbon). In order to achieve its goal, the strategy identifies education and training as crucial factors for the development of Europe's long-term potential for competitiveness and social cohesion. This strategy involves a whole set of policy areas, from research and education to environment and employment according to the European Commission.

The education systems organization varies between countries as does the length of time for a student to complete an educational level. This makes primary level more costly in some countries than others. For example, in Iceland the typical age group ranges from 6 to 12 years inclusive (7 years); whereas in Germany it is 6 to 10 years inclusive (5 years) and in Hungary only 6 to 9 years inclusive (4 years). The length of the programme thus affects the amount of educational investment

per education level and does not necessarily reflect a country's policy to place more importance on one part of the education system than another according to OECD.

There is a difference in the origin of the funding-sources between European and Non European countries. Private resources are higher in countries like Japan, Australia, Canada, US and Korea. Under-funding and dependence on state funding do not only lead to the relative poverty of the higher education sector. Consequences vary from low enrolment rates and failure to prepare students for the European labour market to difficulties in attracting and retaining top talent. The biggest funding deficit in European education and training is the comparatively low contribution from private sources (companies and individuals) in addition to (not as substitute for) the public funding (European Commission).

The development of higher education in the European countries during the last three-four decades modified the main role of universities, transforming them into institutions that are especially oriented towards satisfying the needs of the productive system and the society in general. The state seized to be the main, unique and direct beneficiary of the higher education system. The private entities benefits from the services and product of higher education. Here are some arguments in favour of this assumption (Dincă, 2003):

- The general university education reduces the period of training when new technologies are implemented
- The higher productivity of educated individuals is transferred to the others employees and has an important effect on companies
- An important part of the external benefits produced by graduates is absorbed not only by the society in general (which justifies the public funding) but also by enterprises.
- The enterprises are the direct beneficiaries of the technical and scientific progress that is realized especially in universities.

Educational expenditure refers to how much governments spend on school and universities. These costs include: instructions (ex. teaching manuals), educational goods provided by institutions (books, materials, etc), administration costs, capital expenditure and rent, student transportation, school meals, student housing and boarding, guidance, student health services, educational research and curriculum development provided by institutions, R&D for higher educational institutions. However, education systems require resources in order to function and it is important to measure how much they cost and who funds them.

In the EU most of the educational expenditure comes from public funds; it is in average around 5.2% of GDP. While US's educational expenditure is in average around 5.5% of GDP. In 2005, private funds for EU's education made up 12%, whereas in the US private funds totaled to around 33%. This is mainly due to the fact that US education is relatively expensive compared to that of EU, and because of this a higher percentage of education needs to be funded by private ways.

Education policy research pays considerable attention to the productivity and efficiency of the education sector, in particular of government expenditure in the sector. Determining how governments and families can best finance and allocate scarce resources to produce quality education and the skills that individuals need for success, is an integral task of the education economists. The Education Sector Strategy Update (ESSU) also calls for integrating education into a country-wide perspective focusing on how education ties into the macro-economic context. It particularly emphasizes the need for close attention to fiscal policies and decentralization policies affecting school management and finance.

The evolution of public education expenditures is influenced by the simultaneous actions of several **factors**, namely (MĂCRIȘ, 2010):

- **Demographic factors.** The increase of population has obviously determined the increase of school population. The demographic boom that determined the increase of global population to more than 6 billion inhabitants could mainly be seen in the increase of school population, in the degree of inclusiveness of the educational system, and in the compulsory character of certain education levels. These facts have also determined an increased demand of didactic staff. The need of didactic staff has also increased as a result of improving the relation pupils - teachers. In the next

year in Romania and in the other EU countries will be expected a decrease of rate of birth and also a decreasing of education expenditures.

- **Economic factors.** Economic development, the increase and diversification of fixed and working capital as a result of modernizing and improving technological processes required a labor having an average and superior qualification. This was done through growing education expenditures. These increased expenditures were connected with education organization, with the inner structure of the various levels of education, with the growth of the students' share within the total number of students and pupils.

- **Social and political factors.** They regard school policy, its foundation, and the level of compulsory education, resources, facilities and support for school units or even for pupils, students and their families. In the last few years in Romania we have an increase in private financing of education.

Romania's integration into the European Union can be considered the best example for political factors because will increase the demands on the country's human capital. Demand for skilled manpower will increase because many multinationals companies choose to open new offices in Romania. In this context the public funds for education had increased especially in the previously years before integration and after that. These changes will raise the need for a more competitive labor force with new competencies and skills.

The higher education level knows two main sources of financing: public and private. Although their paper is not specifically on education finance, Epple and Romano (1996), examine three regimes for the provision of a good: market provision only, government provision only, and government provision supplemented by the private market system (Epple, and Romano, 1996).

In virtually all developed countries the government is engaged in higher education. A commonly used argument is that private markets are unable to provide higher education up to an efficient amount. Positive externalities and capital market imperfections figure most prominently in the list of arguments claiming that investments in higher education regulated by private markets are too low (Wigger, B. , Von Weizsäcker, 2001 ).

In our opinion, alternative sources must be found, more and more resources should be provided by private sources but there is room for increasing public investment in higher education, especially when the target set by the European Commission was at least 2% of a member GDP.

The reason for the existence of alternative source of financing, besides the public one is simple: public funding cannot keep the pace with the growing of higher education. Second of all, it would be fairer from a social point of view a higher private participation in higher education funding. Most important, a higher private share will probably increase the effectiveness and efficiency of the education system.

The public resources come from central, regional and local authorities while private funding comes from students, households and nongovernmental. The relative importance of each type of financing source, either public or private varies significantly from one state to another, going from fully subsidized education in countries like Denmark, Finland and Sweden to states where the costs are supported by students' trough tuitions.

## **2. Education expenditures in Romania**

Financing education is a controversial issue every year when the public budget is approved, because the funds are not enough for covering all needs in this sector.

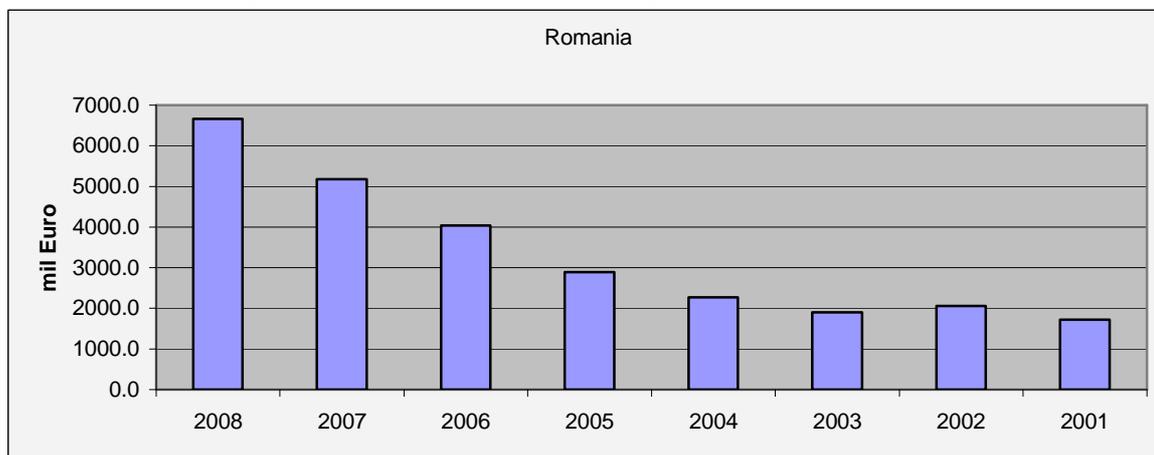
Our analysis of public expenditures on education is based on some indicators like: absolute data (mil Euros), the weight of education expenditures in total public expenditures and GDP, all this indicators are analyzed between 2001 until 2008 (the last year with available data).

**Table 1. Education expenditures in Romania (mil Euros)**

	2008	2007	2006	2005	2004	2003	2002	2001
Romania	6659,0	5176,2	4038,3	2885,9	2271,1	1899,1	2056,8	1721,5

Source: Eurostat

**Figure 1 Trends of education expenditures in Romania**

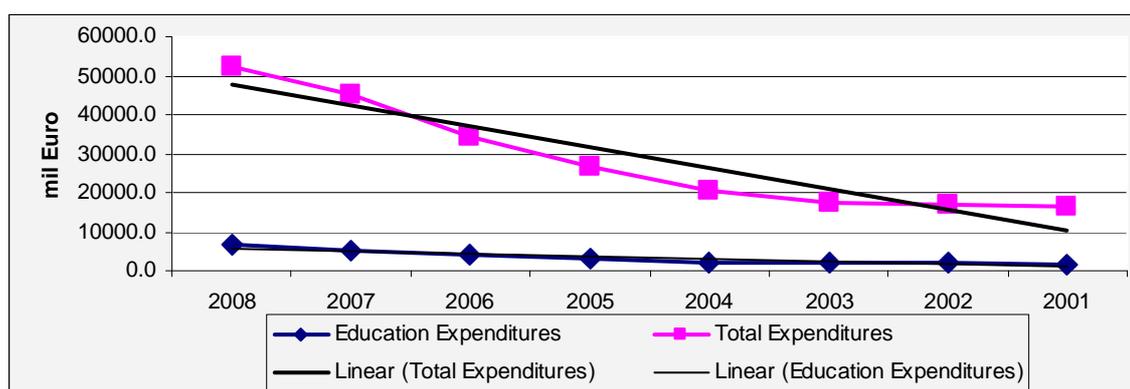


Source: Based on Eurostat Data

For the entire period we have an increasing trend, but major increases are starting with 2005, after a period of 4 years with approximate the same level of education expenditures around 2000 mil euros per year. In 2008 the increase of education expenditures is with almost 60% comparing with the previously year.

The evolution of education expenditures has to be correlated with the trend of total public expenditures. As it can be seen in the next figure for both there is registered for this period a linear trend and the same higher increase starting with 2005, but for educational expenditures the rate of increasing is higher.

**Figure 2 Trends of education expenditures and total public expenditures Romania**



Source: Own computation based on Eurostat Data

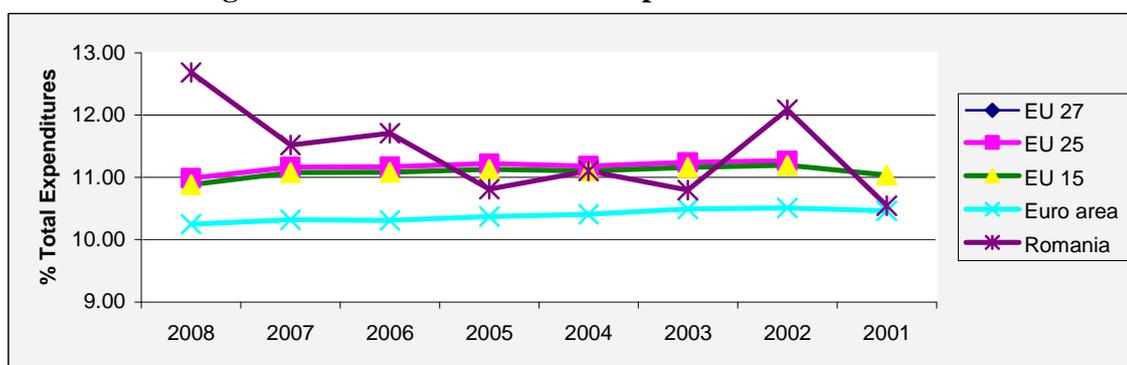
Another indicator analyzed is the share of education expenditures in total expenditures. For this indicator Romania is compared with the EU for the same period. The weight of education expenditures in total expenditures for Romania varies between 10,5% in 2001 and 12,6% in the last year 2008, and as an unexpected result the values are higher comparative with the averages for EU.

**Tabel. 2 Education expenditures % in Total expenditures**

GEO/TIME	2008	2007	2006	2005	2004	2003	2002	2001
EU 27	11,00	11,16	11,17	11,22	11,18	11,24	11,26	
EU 25	10,99	11,16	11,17	11,22	11,18	11,24	11,26	
EU 15	10,88	11,07	11,08	11,13	11,10	11,16	11,19	11,03
Euro area	10,25	10,32	10,31	10,37	10,41	10,50	10,51	10,47
Romania	12,68	11,52	11,71	10,81	11,10	10,80	12,08	10,55

Source: Own computation based on Eurostat Data

**Figure 3: Trends of education expenditures in Romania**



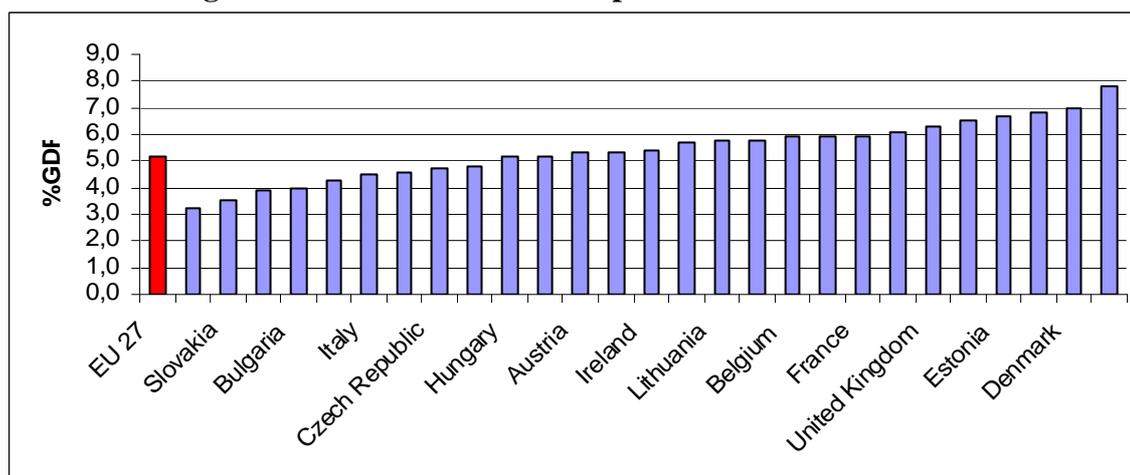
Source: Own computation based on Eurostat Data

### 3. Analysis of education expenditures for EU countries

In most European countries, higher education systems were originally developed on the principles of free university education for all, the underlying rationale being that fees may discourage students from modest socio-economic backgrounds. Hence, free or low-cost entry has traditionally been seen as a means of equalizing access to higher education (Asplund, et al, 2007).

In this case our analysis is based on the share of education expenditures in GDP, because this indicator is the most relevant and affords a global comparison between EU member states. Although differing in weight from country to country, governments bear the large majority of the funding of education. Thus, the main indicator used to assess the financial effort of a country in supporting its education system is the percentage of its public expenditure on education in relation to GDP.

Public expenditure on education as a percentage of GDP gives an indication of how a country priorities education in relation to its overall allocation of resources. Public expenditure on education includes spending on schools, universities and other public and private institutions involved in delivering or supporting educational services. Expenditure on educational institutions is not limited to expenditure on instructional services but also includes public expenditure on ancillary services for students and families, where these services are provided through educational institutions. At the tertiary level, spending on research and development can also be significant and is included in this indicator, to the extent that the research is performed by educational institutions (OECD Family Database).

**Figure 4 Trends of education expenditures in EU countries**

Source: Eurostat

Public expenditure on education in the EU-27 in 2008 was equivalent to 5.2% of GDP, while the expenditure of both public and private sources of funds on educational institutions amounted to 5.7 % of GDP.

The highest public spending on education was observed in Denmark (7.8 % of GDP), while Cyprus (6.9 %), Sweden (6.7 %) and Malta (6.3 %) also recorded relatively high proportions. Most Member States reported that public expenditure on education accounted for between 4 % and 6 % of their GDP, although this share was lower in Slovakia. It should also be noted that GDP growth can mask significant increases that have been made in terms of education spending over the last decade within some Member States.

Furthermore, declining birth rates in many countries will result in reduced school age populations, which will have an effect on ratios such as the average expenditure per pupil (given that expenditure is held constant).

Indicators on education expenditure cover schools, universities and other public and private institutions involved in delivering or supporting educational services. Expenditure on institutions is not limited to that made on instructional services, but also includes public and private expenditure on ancillary services for students and families, where these services are provided through educational institutions. At the tertiary level, spending on research and development can also be significant and is included, to the extent that the research is performed by educational institutions.

**Table 3 Education expenditures %in GDP**

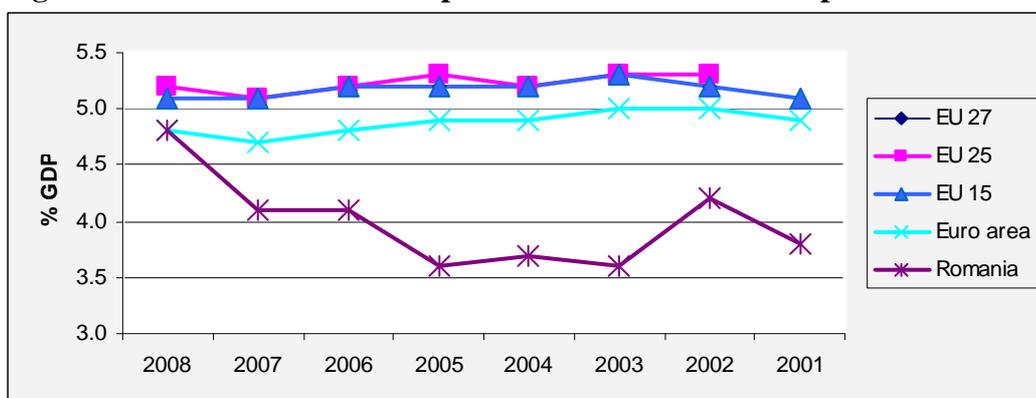
	2008	2007	2006	2005	2004	2003	2002	2001
EU 27	5,2	5,1	5,2	5,2	5,2	5,3	5,2	
EU 25	5,2	5,1	5,2	5,3	5,2	5,3	5,3	
EU 15	5,1	5,1	5,2	5,2	5,2	5,3	5,2	5,1
Euro area	4,8	4,7	4,8	4,9	4,9	5,0	5,0	4,9
Romania	4,8	4,1	4,1	3,6	3,7	3,6	4,2	3,8

Source: Eurostat

Total public expenditure on education includes direct public funding for educational institutions and transfers to households and enterprises. Generally, the public sector funds education either by bearing directly the current and capital expenses of educational institutions (direct expenditure for educational institutions) or by supporting students and their families with scholarships and public loans as well as by transferring public subsidies for educational activities to private enterprises or non-profit organizations (transfers to private households and enterprises). Both types of transactions together are reported as total public expenditure on education.

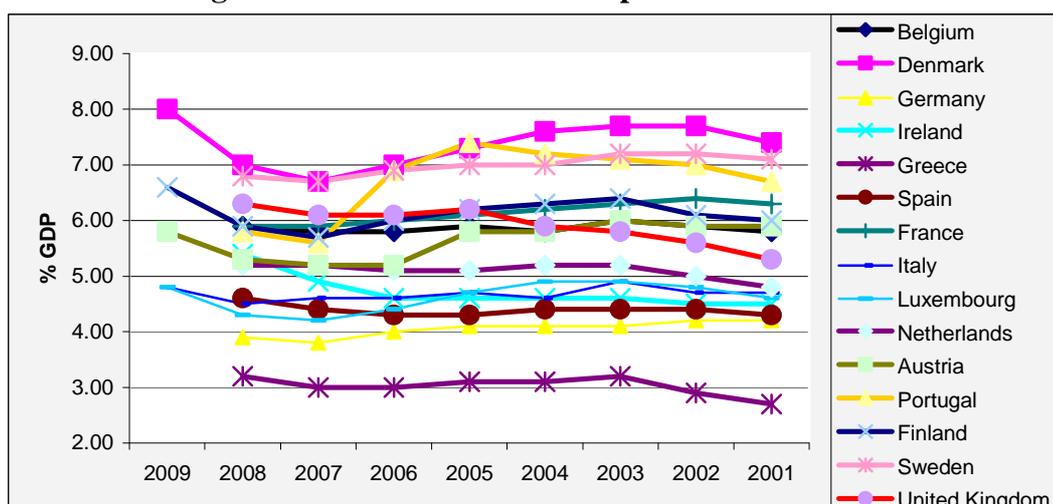
Expenditure on educational institutions from private sources comprises: school fees; materials (such as textbooks and teaching equipment); transport to school (if organized by the school); meals (if provided by the school); boarding fees, and; expenditure by employers on initial vocational training.

**Figure 5 Trends of education expenditures in Romania comparative with EU**



Source: Eurostat

**Figure 6 Trends of education expenditures in EU 15**



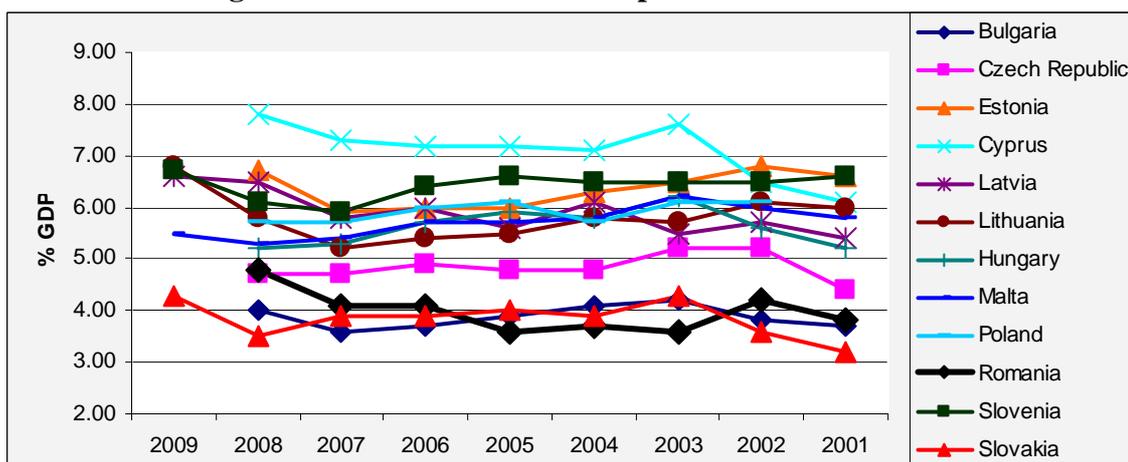
Source: Based on Eurostat Data

The World Bank, with its lending programs in numerous client countries, must ensure that borrowed World Bank funds reach the intended beneficiaries. World Bank Education Economists collaborate with experts from Country units and Poverty Reduction and Economic Management units to undertake economic and sector work (such as economic memorandums, poverty assessments and public expenditure reviews) as well as reports on specific issues in education to help with informed policy making in the sector.

From the new member states the highest weight of education expenditures in GDP is in Cyprus for the last years, and the lowest in Slovakia and Bulgaria.

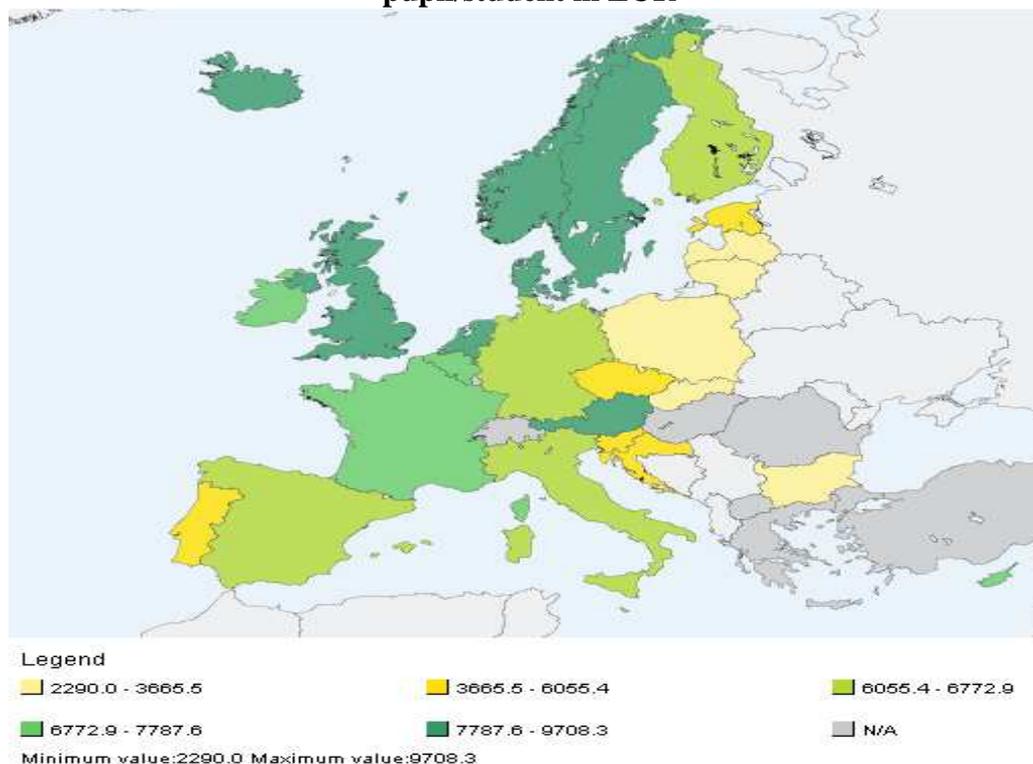
Expenditure on education may help foster economic growth, enhance productivity, contribute to people's personal and social development, and promote the reduction of social inequalities. The proportion of total financial resources devoted to education is one of the key choices made by governments in each country of the European Union (EU). In a similar vein, enterprises, students and their families also make decisions on the financial resources that they will set aside for education.

**Figure 7 Trends of education expenditures in Romania**



Source: Based on Eurostat Data

**Figure. 8 Annual expenditure on public and private educational institutions per pupil/student in EUR**



Source: Eurostat Database

We can see from the previously map the highest financing in Nordic countries and UK and the lowest in ex-communist countries. Annual expenditure on public and private educational institutions shows that an average of PPS 6 251 was spent per pupil/student in 2008 in the EU-27; this ratio was approximately six times higher in Austria than in Romania (2005). Expenditure per pupil/student in public and private institutions measures how much central, regional and local government, private households, religious institutions and enterprises spend per pupil/student. It includes expenditure for personnel, as well as other current and capital expenditure.

**4. Conclusions**

Between EU member states are huge differences concerning the education expenditures and this fact reflects the differences of economic development and different goals of fiscal and

budgetary policy. Education accounts for a significant proportion of public expenditure in all of the EU Member States – the most important budget item being expenditure on staff. The cost of teaching increases significantly as a child moves through the education system, with expenditure per pupil/student considerably higher in universities than in primary schools. Although tertiary education costs more per head, the highest proportion of total education spending is devoted to secondary education systems, as these teach a larger share of the total number of pupils/students.

There is an ongoing debate in many EU Member States as to how to increase or maintain funding for education, improve efficiency and promote equity – a challenge that has become harder in the context of a very severe economic, social and financial crisis and increased public debt. Possible approaches include tuition fees, administrative or examination charges, the introduction of grants or income-contingent loans to try to stimulate enrolment rates in higher education, in particular among the less well-off members of society. Another fundraising source is partnerships between business and higher educational establishments.

If the tax harmonization is so wanted in the EU space may be will be better if we have an education expenditures harmonization for reducing the huge inequalities concerning the chance for a better education for all EU citizens.

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## ALTERNATIVE MEASURES OF ROMANIA'S BUDGET DEFICIT

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**Abstract:** *The topic of budget deficit is strongly debated not only at national level, but at international level too. The aim of this paper is to present the usefulness of different definitions of budget deficit in order to analyze the impact of fiscal policies. The option of choosing one of the definitions depends especially on the purpose of the analysis. This paper focuses on the definition of four different fiscal indicators that measure the budget deficit of Romania, and presents the evolution of these indicators in the last ten years.*

**Key words:** budget deficit, fiscal policy, budget deficit balance

**JEL classification:** G01, H 60, H62

### 1. Introduction

The issue of budget deficit has become an interesting research topic starting with the '80s, due to the fact that United States and most of the industrialized countries confronted large budgetary deficits and public debt stocks.

Regarding the budget deficit topic, there are different opinions on the existence of a negative fiscal balance (budget deficit). Many studies proved that a negative fiscal balance, but with low sizes, should not be seen as a „bad thing”.

Following Eisner (1984), “a budget deficit is like sin. To most of the public it is morally wrong, very difficult to avoid, not always easy to identify, and susceptible to considerable bias in measurement. To the body politic, and perhaps to many economists, the apparent underlying reality is that every dollar of deficit-of a person, business or government-adds a dollar to debt. And debt is bad! Deficits are not always bad, or at least at certain times their alternatives are worse.”

Many research studies presented the importance of choosing the right measure for the budget deficit as the correct measurement of the public sector's net requirements is a vital prerequisite. The alternative measures of budget deficit are often presented as different fiscal indicators.

The choice of the fiscal indicator for measuring the budget deficit depends on the management and the way the fiscal policy of a state is interpreted. We cannot argue that a fiscal indicator for measuring the budget deficit is better than another, but we can speak of a set of different indicators used for certain conditions (Blejer and Cheasty, 1993).

The budget deficit issue represents a subject of maximum importance as well as for Romanian public authorities as for international authorities, especially in the context of the anti-crisis measures plan proposed by the Romanian Government. As the budget deficit represents a performance criteria of the Stand-By Agreements, the deficit target for next years should be met in order to comply with the imposed requirements.

## 2. Alternative measures of Romania's budget deficit

The term "budget deficit" or "budget balance" appears most of the time as an undesirable issue (Eisner, 1997). Often, budget deficit is considered to be the cause of rising inflation or decreasing private investment, without taking into consideration how the budget deficit has been measured.

Jacobs (2002) identified a number of thirty fiscal definitions for measuring the budget deficit. Each definition highlights a particular aspect of fiscal exposure and can serve a valuable purpose from the viewpoint of the analysis. The main idea is to use a set of different definitions of the deficit to get the full picture with regard to the fiscal stance of the country.

With respect to the availability of the statistics for a certain country, just a part of the fiscal indicators presented by Jacobs (2002) can be computed. For example, from the total amount of thirty indicators Jacobs et al. (2002) quantified only fifteen of them for South Africa, due to unavailability of appropriate statistical data.

The rest of the paper presents theoretical aspects regarding some of the fiscal indicators for measuring budget deficit suggested by Jacobs (2002), as well as the analysis of the evolution of these budget deficit indicators, for the case of Romania's economy and conclusions.

Following Jacobs (2002) we computed a number of four of the fiscal indicators for the case of Romania. The main four indicators we stopped to analyze are: the conventional balance (the total deficit), the primary balance (which excludes interest payments), the operational balance (measuring sustainability) and current balance (measuring government savings).

### 2.1. The conventional balance of general government

Defining the **conventional balance** of budget deficit represented and still represent a challenge for both the research analysts and international organizations. There are different methods of quantifying the conventional balance. The most commonly used measure by governments worldwide defines the conventional budget balance as the resources utilized by the government in a fiscal year that need to be financed after revenues were deducted from the expenditure.

According to Tanzi, Blejer and Cheasty (1993), the conventional balance can be defined as the difference between current revenues and current expenditure of general government, reflecting the financing gap that needs to be closed by way of net lending, including lending from the central bank.

The World Bank defines the conventional budget balance as the difference between expenditure items such as salaries and wages, expenditure on goods and services including capital expenditure, interest on public debt, transfers and subsidies, and revenue items including taxes, user charges, grants received, profits of non-financial public enterprises and sale of assets (Blejer and Cheasty, 1990).

Blejer and Cheasty (1991) consider that conventional deficits of different countries are not directly comparable in the absence of standardized accounting rules for government. The issue of comparability depends either on the income and expenditures items that are included in the method of quantifying the conventional balance of budget deficit (cash basis), either on the moment of time at which the resources are registered (accrual basis).

Depending on the moment of time the budgetary flows are registered, the conventional balance can be defined using two definitions. Though, Blejer and Cheasty (1991) present two methods:

(1) **The cash basis** – the budgetary flows are registered at the moment they are received/paid;

(2) **The accrual basis** – the budgetary flows are registered at the moment they are instructed/engaged.

The **cash balance** is defined as the difference between total expenditures of general government (including public debt interest expenditures, less public debt payments) and total revenues (including fiscal and non-fiscal revenues and received grants, less contracted loans). According to this definition the conventional balance does not depend on the maturity of the intern public debt.

Regarding the pragmatic application of these definitions, the budget deficit is computed as a mixture of the two definitions as interest expenditures are registered when they are engaged, and revenues when they are effectively received. Blejer and Cheasty (1991) consider that arrears represent the reconciliation item between the cash and accrual deficits. If the conventional balance is quantified on accrual basis, then the country need of financing includes the amount of arrears.

According to International Monetary Fund (IMF) definition, the conventional balance is quantified using the formula presented in Figure 1.

**Figure 1: Conventional balance definition**

$$\boxed{\begin{array}{l} \text{Budget Balance} \\ \text{(Deficit/Excedent)} \end{array}} = \boxed{\begin{array}{l} \text{Revenues} \\ \text{Grants} \end{array}} + \boxed{\begin{array}{l} \text{Expenditures with} \\ \text{goods and services} \\ \text{+} \\ \text{Transfers} \end{array}} - \boxed{\begin{array}{l} \text{Loans} \\ \text{Repayment of} \\ \text{Public Debt} \end{array}}$$

Source: IMF

In Romania, the conventional deficit is measured using the both methodologies. The cash basis method is named as the national methodology and the accrual basis method is the methodology stipulated by the ESA 95 Standard.

The analysis of the evolution of the conventional balance of the general government of Romania should be done in the economic context of the last 10 years. Table 1 and Figure 2 present the evolution of general government balance of Romania in the last 10 years (2000-2010), and the deficit is measured using the both definitions (the cash and accruals methodologies).

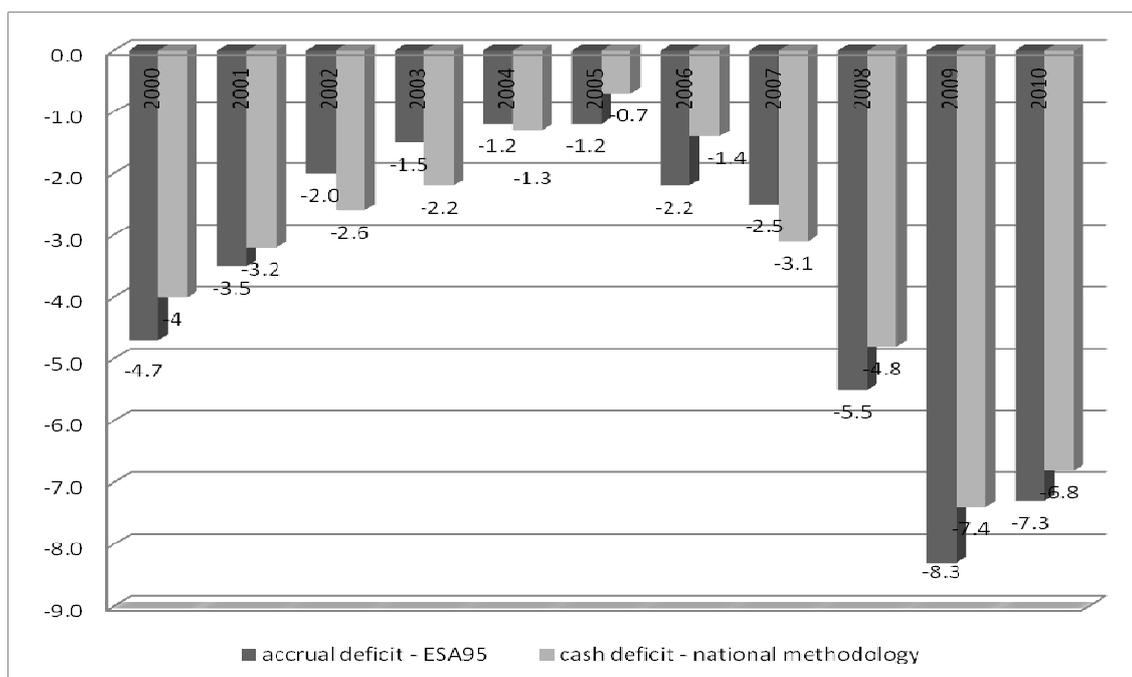
**Table 1: The general government balance of Romania in period 2000-2010**

Year	Cash deficit (%) – national methodology	Accrual deficit (%) – ESA95 methodology
2000	-4	-4.7
2001	-3.2	-3.5
2002	-2.6	-2.0
2003	-2.2	-1.5
2004	-1.3	-1.2
2005	-0.7	-1.2
2006	-1.4	-2.2
2007	-3.1	-2.5
2008	-4.8	-5.5
2009	-7.4	-8.3
2010	-6.8	-7.3

Source: Eurostat, NBR, Ministry of Public Finances

As shown in Figure 2, we can conclude that the budget deficit of Romania has been under control until the year 2007, and the economy was described by a descending deficit from year to year. Excepting year 2000, the budget deficit registered values around 3% of GDP or less, being in concordance with the Maastricht Criteria. Although, in the period before the eruption of the financial crisis, Romania was dealing with an overheating economy characterised by the real estate boom, wage rising beyond productivity, quick rising of domestic loans, especially in foreign currency.

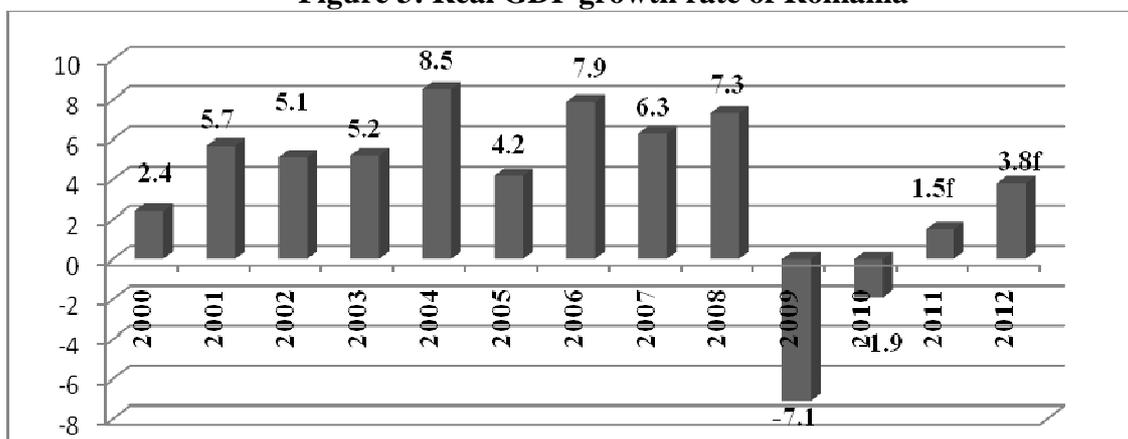
**Figure 2: The evolution of general government deficit in Romania in 2000-2010**



Source: Eurostat, BNR, Ministry of Public Finance

At the end of year 2008, when the financial crisis started to be perceptible in Romania, the economy was described by economic growth, but also by macroeconomic disequilibrium: economic growth of 8.5% in 2004 that reached the value of 7.3% in 2008 ( see Figure 3), but a current account deficit of 12-14% of GDP, short term external debt of over 20 bill of Euros (as the international reserves of BNR were almost at the same level), high budget deficit starting with 2008 (4.8% of GDP, reaching 7.4% and 6.8% of GDP in 2009 and 2010).

**Figure 3: Real GDP growth rate of Romania**



Source: National Institute of Statistics

The growth of budget deficit of public sector starting with year 2008 was due especially to the general government revenues contraction and the automatic stabilization process of the economy, which conducted to a macroeconomic soften of the reduction of private investment and consumer demand, but also the fiscal measures undertaken in order to sustain the stabilization process and the economic recovery.

Due to the fact that Romania’s budget deficit run over the level of 3% of GDP starting with 2008, in 7 July 2009 Romania was set under the excessive deficit procedure. As a consequence, the authorities acted in accordance with the Council recommendations, and the European Commission evaluated the measures taken in order to correct the excessive budget deficit. Romanian authorities should bring the budget deficit under the level of 3% of GDP in a sustainable and credible way,

using medium term measures. Based on the information available at that moment, the Commission concluded that Romania undertook efficient measures.

Respecting the term for correcting the excessive budget deficit, and reducing the budget deficit under 3% until 2012, implies, according to European Commission calculations, an average effort of adjusting the structural deficit of 1.75 % of GDP in 2010 and the next two years.

Taking into consideration the existing situation of Romania's economy, the budgetary correction is necessary, as our country has no fiscal space for a relaxed fiscal policy; the fiscal space had been finished with the procyclical policies of the former years. The Governor of the National Bank of Romania considers that the manoeuvre space that characterize the fiscal policy of Romania in order to action like a stabilizer – meaning the stimulation of the aggregate demand as an answer to the economic crisis - is strictly limited to the level of budget deficit and public debt from the beginning of the crisis (Isărescu, 2010b)

The European Commission recommended that the relaxation of the fiscal policy should happen only in the countries that have a manoeuvre space for this. The capital markets penalize the different countries in a different way taking into consideration the development degree of the economic, political and social institutions of these countries:

- For the developed countries, there are accepted public debts until 90% of GDP;
- For the emerging countries, there are accepted public debts until 60% of GDP;
- For debt intolerance countries, the accepted level can reach 15-20% of GDP.

The preventing solution for the present economic situation of Romania is represented by a relatively balanced general government among the business cycle, so that the 3% of GDP level to be reached in the recession periods and to be allocated for public investments and jobs creation.

## 2.2. The primary budget balance

An alternative to conventional deficit is the **primary deficit**. Primary balance is represented by the difference between the conventional balance and the amount of interest payments. This fiscal indicator is used to test the short and medium term sustainability of the fiscal policy. The positive values of primary balance could be interpreted as a lack of sustainability, excepting the case when certain changes had been implemented to the fiscal policies (Jacobs, 2002). Furthermore, the primary deficit could reflect the success of the fiscal policy in moving the economy towards a sustainable growth path.

The difference between the conventional deficit and the primary deficit reflects the burden of the public debt interest payments. Even relatively stable economies that have accumulated large public debts, can register conventional deficit, despite the positive primary balance.

**Table 2: The primary balance of Romania in 2000-2010**

Year	Primary balance (%GDP)
2000	0.8
2001	0.6
2002	0.3
2003	-0.1
2004	0.8
2005	0.3
2006	0.3
2007	-2.4
2008	-4.1
2009	-6.2
2010	-5.1

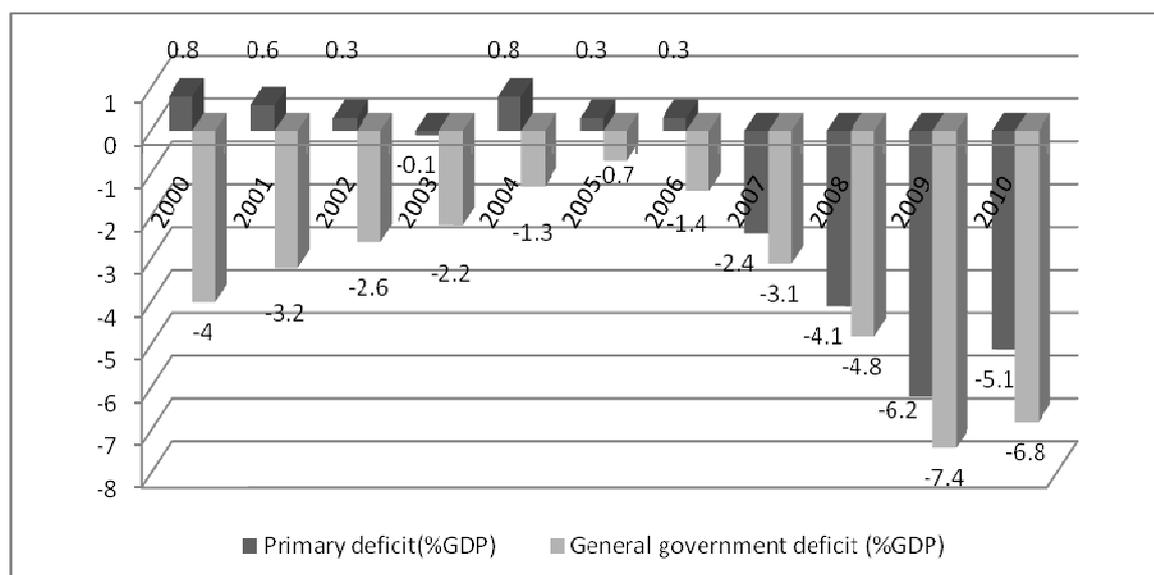
Sursa: IMF Country Reports

The importance of this indicator is given by the fact that primary deficit measures the budget deficit from a discretionary stance, as the non-discretionary figure – interest payments- is not taken into consideration, this figure usually depending on the amount of previous deficits.

The World Bank defines the primary deficit as a measure of how current actions improve or worsen the public sector's net indebtedness. As budget deficits can perpetuate from year to year, the primary balance should be positive in order to cover partially current public debt interest payments. If the economy grows faster than the real interest rate, then even the primary balance can remain in deficit. (Blejer and Cheasty, 1991).

Regarding the evolution of the primary balance of Romania, we can observe that until year 2007 the primary balance was positive, surplus being recorded, excepting year 2003 when there was a tiny deficit of 0.1% of GDP. The positive balance is used to partially cover public debt interest payments. Figure .... shows that in periods with primary surplus, the general government balance was negative (deficit), proving that the primary surplus was not large enough to finance completely the interest payments. Starting with 2007 primary balance was negative, increasing the share on GDP from year to year. The negative primary balance influenced the size of the general government deficit. The bigger the primary deficit, the bigger the negative effect on the size of general government is. Also, we can see that in the periods with primary surplus the conventional deficit registered smaller values.

**Figure 4: Comparative evolution of primary balance and general government balance in Romania in 2000-2010**



Source: INF Country Reports, Eurostat, Ministry of Public Finances

### 2.3. The operational budget balance

A commonly used indicator for determining fiscal sustainability is the **operational deficit**, which seems to be a good choice as the other indicators of budget deficit only differ in terms of relationship they have with the gross domestic product.

In general, the operational deficit is defined as the difference between the conventional deficit and the inflationary component of interest payments. An alternative definition quantifies the operational deficit as the sum between primary deficit and the actual component of interest payments (Jacobs, 2002).

Inflation affects the budget deficit in several ways. A part of the public debt interest payments is in fact a part of the public debt. When the inflationary component of interest rates is not eliminated, then the size of the budget deficit will increase with the depreciation element including interest payments that will be recorded above the line of demarcation, not under the line.

States that are facing the same inflation rate, the same share of public debt to GDP, the same structure of incomes and expenditures, excluding interest payments, could record different conventional deficits. Thus, the need to use operational budget balance arises, in order to counteract the shortcomings of the conventional budget deficit for countries with high rates of inflation. In countries with high rates of inflation, for example Brazil and Mexico in the 80s, the differences between the size of conventional deficit and the size of operational deficit are substantial. Moreover, both in Brazil and in Mexico, the conventional deficit showed a rapid increase in the budget imbalance, while the operational deficit indicated a moderate improvement in Brazil and remarkable adjustments in Mexico.

Blejer and Cheasty (1991) signalled the existence of two technical problems that come with the operational deficit calculation. For example, the choice of the price index is not straightforward and raises problems when interest rates are negative in real terms, case in which the conventional deficit will have to be adjusted by more than the actual amount of interest payments. In addition, you can speak about a macroeconomic weakness of this fiscal indicator: the operational deficit is an amount adjusted with the inflation, and the deficit impact assessment on inflation cannot be achieved. Despite these difficulties, the operational deficit provides useful information for fiscal policy makers when inflation rate is very high.

### 2.3. The current budget balance

The conventional balance measures the difference between public investments and public savings, but for measuring the degree of governmental savings, another fiscal indicator is used: the **current balance**. This indicator represents the difference between public income and public expenditures, excepting the capital transactions (investment expenditures, revenues from state assets sales, etc.)

Boskin (1982) considered that the current deficit is the true deficit, as it is preferred the option of a separate and correct system for recording the current and the capital transactions.

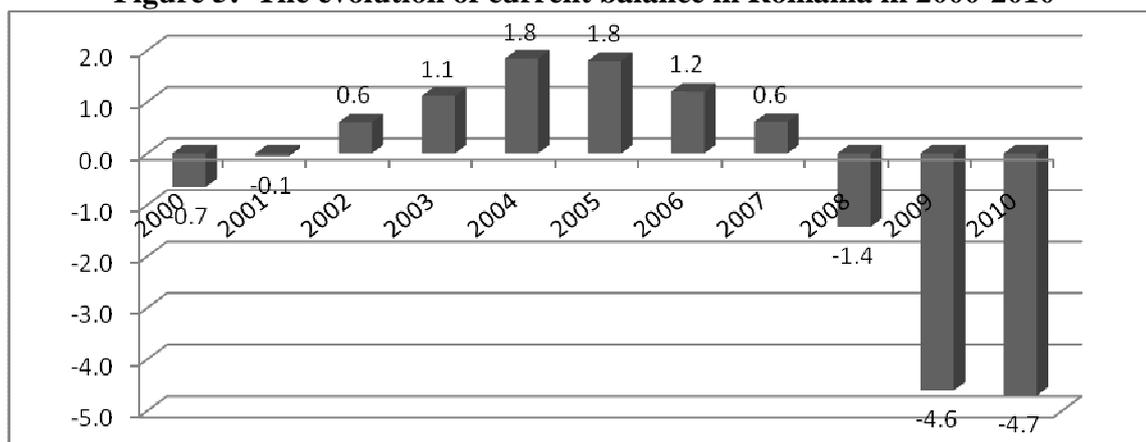
Conklin and Sayeed (1983) considered that the government attitude should follow the attitude of a private company in terms of financing public expenditures. Thus, current expenditures should be financed by fiscal revenues and investments by loans.

**Table 3: The current balance of Romania in 2000-2010**

Year	The current balance (%GDP)
2000	-0.7
2001	-0.1
2002	0.6
2003	1.1
2004	1.8
2005	1.8
2006	1.2
2007	0.6
2008	-1.4
2009	-4.6
2010	-4.7

Source: Own estimates using statistical data from IMF Country Reports and the Ministry of Public Finances.

Romania's current balance in the period between 2000 and 2010 was calculated based on data from the general government budget execution, as the difference between current revenue and current expenditure of general government.

**Figure 5: The evolution of current balance in Romania in 2000-2010**

Source: IMF Country Reports, Public Finances Minister

In the period before the eruption of the financial crisis in Romania (2002-2007), the current balance of Romania was positive, and the surplus was used to finance the public investments. Starting with 2008, when the effects of the financial crises started to be felt, Romania registered huge current deficits, which were justified by decreased public investments. This period was also characterized by the deepening of the general government deficit, which was largely sustained by the current deficit.

### 3. Conclusions

Budget deficits matters and their effects could be substantial, so the importance of a correct quantification is very important. Depending on the purpose of the budget deficit analysis, there are different fiscal indicators that could be used to define the balance of general government deficit.

The ways of computing the measures of budget deficit proved to be many, but it is very important to made the right choice of the indicator that offers the maximum of information available.

The conventional balance of general government in Romania is measured using the both cash methodology and accrual methodology. Depending on the nature of the analysis, one of the definitions or both of them could be used. For example, when reporting the budget deficit for intern use, the cash budget balance is presented. In the context of international agreements, international comparisons, or international reporting most of the time the ESA95 Standard is used (the accrual budget deficit) in order to facilitate unitary methodologies. In Romania the conventional balance represents the most used definition for budget deficit.

Regarding the evolution of the conventional balance in last 10 years (2000-2010) we can conclude that the budget deficit of Romania has been under control until the year 2007, and excepting year 2000, the budget deficit registered values around 3% of GDP or less, being in concordance with the Maastricht Criteria. At the end of year 2008, when the financial crisis started to be perceptible in Romania high budget deficit was recorded (4.8% of GDP in 2008, reaching 7.4% and 6.8% of GDP in 2009 and 2010).

An alternative to conventional balance is the primary balance, which measures how current actions improve or worsen the public sector's net indebtedness. Regarding the evolution of the primary balance of Romania, we can observe that until year 2007 the primary balance was positive, surplus being recorded, excepting year 2003 when there was a tiny deficit of 0.1% of GDP. The positive balance was used to partially cover public debt interest payments. In periods with primary surplus, the general government balance was negative (deficit), proving that the primary surplus was not large enough to finance completely the interest payments. The negative primary balance started with 2007 influenced directly the size of the general government deficit.

If the intention is to analyze the degree of governmental savings, the current balance is used; it represents the difference between public income and public expenditures, excepting the capital

transactions (investment expenditures, revenues from state assets sales, etc.). Regarding the Romanian case, the current balance was positive in the period before the eruption of the financial crisis (2002-2007), and the surplus was used to finance the public investments, but starting with 2008, Romania registered huge current deficits, which were justified by decreased public investments.

The operational deficit provides useful information for fiscal policy makers when inflation rate is very high.

So, the conventional deficit (cash or accrual), the primary or the current deficit of Romania have its own importance and relevance for the analysis of Romania's economy.

Our conclusion is that it is very useful to take into consideration the variety of information available in the different alternative fiscal indicators. This alternative fiscal indicators for budget deficit could contribute to a more effective fiscal policy and should be used by authorities in order to implement the fiscal strategy which goal should be the fiscal sustainability.

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## MEASURING THE EFFICIENCY OF THE PUBLIC EXPENDITURE AND THE PERFORMANCE OF THE LOCAL PUBLIC ADMINISTRATIONS IN ROMANIA

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**Abstract:** *Applying, at national and even at international level, a recognized system for measuring performance and efficiency at the local public administration's level offers a better transparency in spending the public money for the citizens, and acts like an incentive for the public managers, since the premises for comparison are present. In this perspective two indicators were proposed:  $P_{LPA}$  - measures the performance of a local public administration (LPA) and  $ES_{LPA}$  - measures the efficiency of the public spending at the level of an LPA. These indicators,  $P_{LPA}$  and  $ES_{LPA}$ , allow prioritizing the municipalities based on the overall performances obtained in a certain period of time, and according to the efficiency of the public spending. These indicators, present either in the actual form or in an improved form, should be considered an indispensable tool in a modern public administration, which bring a significant contribution to increasing the transparency of the public management.*

**Key words:** performance, efficiency, local public administration.

**JEL classification:** H50

### 1. Introduction

When speaking of efficiency, most times it regards the private sector, the public sector being almost universally designated as ineffective. This statement, however, requires to be carefully considered so as not to fall into the trap of any unfounded speeches. Without trying to create a rift between the public and the private sector, or give rise to the latter dislikes, we wonder who said that the public sector is inefficient in comparison to the private one? The answer is simple, the representatives of the private sector are those who show off their outstanding achievements in comparison with the alleged low level of those from the public sector. Then, starting from this assumption, it could infer the fact that the private sector is setting a trap for the public sector, winning the sympathy of the people and having as final purpose the extension of the "territory" towards those areas most wanted, under the pretext of inefficiency? (Mihaiu D. M. & Opreana A. & Cristescu M. P., 2010, pag. 132).

The efficiency of public expenses implies a relation between the economical and social effects resulted from implementing a program and the effort made to finance that program. The relationship is apparently simple, but practice often proves the contrary, because identifying and measuring inputs and outputs in the public sector is generally a difficult operation. In many cases the direct and immediate economical benefit is missing in the public sector. An important public benefit is the concern for human life and for quality of life. So, the efficiency in public sector could be compared with that obtained in the private sector only when the objectives are identical; and even in this case it's not fully comparable because the public sector develops complex projects, which take into account not only the economical benefits but also social problems (Opreana A., Mihaiu D. M., 2010, pag.271-272).

Despite the fact that in the foreign literature concepts like efficiency and performance of a local government are very discussed, in Romania, the performance and the efficiency in the public sector are subjects that too little have been written about and are rarely applied into practice, although only by measuring them, can the public institutions gain strength, consistency and can become more

reliable. (Mitu N. E. 2007, pag. 8-12). An ideal system for measuring performance in the public sector should best reflect the way that the local authorities manage to exercise their responsibilities responsabilitățile (Alexandru V., Comșa R., Moraru A., 2007, pg. 13-16), and also, a system for measuring efficiency must show if the LPA gained maximum effect from the incurred costs. Performance measurement is a systematic process that allows assessing the efficiency and the efficacy of an organization or program. The performance and efficiency of a local public administration is not represented only through a continuous improvement of the provided service's parameters, but also through providing local public services at the lowest costs through a better financial management of the local public administration's available resources. (Cîndea D., Bunescu L., 2009).

Measuring the financial performance can provide real information that help public managers and citizens determine if the results obtained are consistent with those expected. Therefore, the performance measurement process is a sequential action taken within and outside the public institution in order to establish the performance standards, evaluate performance and adopt certain corrections where necessary. The process involves selecting, defining and applying a set of indicators that help quantify the results analyzed at a LPA level. Newcomer appreciates in his paper "Measuring Government Performance", that creating and implementing a performance measurement system in the public sector faces at least four obstacles: difficulties in communicating information, insolent analysis, unreal sizing and political implications (Newcomer K., 2003, pg.330).

To these add up the organizational culture as an influential factor added by the American researchers Julnes and Holzer in *"Promoting the Utilization of Performance Measures in Public Organizations: An empirical Study of Factors Affecting Adoption and Implementation"* (Julnes P., Holzer M, 2001, pg.701-702).

Antonio Afonso is one of the leading researchers who have addressed this issue of studying the efficiency at the local government level, his works representing valuable discussions on this issue, from which we mention: António Afonso & Sónia Fernandes, 2006. *"Measuring local government spending efficiency: Evidence for the Lisbon region,"* Regional Studies, Taylor and Francis Journals, vol 40 (1), pages 39-53, February, Afonso, António & Fernandes, Sónia, 2008. *"Assessing and explaining the relative efficiency of local government,"* The Journal of Socio-Economics, Elsevier, vol 37 (5), pages 1946-1979, October, António Afonso & Sónia Fernandes, 2005. *"Assessing and Explaining the Relative Efficiency of Local Government: Evidence for Portuguese Municipalities,"* Working Papers 2005/19, Department of Economics at the School of Economics and Management (ISEG), Technical University of Lisbon, Antonio Afonso & Carla Scaglioni, 2005. *"Public Services Efficiency Provision in Italian Regions: a Non-Parametric Analysis,"* Working Papers 2005/02, Department of Economics at the School of Economics and Management (ISEG), Technical University of Lisbon.

I consider absolutely necessary to quantify the overall performance of a LPA, and also the effectiveness of the expenditures incurred. Performance concerns the level of the results achieved by the LPA in a period of time, and the efficiency allows to correlate these results with the efforts made to obtain them. Using, at national and even at international level, a recognized system for measuring performance and effectiveness at the local public administration's level offers a better transparency in the expenditure of the public money for the citizens, and acts like an incentive for the public managers, since the premises for comparison are present.

## **2. Proposing a performance and efficiency measuring system of the public expenditure for municipalities in Romania**

As I mentioned above, performance concerns the results of an activity and the performance indicators allow comparisons between these results in time or space. But in order for the situation to be represented as faithfully, the performance indicators are not always sufficient. We have obtained good results, but at what cost? From this it is shown the need for measuring the effectiveness of the financial effort. Efficiency indicates the ratio between results and effort, and closely outlines a

LPA's activity. Results can be equal for several LPA, but some were obtained through bigger or smaller efforts than others.

Local public administrations have an activity sphere that covers several areas, depending on its specificity: town hall, prefecture, county council. For example, city halls from county seats manage the roads within the city, the water supplying services, the sanitation services, public lighting, the undergraduate education, and others depending on the state of decentralization. The county councils administer the county road network, the child welfare services and the county hospitals. As you can see, the competence areas and activities vary by the type of the local public administration. Therefore, measuring performance and efficiency must be adapted to each type, as representative indicators for each activity must be found, and their values must be comparable. Thus, in this study I will analyze *the efficiency of the public spending and the performance of the county seat municipalities in Romania*, and I will propose a methodology for determining them.

Performance indicator can be defined as a number (a size) that measures and transmits information about a particular aspect of a public institution's dynamics. In order for it to be used in analyses, the indicator must be compared with previously set standards or targets or with the results of other local public administrations (public benchmarking). A public sector's performance indicator must be characterized through: adaptability, representativeness, simplicity, availability, cost, achievability and stability (Mitu NE, 2007, pg. 9-10).

Given that the activity of the county halls in the municipalities expands on the several areas mentioned above, then measuring performance, meaning measuring the results obtained, must touch all of these areas. Federation of Local Authorities of Romania has prepared a "Guide of the financial performance indicators" in which a classification of these indicators into four categories was made: ability to generate revenue, expenditure rigidity, investment and debt contracting capacity; the financial management capacity (see *Federation of Local Authorities in Romania - GUIDE of the financial performance indicators, Bucharest, 2003*). These indicators come to clarify aspects of the financial status of a local public administration (LPA), experts identified 48 performance indicators and grouped them, in 2003, in a LPA performance indicator's database at national level. But the performance of a city hall, and of a LPA in general, is not only summarized to the financial results, but goes further, to the results of the developed activities that have generated that financial result. The budget is just a base, a mean, which supports the undertaken programs.

As a result of the stated above, I propose as a measurement method of the overall performance of a municipality city hall, *building of an performance aggregate indicator, noted  $P_{LPA}$* . This  $P_{LPA}$  indicator will consist of six secondary indicators, and each of them will be implemented over a number of sub-indicators. The sub-indicators will be equally weighted in the construction of the appropriate secondary indicator, and in turn the six secondary indicators will have the same specific weight in determining the  $P_{LPA}$  indicator. Of course that the values of the sub-indicators will have different measurement units, so it is necessary to standardize the data in order for it to be comparable. The average value of each sub-indicator will be 1 and the other values will relate to it.

Sub-indicators that are optimized through maximum will be standardized following the formula:

$$X_{si} = X_i / X_m$$

where  $X_{si}$  represents the standardized value for the sub-indicator 'i'  
 $X_i$  represents the initial, primary value of the sub-indicator 'i'  
 $X_m$  represents the average of the initial values for the sub-indicator 'i'

Sub-indicators that are optimized through minimum, the standardized value of these will be determined after the formula:

$$X_{si} = 1 / (X_i / X_m)$$

The table below presents the primary indicators and the related sub-indicators, proposed for making the indicator PTM.

**Table no.1: Indicators proposed to form the indicator  $P_{LPA}$ , and the related sub-indicators**

Performance indicator	Primary indicators	Sub-indicators
<b>INDICATOR</b> $P_{LPA}$	<b>I1.Water and sewerage</b>	S1.1 Share of population with access to the water of the total population%
		S1.2 Share of population with access to the sewage of the total population%
		S1.3 The share volume of the clean wastewater discharged from the volume of the evacuated wastewater
		S1.4 Number of accidents per km of water network and sewage systems
	<b>I2.Public lighting service</b>	S2.1 Share of public roads with public lighting from the total network of roads%
		S2.2 The total number of unscheduled power cuts in one year
	<b>I3.Waste management</b>	S3.1 Density of garbage cans, no / km
		S3.2 Accessing EU funds for developing a sanitation service, 1-yes, 0-no
		S3.3 The existence of ecological landfills for waste 1-yes, 0-no
		S3.4 Domestic waste collection frequency No / week
		S3.5 The total capacity of collection containers per capita
		S3.6 share of waste collected selectively from the total collected waste%
	<b>I4.Streets</b>	S4.1 The share of the modernized road network from the total network of roads %
		S4.2 The average cost for asphalt maintenance work performed lei / km
		S4.3 Number of parking spaces in relation to the number of vehicles registered
		S4.4 The annual number of complaints on quality street
		S4.5 Length of roads per capita
		S4.6 The average execution for maintenance work / upgrade work, days / km
	<b>I5.Education</b>	S5.1 Primary education level of enrollment
		S5.2 Nursery level of enrollment
		S5.3 The average number of students in a class
		S5.4 Number of students per teacher
	<b>I6.Financial performance</b>	S6.1 Current income per capita
		S6.2 Total current income per capita
		S6.3 Total income per capita
		S6.4 Revenues for investments per capita
		S6.5 Collectability of all local taxes
		S6.6 The aggregate fiscal level
		S6.7 Annual debt service as a share in current autonomous revenue
		S6.8 Share of the reserves in total expenses
S6.9 Share of the gross operational result in total operational revenues		

Source: Federation of Local Authorities in Romania – “GUIDE of the financial performance indicators”, Bucharest, 2003

Alexandru V., Comşa R., Moraru A. (2007): „*Measuring the performance of the county towns in Romania in providing local public services in the period 2003 - 2005*”, Institute for Public Politics, Bucharest; and personal considerations.

Where (see Federation of Local Authorities in Romania –“ *GUIDE of the financial performance indicators*”, Bucharest, 2003):

*S6.1. = Current income (fiscal and non-fiscal) per capita*

A person's own current income (tax and non-tax) represent the "current incomes" according to the classification of the Ministry of Public Finances, meaning the sum of the fiscal income and the non-fiscal ones, excluding special charges, to which were also added the special taxes with the characteristic of "current", although this represents an optional source to which not all local governments appeal to and which cannot be used for general purposes, but only in the field for which these taxes were imposed. A citizen's current revenues do not include the amounts deducted from the state budget for the completion of local budgets. Such an indicator that cumulates revenues helps interpret the degree of financial autonomy of the analyzed LPA: the higher the value of the indicator is, the higher the degree of financial autonomy and the better the financial situation of the LPA is.

*S6.2 = Total current income per capita*

This indicator fully contains someone's current revenues types (tax and non-tax) to which are added the deducted rates from the tax on income. These rates from the income tax, unlike other transfers from the central budget, are transferred into the account of the local administrations automatically and they reflect very well the situation of the local economy and the efforts that a LPA makes in order to develop itself through attracting new investments. For the multi-annual analysis of these rates (as a reflection of the local economic development) it should be kept in mind that their amount (percentage) is determined each year by the state budget law and therefore the amount may vary from one year to another, independent from the changes in the tax base.

*S6.3 = Total income per capita*

The total income per capita allows a comparison between the LPA and different sizes.

*S6.4 = Revenues for investments per capita*

The investments revenues represent financial resources that can be used exclusively for capital expenditures. These financial sources are, on the one hand, the revenues obtained by a LPA from a previous investment and can only be used for investments (such as capital income, or income from amortization of assets), and also investment destination transfers received from the state budget. This indicator refers to the investment degree of a LPA from a previous period.

*S6.5 = Colectability of all local taxes*

The ratio between the effective collection of local taxes and the total payment obligations of the tax payers corresponding to local taxes.

*S6.6 = The aggregate fiscal level*

The ratio between the actual level (percent or absolute sum) and the maximum level allowed by the law for the current year.

*S6.7 = Annual debt service as a share in current autonomous revenue*

This indicator defines the extent to which a LPA may still contract other loans in addition to those already contracted, given the limits of indebtedness permitted. These limits give autonomy to the local authority in decision-making as long as the funding costs remain in cautious acceptable limits. By law, if the LPA intends to contract other debts, for the coming years, the LPA must take into account the future debt service related to such loans.

*S6.8 = Share of the reserves in total expenses*

With the total revenues, the local authorities must cover operating and capital expenses and the annual debt service contracted. What remains can be stored in a reserve fund. The establishment of this reserve fund is a measure of fiscal prudence. This indicator shows the ability of a LPA to ensure that the total of the expenditures does not exceed the total of the revenues.

*S6.9 = Share of the gross operational result in total operational revenues*

The gross operational result (surplus / deficit) represents the difference between the net operating result (surplus / deficit) and the financing of debt service costs. The share of the net operational result (surplus / deficit) in total operational revenues represents the ratio between the net operational result and the operational revenues.

Thus,  $PTM = \sum I_i/6$ , where  $i$  takes values from 1 to 6.

And  $I_i = \sum S_{ij}/n$ ,

where  $S_{ij}$  - represents the sub-indicators related to each indicator

$n$  – represents the number of sub-indicators that form the main primary indicator

This method has the advantage that allows determining the municipality's performance on each key area in part (the primary indicators show the performance of the sector for which they were built) and also overall. In this way they are able to identify the least advanced activities and the possible causes for this lack of performance.

*To determine the effectiveness of the public expenditure indicator for the county municipalities capital of Romania, noted  $ES_{LPA}$* , will start from the premise that an effective indicator highlights the relationship between results and efforts. A LPA can be declared economically efficient if it has obtained maximum results with the incurred expenses, which constitute in efforts (in this case a maximization of the results is wanted), or if the desired results were achieved with public expenditure minimal effort (in this case a minimization of efforts is wanted for the same level of results).

In this case *efficiency is calculated as the ratio between results and effort*, and an over-unit value of the ratio highlights a city-wide efficiency, otherwise, a sub unit ratio shows that the effort was too high for the results obtained, or that the same results could have been obtained with less effort. Results will be measured with the indicator  $P_{LPA}$ , shown above, and the effort will be measured by the public expenditure per capita, since it is examined the effectiveness of the public spending in the city. The public expenditure was chosen as an effort indicator and reported to the number of inhabitants of that city to ensure data comparability between municipalities of different sizes. The public expenditure per capita will also be standardized after the same principle applied in the case of performance, in relation to the average.

So  $ES_{LPA} = P_{LPA}/\text{public expenditure per capita}$

It will be able to determine the economical efficiency for each sector, by reporting the primary afferent indicator ( $I_i$ ) to the public expenditure intended for financing that sector per capita.

### 3. Conclusions

These indicators  $ES_{LPA}$   $P_{LPA}$  allow prioritizing the municipalities based on the overall performance obtained in a certain period of time, and according to the efficiency of public spending. These indicators, present either in current or improved form, should be regarded as indispensable tools in a modern public administration, because they bring a significant contribution to increasing the transparency of the public management. The civil society, in return of the taxes it bears, asks for more quality in executing the public services and a better management of the public funds. All of these statements justify measuring of the overall performance and of the economical efficiency of the public financial resources. Also, these indicators proposed in this study may be important tools of public management within reach of a local government, for example a municipality, that would motivate and lead to a continuous improvement of performance and efficiency. Although these two indicators,  $ES_{LPA}$  and  $P_{LPA}$ , prove their utility, I only stopped at dealing with them from a theoretic point of view, because the lack of data represented an obstacle applying them practically. There are regional and county statistics, but these statistics include the results of all the LPA's in that range, of the municipalities of cities, city halls, mayors, county councils, without allowing their breakdown by each type of LPA in part. In order to be able to apply this system of measuring the overall performance and efficiency of the local public expenditures, in the proposed or improved form, it is necessary for it to be recognized nationally wide, and to create

an online database with the necessary sub-indicators, or to apply questionnaires to all municipalities of the county in Romania, action that requires substantial resources, both material, human and financial. But this proposal can represent a starting point for further research on this subject of efficiency and performance in the local public sector.

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## ON SOME MATHEMATICAL MODELS FOR THE LONGEVITY RISK IN THE ANNUITY MARKET

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**Abstract:** *The markets for longevity derivatives are starting to develop, as the insurance industry faces some specific challenges related to longevity risk. In this paper, we develop the models of mortality rates and the pricing models of the longevity risk. We make some remarks regarding forecasting mortality rates using Lee-Carter model and our model. Also, we deal with the securitization of longevity risk through the longevity bonds, the interest is split between the annuity provider and the investors depending on the realized mortality at each future time by a Special Purpose Company.*

**Key words:** stochastic mortality model, Lee-Carter model, longevity risk, longevity bonds (straight bonds).

**Jel Classification:** G23, C02, G32.

### 1. Introduction

One of the largest sources of risk faced by life insurance companies and pension funds is the longevity risk: the risk that members of some reference population might live longer on average than anticipated, affecting their pricing and reserving calculations. The risk of outliving one's savings or other financial resources to cover expenses during retirement could also be understood as some sort of individual longevity risk. However, the term aggregate longevity risk has been used rather to refer to the additional uncertainty about changes in the underlying patterns, and this particular risk can be considered a major concern for insurers.

Nevertheless, this risk should be carefully considered also when dealing with insurance covers, especially within the area of health insurance. In particular, the longevity risk affects sickness benefits for the elderly (for example, post-retirement sickness benefits) and long-term care (LTC) annuities. A moving scenario, in which both future mortality and future senescent disability are random, constitutes the appropriate context for pricing and reserving for LTC products. The impact of the longevity risk on living benefits must be carefully faced. Reinsurance policies and capital allocation can provide appropriate tools to face this risk. Moreover, also the problem of "locating" the longevity risk via a possible sharing between, say, the annuity provider and the annuitant should be carefully considered.

The life expectancy of human beings has been increasing significantly since the start of the 20th century, and this trend does not show signs of slowing down. Strong, sustaining changes of mortality, fertility, migration and other factors have tremendously affected the age structures of most countries' population, and a rapid increase of average individual lifetime is a predominant consequence. Looking forward, possible changes in lifestyle, medical advances and new discoveries in genetics are likely to make future improvements to life expectancy highly unpredictable as well.

These unanticipated improvements have proved to be of greatest significance at higher ages, and have caused life offices (and pension plan sponsors in the case where the plan provides the pension) to incur losses on their life annuity business. The problem is that pensioners are living much longer than was anticipated, say, 20 years ago. As a result life offices are paying out for much longer than was anticipated, and their profit margins are being eroded in the process. The insurance industry is therefore bearing the costs of unexpectedly greater longevity. Exposure to longevity risk

is therefore a serious issue, and yet, traditionally, life companies and pensions funds have had few means of managing it: until recently, longevity risks were never securitized and there were no longevity derivatives that these institutions could use to hedge their longevity risk exposures. However, this state of affairs is changing, and markets for longevity derivatives are starting to develop. Most prominent amongst these are longevity bonds (LBs). The idea of using the capital markets to securitise and trade specific insurance risks is relatively new, and picked up momentum in the 1990's with a number of securitisations of non-life insurance risks. December 2003 saw the issue by Swiss Re of the first bond to link payments to mortality risk: specifically short-term, catastrophic mortality risk. A related capital market innovation, the longevity bond, provides life offices and pension plans with an instrument to hedge the much-longer-term longevity risks that they face. Longevity bonds are annuity bonds whose coupons are not fixed over time, but fall in line with a given survivor index. Each year the coupon payments received by the life office or pension plan decrease by the percentage of the population who have died that year. Also an important issue in actuarial theory is to study the ruin probability of an insurance company when the management has the possibility of investing in the financial market. Azcue and Muler (2004) treated this problem assuming that part of the surplus is invested in the risky asset.

Increased life expectancy indicates the possible risk of underestimating insurance premiums on the basis of period mortality tables for life annuity policies. The pure premium of annuity products computed from a period mortality table can be as much as 50 percent lower than that computed from a more accurate cohort life table. Actuaries must therefore use for pricing and reserving life insurance policies cohort mortality tables to compute pure premiums for annuity products. There are thus required (stochastic) mortality models or mortality projections. As to better manage longevity risk, prospective life tables, containing longevity trend projections are used. They prove to be very helpful for reserving in life insurance in particular and therefore they have to be regularly updated. Moreover, in addition to this risk of observing a significant change in the longevity trend, the insurance sector is facing some basis risk as the evolution of the policy holders mortality is usually different from that of the national population, because of some selection effects. This selection effect has different impacts on different insurance companies portfolios, as mortality levels, speeds of decrease and accelerations are very heterogeneous in the insurance industry. This makes it hard for insurance companies to rely on national indices or even on industry indices to manage their own longevity risk. Thus, understanding the dynamics of future mortality is very important for the actuary to pricing and reserving. Recent years have seen considerable developments in the modelling and forecasting of mortality rates. Pioneering work by Lee and Carter (1992) has been supplemented by a variety of alternatives that might be considered improvements on the single-factor LC model according to a variety of criteria (see, for example, Renshaw and Haberman (2006), Blake, Cairns et al. (2006)). Loeys et al. (2007) developed a parametric model which incorporates both the effect of age on mortality and of underlying time trends on mortality rates so that the model captures the evolution of the mortality curve over time.

The main impact of longevity risk on the net pension liabilities of employer-provided private pension plans is through their annuity payments. An annuity is an agreement for one person or organization to pay another (the annuitant) a stream or series of payments (annuity payments). Annuities are intended to provide the annuitant with a steady stream of income over a number of years, which can start immediately or in the future. The capital and investment proceeds are generally tax-deferred. There are many categories of annuities. Longevity risk would have its larger effect on annuities that are fixed, deferred and for the lifetime of the annuitant once retirement age is reached. The impact on fixed period annuities, on the other hand, is less clear-cut. Moreover, the magnitude of the impact of longevity risk on annuity payments would depend not only on the type of annuity guarantees but on how pension funds account for improvements in mortality and life expectancy when calculating the net present value of annuity payments. Unfortunately, the impact of longevity risk is compounded as few pension plans account for future changes in mortality and life expectancy. Moreover, the task of assessing the best way to account for improvements in

mortality and life expectancy is complicated by the lack of a common methodology to account for longevity risk.

## 2. Stochastic mortality models

Mortality analysis has a long tradition in actuarial science. Conventional actuarial practice uses parametric graduation techniques to smooth out wild fluctuations when estimating probabilities of death for a given population. Graduation allows us to obtain a clear picture of the mortality curve, in other words the probability of death as a function of age.

The prediction of mortality is a subject of great interest as a result of the persistent tendency of decrease of the mortality rates during the last century, respectively the effects upon the expenses of the social insurance systems. An approach in forecasting mortality rates was proposed by Lee and Carter (1992) and used initially for projections of the age-specific mortality rates in the United States. Specific Lee-Carter method is the extrapolation in perspective of the behavior recorded in the past. The resulted forecasts indicate the level of age-specific mortality rates, in the assumption that the persistent trend of decrease of these rates will also continue into the future. The method consist in decomposing the age-specific mortality in two components, a time-varying index of mortality  $k_t$  and a set of age-specific constant  $\beta_x$ .

We use the following notations:

- $T_x(t)$  is the remaining lifetime of an  $x$ -aged individual in calendar year  $t$ .
- $L_{x,t}$  is the number of individuals aged  $x$  alive on January 1 of year  $t$ .
- $D_{x,t}$  is the number of deaths at age  $x$  during year  $t$ .
- $ETR_{x,t}$  is the exposure-to-risk at age  $x$  during year  $t$ .
- $q_x(t)$  is the probability that an  $x$ -aged individual dies in calendar year  $t$ ;  $p_x(t) = 1 - q_x(t)$  is the corresponding survival probability.
- $m_{x,t}$  the central death rates for age  $x$  in year  $t$ , it is estimate by ratio  $D_{x,t}$  and the total number of person-years lived in the interval  $[x, x + 1)$  during calendar year  $t$ ;
- $\mu_x(t)$  is the mortality force at age  $x$  during calendar year  $t$ .

Assume that  $\mu_{x+\xi}(t+\tau) = \mu_x(t)$  for  $0 \leq \xi, \tau < 1$  and integer  $x$  and  $t$ . We have

$$p_x(t) = \exp(-\mu_x(t)), m_{x,t} = \mu_x(t) \text{ and } ETR_{x,t} = \frac{-L_{x,t} \cdot q_x(t)}{\ln p_x(t)}.$$

In the classical model (Makeham):

$$\mu_x(t) = a_t + b_t \cdot c_t^x \quad (1)$$

In the Lee-Carter model (1992):

$$\ln \hat{\mu}_x(t) = \ln \mu_x(t) + \varepsilon_x(t), \quad (2)$$

where  $\mu_x(t) = \exp(\alpha_x + \beta_x \cdot k_t)$  and error terms  $\varepsilon_x(t) \sim N(0, \sigma^2)$ . Parameters fulfill

$$\sum_{t=t_{\min}}^{t_{\max}} k_t = 0 \text{ and } \sum_{x=x_{\min}}^{x_{\max}} \beta_x = 1 \text{ for identifiability of model;}$$

$\alpha_x$  is mean of  $\mu_x(t)$ , age specific parameter that indicates the average level of mortality;

$k_t$  time specific parameter that is an index of the level of mortality;

$\beta_x$  age specific parameter that indicates the responsiveness of each age to the time parameter  $k_t$ . Some ages decline in mortality quicker then others.

The mortality  $\mu_x(t)$  to estimate of  $\hat{\mu}_x(t) = \frac{D_{x,t}}{ETR_{xt}}$ , where  $ETR_{xt} = -\frac{l_x(t) \cdot \hat{q}_x(t)}{\ln(1 - \hat{q}_x(t))}$  for  $x = x_{\min}, \dots, x_{\max}$  and  $t = t_{\min}, \dots, t_{\max}$ . Thus  $\hat{\mu}_x(t) = \alpha_x + \beta_x \cdot k_t + \varepsilon_x(t)$ . Differentiating with respect to  $\alpha_x$  we obtain

$$\sum_{t=t_{\min}}^{t_{\max}} \ln \hat{\mu}_x(t) = (t_{\max} - t_{\min} + 1) \cdot \alpha_x \tag{3}$$

thus  $\alpha_x$  is estimated by

$$\hat{\alpha}_x = \frac{1}{t_{\max} - t_{\min} + 1} \sum_{t=t_{\min}}^{t_{\max}} \ln \hat{\mu}_x(t) \tag{4}$$

Let  $Z$  be a matrix  $(x_{\max} - x_{\min} + 1) \times (t_{\max} - t_{\min} + 1)$  with the elements  $z_{xt} = \ln \hat{\mu}_x(t) - \hat{\alpha}_x$ . Let  $u_1$  (respective  $v_1$ ) a normed eigenvector of  $Z^t \cdot Z$  (respective  $Z \cdot Z^t$ ) corresponding maximal eigenvalue  $\lambda_1$ . We estimate  $\beta$  and  $k$  with decomposition  $Z = UDV^t$ , where  $D$  is a diagonal matrix.

Thus, 
$$\hat{\beta}_x = \frac{U(x,1)}{\sum_x U(x,1)} \tag{5}$$

and

$$\hat{k}_t = V(t,1) \cdot \left( \sum_x U(x,1) \right) \cdot D(1,1). \tag{6}$$

In the second step, with estimates from first step, we search estimate of  $k_t$  so that for  $t$  we have

$$\sum_x D_{x,t} = \sum_x ETR_{x,t} \cdot e^{\hat{\alpha}_x + \hat{\beta}_x \cdot \hat{k}_t} \tag{7}$$

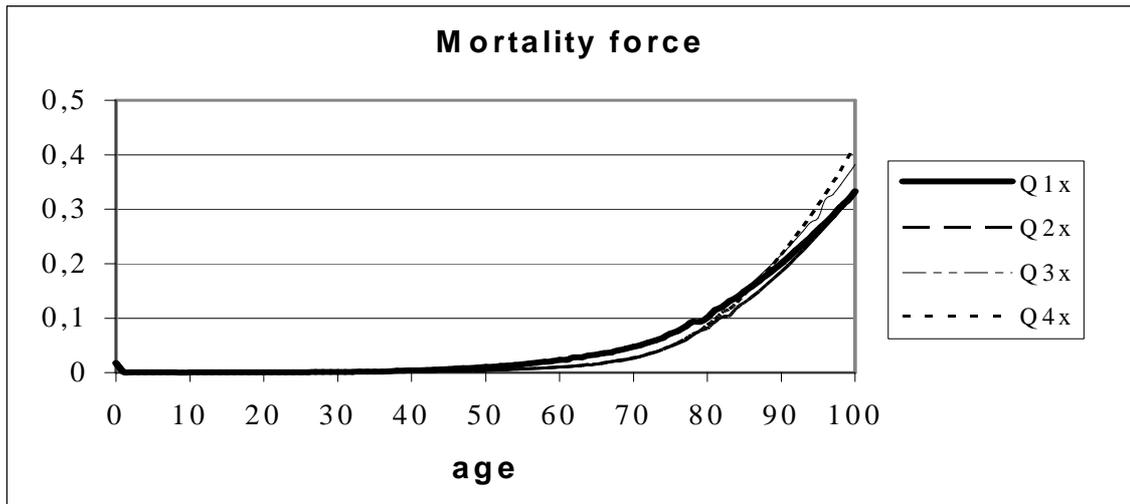
Renshaw and Haberman (2006) generalised the Lee-Carter model to include a cohort effect as follows:

$$\ln \mu_x(t) = \alpha_x + \beta_x^{(1)} \cdot k_t + \beta_x^{(2)} \cdot \gamma_{t-x} \tag{8}$$

An autoregressive-integrated-moving average model (ARIMA) is fitted for the time series  $k_t$ . Lee & Carter used a random walk  $k_t = k_{t-1} + d + e_t$ , where  $d$  is annual average transformation and the errors are uncorrelated. Our purpose is to obtain predictions  $\hat{k}_{T+h}$ ,  $h = 1, 2, \dots$  for the estimate mortality to horizon  $h$ .

We present the numerical applications using as the reference population the Romanian population. Figure 1 shows the graph of the cumulated death risk (a detail in Figure 2) corresponding to the four basic populations: urban men (Q1x), rural men (Q3x), urban women (Q2x), rural women (Q4x).

**Figure 1. The graph of mortality risks on residence and on gender.**



**Figure 2. (detail of Figure 1) The period 10 - 40 years old.**

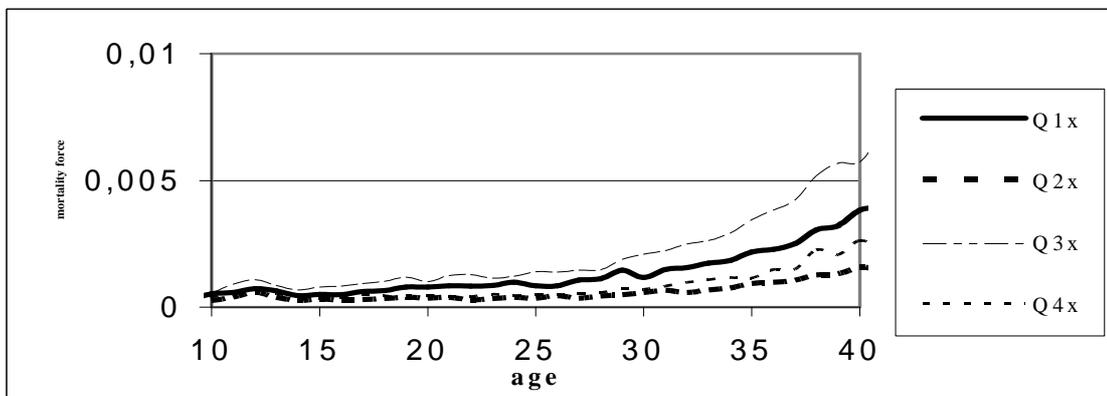
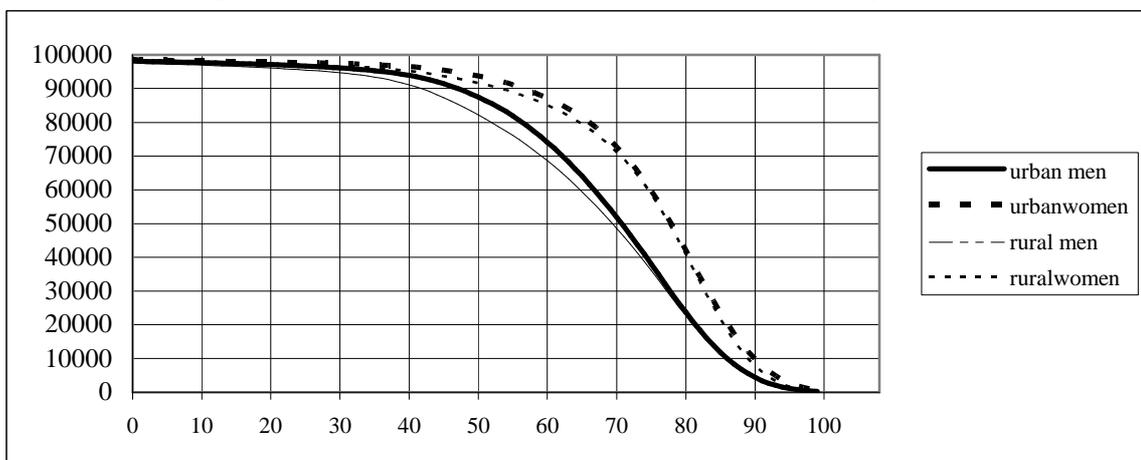


Figure 3 shows that there is stochastic dominance among the lifetime of the four populations considered in the study: a rural men lives less than an urban men, the latter less than a rural women, and urban women stochastically dominate the other three classes.

**Figure 3. Survival functions on residence and gender.**



### 3. Securitization of longevity risk through the bonds

The first bond with cash flows linked to the realization of a composite mortality index,  $M_t$ , was the Swiss Re bond (D. Blake et. al. (2006)) issued in December 2003. This bond had a maturity of three years, a principal of \$400m, and offered investors a floating coupon of LIBOR+135 basis points. In return for this coupon rate, the principal repayment is dependent on the realized value of a weighted index of mortality rates,  $M_t$  (a weighted average of mortality rates over 5 countries, males and females, and a range of ages). The principal is repayable in full only if the mortality index does not exceed 1.3 times the 2002 base level during any year of the bond's life, and is otherwise dependent on the realized values of the mortality index, that is, the bond is a principal-at-risk bond. The bond was issued through a special purpose vehicle (SPV) called Vita Capital: this was convenient from Swiss Re's point of view because it kept the cash flows off-balance sheet, but also helped to reduce the credit risk faced by investors.

The main characteristics of this bond can be summarized as follows:

- The bond was designed to be a hedge to the issuer.
- The issuer gains if  $M_t$  is extremely high (the buyer gains if  $M_t$  is not extremely high).
- The bond is a short-term bond designed to protect the issuer against an extreme increase in mortality, such as that associated with an influenza pandemic.
- The bond is a standard coupon-plus-principal bond in which the coupons float with LIBOR and only the principal is at risk from a mortality deterioration that might occur during the period until the bond matures, and it is the spread over LIBOR that compensates the holder for allowing the principal to be at risk.

The first two points imply that the bond is a hedge against a portfolio dominated by life insurance / reinsurance (rather than annuity) policies. The precise payment schedules are given by the following functions:

$$f_t(\cdot) = \begin{cases} LIBOR + spread, & t = 1, \dots, T-1 \\ LIBOR + spread + \max(0, 1\% - \sum_j L_j), & t = T \end{cases} \quad (9)$$

where  $L_j$  is the loss function.

Now, we develop a mathematical model for calculate the premium and the price paid by the insurers and investors. Let  $S$  be the compensation paid to the insurer for each survivor annuitant over the estimated number,  $B_t$  the number of compensations (benefits) granted,  $N_s$  the threshold for the number of living annuitants,  $l_{x_0}$  the number of annuitants aged  $x_0$  at the initial moment,  $l_{x_0+t}$  the number of annuitants alive at the time moment  $t$ ,  $\hat{l}_{x_0+t}$  the estimated number of annuitants alive at moment  $t$ . The insurer is at risk of systematic biases between  $l_{x_0+t}$  and  $\hat{l}_{x_0+t}$  taking into account the fact that premiums are calculated based on the estimated number (usually the average number). These are the losses of the insurer at time  $t$ . These damages may be limited by the so-called securities (straight bonds, i.e. bonds with no other incentives for the investor than the annual interest coupon along with the promise to repay the nominal value at the ransom date). They are called longevity bonds because they have the interest rate inversely proportional to the excess number of survivors. We denote this interest by  $D_t$ , and we have:

$$D_t = \frac{S(N_s - B_t)}{N} = \begin{cases} 0, & \text{if } l_{x_0+t} - \hat{l}_{x_0+t} > N_s \\ D_t^{(1)}, & 0 < l_{x_0+t} - \hat{l}_{x_0+t} \leq N_s \\ \frac{S \cdot N_s}{N}, & l_{x_0+t} - \hat{l}_{x_0+t} \leq 0 \end{cases} \quad (10)$$

$$\text{where } D_t^{(1)} = \frac{S}{N} \left[ N_s - (l_{x_0+t} - \hat{l}_{x_0+t}) \right].$$

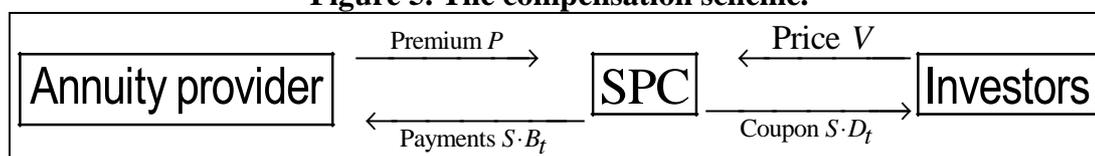
The scheme to limit the losses of the insurer and the investment in bonds is made through a special purpose company (SPC), i.e. a government company specially created to issue and sell bonds. In exchange for a premium  $P$  from the insurer, SPC ensure its support with the amount  $S \cdot B_t$ , where

$$B_t = \begin{cases} N_s, & \text{if } l_{x_0+t} - \hat{l}_{x_0+t} > N_s \\ (l_{x_0+t} - \hat{l}_{x_0+t}), & 0 < l_{x_0+t} - \hat{l}_{x_0+t} \leq N_s \\ 0, & l_{x_0+t} - \hat{l}_{x_0+t} \leq 0 \end{cases}$$

(11)

The compensation scheme is presented in Figure 5.

**Figure 5. The compensation scheme.**



We denote by:  $N$  the number of bonds sold,  $P$  the premium paid by the insurer,  $W$  the total value of the loan bond,  $V$  the price paid by the investors (the nominal value).

The profitability of the operation requires  $P + V \geq W$ , and we will consider a nonprofit operation, i.e.  $P + V = W$ . Let  $SF$  be the principal (the amount of the loan at maturity) and  $d(0, t)$  the discount factor at moment 0 of the amount at time  $t$  (for example,  $d(0, t) = 1/(1+i)^t$ , where  $i$  is the interest rate). The total amount paid by the clearing house at moment  $t$  is  $S \cdot B_t + N \cdot D_t = S \cdot N_s = C_t = C$ , we will consider this cash-flow constant (the value divided between the insurer and investor). We have:

$$W = SF \cdot d(0, T) + \sum_{t=1}^T C_t \cdot d(0, t). \tag{12}$$

If  $l_{x_0+t} > \hat{l}_{x_0+t}$ , then the insurer registers the loss

$$Loss(t) = S \cdot (l_{x_0+t} - \hat{l}_{x_0+t}).$$

(13)

If the insurer pays for the bond issue, then its loss is reduced by the received compensation  $Loss^{LB}(t) = Loss(t) - S \cdot B_t$  (in our hypotheses it cancels).

The premium  $P$  and the price  $V$  are computed according to:

$$P = S \cdot \sum_{t=1}^T E[B_t] \cdot d(0, t), \tag{14}$$

$$V = SF \cdot d(0, T) + \sum_{t=1}^T N \cdot E[D_t] \cdot d(0, t), \tag{15}$$

where the expected values are taken for the estimated risk.

#### 4. Conclusions

The European insurance industry will soon have to comply to some new solvency regulations, namely Solvency II, that will be effective by late 2012 and certainly enhance the development of

alternative risk transfer solutions for insurance risk in general and for longevity risk in particular. Those regulations and standards lay the emphasis on the way risks endorsed by an insurance company should be handled in order to face adverse economic and demographic situations. Thus, the pricing methodologies for insurance related transactions, and in particular longevity linked securities will be impacted as more and more alternative solutions appears in the market. Today, the longevity market is an immature and incomplete market, with an evident lack of liquidity. Standard replication strategies are impossible, making the classical financial methodology not applicable. In this case, indifference pricing, involving utility maximization, seems to be a more appropriate point of view to adopt. Besides, due to the long maturities of the underlying risk, the modeling of long term interest rate becomes also unavoidable and adds to the complexity of the problem. Mortality forecasts are needed as inputs for economic, fiscal, environmental, and social policy planning. They are needed also by insurance companies for pricing of and reserving for annuities and pension products as accurately as possible. However, many of the official mortality forecasts have turned out to consistently underestimate the experienced decline in mortality. No model for mortality prediction can ever be judged "correct". Any forecast must, implicitly or explicitly, choose the degree to which the future trend is assumed to continue the past trend, and the degree to which the future variation about the trend will be similar to past variation. Often the implicit assumption in time-series modeling is that these will be alike. Advantages of Lee-Carter approach are: easy interpretation of the parameters, the influence of the calendar time is summarized in a single index and it suffices to extrapolate the  $k_t$  series in the future to get the projected lifetables and it can be interpreted using mortality reduction factors. But, the errors have been assumed to be homoskedastic, that is unrealistic because the logarithm of the observed force of mortality is much more variable at older ages than at younger ages. The dynamics of the model parameters for different models have, almost as a rule, been modeled using a random walk with drift. This can be a reasonable choice; however, a more general ARIMA model could possibly provide a better fit, at least for some datasets. Mortality rates influence the annuities values and reserves, thing that may lead to insufficient funds or excess of liquidities. Prospective life tables, containing longevity trend projections must be used. They prove to be very helpful for reserving in life insurance in particular and therefore they have to be regularly updated. There remain a number of potentially valid stochastic models, and that the choice of a model depends also on the priorities of the model user, together with the intended use of the model. In this regard, differentiating between individual and aggregate or cohort longevity risk can be of help. Individual risk is associated to each individual and it can be easily offset by pooling risks. Therefore, it would be more efficiently undertaken if assumed by pension funds, as they are best placed to pool individual specific risks. The aggregate or cohort risk, on the other hand, is more difficult to address or hedge against. Therefore, this risk is more open to be shared by pension funds and individuals by indexing benefits to cohort longevity changes. Using mortality tables differentiating according to socio-economic could give raise to problems of discrimination. Arguments in favor of differentiating tables include that using an average life expectancy index penalizes people with higher life expectancy favoring people with lower life expectancy. There is a clear advantage from using a common methodology to forecasts mortality rates and life expectancy. However, assumptions regarding the overall populations rather than the specific membership populations of private pension plans may not be of much use to them. Governmental agencies could produce forecasts for the entire population and for different subgroups according to gender, age, income and educational level. Hence, different pension funds could use the corresponding sub-population that matches its current membership structure more closely.

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