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**THE TUMULTUOUS UNIVERSE OF  
SOVEREIGN DEBT – EVOLUTIONS IN TIME  
AND SPACE –**

*”I have lived enough to see that  
difference generates hate”*

Stendhal

Was the financial and economic crisis which began in 2008 in the United States of America a surprise or not? I am part of the few that have said and say that it was not a surprise. Within an seemingly vulnerable system, weak in many of its composing elements, excessive consumption, made to amplify seller profits, resulted in actual advertising bombardments and the the induction of false requirements for consumers, particularly within the 21<sup>st</sup> century. Such necessities which would surpass, within the quest for their satisfaction, the real possibilities of the common man, of the large mass of consumers, which in effect, turned to credits.

Banks, for their part, hoping for higher and higher profits, craving for such a profit, have also granted credits with generosity worthy of a better cause, having an aggressive and precipitated banking management as cause, which lacked a preventive character. Precipitation and poor management made them exceed their limits, their resources, and to accumulate debt, as well as higher and higher financial imbalances. Together with their debtors, they accumulated more and more debt. Not mentioning the fact that production, which was ”exiled” towards China, and other emerging states, lacked almost completely from the major landscape of developed countries and famous banks. Let us add crazy engines of economic growth – credit without coverage, particularly within the real estate sector.

Even if research of excellent quality, within a general economy of knowledge, remained concentrated within countries as the U.S. and other developed nations, this did not substitute for production, which is normal actually, because you can not wage guerilla wars with weapons of mass destruction. You simply cannot, you die...The whole of the populace must work and eat, and not only ”the elite”. Internationalization, capital globalization were also not able to calm down the situation, and not even to drain the huge pressure on

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banks. And because, in order to diminish the debt of great banks – debt, determined, as mentioned, by appalling management – powerful states did not let banks “die”, great banking imbalances were translated – via capital injections – towards the public, the public owning of stocks, façade nationalizations, etc. This led to the appalling, already poor management of the respective macroeconomic balances of such states. Thus, financial imbalances amplified. We mention here the general framework, without all the details.

Curative measures for such situations were thought and applied mostly by diminishing budget deficits as a result of wage cuts, pensions and social helps, from state to state. Which meant and means the almost exclusive attempt to get out of the crisis not by those responsible for it, those who gained the most, but rather as a result of the needy, of course, with various degrees of representation – with exclusive income from wages, pensions, social subsidies, etc. As such measures are somewhat limited, but also insufficient as rationed to the heavy burden of deficits from one state to the other, what lingers today on numerous economies of the world, including the “United States”, is known as “sovereign debts”. These are basically debts taken under the wing of the state, debts produced by giant banks, saved by the

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state when confronted with the specter of bankruptcy. Of course, we are talking about the motivation of sovereign debt, created by other debauchery, even if not of a financial nature. The case of the Romanian economy, with its immense issues, of great corruption and political clients, proves it timesfold.

So, debts, sovereign debts, the incapacity of a state to pay its debts. For companies, the issue is far more simple. The company which is unable to fulfill its contract terms or payment terms is considered not alright. If its passive is higher than its active, then it becomes technically and judicially bankrupt. In such a situation, it is considered bankrupt or declared bankrupt by its creditors, and it is restructured or becomes extinct, with the only purpose to recover what creditors can from their claims or what was owned. Of course, the process is more complicated as a whole, but mainly, this is how things go. Fiscal and commercial establish the procedures, whereas commercial tribunals usually apply the laws and decisions as such.

Correct. But in the case of a country, of a country which has debts and can not pay them, thus is insolvable, are things the same? The situation is much more complicated, and also, far less regulated, although within the context of unions and country communities, even

globalism, several steps have been undertaken. But not so much on prevention, as on prevention. What actually happens? As Canadian professor Sarmir Saul said in an excellent study called "800 years of state bankruptcy", recently published in l'Histoire magazine, and as we also stated numerous times, if they contracted obligations from their creditors and thus can not honor them, they are and remain sovereign, and thus they cannot be sent, necessarily or clearly, in front of a judicial competence worthy of restraining them and force them to pay off their debts. In this case, the incapacity to pay off interests and rates tied to the contracted loans, make the state which contracted them "bankrupt". But this is more of a sentimental appreciation, a moral one, because the "active" and the "pasive" do not have the same meaning for states as they do for enterprises, and, moreover, a state in difficulty cannot be cancelled, as a company, in order to pay its unpaid creditors, Politics can come into the picture with decisions of one type or another which can cancel debts. It would be, thus, rather a realization of the assumed risk, undertaken by creditors of a state when they credit the respective state. You can lose or you can win...

Before we move onward with our analysis, we believe a statement must be made. "State bankruptcy", in

our opinion, is an incorrect one. States have existed and will exist for a very long time, and simply cannot disappear, etc. They have functions, social functions, which can not be elluded. It is not, but the "bankruptcy of a state" syntagm, as such, as an institution, in time, of rather of a certain type of government, authorities which manage the state macroeconomically, and even persuasive, in a microeconomic situation. The German state remained, for example. What disappeared was, on the other hand, national socialism. The Russian state remained. What disappeared was its communist character, "a la sovietique", its strict and centralized character, etc. Such a statement being made, we can go on.

We have said that the bankruptcy of a state is thus, hard to sanction, because the lack of adequate means of constraint. There are, of course, possibilities and measures, but without the permissive and excommunicative force it required. We have examples within economic history, of states which were not loyal in paying off their debts, which have, many times, escaped in paying them, and all reprisals, for that matter, with the sole interdiction to loan again. Moreover, as was the case for the suspension of their contracted financial obligations, creditors from England and France made

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appeals to their states to intervene in force, to make debtors pay. The U.S. is also not absent from such an appeal. And these powerful states, as the Canadian professor stated, got involved when they saw fit, and took over sources of income of debtors and even military interventions – the so called „canon politics”, all in spite of the almost sacred principle, of public power neutrality within commercial transactions with a private character.

After that, economic dissention only amplified. For example, the market crash of credit for a state which does not honor its assumed engagements, which represents a pretty drastic market sanction. Or the forementioned interest increase agreed for new loans, which represents an equally severe sanction, of credits. In the end, we could mention the loss, gradual or complete, of trust and acceptance on capital markets for discussed states, „capital exiting” from these states, the possibility of commercial embargo, etc. Usually, in almost all situations revealed in time, the issue was the one of direct contracted loans, for various reasons, of respective states, from the capital market, in fact also sovereign debts, but of another kind, than those in present. Then, as now, the payment of such loans, or the promise of payment, meant, directly or not, constraints, of one kind or another,

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which resulted in thousands and thousands of deaths, thousands of dramas, unhappiness, etc.

When the IMF was created, in 1944, one of the main purposes of this great institution was to loan states, but also to avoid the consequences mentioned above, through promoting debt restructuring, but also imposing budget cuts on effect, tax increases, commerce liberalization, etc. If in a difficult outcome, the sovereign state would have suspended its obligations, its debts, it would be immediately subject of market sanctions. Of course, in the case of a community or another one, several „solidarity leverages”, as is the current case for Greece, in fact of the Greek economy, to erase 50% of its debt towards private creditors. Or, as another option, to declare the respective state bankrupt, a matter which, as we have seen, is often in a haze, with an unpredictable outcome.

We have been speaking generally. But what experiences and conclusions can this concrete causality reveal, in ancient Rome?

The debts of a state which is in a position of not being able to pay them constitute a phenomenon similar to the ”death of trust”, ergo the death of trust in that state. Not in Rome, in the Roman Empire. Although financial problems were pressing, they were not of major concern.

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When money for legions were required, for wars, for "circus", for the realization of the social functions of the empire – as many as they were and as they were solved – they did not turn to state loans, nor to public debts. If the state needed money, they would issue new coins, of gold, silver, copper, as required, a fact which amplified, more or less at the same time, fiscal pressures, taxes, including new ones or which took what was needed from conquered enemies, as spoils of war, as well as indirectly...

"Only since the medieval royal state began to exist, we have the issue of state bankruptcy", writes Samir Saul. He is accurate. But kings had the power to cancel debts which they made for the needs of the states which they lead, and banker which loaned them did not had the power to oppose them in case of payment denial. Royal hierarchies and noble privileges dispised bankers – but not their money – which, most of them, were not aristocracy, considering that a real honor was bestowed upon them when credit was asked of them. The payment of the credit mattered less...Only after the middle of the XVIIIth century the situation will change, money and bankers oftenly becoming the true kings not of a state, but of the world. Today, on the background of excessive financing, even more so. But let us return.

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Money from foreign bankers were asked by Romanian lords as well, but this was the case for states of lower importance than the West, and many times the sums were paid by the common folk, through enslaving taxes. "Quod licet lovi non licet Bovi". The French king Filip the Beautiful, in accordance with Pope Clement the Vth, destroyed an order from which it took credit, but had no money to pay in return. The famous florentine bankers, those of the Medici family, became, more than once, the creditors of the papality, but their loans were not always honored by the Holy Throne. It became something usual: wars were waged on credit. "Almost all the time monarchs maintained through taxes the weapons which they could not keep with the help of treasury, and the fiscal burden was unequal, pressuring, as a paradox, an explainable paradox, on those who could not pay it, avoiding, of course, the noble circles". From here, the severe poverty which followed wars, riots, revolts. The task of collecting taxes was given to private collectors, being auctioned more than once. And loans were given, in the name of the king, as stated, from private financiers and bankers. There were other forms and money was not always returned.

A name with resonance in this field is the one of the Great Emperor Charles the Quint. In order to gain

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trust in covering his immense need for money, he mortgaged the income of Spain, of German, Genovese and Flemish bankers. But only after one year of reign, his son and successor, Philip the II<sup>nd</sup> suspended payments. Without a reason. Such a suspension signed by him will deal a significant blow to the great families of hanseatic merchants, which established the league with the same name. It was with great difficulty that these merchants recovered. It is true, often, these payments were converted from short term loans to long term loans with a smaller interest fee. And quite often, the size of these loans was bigger several times than the income of that country. As we showed at another time, the Scottish banker John Law, the founder of the “Banque Generale” in 1716 Paris – a bank with the right to issue currency guaranteed by the stocks of gold and silver of the institution, became bankrupt – and thus bankrupted France’s finances so greatly, that it led to the Revolution of 1789. What actually happened? Law’s bank became a creditor of the French royal state. It bought the public debt and several tax incomes, and by excessively issuing bank notes, much beyond the coverage power of the institution, it fueled inflation, while the course of the banks’ actions became the subject of continuous speculation. After many nasty events, the

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bank defaulted, of course, in 1720, ruining stock holders, and conjuring public hatred, John Law himself found its end in absolute poverty. But the Bourbons went even further in their opulence and conceiving their lies, only until their guillotine finale, in 1793...

...Russia, soon after the bolshevik revolution of October, 1917, led by some sort of a czar, named Lenin, will cancel, in 1918, through public decision, the debts of czar Nicholas the II<sup>nd</sup> Romanov, generating an acute loss for almost 1,5 million Frenchmen, which believed that profit could have been the result of such loans. These are debts which the French governments, have “forgotten” in time, whereas private investors have not, still demanding their regulation...

...The First World War has ceased such loans, the American economy was booming, as demand soared – there were not battles on its territory. Countries from Latin America, will turn to the U.S. as well, where money was “plentiful”. This was the case for public investments and modernization, Brazil being the leader. There were the issues concerning “War reparations”, namely sums of money which had to be paid, by the defeated Central Powers, such as Germany, had to pay to the winners of the war. The start of the 1929-1933 crisis, as well as the way things were set out, led to the



complete suspension of payments. And the Second World War will push things even further into dissaray. The U.S. will become the world's leading creditor. Of course, this was the merit of the American economy, with high productivity and resources which it could spare.

But the economic landscape after the Second World War was characterized by important new traits, such as: a) the establishment of the IMF, an institution which would be placed as a watcher of international monetary stability, b) the direction of claims from the south towards the north – as many European states required funds for reconstruction, as prices for raw materials decreased in the south, these prices being “too weak” to represent a guarantee of claims – the pattern modifies from north to south, particularly during “les trentes glorieux”. Then, after 1970, “a new cycle of loans will be established”.

We mention that a) and b) are changing. On one hand, we have a “hemoraging” concerning oil prices, which generated an interesting cash flow for the producing countries, thus making them debtors for a series of immediate needs of them and others: the development of oil products and refineries, of pipeline transports, transport infrastructure, city development,

tourism, etc. And on the other hand, the mechanics of transport itself. If in 1945, banks represented a different kind of institutions, particularly intermediaries with the task of issuing public bonds for states, now all these financial and economic actors, actually institutional investors, will grant credits from their own funds: deposits, contributions, thus risking exposure. From here derives their “key role”, within the financial and economic system. This situation, unfortunately, lead to severe financial imbalances, with effects not noticed by creditors, and which impacted on the poor, from those who contracted and contract debts.

...We find ourselves today, it seems, in front of such a bankroute, consecutive only to “subprimes”. “Subprimes” represent those loans with a high degree of risk within the real estate sector, in the U.S. They are associated with other values, and then thrown on the markets. And as the U.S. economy was opened to the whole world, the fall of subprimes meant the core cause of the current financial and economic world crisis. There were also “toxic loans” and severe external indebtment, which became a nightmare when the American economy started to tremble. A fallout ensued, between debts and actual resources. In the end, creditors themselves became

endebedted. "Sovereign debts" thus became a grave problem of our world...

There are still numerous traits and details to add to such an international financial and economic iconography, but they do not change the meaning of what happens at this time. Rather, they can underline the contrary. Of course solutions are reliant on, more than once, the steps of speculative economy and the progress made by the production based economy, where capitals can find their most significant and promising markets. The situation changed radically from a few decades ago, people in general, and nations progressed, and are not willing to put up with everything, let alone to support a crisis exit based on them, the population, rather than the ones that have caused the crisis. Austerity is a fair process, even educational in some circumstances, but not necessarily to pay through it for the faults of others.

The situation within the Romanian economy is a composing element of this general framework, but the negative was and is much more accentuated, but the crashing down of production since two decades ago, ergo lack of jobs, "institutionalized corruption", as politicians of all sorts and colors declared, but, unfortunately, without revealing the great corrupted elite. Which is not alright. And there is another issue, not just for Romania,

but more accentuated in our country: when the world economy is sluggish, who will pay the sovereign debts? It would be normal for them to be honored by those who contracted them, without, as is Romania's case, directing them within activities, one way or another, to not be steril, not to be centered on minor "partizan" reasons, to have positive effects on the increase of productive type investments, to create jobs.

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### **THE SHADOW BANKING SYSTEM ROLE IN TRIGGERING CRISIS AND CONTAGION EXTENSION**

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**Abstract:** *U.S. financial crisis triggered in the middle of 2007 set out in particular the interconnection between the compartments of the financial market, between the financial institution that operates on this market. The high interdependence of the participants on the market generates growth and dynamic premises of the processes of financial contagion in case of expressing the phenomena of financial panic, which makes stress and the financial crises to sustain each other. The recent crises has highlighted the failure of the economy based on exacerbated credit, on the business model*

*of investment banks, on economy which promoted the increasing number of market participants and leverage. It promoted also the increasing role of the so called “parallel banking system” or “shadow banking system” in triggering the crises and in the extension of financial contagion. Our study has an objective to define and explain the concept of “shadow banking system”, to high-lighten the features and particularities of this system, to show which was the role of this system when the crises emerged and the systemic risk grew within the financial system. The study also has as an objective to present the contribution of the shadow banking system in initiating and amplifying the phenomena of financial contagion and tries to identify some solutions to prevent the negative effects of the action of shadow banking system.*

**Key words:** *financial crisis, shadow banking system, contagion*

### **Introduction**

The literature of specialty abounds in studies and researches that analyze the causes of the arising and development of the crisis that emerged in USA in June 2007 and afterwards extended and contagion the entire world. The majority of this studies emphasis the fact that almost all crises begin in the same manner. Subtle and modest developments prepare the field for the real storm that follows. The field preparation may last for years,

sometimes even decades whilst many factors and forces build the favorable conditions for a boom cycle of collapse. The crisis that leaved a profound mark on the 2007-2010 years was no exception. Many were the causes that contributed and led to the trigger of the present crisis. They were determined by a combination of factors that favoured the development of the perfect conditions to trigger the financial storm that culminated with the hurricane of the today’s financial and economic crisis. The researches conducted by the academic field, by the financial market players and by the national and international financial organisations on the causes and the factors that lead to the emerging and development of the financial crisis, identified and emphasised a wide range of causes and factors that triggered crisis. Out of this factors the most nominated were: 1) the financial deregulation process started in the ‘70’s, following an opinion trend that supported a so called fundamentalism of free markets which become self-regulated and self-balanced. Consequently emerged a process of removal of the banking regulations set up after the 1930’s Big Depression; 2) the financial innovation and the deeper segmentation of the financial products which became more and more complex and sophisticated end up by being misunderstood by the market players; 3) the lax

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monetary policy promoted low interest rates which lead to a cheap liquidity excess on the financial markets; 4) the excessive leverage, the indebtedness of the households, companies, the financial intermediaries and of the nations, also the maturity asymmetries between assets and liabilities; 5) poor incentives, the regulatory and the supervisory gaps in certain important segments of financial system; 6) pro-cyclical dynamics in the regulatory system, accounting and risk management, with low standards in the processes of subscription, registering, regulating and market monitoring; 6) the greed manifested by large financial institutions looking for excessive returns, associated with risks outsourcing in order to protect their balance sheets, in the context of a large opacity and market fragmentation within which the risks location and exposures was unclear and became cloudy; 7) the poor corporate governance which promoted an excessive risk tolerance and a risk mismanagement both in the financial corporations and in their regulators and supervisory bodies. As well, it promoted a remuneration, bonus and incentive system for the managers, dealers and financial market brokers that overcompensated the short term performance whilst they assumed long term risks. This led to the excessive risk taking and a lack of transparency that generated an

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asymmetry of information in important financial market segments; 8) originating and distribution models of complex products which created perverse incentives for investors which not only blurred the relationships between lenders and borrowers, but on top of it, they distracted the capacity of debtors to pay the loans without collateral foreclosure. In this way was sometimes intentionally underestimated the risk of liquidity and many financial institutions mismanaged the process of coordinating the maturities; 9) the inadequate activity of Credit Risk Agencies (rating agencies), manifested by promoting on the market of a weak perception of credit risk and default by rating AAA the so called “senior tranches” of structured financial products as CDOs (Collateralized Debt Obligations), the same rating as the one for governmental bonds. This action was taken without having historical data to back and show the evolution of default rate for these products in turmoil and crisis conditions. 10) large current account and budget deficits recorded by most economies; 11) the excess of indebtedness of the U.S. economy and population and the saving surplus of the developed and emerging states from Asia and especially China;

All this factors constituted as many causes that determined the trigger of crisis, being generated by the

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activity of financial institutions, companies, the regulatory agencies, the supervisory and rating agencies and also by the politicians. Within this actors a crucial role is played by banking system. The banking system was and still is at the core of the crisis and continuously puts pressure on the market, fact that leads to an acute risk concentration within banks both inside and outside their balance sheet, exerting an increased pressure on liquidity and capital reserves and on credit availability. The weaknesses of the banking sector amplified the shock transfer from the financial sector to the real economy generating economic stagnation and decline. In this respect, a special part in triggering crisis and in shock transmission and financial contagion is taken by the so-called “shadow banking system. Starting from this considerations, the present study aims to answer several questions related to the existence and the functioning of the *shadow banking system* namely: What is *shadow banking system*? What are its main dimensions, particularities and characteristics? What was its role in triggering, amplifying and crisis contagion? What actions should be taken in order to limit the destructive effects of this system’s activity? We will search for the answers to these questions by consulting the practice and literature

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of speciality, both intern but especially foreign, aiming to order and synthesize the lessons learned.

- **The *Shadow Banking System* Concept**

The studies and analyses conducted in order to identify and explain the factors and the causes which triggered financial crisis emphasised the role and the importance of certain financial intermediaries which even though they were not banks they acted on the market as real banks. They attracted short-term loans and provided long and medium term financing developing in this way a real banking system parallel to the formal banking system. But this system was not regulated nor monitored as the classic banking system. In other words, this system acted in the shadow of the traditional banking system. The term “*shadow banking system*” was first used by Paul McCulley, from Pacific Investment Management Company who defines the “*shadow banking system*” as the financial intermediaries with a high financial leverage, whose liabilities are perceived, generally, as similar with good money, with a liquidity similar to the conventional deposits. These liabilities may be mutual funds stocks, bonds of financial institutions, of structured investment vehicles or loan repos of

independent investment banks, of hedge funds, of senior tranches of CDO's or, a series of other similar financing instruments.<sup>1</sup> At a conference in 2007, Paul McCulley redefined the system as being a “*an entire alphabet-soup of over indebted structures, so called non-banking circuits and investment vehicles*”.<sup>2</sup> Many researches, (Acharya, Schnabl and Suarez -2010, Poszar and others -2010) define “*the shadow banking system*” as being the assemble of non-depositary banks and of other financial entities like: investment banks, hedge funds, money market funds, non-bank mortgage lenders, structured investment vehicles that acquire loans from financial intermediaries, wrap them up in various modes and transform them in structured products (securitize them), refinance them through short term loans and re-sell them to investors. Their number and diversity significantly increased after 2000 and played a more important role in the businesses with the money necessary to operate on the market. As of June 2008, this system reached in the USA almost the same dimensions as the traditional banking system. Gary Gordon, a Yale professor, defines

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<sup>1</sup> Paul A. McCulley (March 2001), “Look Honey, I Caught a Lierwurst! PIMCO

<sup>2</sup>Paul A. McCulley, “Teton Reflection”, Global Central Bank Focus, PIMCO, august-september 2007

the *shadow banking system* as being the system that combines the repo transactions with securitization ones in order to provide financing to the companies almost in the same manner as the regulated banks. He argues that the *shadow banking system* is the combination between the repo transactions and debt securities, is a part of the banking system that works in parallel with or in the shadow of the traditional one because: a) the repo transactions have short maturities, are regularly overnight and can be withdrawn upon request (without being renewed); b) debt securities, are superior (senior) if they have quality collateral meaning that they cannot devalued; c) the repo transactions are guaranteed by debt securities; d) the collateral can be used in other transactions, it can be re-mortgaged.<sup>3</sup> Through these transactions the leverage effect is increased and rises the level of credit risk and its dissemination in the financial system. All this because this system is functioning outside the “monitoring radar”. A broader and more comprehensive definition of the *shadow banking system* is presented by the FSB (Financial Sustainability Board) experts upon request of the G20 leaders. According to

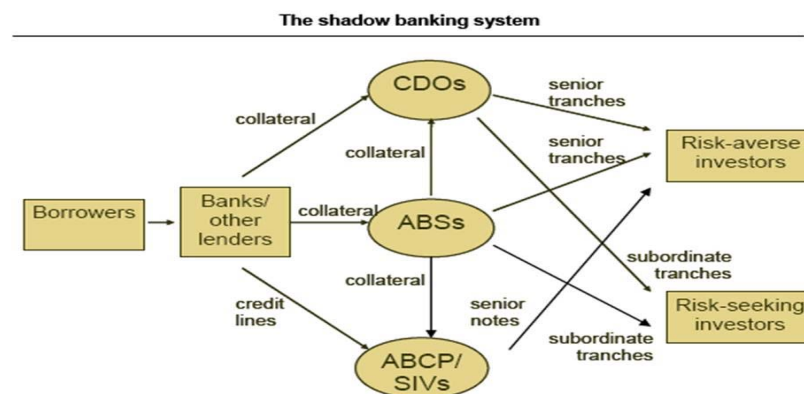
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<sup>3</sup>Gary Gordon, Slapped in the Face by the Invisible Hand: Banking and the Panic of 2007, online at <http://www.frbatalnta.org/ews/coferen/09fmc/gorton.pdf>

this definition, *the shadow banking system* is “a system of credit brokerage which involves entities and activities outside the regulated banking system and raise questions that refer to: i) systemic risk, especially through converting the maturities and/or liquidity, the leverage effect and faulty transfer of credit risk, and/or ii) it refers to regulatory arbitrage”<sup>4</sup>

<sup>4</sup>FSB, Shadow Banking: Scoping the Issues, A Background Note of the Financial Stability Board

**Scheme no.1 The Simplified Structure of the Shadow Banking System**



source: Speech by Hervé Hannoun, Deputy General Manager of the BIS March, 2008  
<http://www.bis.org/speeches/sp080403.pdf>

In the spirit of this definition, the transformation of maturity means the activity of attracting short-term liabilities (deposits) and transforming them in long and medium term assets (loans). The transformation of liquidity means the attracting of liquid debts (liabilities) and converting them into non-liquid assets (assets that cannot be easily transformed into liquidity without devaluing their nominal value. The essential problem of the *shadow banking system* is that it allows the private sector (financial institutions) to generate as many credit as it wishes, adding to the money offer the economic



activity growth, the gigantic swell of asset prices that creates speculative bubbles and prepares the scene for a dramatic downfall. Synthetic and simplified the concept of *shadow banking system* can be deduced by also interpreting the scheme below, produced by Herve Hannoun, Deputy General Manager of the BIS.

The scheme presents in a simplified manner the structure of *shadow banking system* and the way in which this system works. With the development of the originating and distribution models of debt securities, the banks and other creditors became capable of extending their credit activities to various debtors and then to wrap up the loans granted in debt securities backed with various assets and debts as: Asset Backed Pass-through Certificates (ABPC), Asset Backed Securities (ABS), Collateralized Debt Obligation (CDOs), Secured Debt Loans (SDL), Mortgage Backed Securities (MBS) and, through some Structure Investment Vehicles (SIVs), Special Purpose Vehicles (SPVs) and then re-sell them to investors with a bigger or lower risk-taking appetite.

Synthesizing, we appreciate that the *shadow banking system* can be defined as: “*being all the financial entities: investment banks, hedge funds, mutual funds, investment funds, brokerage houses, structured investment vehicles and other financial intermediaries*

*together with all links between them, with the totality of innovations and securities (ABPC, ABS, CDOs, SDL, MBS), used for attracting short-term funds and granting long and medium term loans, without having access to the liquidity offered by central bank and to credit guarantees from the public sector, rising historical levels the debt, the credit risk and the regulatory arbitrage, within the financial system”*. Or, in other terms, “*Shadow banking system consists of the structure of instruments, companies and markets, which, alone or together, in a bigger or lesser manner, replicates basic banking activities such as maturity transformation, credit conversion, liquidity transformation and asset management, but without necessarily being subject to prudential regulations applicable to banking institutions.*

- **The Development of Shadow Banking System - Particularities and Characteristics**

Before the big depression, the banks realized that their ability to generate profit from the lending activity was restricted by the difficulty of accessing the capital and by the size of their balance sheet. Consequently, instead of crediting with keeping the loans within their balance sheet, as in the old times, limiting their ability of increasing their profits, the banks started to specialize in

the processes of originating the loans, of packing them through securitization operations and through selling the securities to other investors using the investment banks and other financial entities. In this way began the development of the unregulated “*shadow banking system*” which provided a new chain of capital to those who were eager to invest in the new types of securities. *The shadow banking system* started to emerge in the USA in the early 70’s and then, in Europe after almost a decade. It was created to address the issues the financial market confronted in the 70’s and 80’s. Its appearance and development was possible due to ideological changes of the right wing governments in the USA and United Kingdom regarding the free market. As a consequence of the new philosophy toward the ability of the free market to self-regulate and self-balance, new players emerged on the financial and banking markets: mutual funds of money market, investment funds, hedge funds, pension funds, structured investment vehicles, special purpose vehicles; which intensified the financial brokerage in the pursuit of safe investment with increased yields. These players heavily lobbied for the limitation of regulations and for the total liberalisation of the markets. The development of the system experienced high growth rates in the last two decades, especially after the relaxation of

the banking market regulations as a consequence of the removal of the 1999’s Glass Steagall document. This allowed the construction of banking conglomerates consisting of large commercial banks, investment banks, mutual funds and hedge funds, stock funds and structure investment vehicles (SIVs). The activity of these players increased interference of the banking and capital markets, increased competition in the market, stimulated the deregulation and innovation of complex financial products, opaque and illiquid but with attractive yields. The financial conglomerates allowed banks to disperse and outsource the risk by removing the loans granted from their balance sheets and also by increasing the short-term profitability. In the mean time, banks artificially decreased the capital demand for risk covering generating procedures of regulatory arbitrage.

Table no.1 The issuance of several securities in the USA, 1996-2009 (billion USD)

	Municipal	Treasury	Mortgage	Corporate Debt	Federal Agency Securities	Asset Backed	Total
1996	185.2	612.4	492.6	343.7	277.9	168.4	2,080.2
1997	220.7	540.0	604.4	466.0	323.1	223.1	2,377.3
1998	286.8	438.4	1,143.9	610.7	596.4	286.6	3,362.7
1999	227.5	364.6	1,025.4	629.2	548.0	287.1	3,081.8
2000	200.8	312.4	684.4	587.5	446.6	337.0	2,568.7
2001	287.7	380.7	1,671.3	776.1	941.0	383.3	4,440.1
2002	357.5	571.6	2,249.2	636.7	1,041.5	469.2	5,325.7
2003	382.7	745.2	3,071.1	775.8	1,267.5	600.2	6,842.5
2004	359.8	853.3	1,779.0	780.7	881.8(4)	869.8	4,642.6
2005	408.2	746.2	1,966.7	752.8	669.0	1,172.1	5,715.0
2006	386.5	788.5	1,987.8	1,058.9	747.3	1,253.1	6,222.1
2007	429.3	752.3	2,050.3	1,127.5	941.8	901.7	6,202.9
2008	389.1	1,037.3	1,344.1	706.2	1,114.9	163.1	4,754.7
YTD '07	429.3	752.3	2,050.3	1,127.5	941.8	901.6	6,202.8
YTD '08	389.1	1,037.3	1,344.1	706.2	1,114.9	163.1	4,754.7
%	-9.4%	37.9%	-34.4%	-37.4%	18.4%	-81.9%	-23.3%

Source: Table constructed after Gary Gorton, Slapped in the Face by the Invisible Hand: Banking and the Panic of 2007.

The financial innovation was made in several ways, presented by Miller (1986), Tufano (2004), Merton (1992), Lerner (2006), Gorton and Pennacchi (1993), Molyneux and Shamroukh (1996). Starting from liquid loans, from simple trade effects, through the process of

securitization appeared complex derivative securities with an absurd high rating, illiquid and non-transparent as: ABS, CDOs, MBO, MBS, CDO squared, etc. The deepening of the financial innovation process led to a series of new structured products, to the securitization of a wide range of loans, to the diversification of market participants and as a consequence to the development of *the shadow banking system*. Gradually, *the shadow banking system* became the main component of the financial and credit intermediation, overtaking in dimensions the traditional banking system. *The shadow banking system*, substantially contributed to the segregation of the financial economy from the real economy, mainly in the USA. In this respect, if in the 1980's the financial assets in the United States of America were 5 times lower than the GDP, in 2007 they grow 10 times higher than the GDP.<sup>5</sup> The share of profit generated by the financial sector in total profit generated by the economy, increased from 10 percent in 1980's to 40% in 2006. *The shadow banking system* dramatically affected these trends. Its powerful influence, at least for the USA market, can be noted by observing the data from the tables below, which present the evolution of the

<sup>5</sup>James Crotty, Structural Causes of the Global Financial Crisis: A Critical Assessment of the "New Financial Architecture"

issuance of several securities during 1996-2008 and the comparative size of the U.S. financial markets in 2007.

The most relevant columns regarding securitization are those who show the mortgage evolution and guaranteed assets as the main factors of *the shadow banking system* growth.

**Table no.2 The financial assets on the capital market versus banking market as of June 30, 2007 (thousand of billions USD)**

	Capital market	Banks market
<b>ABS issuers</b>	4.100	
<b>Broker - dealers</b>	2.900	
<b>Finance Companies</b>	1.900	
<b>GSE mortgage pools</b>	4.500	
<b>Government Sponsored Enterprises (GSE)</b>	3.200	
<b>Commercial Banks</b>		10.100
<b>Savings institutions</b>		1.900
<b>Credit unions</b>		800
<b>Total</b>	16.600	12.800

Source: Table built with data from US Flow of Funds, Federal Reserve

It is obvious that the assets of *the shadow banking system* overtook by a large margin the assets of the traditional banking system. Although there isn't a clear

image of the global dimensions of *the shadow banking system*, there are many valuations of the evolution and the dimension of this system until the emerging of the current crisis, which emphasise its rapid development in the last decade in other regions besides U.S. It is estimated that in Europe *the shadow banking system*, grew its assets from 42 billions euro in 2004 up to 135 billions euro as of June 30, 2007. At global level, the trend of debt securities issuance -CDO type - experienced a growing pace and a huge dimension between 2004 and 2007 as it is shown in the table 3 data.

**Table no.3 The Global Volume of CDO issuance between 2004-2007 (billions USD)**

	2004	2005	2006	2007	2008	2009	2010
<b>CDO</b>	157,4	251,3	520,6	481,6	61,9	4,3	8,0

Source: Securities Industry and Financial Market Association, "Global CDO Issuance" Press Release Retrieved, 21.11.2010

The same increase in volume experienced also other instruments as: ABS, MBS, CDS. The ABS issuance grew from 1,071 billions USD in 2000 up to 2,472.4 billions USD in 2007, whilst the MBS issuance grew from 684.4 billions USD in 2000 to 2,050.1 billions USD in 2007. Likewise, the nominal value of the CDS

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issuance grew from 1,000 billions USD in 2001 up to 26,000 billions USD in 2006 (FSB, 2006). The credit derivatives grew between 2003 and 2005 from 3,000 billions USD to 12,000 billions USD (Rey, 2007). All these volumes emphasise the enormous dimension, reached before the crisis, by *the shadow banking system*. The analysis of the development of *the shadow banking system*, can be done by highlighting its structure through the instruments it uses and the institutions that operate with them on the financial market. The literature of speciality presents a wide range of instruments and entities, but not all of them are unanimously accepted as being part of *the shadow banking system*. The main instruments used are structured as follows: a) unsecured commercial papers (CP) and assets backed commercial papers (ABCP) which are term debt securities from 1 to 270 days and represent the main financing instrument in USA and at international level; b) repurchase agreements (repos), an agreement by which a market participant who holds an asset sells the asset to another participant and undertakes to redeem the asset at a later date at an agreed price. This transaction is from an economical point of view is the equivalent of a collateralized debt obligation; c) securities lending, represent the transactions in which one side offers securities with the aim of gathering cash

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for investments; d) auction interest rate securities, long-term bonds with variable interest rate which are reset through actions at regular intervals; e) assets backed securities (ABS), are debt securities whose value and revenue derives from a basket of financial assets that guarantee them; f) derivatives, the contracts whose price is based on a reference product, a parameter, or another guarantee. Some examples are swap on interest rate, swap on exchange rate, swap on total income and swap contacts on credit risk. The wide range of these instruments is used in the financial brokering process and in the mortgage maturity transformation, of credit risk and of liquidity to a large number of players and financial intermediaries as: money market funds, broker-dealers of securities, investment banks and holding companies, financial companies and mortgage brokers, the issuers of assets backed securities (ABS) and assets backed commercial papers (ABCP), the derivatives users, hedge funds, special purpose entities, special purpose vehicles (SPV), entities with variable interest, investment circuits (conduits) and structured investment vehicles (SIVs), government sponsored enterprises (GSE) and other official guarantors involved in credit operations, the transformation of maturities and of the liquidity outside the public system of regulation and

insurance. In its development, *the shadow banking system*, revealed a number of characteristics and peculiarities which allowed it to grow to the dimensions showed above and to dramatically influence the financial markets. The main characteristics of emerging and development of *the shadow banking system*, identified by us while studying the literature of speciality are: **i)** The system emerged and evolved on a very weak theoretical foundation. At the origin of its creation and expansion it had unsustainable assumptions, namely: 1) the belief that the capital market is efficient and is self-balancing and self-regulating; 2) the presumption that all market players are using relevant information about debt securities in the process of establishing the fair prices on the financial market; 3) the presumption that the assumptions' realism does not matter in valuating the validity of the conclusions; 4) the presumption that the investors truly know the future cash-flows associated to all the securities or have rational expectancies; **ii)** *the shadow banking system* generated on a wide scale incentives that created excessive risk and exacerbated the boom triggering crisis through: - large scale securitization; - generating a new model of originating and distributing of banking products; **iii)** the system promoted financial innovation through creating more an more complex and opaque

products which could not be properly appreciated and which lost part of their value and liquidity when they triggered panic. These kind of products were MBS and CDOs which were inherent non-transparent and could not be traded on the stock markets but were sold through direct negotiation between the investment banks that created these products and a small number of buyers on the OTC market; **iv)** Through innovation and arbitrage *the shadow banking system* is omnipresent in the advanced financial systems; **v)** the volume of credit intermediated by *the shadow banking system* is higher than the credit volume intermediated by the traditional banking system. In 2007 at the debut of crisis the credit volume intermediated by the *shadow banking system* was 20 trillions dollars, double comparing with the volume mediated by the classic banking system which had a level of 11 trillions dollars. In 2010 the ratio was 16 to 13 trillions dollars.<sup>6</sup> **vi)** certain segments of *the shadow banking system* emerged through various arbitrage channels with limited economic value, but segments equal in size were generated through high profits obtained from specialization; **vii)** contrary to general

<sup>6</sup> Zoltan Pozsar, Tobias Adrian, Adam Ashcraft, Hayley Boesky, Shadow Banking, Staff Report no.458, July 2010, Federal Reserve Bank of New York.

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belief, the large banks induced an enormous risk within *the shadow banking system* but they also took huge risks during the boom by utilising inappropriate risk management models; **viii)** the system generated a high leverage and an increased systemic risk level through contagion channels transmitting the problems throughout the entire financial system; **ix)** *the shadow banking system* was temporary “uncovered” due to the need of public liquidity and liability insurance, but was quickly sent back into the shadow. These characteristics derive from a series of particularities of the system. *The shadow banking system* is composed from very specialized institutions, fact that determined the banks to integrate them in the financial intermediation chain because those benefit from the following opportunities: the possibility to reduce and spread its own risks; the involvement of the suppliers of specialized and efficient services; the outsourcing of certain assets through securitization and obtaining cash reducing the need of regulated capital and on this basis increasing the volume of transactions; rapid mobilization of regulated capital if the financial products remain in the banks’ balance sheet; quickly obtain net present value throughout the life cycle of a portfolio of assets; short-term sale of securities or identification of

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counter-parties for repo operations in order to obtain liquidity.

*The shadow banking system* also offers new opportunities to the investors by: dispersing their risk due to the fact it allows them do diversify their portfolio; extend the investment opportunities in various and complex assets which normally are accessible only to banks (consumer credits, corporate credits, mortgages, bonds). The transactions between various financial entities - banks and *the shadow banking system* - are based on different markets (OTC) and products like debt securities, asset backed commercial papers (ABCP), asset backed securities (ABS), residential mortgage backed securities (RMBS), collateralized debt obligations (CDO) etc. The big dimension of *the shadow banking system*, its extended interconnection with the classic banking system, the characteristics and peculiarities that differentiates it draw a prominent role in triggering crisis and contagion.

***The shadow banking system role in amplifying and triggering financial crisis contagion - possible solution to eliminate the negative effects***

The answer to the question regarding the role of *the shadow banking system* in amplification and triggering crisis contagion is found in deciphering the way in which the system is financed and refinanced. In deciphering the manner in which assures the financial intermediation in which strengthens and conserves the confidence between the market players. In *the shadow banking system*, the long-term funds, the financial assets are financed with debts from the monetary market through a diversity of channels. The different consumer and business credit types, after being generated (originated) are transformed into special purpose vehicles (SPV), in the case these are financed with active backed commercial papers (ABCP), papers that have a typical maturity of 4 weeks or less. After deposit them, these credits are wrapped-up in active backed assets (ABS), including mortgages. Together with other types of financial assets, many of these ABS are financed through the broker-dealer's balance sheets, through short-term repurchase agreements (repo contracts), which mainly have a one day maturity. In order to generate high standard additional collateral, ABS tranches are often combined and re-securitized into complex and structured collateralized debt obligations (CDOs, CDO<sup>2</sup>, CDOs<sup>3</sup>, CLO etc.) which became toxic in the following

period.<sup>7</sup> “Senior” tranches of structured debt securities<sup>8</sup> are often financed through dealers’ balance sheet by short-term repo operations or are being retained by structured investment vehicles (SIVs), hedge funds with a high level of indebtedness or similar entities, which are financing the markets on short-term. The big broker-dealers, and the financial companies also frequently issue a wide range of commercial papers, a dedicated form of short-term unsecured loans as an important financing source. Many of these short-term instruments (commercial papers, ABCP and repo) are finding their way to the monetary market mutual funds. Here, on a final stage of maturity transformation (due date), they serve as a basis for creating eligible money for retail and institutional clients. The money of the market funds -the shares- have fixed amount and shall be returned upon request. Consequently, they are indistinguishable in terms of functionality from the interest on demand deposits. These funds often serve as the last link in the chain of *the shadow banking system*, transforming the

<sup>7</sup>Also see Gorton and Souleles (2006) and Gary Gorton, Slapped in the Face by the Invisible Hand: Banking and the panic of 2007, online at <http://frbatalanta.org/ews/confem/09fmc/gorton.pdf>

<sup>8</sup>Also see Gary Gorton, Andrew Metrick THE RUN ON REPO AND THE PANIC OF 2007-2008



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long-term assets in due obligations refundable at any point at holders' option. Through this financing mechanism *the shadow banking system* increases the leverage, takes and transfers the credit and liquidity risk and produces the conditions for transferring the systemic risk and contagion. The contagion channels are: credit channel, fund channel and the distrust channel. Within current crisis, contagion was produced through all these channels, but the most important was the distrust channel. The growing mistrust of *the shadow banking system's* players in the markets, in instruments and in counter-parties, emerged in august 2007 and amplified in 2008, determined and intensified the exit from the markets of investors, investment banks, monetary market funds, hedge funds, investment circuits, special purpose investment vehicles and repo brokers. Repo market experienced the most significant exit of its actors and is considered both in academic, financial and official environments as being the main cause of amplifying and crisis contagion to the banking and governmental sectors. Due to the fact that *the shadow banking system* is not backed by an insurance system of the deposits as the one existing in the classical banking system for preventing the flow of capital out of the banks, during crisis, *the shadow banking system* depositories became concerned

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they would not be able to safely withdraw their money and rushed to massively withdraw their funds from the repo market. This generated the wide spread of the system issues to the extent that the funds necessary for financing the day to day activities dried out. The distrust amplified and because of the inter-connectivity, crisis also extended to the other markets. The prices of the financial assets collapsed, the system liquidity disappeared, the ratings were downgraded, and a vicious cycle of financial disintermediation entered *the shadow banking system* and affected and endangered the whole financial system. Thus appeared the need to seek the government help in order to stop the process and reinstate the trust in the markets. The massive bailout from the central banks and governments through quantitative ease programmes led to another crisis: sovereign debt crisis. Consequently, *the shadow banking system*, played an important role both in amplifying, triggering crisis and contagion and in the widespread of disequilibrium effects at national and global levels. This imposed to the academic research, to the economic, financial and political environments to seek for solutions to address the causes which triggered crises and to limit the pervert effects inducted on financial market by *the shadow banking system* activities. Today, intense

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debates<sup>9</sup> are taking place both in academic environments and within the financial national and international organisations such as Bank for International Settlements, IMF, FED, CEB, G20, Financial Stability Council - regarding the measures that should be taken in order to reinstate the trust in the financial markets and to ensure the financial system stability. It is going so far to the proposal of radical solutions like returning to a strengthened regulation, coordination and monitoring of markets even through reinstatement of some global regulations like the Glass-Steagall document, to more nuanced and limited solutions. According to the objective of limiting the risk represented by *the shadow banking system*, three possible solutions were proposed: i) the first one considers that *the shadow banking system* is part of the traditional banking system and as a consequence must be subject to banking regulations; ii)

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<sup>9</sup> Also see the Report of the of the High Level Group on Financial Supervision in the European Union (Chairman: Jacques de Larosière; The structure of financial supervision: Approaches and challenges in a global market place (Group of Thirty; Chairman: Paul A. Volcker); The fundamental principles of financial regulation (The Geneva Report); The Turner Review: A regulatory response to the global banking crisis (Financial Services Authority of the United Kingdom); și, the Report of Working Group I on “Enhancing sound regulation and strengthening transparency” (G20)

the second one consists in dedicated development of regulations for each type of shadow bank; iii) the third one eliminates the banks’ vulnerability in the relation with *the shadow banking system*, restricting it<sup>10</sup>. Other solutions aim to: creating a regional and global frame for macro-prudential monitoring and one micro-prudential, a new financial monitoring architecture which consists in the co-ordinated market monitoring. Some voices propose an economic governance which consists in creating an integrated frame of identifying the financial disequilibrium, in reforming the financial system protection mechanisms through creating intervention mechanisms when crisis occur, solving the problem-banks situation. Another series of solutions refers to: dividing the financial institutions considered “too big to fail” (TBTF), “too interconnected to fail” (TITF) and which became “too big to be saved” (TBTS); reforming the retribution system by correlating the compensations and bonuses with the assumed risk; the improvement of securitization through complex products standardization, reforming the frame of rating granting, controlling the liquidity through introducing liquidity ratios (leverage

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<sup>10</sup>Shadow banking - Improving the consistency of banking and non-banking regulations  
[http://www.eurofi.net/pdf/2011/G20/Shadow\\_Banking.pdf](http://www.eurofi.net/pdf/2011/G20/Shadow_Banking.pdf)

ratio); the strengthening of responsibilities for regulating and monitoring securities, the adoption of a regulatory framework in order to limit the absolute indebtedness by setting clear limits and some early warning indicators, improving the capital adequacy, increasing the system transparency, strengthen the product risk management and the geographical expansion, giving the central banks a mandate for ensuring financial stability with the same power as the one granted for maintaining price stability. Many of these solutions aim to put into practice both at a global level - through Basel III regulations, G20 and Financial Stability Council recommendations which have clear objective to be reached, through IMF recommendations - and at regional level through FED, SEC, FDIC and UE by the instrumentality of: The European Financial Stability Mechanisms (EFSM), European System of Financial Monitoring composed of: European Committee for Systemic Risk (ECSR), European Authorities for Monitoring (EAM) composed of: European Banking Authority (EBA), European Insurance and Occupational Pension Authority (EIOPA), European Securities and Market Authority (ESMA) and National Monitoring Authorities. If the majority of the institutions and official authorities and a big part of

academic world<sup>11</sup> and of financiers, agree and support the strengthen of financial system regulations and monitoring, including *the shadow banking system*, there still are numerous voices among the markets which are against these regulations and make a strong lobby in order to prevent the implementation of the new regulations. The future will show if the governments will win the war with the markets.

### **A few conclusions**

*The shadow banking system* emerged as a consequence of deregulation and the will of market players to find new ways and instruments to better capitalise the cash available, to unrestricted speculate the limitation imposed by banking regulations. It experienced an unprecedented development in the past two decades, succeeding to match and then overcome the classic banking system in which shadow he developed. It was based on theoretical assumptions which proved to be false and which allowed it to bring the financial innovation to unimaginable levels that led to a false assumption that risks can be endlessly outsourced. It allowed banks to create financial conglomerates and to

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<sup>11</sup> Among others :Paul Krugman, Ken Rogoff, Carmen Reinhart, Joe Stiglitz, Nouriel Roubini, Raghuraj Rajan, Acharya Viral

have risky investment policies that finally led to triggering crisis and aggravate it. Through the exacerbation of securitization, the system flooded the market with a multitude of complex structured products which in time became opaque and non-liquid, becoming toxic assets being mockery named: “Cernobil lethal bonds”<sup>12</sup>. Its functioning and organisation mode, allowed the large investment banks, the hedge funds and other market players, with the complicity often rewarded of the rating agencies, to put on the market and to trade huge volumes of these toxic assets, having as a motivation the income increase, the compensations and bonuses granted to managers, brokers, dealers and traders<sup>13</sup>. *The shadow banking system* became a vector of amplifying and

<sup>12</sup>Nouriel Roubini, Sthephe Mihm, Crisis Economics: A Crash Course in the Future of Finance, ed. Publica, 2010

<sup>13</sup> In 2006, Goldman Sachs paid 16 billion dollars in bonuses, with an average bonus of 650,000 USD for 25,000 employees. The five major investment banks: Merrill Lynch, Goldman Sachs, Morgan Stanley, Lehman Brothers and Bear Stearns paid compensations of around 66 billions dollars including bonuses of 40 billions dollars. The hedge funds paid bonuses and compensations summing 2% of the assets administrated plus 20% of the profit obtained. The rating agencies awarded a AAA rating to 80% of the CDO tranches, being rewarded by the issuers of these products. In 2005, over 40% of the rating agencies profit came from the commissions collected for rating the securitized debts

triggering crisis contagion. The fear of collapse determined the governmental and monetary authorities to adopt huge bailout programmes for the banks, funds and other system players, bailout measures that unfortunately triggered another crisis which acutely generates panic in the present days, the sovereign debt crisis. The lesson of the crisis was that *the shadow banking system* managed to privatize the profits and to nationalize the profits. The measures proposed for market restructuring and reinstatement of trust in the system are necessary and hard to implement. There is a need of collaboration and coordination at global level for these measures to be effective, there is a need of political determination and will to be put into practice. *The shadow banking system* is resisting to radical transformations and is continuously targeting the profitability objectives and acting intensively to reach them. The current situation on the international financial market shows that markets won the war with governments and financial authorities.

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## **THE KEY ROLE OF INTERNET IN THE AGE OF A NEW ECONOMY**

**Abstract** *Internet proves to be, at the present time, the most variable means of communication that allows any person to have access to information while efficiently reacting to the “stimulus” of online advertising promoted by certain companies in order to make their products and services known. The Internet has redraw how businesses operate and has changed the way people work, with both Internet hardware and software prices dropping to such a level that fast Web access is not only affordable but essential to business activity.*

**Key word:** *Internet, digital economy, new economy, information and communication technology*

**JEL classification:** (L81, M21)

The information society brought up a new market, Internet. The new and vital role of information in the field of Internet opened the age of a new economy. In this sense, the term “New Economy” can be understood as the equivalent of “Internet Economy” or “Digital Economy”.

“If you are not on the Internet, you don’t exist!” – it’s a perfectly true slogan which forces people worldwide to use a certain way of interaction and, especially to re-evaluate another way of communication of products and services from direct producers to clients. Through internet, we can also talk about a new dimension of promoting business.

Nowadays, Internet plays a key role in developing organizations making markets more efficient and more dynamic, contributing to an increased economic productivity. It is considered the engine of future prosperity, its impact getting to be felt by all industries and services, including tourist ones.

In the same time, Internet has been contributing to the development of a sustainable business environment dynamic and especially of informational zone dynamic. This argument is also supported by Melih Bilgil in the animated documentary “The history of Internet” by the following comparison: “38 years were needed in order

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for 50 million people to be able to listen the radio and 14 years for 50 million people to watch T.V., but only 4 years for 50 million people to use Internet.”

According to P.A. Smith, change acquires new meanings in “consciousness” of people, organizations, products/services and technologies, stating that “The Internet changes the way we think, how we read, how we move, our manners, our friends, in fact it changes our whole social activity” [1].

In addition, some researchers, cited by P.A.Smith too, insist that: "Information technology is now able to create life entirely artificial organisms that can breathe, reproduce, mutate and react according to its environment and live or die according to the principles of natural selection. Maybe they can create customer interest as an antidote against virulent viruses. It is a challenge for traders to create their own customers, payment systems and consumption patterns” [2].

Initially, the term Internet was used to refer to any connection between networks comprising several interconnected components that can exchange information between them.

Today, the Internet is understood as means of business. Everyone who is connected and works effectively on the Internet will find a new way of looking

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at information. However, the Internet connects networks located on all continents, leading to a global and interactive communication medium.

By better understanding the needs of the people which live in the rural area we will have a better view of the new products design of the information technology and in the computer applications for the users from the rural area. A day by day activity, regardless the place you live is shopping. For example, in the rural areas the chain stores that we see in the urban centers are missing. For example in certain rural communities the supermarkets, the clothes, music stores, the bank can be missing. As a result the people who live here have less choices when there comes to buying products and services and can not be able to make a good deal, as in the urban markets .In addition to this arguments we could ask ourselves if the internet can offer a larger variety of goods and service, which are available in the small rural communities and at competitive prices. In fact, the use of this technologies may have a great impact in the life of a person that lives in the rural community compared to the people who live in the urban areas because the person who lives in the rural area can have, with the help of the informational technology , access to information , goods and services that the person could not have access in the past [3].

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An interesting Galup study highlights the reasons why internet is not used in rural areas in Romania [4].

The study was done amongst 5963 people aged over 16 years, out of which 1261 people (sub-sample was taken as standard for most responses) are Internet users. The sample of Internet services users is representative for Romanian households that use Internet access services, with an error limit of 2.8%.

The main reason for not using Internet access services in households is the lack of need (64% of responders). Other reasons mentioned by a significantly smaller number of respondents are: too expensive usage (9%) or too high installation costs (6%).

In most of the households where Internet access no longer exists because it was dropped in the past 12 months, the main reasons of withdrawal were : loss of need access, high costs or computer damage.

The majority (70%) of respondents not currently using the Internet access service do not intend to do it either in the next 12 months. However, three-quarters of the 11% who take into account such an option are focused on fixed access connections.

The number of Romanian households equipped with computer facilities continues to be low: in 48% of the cases there is no computer while in only 40% of the

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cases there is a PC desktop. Mobility does not constitute a reference element for the equipment of Romanian households with computer facilities: only 12% of these owe a laptop/mini-laptop while in 7% of the households there are both desktop systems and laptops/mini-laptops.

The demographic profile of households that are equipped with a PC desktop indicate the fact that the majority of these are located in rural area (with a penetration of 49% ), respectively in West regions (52%) and Bucharest (51%). Rural areas (29%) and South regions (31%), South-West (34%) and North-East (36%) are characterized by a scarce penetration of desktop systems. Desktop systems are present also in the households where medium income per person is higher than 800 lei.

A big problem in Eastern Europe and in Romania too, is that Internet penetration rate is so small in rural area compared to urban one. Almost half of the respondents have never used Internet while the consistent majority of those who have used Internet, have used it recently - during the last three months (47%). The demographic profile of recent Internet user shows that this user is either from Bucharest (69%) or from the urban areas (66%) of emerging regions in the Centre (53%), West (51%) and North-West (51%); The user is



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very young (16-34 years old, 76%) or young (35-54 years old, 56%), higher educated (89%), and comes from households with a medium income of over 800 lei (69%).

By comparison, the demographic profile of the non-Internet user shows that he/she comes preponderantly from rural areas (68%) of emerging regions in South (57%), South- West (56%) and North-East (50%); The user is rather elderly (over 55, 81%), is primarily educated (maximum 10 years of schooling, 81%) and comes from households with a medium income of less than 400 lei per person (65%).

The main venture for accessing the internet is at home (42%), followed by workplace or school (16%). The mobile phone/laptop and internet cafés are the peripheral ways of accessing the internet (4%).

The majority of Romanian households (56%) do not have internet access while among those that have internet access, most (39%) use the fixed telephone network. Using mobile access (2%) and access combined fixed-mobile (3%) occupies a niche position in this regard. Households in which Internet access is achieved through fixed networks mostly come from Bucharest (68%) and from urban areas (61%) of the emerging regions in West, North- West and Centre (46%) and have a medium income per person of over 800 lei (60%).

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In most Romanian households (93%) there is only one internet connection, the percentage of the households with two or more connections being specific to a niche segment (7%). About 95% of the Romanian households have a fixed Internet connection. Most fixed connections are made via cable (coax or UTO / FTO, 46%), optical fiber (FTTH, 25 %) or DSL (20%), while for mobile connections, available in 12 % of the households, there is a relative balance between access by card / USB (7%) and access via mobile phone (5%).

Information technology has determined significant changes in business environment that are no longer restricted today by the barriers between countries. Information technology is and it will be the development stage for electronic Marketing, Online Marketing, etc.

In this globalization of information, consumer demands have changed and manufacturers must take this into account. An important factor of promoting information technology in the world, but also in Romania (on-line with the world) is the penetration of new technologies and infrastructures in all areas - highly or poorly populated.

All types of businesses, from online bookstores to travel agencies and stock agencies, are forced to migrate to information technology to meet customer

requirements that are growing and focused on knowing new real-time updates on the products and services promoted.

Internet is considered the tool changing relationship between consumers and companies and it became a very good way to help customers to purchase the best offers.

Many think that Internet is a totally free market, but unfortunately it is fantastically well-structured, allowing promotion of products and services in a special way.

Winfield Tree and Lawrence Stewart consider that the main reasons why companies turn to the Internet are:

- The ability to find new customers or to more easily create relationships with consumers. The Internet allows any business to establish a global presence;
- The drastic reductions realized for distribution costs and services provided to customers. The Internet means lower costs for existing information about the product /service, enabling users to better know what they are buying.

Ana Voiculescu, in her article "A rain of dollars" from Planet Net specialized magazine appreciates the attraction of companies towards information

technology:"... the information environment has become for a period of time, the favorite space of doing business. The motivation of businessmen is as simple as possible: big number of users, the opportunity of continuous growth; relative advertising space and condensation of information. All that the user has to do is to access the website and ask for information about a certain product/service. The information is managed, so that the user does not wait too long. The product/service is presented in simple words, offering an overview of it"

Furthermore, the main qualities of the Internet, presented by W. Treese and L . Stewart are:

- Interoperability, which means that one reporter is connected to the Internet if he can communicate with other computers connected to the Internet. This is enabled by several factors such as the use of standardized regulation and availability (validity of universal names and addresses)
- globality, because the Internet has spawned a multiglobal network
- easy design of Web
- network costs are divided by user

Taking into consideration the role that internet currently occupies, Ion Mihailescu believes the real benefits obtained by internet seafarers consists of:

- The availability of the biggest digital information warehouse
- Possibility of configuring preferences so that the initial phase of product/service identification will be much shorter

On the other hand, for companies the crucial advantage consists of low-cost access to a wide and open market. Regarding this matter, I. Mihailescu declares: “to attract customers over the internet is much cheaper than any other publicity means! With a potential of 100 million worldwide customers, your business can have a huge success”.

Yet, the only substantial effort of the company, as I. Mihailescu states, is: “the gathering of exact and complete information about a product/service.” The internet, as a perfectly structured market, ensures information monopoly, achieving as well a strict control over the advertisements paid by the company. Within this control there are 2 communication systems: the e-mail and the web site.

The attention that is given to online commerce especially by enterprises is determined by the innovative effects which are felt thanks to both the use Internet and electronic network through the increase in turnover of the

companies that use this concept and the effectiveness of marketing campaigns.

The internet and W.W.W. have known the nowadays development because they have inspired the banker’s world and have generated a wave of creativity and the information technology permitted a series of new business role models. The internet is developing also on monetary markets so the clients can act in any given moment from any location with an Internet connection. Aside from the development of electronic banking services, the Internet offers a potential for new forms of distance learning up to the improvement of quality in medical care, electronic government, etc.

Although, due to the slowdown of economic rising it’s also noticeable minimization of risings in the e-commerce segment , it remains one of the least affected markets, mainly due to the lower prices and increased comfort, through online shopping. The expenses with online publicity continue to rise, as well, due to economic uncertainty. The same result is expected to be seen also in electronic banking services as opposite to the traditional ones.

The interest that on-line commerce is nowadays arousing continues to grow. Perhaps it is due to the economic crisis, when consumers became more attentive

to product's prices, firstly. On-line commerce gives the consumer the possibility to pick that product/service that best characterizes him and at the best price, and to the company the possibility to know the customer's preferences and promoting new products/services that can assure it a dominant position on the market.

E-commerce is fundamentally changing both companies' business processes and the value chains in which they operate. Greater automation speeds up business processes and makes them more efficient, promising productivity gains—and greater prosperity—both now and in the future [5].

Taking this into account we can conclude that digital economy and information and communication technology are key factors for rebalancing the economy and reduce the gap between rural and urban area.

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**OPREANA Alin****Assistant Professor, PhD Candidate, Faculty of Economics, Lucian Blaga University of Sibiu,****ANALYSIS OF THE KEYNES' ECONOMIC EQUILIBRIUM FROM THE IS-LM MODEL PERSPECTIVE**

**Abstract:** *In a first phase, during the Great Depression, historical events favored Keynesian interpretation of the scarce aggregate demand theory and of the necessity for a demand management through a state intervention mechanism in order to stabilize the economy. Therefore, economists were ready for a different model and they paid attention to a new and more plausible perspective than the laissez-faire theory. In the late '30s, Hicks and Hansen were researching the possibility of obtaining a simultaneous equilibrium situation on the goods market and on the money market, which lead to the IS – LM equilibrium model. This model allowed the first precise formulation of a set macroeconomic policy proposals, as the budget policy acts on the IS curve, and the monetary policy acts on LM curve. This paper addresses the*

*problem of achieving a combined equilibrium of the markets in terms of the IS-LM model. Thus, John Hicks and Alvin Hansen developed a new model using the Keynesian macroeconomic theory, and the IS-LM is of great importance for the general equilibrium theory especially in the current economic situation.*

**Keywords:** *equilibrium, IS-LM model, Keynesian cross, economic policies.*

**JEL classification:** E12, E17.

**1. Introduction**

The weakening interest in value theory is undoubtedly explained by the publication of Keynes' General Theory, in 1936. British and American economists have adopted this theory much faster and with much more enthusiasm than the European economists of the 1870s regarding the adoption of marginal utility, as Keynes offered a new value theory of a much better quality. Keynes was concerned with individual preferences from the neoclassical tradition and the School of Vienna in particular. Marginal propensity to save, invest, consume constitute a summary of

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individual preferences that can be easily adapted to Pareto's indifference curves.

Actually, General Theory was not necessarily a new theory of value, but economists were delighted by it because it offered a new way of analyzing unemployment and, especially, it offered an economic policy statement to be chosen in order to reduce or even eliminate this social scourge.

Menger, Böhm, von Wieser and Marshall did not have anti-social sentiments, however nor did it ever exist an unemployment rate of the '30s magnitude, so their papers provided no actual remedy.

Keynes appointed macroeconomics as the main technique for the analysis of economic phenomena (ever since the physicians' early period, many economists have recognized that aggregates were the tools needed to interpret economic phenomena). Keynes and his followers have created aggregate concepts or tools such as: national income, multiplier, accelerator, economic growth, etc... The proliferation of these global concepts lead to a decreased interest for marginal utility. British and American economists no longer believed in free competition or in methodical individualism, which was considered by many scholars as the only possible interpretation of the social relationships.

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For "scientific" economists, Keynes is, of course, the Keynes from the General Theory. A milestone in the evolution of the quantity theory of money was in 1920, as the role of savings and investment was taken into account in determining national income. This idea was also discussed by Lord John Maynard Keynes in "Treatise on Money" in 1930, in which he focused his attention on determining prices, not on national income, and the key to prices was the interest rate which balances savings and investment. The rift between Keynes's thinking in "Treatise" and in "General Theory" (1936) is given by:

- 1) The return to actual production through prices as the central variable to be explained;
- 2) The idea that changes in output or income, rather than interest rate variations, act to equalize economies to investments.

Therefore a new idea developed: investments, not savings, determine changes in income. Keynes sustained autonomous flow of investments and showed how savings can be generated via multiplier in order to satisfy this kind of investment.

These theoretical innovations would not have added much to the Keynesian revolution, without the idea that the level of income equilibrium, that equates

savings with investment, is not necessarily the income level which ensures full employment. The idea that the competitive process drives the economy up to the stage of full employment, was mentioned rather than explained. What is really new to Keynes's theory is the critics regarding the recoverable capacity of the market mechanism. Each element of his rationalism, and even the logical content of the whole Keynesian scheme can be criticized separately; as we cannot continue to believe in the automatically tendency of the free market economy to generate full employment.

## 2. Theoretical Analysis of the IS-LM Model

### 2.1. Goods Market Equilibrium

The IS curve shows the relationship between interest rate and income level that appears in the goods and services market. In developing this relationship, an important aspect is the "Keynesian cross" model. This model is the simplest interpretation of Keynes's theory of how national income is actually determined and it represents the cornerstone for the development of the IS-LM model, a much more complex and realistic model.

The "Keynesian cross" model is just one step towards obtaining the IS-LM model, which explains the

aggregate demand curve in the economy. This model is useful because it shows how expenditure budgets of households, firms and government determine the economy's income.

The IS curve shows combinations of interest rates and income levels that are consistent with the equilibrium in the goods and services market. The IS curve is constructed for a given tax policy. A changes in tax policy further increases the demand for goods and services, which moves the IS curve to the right. A change in tax policy further reduces the demand for goods and services, moving the IS curve to the left.

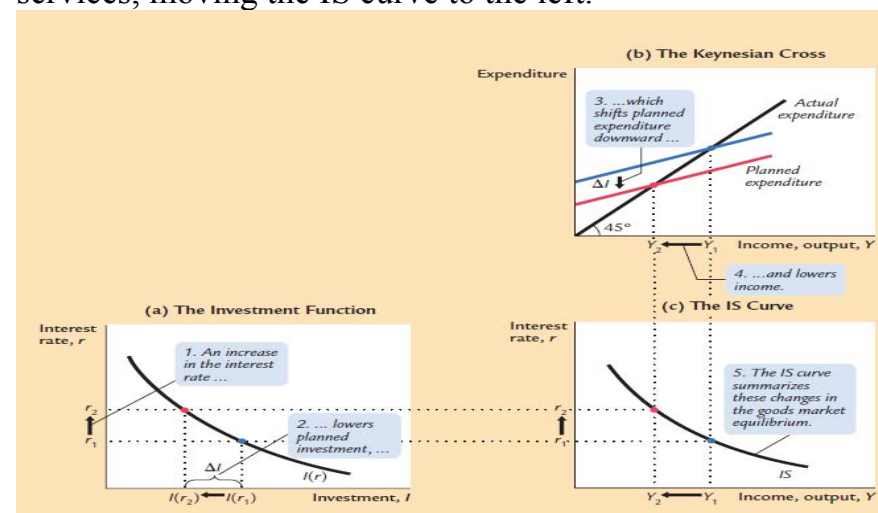


Figure 1: Obtaining the IS curve - goods and service market equilibrium (Mankiw, 2010)

**2.2. Analysis of Money Market Equilibrium**

The existence of equilibrium implies the existence of a money supply and money demand; the latter represents the rift between Keynes and the pre-Keynesian economy, for which money could never be claimed as such, but only to demand for other goods. (Frois, 1992)

In contradiction to this theory, Keynes presents four reasons for money demand, a liquid good par excellence, hence the designation of “*preference for liquidity*”:

- The revenue motive – “A first reason for keeping money is to cover the period between the time of receiving the income and the time of expenditure”;
- The business motive;
- The precautionary motive – “The care to cope with any unexpected expenses, hoping to take advantage of unforeseen opportunities in order to make advantageous purchases, and finally, the desire to preserve an asset whose value is immutable, to meet future obligations stipulated in money”;
- The speculation motive.

Accordingly, after stating these motives, Keynes presented, in a first approximation, the money demand

function denoted  $L$ , composed of two other functions  $L_1 + L_2$ . The first component, denoted  $L_1$ , represents the amount of money required by economic agents, based on the motives of revenue, business and precautionary, where  $L_1 = L_1(Y)$  with  $dL_1/dY > 0$ . The second component, denoted  $L_2$ , represents the money demand for speculative purposes, which depends on interest rate, a function that is decreasing, where  $L_2 = L_2(r)$  with  $dL_2/dr < 0$ .

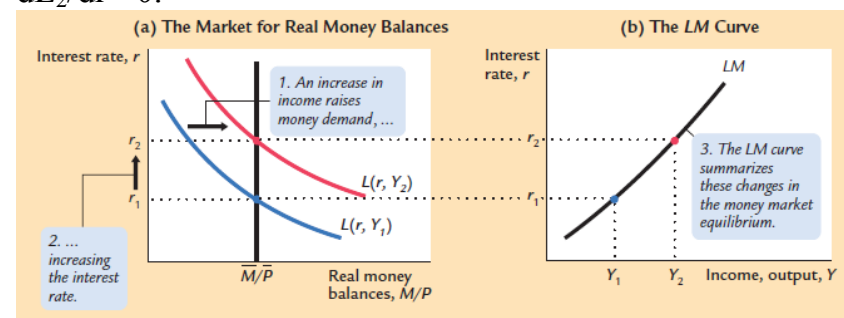


Figure 2: Obtaining the LM curve – the money market equilibrium (Mankiw, 2010)

**2.3. Combined markets’ equilibrium**

Previous situations defined – on the one hand, for the goods market; on the other hand, for the money market – a pair of values  $I,0 (r, Y)$  in order to achieve equilibrium on each of these markets. These conditions are independent of those that would ensure equilibrium



on the last market, namely the labor market. There is no reason to achieve a labor market equilibrium, which is known as underutilization of labor in equilibrium.

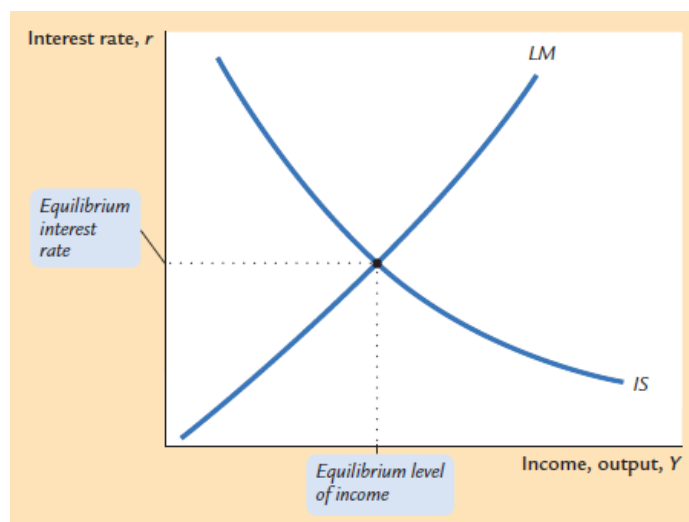


Figure 3. The IS-LM equilibrium model (Mankiw, 2010)

In the simplest case in which the IS and LM curves are both linear, where the first one is decreasing and the second one is increasing, the intersection point represents a unique pair of values  $I, O$  of  $Y$  and  $r$ , which provides both the goods market equilibrium and the money market equilibrium. The resulting  $Y$  level of activity is stable (because there is a stable equilibrium in both markets)

and there is no reason for it to correspond with the  $Y_{PE}$  level of activity, necessary to ensure a full utilization of labor: thus, effectively, there is equilibrium in underutilization conditions, and  $Y_{PE} - Y$  represents the deflation deviation. (Frois, 1992)

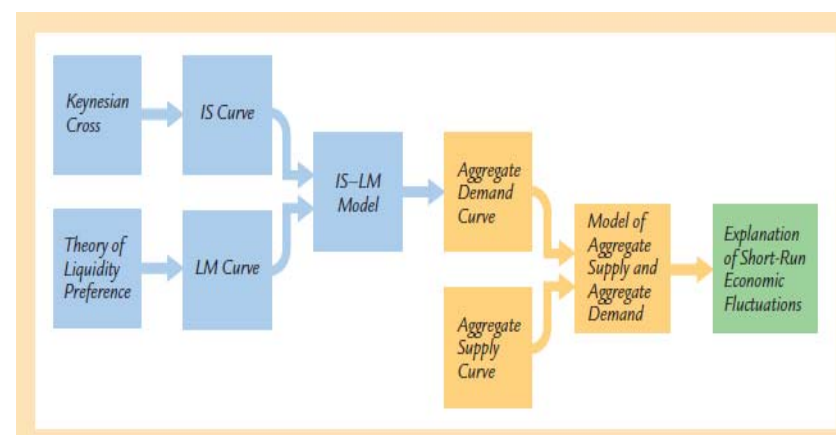


Figure 4. Theory of short-term economic fluctuations (Mankiw, 2010)

### 3. Conclusions

#### 3.1. Particularities of Keynes's analysis

Ultimately, what is the particularity and originality of Keynesian thinking? To try to answer this question, Frois has achieved a comparison between the analysis of Keynes and the classics' analysis. Thus, according to the

French economist's conclusions the classical theory is reduced to a model with 10 equations and 10 unknowns ( $Y$ ,  $I$ ,  $S$ ,  $M$ ,  $L$ ,  $r$ ,  $N_s$ ,  $w$  and  $p$ ) and the model which attempts to explain Keynes's analysis presents one less equation and one less unknown, namely there is no equation which would determine labor supply. (Frois, 1992)

Because of this, in this presentation there are three differences between the two models and thus a triple particularity of Keynes's analysis:

- what actually determines savings is the level of income and interest rate;
- money brings distinct services; in this regard it is required for itself and money demand depends on interest rate;
- employment contracts are denominated in money units; there is no specific behavior of labor supply and, consequently, the level of labor utilization in the economy depends only on the amount of work required by businesses.

### ***3.2. A causal map of the General Theory***

It is possible to develop a causal map to illustrate the General Theory model which will be amended and updated throughout the rest of this book. Indeed two

causal maps may be developed – one expressed in nominal values, the other in real terms measured in wage units. In the nominal map the ultimate independent variables so far are expected aggregate consumption spending ( $C$ ), expected aggregate investment spending ( $I$ ) and the wage unit ( $WU$ ). The other independent variable is the aggregate supply relationship ( $\phi$ ), but this remains stable and only plays a passive role in the model. (Sheenan, 2009)

Nominal aggregate consumption and investment spending determine the nominal aggregate demand price ( $D$ ). The wage unit and the aggregate supply relationship specify the nominal aggregate supply price ( $Z$ ). Where the aggregate demand price and the aggregate supply price are equal aggregate effective demand is determined ( $AED$ ). The level of aggregate effective demand, in turn, determines the equilibrium values for the two dependent variables – aggregate income ( $Y$ ) and the total employment of labour units ( $N$ ). In real terms the causal map is more straightforward. It has real consumption expenditure ( $Cw$ ) and real investment spending ( $Iw$ ) as the ultimate independent variables; the other independent variable being the stable aggregate supply relationship ( $\phi$ ).

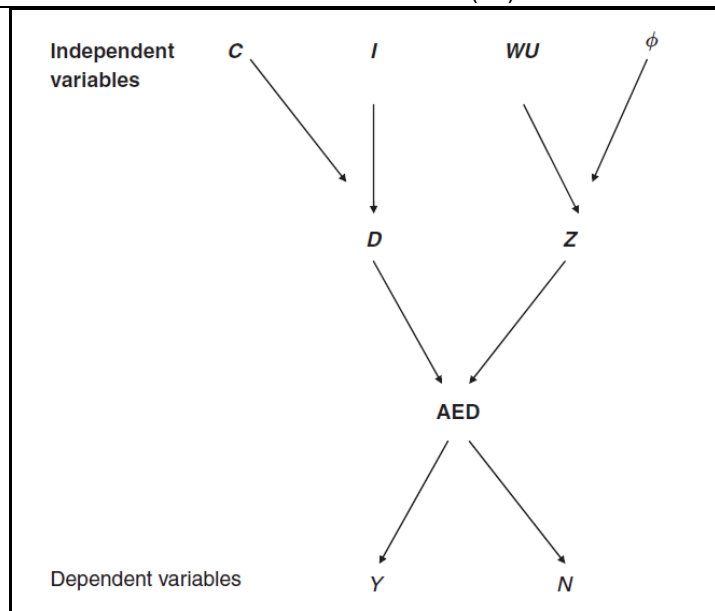


Figure 5: A causal map of the General Theory (Sheenan, 2009)

The wage unit must be known so that nominal consumption and investment spending can be deflated. The combined total of  $C_w$  and  $I_w$  determines the real aggregate demand price ( $D_w$ ). The aggregate supply relationship specifies the real aggregate supply price over a range of employment units ( $Z_w$ ). Real aggregate effective demand ( $AED_w$ ) is determined where  $D_w$  and  $Z_w$  are equal; and  $AED_w$  defines the equilibrium values

for real aggregate income ( $Y_w$ ) and employment of labour units ( $N$ ).

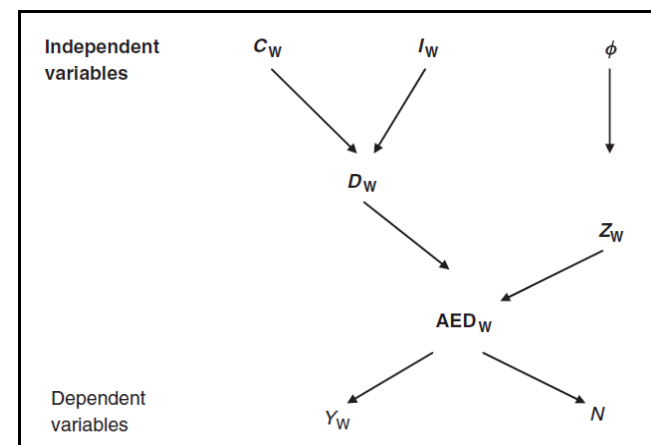


Figure 6: A causal map of the General Theory (Sheenan, 2009)

### 3.3. The actuality of Keynes's economic policies

Aided by low inflation, growth rates in developing economies have accelerated sharply since the year 2000, exceeding those of developed countries even in a ratio of more than two to one. Consequently, the developing countries' share of world income has increased substantially.

Traditionally, given that the population of China and most other emerging economies are saving a higher

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proportion of their income than people in developed countries, the resulting effective increase, namely what economists call the marginal propensity to save, basically flooded the financial markets, as the globally planned capital investment could not keep up with the massive surplus of savings. As a result, the long term interest rates, both real and nominal, have fallen sharply worldwide. In 2006, apart from a few economies – especially those from Venezuela, Zimbabwe and Iran – the values for inflation and long term nominal interest rates were expressed by a single digit, all over the world.

This general decline in long-term interest rates, in the context of a lowering inflation, pushed up even further stock prices, in a short period of time (Greenspan, 2008). From here on, worldwide followed the speculative bubble growth, the underestimation of the risk in financial markets, and the current financial crisis.

Policy implications of the General Theory fall into two divisions: policies aimed at rescuing an economy from a collapse, and policies aimed at keeping it out of a slump. The first implies restoring a full employment level of spending, while the second type of policies involves managing spending so that it stays there. For both types of policies, the two main instruments available are monetary policy and fiscal policy.

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At the beginning of the Great Depression, Keynes considered that expansion of the money supply aiming to lower the long term interest rate, and reduce the real wage, would suffice in order to rescue an economy from a slump (Keynes, 2009). Eventually, by the time he started writing the General Theory, he developed doubts of whether or not the monetary policy alone would suffice in face of an increase in the tendency to hoard and to accumulate money. The General Theory's Chapter 13 tried to answer the question why someone would want to gather money for any purpose other than to pay for current transactions or for emergencies, when there was also the option of buying interest-bearing instruments. Keynes found the necessary condition for such "speculative" money holding in "the existence of uncertainty as to the future rate of interest". If the interest rates of the future could be foreseen with certainty "it must always be more advantageous to purchase a debt than to hold cash as a store of wealth". Yet, if an investor would consider purchasing a bond with a life of  $n$  years, "...if a need for liquid cash may conceivably arise before the expiry of  $n$  years, there is a risk of loss being incurred in purchasing a long term debts and subsequently turning it into cash, as compared with holding cash" (Keynes, 2009). However, when bond yields had declined so much

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and so low that the only reasonable expectation would be a further reduction in bond prices (i.e., the only sensible expectation was a capital loss), investors would keep idle any extra money balances that could be injected into their portfolios. The economy might be in a liquidity trap. Monetary policy could not rescue it from a crisis; fiscal policy alone could achieve this - through government spending (Keynes, 2009). Keynes did not believe that a pure liquidity trap had ever been developed, although the U.S. in the 1930s came close to it. Keynes was not concerned too much with the trap, because if it happened, while monetary policy would be disabled, the government would be able to borrow unlimited amounts at a nominal rate of interest for its own spending.

In this recent crisis, quantitative easing has undoubtedly had a positive effect on share and bond market prices. But the vast majority of the new quantities of money has not yet filtered into the real economy. It has increased prices of existing assets, but did not stimulate new investments, because lenders still require more from borrowers than what borrowers can expect to earn (Skidelsky, 2010).

Keynes's skepticism about monetary policy referred to his understanding of the credit money economy. Banks are the ones that create credit. The supply of credit is

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largely determined by the demand credit, which expands or contracts depending on the confidence of entrepreneurs in the future. Therefore, credit may not be available even though money is “cheap” and expand even when it is “costly”. In these circumstances, monetary policy ceases to exert influence over credit conditions. Keynes makes this clear when he stated that “a boom is a situation in which over-optimism triumphs over a rate of interest which, in a cooler light, would be seen to be excessive” (Keynes, 2009).

Keynes's skepticism regarding the ability of monetary policy to save a collapsing economy was on par with his skepticism about monetary policy as a tool for managing demand in maintaining a full employment. The reason is that if high interest rates are used to restrain a boom, it may be difficult to reduce them to a sufficiently low level in order to prevent a collapse. Keynes explains that the monetary authorities' attempt to reduce long term interest rates to below the rate the market considered (from historical experience) to be the “normal” or “safe” rate is likely to induce people to sell bonds for cash. This, he stated “is probably the chief obstacle to a fall in the rate of interest to a very low level” (Keynes, 2009). The problem of maintaining full employment arises from “association of a conventional

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and fairly stable long term rate of interest with a fickle and highly unstable marginal efficiency of capital” (Keynes, 2009). His solution to this problem is to use monetary policy in order to establish a permanently low long term interest rate, and then maintaining it. “For any level of interest which is accepted with sufficient conviction as likely to be durable will be durable...” (Keynes, 2009). For this reason, Keynes did not use interest rates to manage the business cycle, which is the exact opposite of current practice. Therefore, in addition to keeping interest rates at a permanently low level, the most important source of propulsion and stabilization policy should be in terms of investment. Keynes wrote: “I expect to see the State... taking an ever greater responsibility for directly organizing investment... I conceive, therefore, that a somewhat comprehensive socialization of investment will prove the only means of securing an approximation to full employment” (Keynes, 2009).

The message was that government should manage demand to limit fluctuations to the smallest feasible amount. Keynes gave the state the role of reducing uncertainty; government policy should be directed towards making the world more predictable, more Gaussian. Thinking about the post-war full employment

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policy, he believed that immediately after the war the state will continue its wartime responsibility for the investment side of the policy (repairing the damaged infrastructure) with a limited and restricted consumption to make room for exports. But in the medium term, he believed that the emphasis should gradually shift to encourage consumption, with public investment as a support. As the economy grew steadily more productive, he envisioned a gradual reduction of working hours, creating the conditions for people to live “wisely, agreeably and well”. This was his answer to the question “what was economics for?” (Skidelsky, 2010).

The current economic conjuncture determined by the economic crisis does offer certain positive perspective in order to achieve a synthesis of different models regarding the aggregate equilibrium of the markets leading to a stable general equilibrium with a sustainable framework for the economy’s recovery, and later for the development of the global economy.

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### **APPLICATIONS AND IMPLICATIONS OF USING TIC- AT MICROECONOMIC LEVEL**

**Abstract:** *Economic and social impacts of information and communication technology derived from the development and expansion of ICT sector (measured by the level of mobile penetration, the broadband Internet access and computers), and that new knowledge is becoming than the public good character and can be disseminated at minimal cost.*

**Keywords:** communication, efficiency, e-business

**JEL:** M2, O1, O3

#### **1. Introduction**

What was created for those in developed countries with high costs is available at low cost to everyone else (eg large business information databases,

satellite, libraries, encyclopedias, etc. information displayed on the Internet.) This framework provides the possibility of supported political advancement (leapfrogging) to reduce gaps and catalyze knowledge economy.

ICT development exerts a positive influence on labor productivity across the whole economy, increase government efficiency and make public services more citizens oriented. At the micro level, labor productivity growth means increased competitiveness, higher profits, and better-paid employees and broadens the tax base.

Increasing economic competitiveness at the microeconomic level is based today, among others, the labor productivity growth, driven primarily by rethinking and reorganizing companies optimize business processes (process re-engineering and Business Process Optimization - BPO) almost invariably supported by computerization them.

## 2. Micro-level ICT

Computerization process occurs at the micro level and should therefore be preceded by optimizing business processes. It consisted of adopting an adequate communications infrastructure (communications structures, hardware platforms and storage and

processing of information and data base software) and the adoption and implementation of business management tools, resulting in platform / suite of applications for business (e-business applications).

The main integrated management systems are classified according to roles and / or business processes they serve. This suite of applications is usually in the decision-making and operational tools that, in terms of volume share in economic activity investments in computerization of companies are grouped into the following major categories [1]:

- a) Enterprise Resource Planning (ERP)
- b) Customer Relationship Management (CRM)
- c) Supply Chain Management (SCM)

a) ERP (Enterprise Resource Planning) - enterprise resource planning platforms. Are generally open and modular platform that personalizes supplier after a thorough implementation of customer specific business processes. Due to the complex nature of activities beyond their structure depending on the business processes implemented ERP are delivered as turnkey solutions and their costs are complex, based on cost analysis and evaluation, development, implementation, customization, testing, and not Finally, maintenance costs and often



neglected but not insignificant, migration and decommissioning costs.

Despite an efficient targeted activities is often obvious, such solutions providers often avoid to advance accurate data on effective rates as a direct contribution to the implementation of ERP. For this reason statistics are rare and often rely only on testimonials offered by some clients with successful implementations.

Overall market is occupied by over 1,000 suppliers significant, more than 80% is occupied by three major players: Oracle, SAP, Microsoft. A notable presence is the platform from TotalSoft Charisma Romans who, according to a study by Pierre Audoin Consultants, the Market Research and Consultancy Company, deals in 2011 first in the local market profile[2].

An analysis [3] of 2008 shows the huge potential of the ERP market resulted in a number of platforms available ERP and evolving. Acquisitions made by Oracle, the leader in enterprise solutions for large companies, which in four years has consolidated a large segment of the market (JD Edwards, People Soft, Fusion and others) show that this market is far from exhausted their resources.

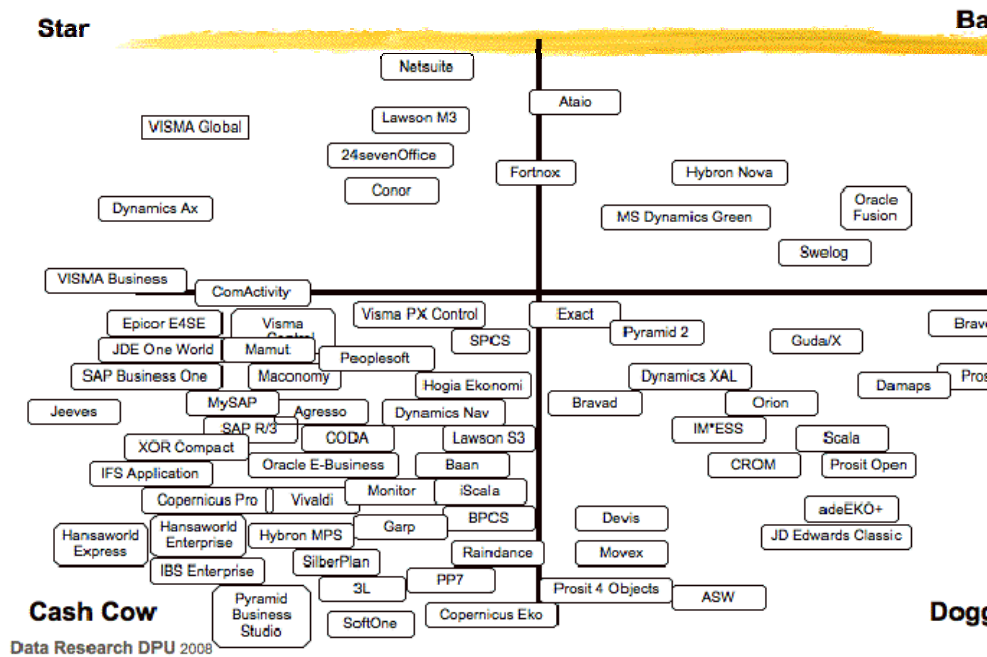
Interesting to note that, in accordance with the trend of doing the exercise location type of platform,

ERP platforms is a trend setter for technology in the cloud model.

Possible trends for the coming years include the following:

- Migrating from model to model locally hosted cloud computing because of economies of scale promised by suppliers;
- Migration to SaaS business model (Software as a Service) model borrowed from the CRM segment and that tends to generalize including basic software (operating systems, office suite, games, etc.).
- Migration from the "do it yourself" DIY to the "outsourced" due to high costs and risks involved especially for IT managers to implement an ERP project extremely complex.
- Aligning ERP versions and generations, justified the lifetime achievement of the first generation and their incompatibility with newer versions and platforms support.

# Boston Matrix - 2008



- Increased selectivity in choosing a type of platform based on analysis of specific platforms successfully implemented in their areas of interest of potential clients.

Introducing ERP in an organization is a long process, very laborious and therefore expensive, including existing state diagnosis, reworking the conclusions based on analysis, data conversion to make them able to use the new system, training staff, implementing and testing it.

Analysis of data collected in 5000 U.S. manufacturing firms indicate that the share of the cost of purchasing software licenses for specific total cost of ERP implementation is about 30% is added to the expenditure on equipment (18%), fees consultants and programmers (24%), training (11%) and cost of implementation team (14%).

ERP serves also as a knowledge base for two other modern e-business applications: CRM and SCM.

a) **CRM (Customer Relationship Management)** - customer relationship

management platforms. There are systems in which all the business processes they carry out an enterprise to identify, select, acquire, develop and retain its customers are standardized and automated to increase productivity and reduce reaction time to market stimuli.

An effective CRM manages at least some of the following processes:

a collection and processing of orders (order management),

b marketing

c. Sales (Sales Force Automation - SFA),

d electronic sales (e-shop)

e management business partners

f management contracts

g project management

h customer support (Service Desk Customer Support)

i product management

j. BI (business intelligence)

Target specific industries led activity while specialization such products on market niches: transportation, communications, retail, manufacturing, services, public sector etc., Subsegmentarea going to specific activities

(activity management services and telecommunications operators CRM for mining, etc.).

Empirical evidence shows that the profits made from investments in ICT and the introduction of e-business applications, which are costly and require time, it increases appreciably when these investments are combined with changes in business strategy, business practices and structure organization of firms. Therefore, companies must make thorough assessments of their capability to introduce ICT and the effects these technologies, and policies at the sectoral and economy needs to foster and encourage strong introduction and rapid dissemination.

#### ***b) SCM - Supply Chain Management***

Supply chain management (SCM), translated by Supply Chain Management or Logistics Management, is the process of planning, implementation and control of supply operations that are intended to cover customer requirements in a most efficient way possible.

A professional association[4] that deals with the settlement area defined SCM as "planning

and management of all activities involved in sourcing and all logistics management activities. It also includes cooperation and coordination with channel partners, which can be suppliers, intermediaries, external service providers and customers. In essence, SCM integrates suppliers and demand management within an enterprise."

SCM covers the entire supply chain of the enterprise, from the production of raw materials by establishing relationships with customers by providing integrated information about orders, forecasts, plans and supply and production, stocks and their degree of recovery, capacity to improve service quality and reducing financial assets in stocks. Applications that meet specific e-procurement, contract management and exchange virtual platforms (virtual market).

e-procurement is an e-business application that allows designated beneficiaries to purchase products or services through a web interface and send the same route orders to suppliers. E-procurement technologies include specific e-procurement software, auction B2B (business to business) B2B stock market, and supply consortia.

e-market places (or e-Hubs, net marketplaces, B2B exchanges) are places of "meeting" digital service provides two types of participants: connecting a large number of potential partners, suppliers and buyers, to list goods they wish they sell that to buy them, facilitating interaction potential partners before, during or after the decision to do business together.

Along with applications listed, we find a myriad of tools to facilitate collaborative work and changes mainly information and document management, work design business processes, content management, etc. active. Usually they are referenced in technical terms as e-business tools:

**a Collaboration** - sharing solutions and exchange of information (documents, video, voice, text) as electronic mail, chat, video conference or audio, presentation documents and work platforms with many users at once (multiuser).

**b DM - Document Management** - solutions for archiving and storage history of a document approving the implementation chains and hierarchies of access rights

*c PM - Process Automation* - Automation solutions or decisions of those homogeneous and repetitive activities that do not require skilled human decision.

*d CM - Content Management* - management solutions useful information conveyed or distributed to end user

*e. portals (intranet and extranet)* - is the solution for organizing and presenting information relevant to the user based access control by user profiles and ranking information according to each specific user.

Finally, often a significant share of IT investment budget of any company, we find:

*c) technical management platform, tools, process and technological applications.* Find them in technical jargon as OSS (Operational Support Systems).

### 3. Dematerialisation of documents - IT Trojan horse

Heavily publicized idea of dematerialisation of information and documents

generated by a substantial increase in IT sector which promotes above tools (ERP, CRM, Document Management, etc.). Many companies, especially large companies with a significant volume of documents circulated internally adopted with open arms hoping these solutions:

- Reducing the cost of consumables
- Reduce internal bureaucracy and the times for making important decisions for the company
- Compliance with environmental social policies (green business).

Although the effect of these solutions is shown (policy of "clear desk" have become standard chapters induction courses), many users of these solutions start good balance after the first years of operation of these solutions following arguments:

- Operating and maintenance costs that in some implementations approaching replacement costs of consumables (version upgrades, changes or organizational changes required by the legislation)
- Response time to changes, often encumbered policy update application provider

- Risk of failure of implementation and solution adoption by employees, attributed entirely to IT managers
- Transformation of e-bureaucracy bureaucracy, maintaining that human factor dependence subcalificat decision or aversion to risk-taking decision.

It is obvious that this phenomenon is in its infancy, at least in Romania, being favored by multinationals but the appearance is just as predictable as it will increase once created islands in the dematerialized companies will have to communicate with each other in the same form will be able to communicate with the public sector including, setting the regulatory framework to facilitate this. Electronic signature is a first step and its introduction in 2001 resulted in an alignment, as the difficult, the public sector to this trend.

Organizational changes [5] that require the introduction of these systems and modern methods of business enterprises take the following forms:

1. changes in human resource management, including methods and motivation of new policies, transparency of information specific

to the management, expansion of participatory management, job scheduling, teamwork and autonomous work groups;

2. changes in work processes and adopt new forms of work organization, which refers to the interfaces between processes, workflow, job design and responsibilities matrix (RASCI);

3. changes in organizational structure, including compression chain making, delegation of authority, decentralization of activities, reconsider the decision powers, decision-making structure flexibility by extending the use of dynamic organizational forms " C multifunctional project teams or commands ("Task Force") etc.

4. improvement in industrial relations practices, particularly policy formulation and configuration of structures more effective employers and union relations;

5. introduction of new management systems and methods: TQM - Total Quality Management, Lean, Six Sigma, Kaizen - or codes of best practice ITIL, etc. ETOM.

#### **4. Conclusions**

In terms of increasing complexity of transformations induced by the introduction of systems to support business and organizational changes entailed implementation, is very difficult to quantify the impact of ICT on business performance in general.

The main reason is during the implementation of such complex projects, the effects of which often overlap with economic cycles. Thus, the effect of implementing an ERP system can be canceled by a decline in global economic and market conditions change. In these conditions, determination of methodological elements and standards that impact assessment is still in its early stages.

Most published studies on this subject is based on interviews, case studies and comparative studies of industrial sectors (benchmarks), most referring to U.S. or multinational companies. These studies do not contain the evaluation of the impact of ERP on firm performance, the actual data to use. For example, analysis of the introduction of ERP effects on productivity and business performance has empirically show that firms which have introduced ERP and improved

performance compared to a relatively greater degree than those who did not, also performance measurement in the same company before, during and after the introduction of ERP has shown positive developments.

We conclude that the effects of using ICT to support decision making in economic activity, together with new management methods are required to be crystallized on conceptual and operational. For this reason, the most effective ways to assess their impact consisted mainly in comparative studies that correlate the quantifiable effects of using these systems to enter and intercompany variation economic performance remain the only tools available and quite often dependent on profound knowledge of within the scope of the specific industry or market analysis. Therefore, researcher involvement in practice and this time turns a prerequisite to quality research results.

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### **A BRIEF ANALISYS OF INTERNATIONAL TRADE WITH SERVICES**

**Abstract:** *This paper adresses the current trends within the services sector, and more importantly, the current trends within the international trade in services. International trading in services has gained momentum during the last 20-30 years, while the service sector has become more and more important in the world economy, the most important sector actually, in most of the developed countries in the world. The paper also tries to forecast the main mutations within this sector, during the coming years, based on a multicriterium analysis, which takes key factors into account.*

## 1. Introduction

The world is in movement. The speed, the rate at which it develops is astounding. This "status quo" presents both positive aspects, as well as negative ones. Yet, in spite of what we believe on globalization, whether or not we are for or against it, we must notice that the process is so advanced, and the state of the world is, at this time, so globalized, that we can simply not stop this process. The best thing we can do, as specialists, is to try to foresee when downturns within the economy are coming, so that we can calculate a lower impact on the most vulnerable part of each economy, namely the population, the citizens of a state.

One of the ways in which we could do that is to analyze the main sectors within an economy, namely the three main sectors which any state economy presents: the agricultural sector, the industrial sector and the third, and arguably, the most important sector, the services sector.

Out of the three, the services sector is the most appropriate for analysis, because of its traits. More specifically, the services sector is the one which is

at the core of global development. This is due to the fact that, during the last few decades, the services sector has developed the most. It is enough to mention a few of its components, to understand that this is, without a doubt, the most important value-added sector within the economy. We are talking here about transportation, the travel industry, communication services and the financial services, as well as all the other commercial services.

The current state of things within economics can only be understood by a sublime understanding of the services sector. Production of goods requires transportation, investments require funds, generated by financial services. Without the knowledge of services, our comprehension of why the way things are the way they are in the world today is almost impossible.

In order to do so, we must analyze the key indicators of services and international trade, as a whole, as it is today.

## 2. Key indicators of international trade

One of the main indicators within this sector is considered the total exports in commercial services. It is believed that exports are a general source of wealth for a country, particularly if they exceed imports. International service trade is no exception.

We note, from the start that all the data presented from this point on belongs to the WTO and is accurate as of 2010. We also mention that it is expressed in billions of USD.

From the table presented, we can clearly see several main trends of the current exports in services.

Concerning all the three main categories of services, namely Travel services, Transport Services and Other Commercial Services (which include financial services, medical services, communication services, constructions, etc.) we notice the fact that Europe is the biggest exporter, by far, concerning all the main three sectors.

This is partly due to Europe's brute size, namely a population of over 450 million people, as well as a high concentration of developed states. The success of the European Union, a multi-state

organism, is, in spite of recent quakes and even the possible fall of the Euro, is undoubtable. The European Union, taking into account all the 27 member states, accounts for 41 % of all the travel exports in the world, as compared to, for example, the Commonwealth of Independent States (former states within the USSR), which accounts for only 1,81 %. Not even Asia or the US come close, with 26,4% and 17,14% respectively.

These numbers also have another interesting explanation: culture. It is accepted that people in Europe have a different culture than those abroad, namely they orient their surplus income towards traveling, while people in the US for example prefer to spend their income on goods and services.

Concerning the second category of services, transportation, Europe is far in front of all the others, with a major stake in world exports of 47,64 %. This number is obvious, if we consider the fact that we have here the highest concentration of developed states, in the world, if we mention Great Britain, Germany, France, Holland, and the list may continue.

Table 1. International Services Exports, source: WTO International Trade Statistics, 2010

	Travel	Transport	Other commercial services
European Union	385	374	984
Asia	248	226	501
Africa	42	23	20
North America	161	84	358
Commonwealth of Independent States	17	32	30
Central and South America and the Caribbeans	43	25	44
Middle East	43	21	33
Total	939	785	1970

*Note: According to the World Trade Organization, the "other commercial services" category includes communications services, telecommunications services, construction, insurance services, financial services, computer and information services, royalties and licence fees, personal, cultural and recreational services, audiovisual services.*

Also, due to the continuous process of European Union expansion, and new states,

including Romania, always joining in, the latter countries are always pressured into becoming more and more competitive, more and more active on the global market. This indirectly leads to a development in infrastructure, and thus transportation. Not simply because there is a need for this within the respective states – and we can add here that Romania is desperate for infrastructure investments – but also because this is imposed on the developing economies by the developed economies, in order to create and support a vast array of logistic networks which can better support European exports towards non-E.U. states.

Other regions are still far behind Europe from this point of view, namely Asia, which has a stake of 28,79 % in global transport exports, and North America, with a share of only 10,70 % of the total. The other regions have even smaller shares, which makes them neglectable on the global scale.

Finally, the "other commercial services" sector is, once again, ruled without a doubt by Europe. Here, the European Union has a share of almost 50 % (actually, 49,95 %) and is by far the biggest

exporter of services such as financial services, healthcare and communications.

Second here is Asia, again, with a share of export accounting for 25,43 %, and North America, noting here Canada as well, with 18,17 % of the total share.

International trade with services has evolved in a staggering manner, during the last few years. The upside is that, in spite of the financial crisis of 2008 – 2011, the numbers reveal the fact that 2010, international trade in services actually bounced back, after a mild recession.

This argument is supported by the fact that, for example, transportation exports increased by over 15 %, after dropping a whopping 23% during the crisis. The main engine for the increase of transportation exports was given by Asian exports.

2010 was also a much better year for travel receipts. Tourists paid with 8% more to visit foreign destinations, whereas, according to the WTO, tourist arrivals increased by 6,6% during this time.

Financial services exports also increased in 2010, by 7%, which is a huge bounce-back after the sharp decreases during crisis periods. Actually,

the only financial services which have not registered an increase have been the insurance services, which registered a stagnation in numbers.

Computer and information services registered a 13% increase in exports, from the previous year. However, communication exports have registered a decrease of nearly 8%, in terms of exports, due to the fact that the European Union has significantly advocated for a decrease in call prices, particularly roaming prices.

A sector of continuous decrease, since the beginning of the crisis in 2008, has been the construction sector. The only bright side is that the decrease was of about roughly 4 %, which was far less perilous than the decrease in 2009, of almost 10%.

Another aspect that we must note, according to international statistics, is that, in spite of all the increases of services and of international trade with services, most of these categories still remain at pre-crisis levels. To put it differently, on the whole, services are still reeling from a tough financial crisis, which has spread its influence in all sectors of the economy, affecting particularly

strong such services as the financial services and constructions.

The current trends suggest 2012 as the year of the full recovery of the service sectors, as well as the first year in which pre-crisis levels will finally be surpassed.

### **3. Romania`s place in international trading with services**

Romania is a relatively new country in terms of international trade. With a presence banned until the revolution in 1989-1990, foreign trade has grown rapidly during the 1990s, as Romania has quickly liberalized its trade regime. We must state however, that this liberalization did not come without costs, and that our country had several major setbacks concerning privatizations. We mention, for the record, the bankruptcy of such institutions as Bancorex, Credit Bank, which severely dampened public confidence in unstable governments. If we also state that inflation was running amok within the economy, and to some extent, it even reached numbers of 300%, we

notice that the path towards privatization has not been an easy one.

Yet, in spite of all the issues surrounding the economy, in spite of all the corrupt politicians and regimes, the country joined the World Trade Organization in 1995 and the Central European Free Trade Area in 1997.

It also enjoyed special trading rights with the European Union as a precursor to membership. As of January 1st, 2007, Romania became a full fledged member of the European Union. Some 85 % of exports still go to EU countries, making Romania's economy dependent on that of major markets, particularly Italy and Germany.

Romanian companies have found it hard to take advantage of the new export opportunities, however. Meanwhile, imports have risen by 60 percent in dollar terms since 1990, as Romanians take advantage of their new access to consumer goods and as companies import investment goods such as computers. As a result, the country runs a persistent trade deficit. However, this trade deficit has gradually decreased since the 2000s, and the country currently runs a very prudent policy,

which aims at making exports at least equal to imports in several areas.

Fortunately, export growth has accelerated in the past 5 years, in spite of the current crisis, thanks in part to high world commodity prices for Romanian exports such as steel, aluminum, and refined oil products, and the advances in several areas such as car manufacturing.

Nevertheless, in spite of all the progress which the country has made during these 20 years since the fall of communism, in terms of the service sector, the country has only started to develop since the early 2000s. These are the years when, for example, the first mobile operators invest within the country, the first credit and debt cards are issued, cable becomes the new way to go for Romanian television, and Romanian tourists begin to travel abroad for other purposes than to buy cheap goods from countries such as Hungary, Turkey or Bulgaria.

Even now, in terms of services, there are still sectors where development is sluggish. But progress has been considerable, and the perspectives are good. In terms of international trade with services, our country is still a netto

importer of services. As arguments, we present the following, although the list is not, by any means, exhaustive:

- Communications services, as well as telecommunications services are almost 100 % foreign investments;
- In terms of financial services, the banking system in Romania comprises of 43 banks, of which only 3 are Romanian, and the rest are subsidiaries of international banks.
- In terms of travels, Romanian tourists leave the country at a ratio of 5:1 as compared to tourists which come to visit us. Partly poor management, partly poor marketing, Romania has always been a country with tremendous potential, but concrete results are still lacking, and the list could continue.

However, we predict a strong rise of service sector dominance of the economy, in the coming years, as the country continues its long path towards a developed, fully functional market economy. As argument, in 20 years, the service sector has evolved from the "cinderella" of the economy, the least important sector, to the most

important sector, accounting for more than 50% of GDP, in the last few years.

#### 4. Future trends of international trade

It is never easy to forecast or predict the future. Particularly when the euro is on the brink of extinction, when we clearly see the way politicians at the head of the European Union, and not only, squabble and fail to reveal a competent agenda, to pull the world out of the mess they got it in.

However, with all the pressure in place, there are several trends which the future will surely reveal. First of all, to the issue at hand. The financial sector, as part of the service sector within an economy.

There are clear signs that the financial sector will not fully recover for several years. An optimistic date would be 2014-2015. Continuous disputes within the European Union, the delay for a solid fiscal pact and dissension among its members will make it weak to foreign markets. Already, seven of its members are rated as "junk" by international rating agencies. The perspective

of deeper recession still looms, as even countries such as Germany find it difficult to attract new loans. However, based on strong industrial growth, on a relatively stable agriculture and a continuous development of the service sector, the E.U. could be back on its feet in a few years time. Provided that the European Central Bank manages to keep inflation, a major risk nowadays for member states, at a minimum.

There will be increased demand for services. Using 2010 as a source for statistical extrapolation, and considering the current time span, namely, that the crisis has passed, there should be a solid growth of both internal consumption of services as well as an increase in international trade with services. This argument has several key points, of keynesian origin:

- Once the feeling that the crisis is over, and that feeling is becoming increasingly spread, people will begin to spend more and more;
- Services attract one of the biggest percentage of expenses from all of us, and some of such services, like internet communications, mobile communications, are considered basic needs at



this time, thus increases in prices will not be followed by a decrease in demand;

- The impact of media is paramount: if the feeling of economic danger has passed, as suggested by media and means of mass communication, people will feel liberated, and thus they will allow themselves to spend more and more;
- According to economic theory, namely the Kondratieff cycle theory, after a sharp decline, there is only one way to go, namely, up. This means, that after a period of recession, we should have a period of growth.
- Provided that we have learned our lesson, because not only banks are to blame for the crisis which we had, rather human greed, we (meaning governments, financial institutions and customers) could learn that there is actually no golden ticket, or that the path towards wealth for a nation can never be reached by borrowing.

The share of the European Union in global exports of financial services will pass 50 %, as the region will continue to consolidate its position at the helm of the finance industry. The only

category where stagnation will be present will be the insurance sector. But even here, several major mergers are announced and thus, the probability of growth increases. Also, E.U. travel exports will exceed 350 billion USD within the next 4-5 years, as demand for travels will increase.

Transportation services will surge, because people feel the need to travel, and will do so. Communications will recover within a year or two and continue their increase in an exponential manner.

Asia and Europe will remain the two most important actors within the global export of services, as China will push Asia onwards and close the gap on Europe, in terms of exports of services.

International trade in services will certainly prove more and more important, as we recover from the crisis of 2008 – 2011, and will reveal new means of growth for a struggling world economy.

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**OPTIMIZING THE DECISION OF  
HUMAN RESOURCE TRAINING IN THE  
CONTEXT OF GLOBALIZATION**

**Abstract:** *Globalization is a phenomenon with a high degree of impact on the new type of human resource training. The present study aims to model some influence variables triggered by globalization upon the human resource training by means of the dynamic programming method and risk quantification using the WinQSB software.*

**Key words:** *globalization, human resource training, key competencies, influence factors, modeling, simulation*

### 1. Introductory remarks

Nowadays, society, economy, culture and other intrinsic components of the contemporary world are subject to a proces of globalization[4,5].

Globalization is a present-day reality, considered as a major characteristic of contemporary socio-economic situation, according to the 1995 World Summit for Social Development (also known as the Copenhagen Sumit).

Beyond any shadow of a doubt, „globalization represents a process whose central and strategic activities, including innovation, finances and corporate management operate at gloal level in real time” [2].

Education in general and human resource training in particular, as integral components of the knowledge-based society will inevitably be influenced by the socio-economic development generated by globalization.

The aim of the present study is not to dwell on all aspects induced by globalization, rather to *resort to this process as a correspondent and influence factor, from the overall evolution of the*

*world to education and human resource training* whose highly valued products are: information, knowledge and innovation.

Given this context, the new characteristics of human resource for the labour market are: flexible specialization and trust-based working relationships, adaptivity and the ability of continuous learning in view of acquiring new competencies and added value.

Educational globalization and human resource training have started from the premise of doing away with learning in the framework of traditional curriculum by means of an approach to an integrated-typed of education and training (multi-, inter- and transdisciplinarity of curriculum) as well as expanding it into a lifelong process [6].

Lifelong learning has already become part of an international strategy [3]. The development of information and communication technology – as powerful tools of globalization – has enabled the emergence of other elements, such as knowledge and innovation – with a decisive role in the human resource training and education.

## 2. Globalization and human resource training

In a relatively short period of time, globalization has managed to influence, and will continue to do so, the field of human resource training and education. The influence factors for education, generated by globalization, shall remodel the dynamics of all activities aimed at the human resource professional training and education.

Given the above-mentioned context, let us proceed to mention some risk factors that have turned to reality in several organizations, as a result of the process of globalization, with a deep impact on human resource training and education:

- development of information and communication technologies generating the need for new professional qualifications and ensuring its integrated character;
- widening the access to education and training in parallel with increasing their cost;
- global culture expansion in parallel with the production and re-discovery of a local culture;

- setting up learning organizations and non-institutional forms of learning;
- fierce increase of competition with a direct impact on the labour market and its occupation – marked by instability and unpredictability.

The current European policies for human resource training and education focus on a continuous increase of the level of qualification accompanied by the requirement for flexible and adaptive training of human resource in the context of a labour market in constant change, subject to instability and unpredictability.

The medium and long term estimates indicate an increase of the functional aspect of education and training, focused on *key competencies*: efficient communication; teamwork; basic literacy learned by the human resource and using the informational and communicational technologies; creative, critique and prospective thinking; occupying and learning for the entire life.

Key competencies represent sustainable, fundamental acquisitions of any professional training that enable the further development for

new learning elements that can be transferred to different contexts for specific problem solving.

According to a UNESCO study [7] or the Convention on the Rights of the Child and the World Declaration on Education for All, edited under the supervision of UNICEF, the concept of learning has acquired new meaning and fundamental education has become a right and a necessity thus accessible to any citizen.

According to the above-mentioned documents, education and training rely on certain pillars of learning such as:

- learn to learn and to know,
- learn to do,
- learn to work together with others,
- learn to be.

Schaefer S. and his colleagues [8] have added a new pillar, i.e.:

- learn to transform yourself and the society.

The elements mentioned above actually represent objectives of human resource training in the new context of globalization, thus making demands on the organizational management to make optimum training decisions by taking into

account the risk factors, some of which are mentioned in the present study.

### **3. Optimizing human resource training in the context of globalization**

We have already highlighted that globalization has triggered, and will continue to do so, a series of challenges for the contemporary society whose main feature is the *complexity and integrated character* of the cause and effect ratio, the impact on education and professional training of individuals.

Thus the question is: *How can we optimize decisions of human resource training?*

There are certainly several means to do so. The present study shall further apply the *dynamic programming method*, i.e. modeling and simulating risk factors likely to occur in a particular field of human resource training, in the context of globalization. Risk analysis and quantification shall be performed during the stages of decision making process for human resource training in view of obtaining information and

solutions for the management of globalization-generated risks.

**4. Modeling specific risks of human resource training in the context of globalization.**

**Open task.**

Given the context of globalization, let us assume that there are  $m$  risk factors particular to any field of human resource training that might eventually affect  $n$  training objectives.

In our case,  $m=5$ ,  $n=5$ , which represents our impacted factors and objectives, elements of figure 1. Also, we will take into consideration that:

- a) each risk factor shall affect each goal evincing a certain degree of impact.
- b) each goal is subject to a certain degree of impact from risk factors and previous objectives.
- c) each goal shall influence to a certain extent the accomplishment of future objectives.
- d) each risk factor shall affect an  $i$  type goal with the probability given by formula [1]:

$$p_i = 1 - \exp(-a_i x_i) \quad (1)$$

$a_i$  represents the impact degree specific to objective  $i$ , whereas  $x_i$  stands for an influence coefficient of the risk factor. Relation (1) shows that  $p_i$  and  $x_i$  are in direct proportion.

**TASK:**

Quantifying the influence of risk factors and the initial  $m-l$  goals, upon the final  $m$  goal.

**Solution:**

The mathematical model associated to the above-mentioned problem of managing risk factors can be defined by the following formula [1]:

$$f_{i+1}(x_{i+1}) = \max\{A_{i+2}[1 - \exp(-a_{i+2}(x_{i+1} - x_i))] + A_{i+3}[1 - \exp(-a_{i+3}x_i)]\}$$

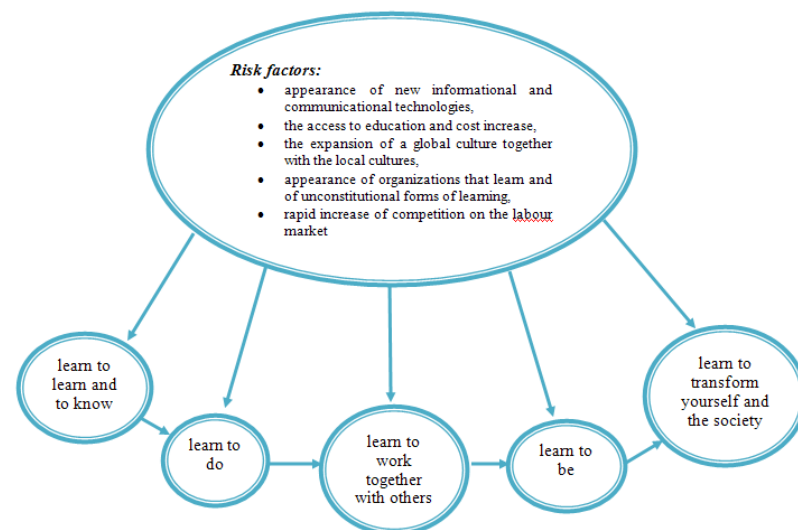
(2)

where:

$f_{t+1}(x_{t+1})$  = maximum sequential influence of risk factors upon training goals  
 $A_{t+2}, A_{t+3}$  the effect of a risk factor upon the  $i$  goal  
 $a_{t+2}, a_{t+3}$  coefficients characterizing the  $i$  risk factors,

$$x_t = \frac{\ln \frac{1}{1 - p_t}}{a_t} \quad (3)$$

The above-mentioned model belongs to a problem of dynamic programming, whereas in our application, the model development and simulation shall be accomplished sequentially throughout the decision-making process. We shall make use of the specific recurrence relations for this process as well as functional equations (equations where the unknown is a function or functional), taking into account the risk factors and the goal of human resource training that might undergo their impact, as specified in the model represented in fig.1:



**Fig.1 Model of risk factors that might have an impact on training goals**

In view of interpreting partial and final results regarding the impact assessment of risk factors upon the goals, let us assume, on a scale form 1 to 100, that:

- from 1 to 20: very low impact,
- from 20 to 40: low impact,
- from 40 to 60: moderate impact,

- from 60 to 80: high impact,
- from 80 to 100: very high impact.

### 5. Model simulation by means of WinQSB software

Mention should be made that there is a non-linear open task for each stage of the simulation process, according to the mathematical model expressed by formula (2):

In order to apply the mathematical model, let us assume that  $x_0 = 1$ , thus:

#### Stage 1.

The purpose of this stage is to assess the impact  $f_1(x_1)$  of risk factors upon the initial training goal in fig.1 (learning to learn and to know).

If  $i=0$ , the expression of the function in formula (2) would look like:

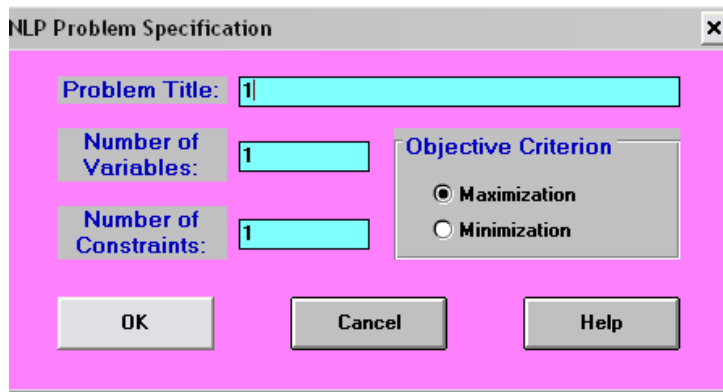
$$f_1(x_1) = \max\{5[1 - \exp(-2(x_1 - 1))] + 7[1 - \exp(-5)]\}$$

(4)

#### *Step 1 of the simulation process.*

Defining the open task expressed in formula (4) by means of WinQSB, making use of the command sequence: *File* → *New Problem*:

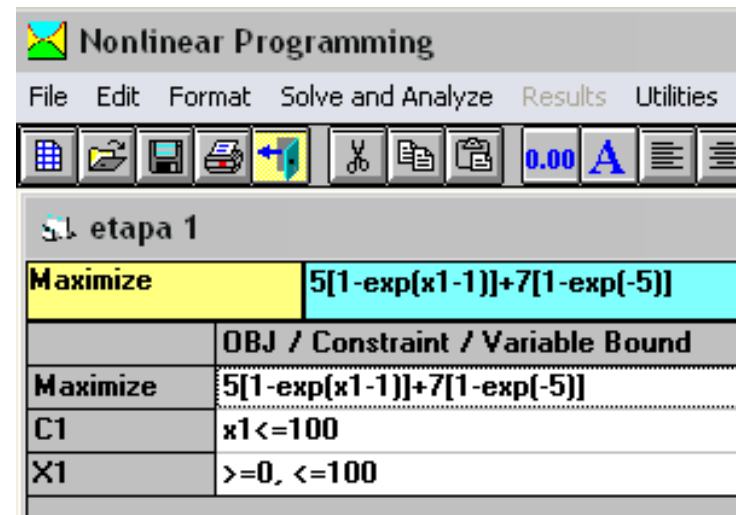




**Fig.1. Defining the problem from the 1<sup>st</sup> step, in WinQSB**

*Step 2 of the simulation process.*

Introducing the open task from stage 1 in the WinQSB software:



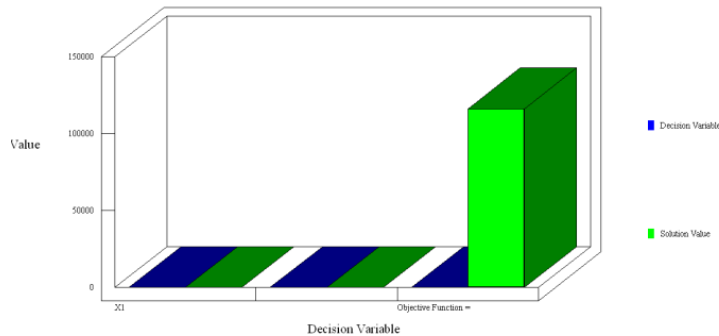
**Fig.2 Introducing the problem from the 1<sup>st</sup> step, in WinQSB**

*Step 3 of the simulation process.*

Demanding solution display by means of *Solve and Analyze* command, respectively the graphic representation of solution by means of the command sequence: *Utilities*→*Graph*. The *Nonlinear Programming* module shall automatically display images and results in fig.3,4:

09-19-2011	Decision Variable	Solution Value
1	X1	0
Maximized	Objective Function =	11.6254

**Fig.3 The solution to the problem from the 1<sup>st</sup> step, in WinQSB**



**Fig.4 The graphic representation of the problem's solution from the 1<sup>st</sup> step, in the form of 3D bars, in WinQSB**

The maximum displayed by the *Nonlinear Programming* module of the WinQSB software is  $f_1(x_1) = 11,6254$  and shall be obtained for  $x_1 = 0$ . According to the assessment scale, the impact on the initial goal is low.

**Stage 2.**

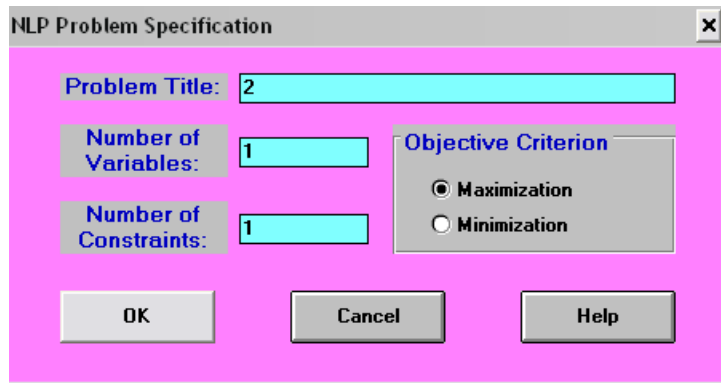
The purpose of this stage is to assess the impact of  $f_2(x_2)$  of risk factors and the initial goal upon the second training goal in fig.1 (learning to do).

If  $i=1$ , the expression of the function in formula (2) would look like:

$$f_2(x_2) = \max\{6[1 - \exp(-(x_2))]\} \tag{5}$$

**Step 1 of the simulation process.**

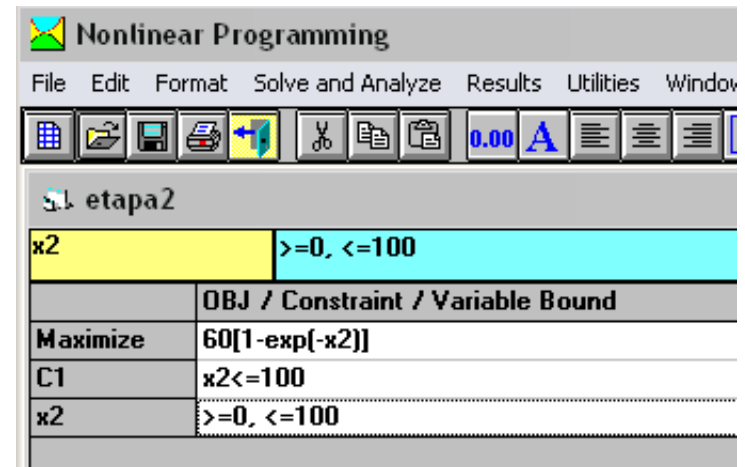
Defining the open task expressed in formula (4) by means of WinQSB, making use of the command sequence: *File* → *New Problem*:



**Fig.5** Defining the problem from the 2<sup>nd</sup> step, in WinQSB

*Step 2 of the simulation process.*

Introducing the open task from stage 1 in the WinQSB software:



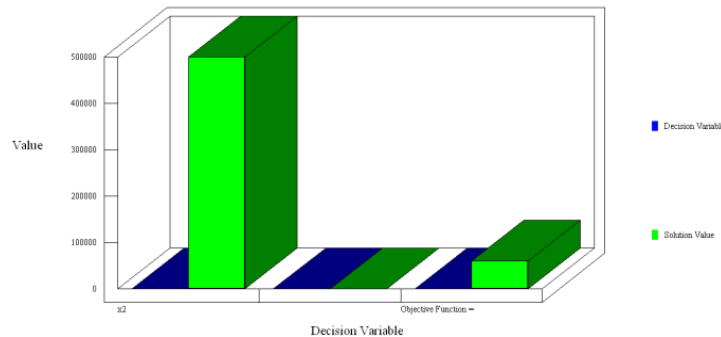
**Fig.6** Introducing the problem from the 2<sup>nd</sup> step, in WinQSB

*Step 3 of the simulation process.*

Demanding solution display by means of *Solve and Analyze* command, respectively the graphic representation of solution by means of the command sequence: *Utilities*→*Graph*. The *Nonlinear Programming* module shall automatically display images and results in fig.7,8:

01-04-2012	Decision Variable	Solution Value
1	x2	50,0000
Maximized	Objective Function =	60,0000

**Fig.7 The solution to the problem from the 2<sup>nd</sup> step, in WinQSB**



**Fig.8 The graphic representation of the problem s solution from the 2<sup>nd</sup> step, in the form of 3D bars, in WinQSB**

The maximum displayed by the Nonlinear Programming module of the WinQSB software is  $f_2(x_2) = 60$  and shall be obtained for  $x_2 = 50$ . According to the assessment scale, the impact on the initial goal is high.

**Stage 3.**

The purpose of this stage is to assess the impact of  $f_3(x_3)$  upon of risk factors and goals 1,2 upon goal 3 in fig.1 (learning to work together with others).

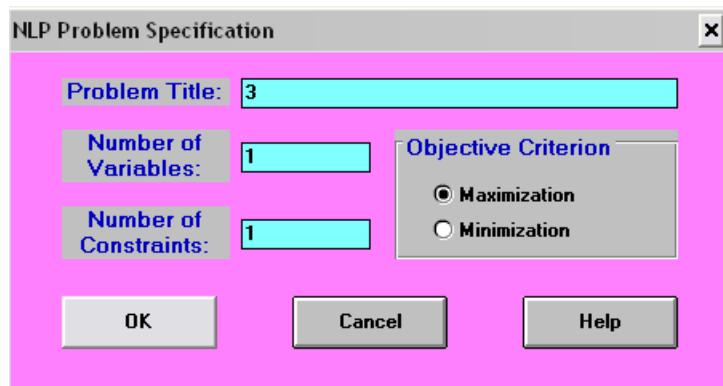
If  $i=2$ , the expression of the function in formula (2) would look like:

$$f_3(x_3) = \max\{2[1 - \exp(-5(x_3 - 50))] + [1 - \exp(-10)]\}$$

(6)

**Step 1 of the simulation process.**

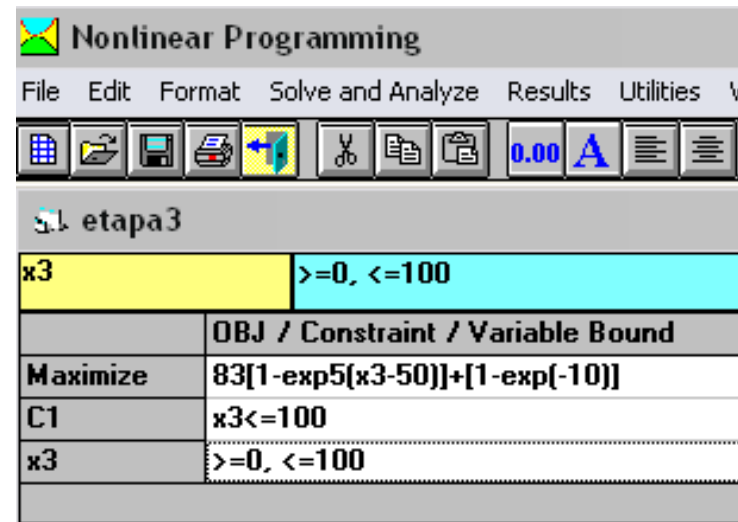
Defining the open task expressed in formula (4) by means of WinQSB, making use of the command sequence: *File* → *New Problem*:



**Fig.9** Defining the problem from the 3<sup>rd</sup> step, in WinQSB

*Step 2 of the simulation process.*

Introducing the open task from stage 1 in the WinQSB software:



**Fig.10** Introducing the problem from the 3<sup>rd</sup> step, in WinQSB

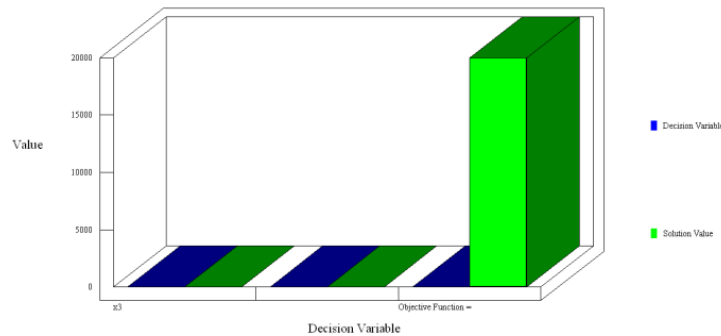
*Pasul 3 al simulării.*

Demanding solution display by means of *Solve and Analyse* command, respectively the graphic representation of solution by means of the command sequence: *Utilities*→*Graph*. The *Nonlinear Programming* module shall

automatically display images and results in fig.11,12:

01-04-2012	Decision Variable	Solution Value
1	x3	0
Maximized	Objective Function =	83,0000

**Fig.11 The solution to the problem from the 3<sup>rd</sup> step, in WinQSB**



**Fig.12 The graphic representation of the problem's solution from the 3<sup>rd</sup> step, in the form of 3D bars, in WinQSB**

The maximum displayed by the Nonlinear Programming module of the WinQSB software is

$f_3(x_3) = 83$  and shall be obtained for  $x_3 = 0$ .

According to the assessment scale, the impact on the initial goal is very high.

**Stage 4.**

The purpose of this stage is to assess the impact of  $f_4(x_4)$  of risk factors and the goals 1,2,3 upon goal 4 in fig.1 (learning to be).

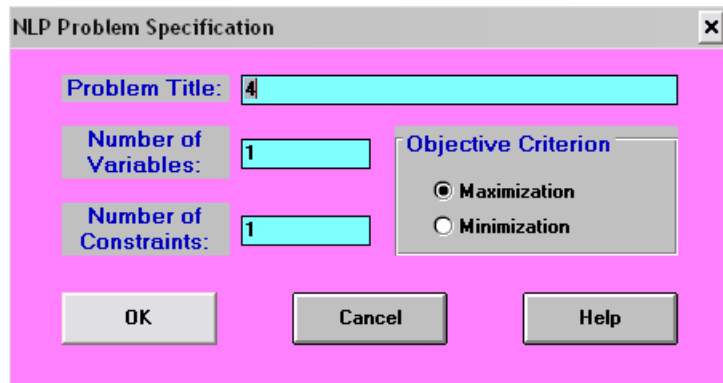
If  $i=3$ , the expression of the function in formula (2) would look like:

$$f_4(x_4) = \max\{2[1 - \exp(-5(x_0 - 50))] + [1 - \exp(-10)]\}$$

(7)

**Step 1 of the simulation process.**

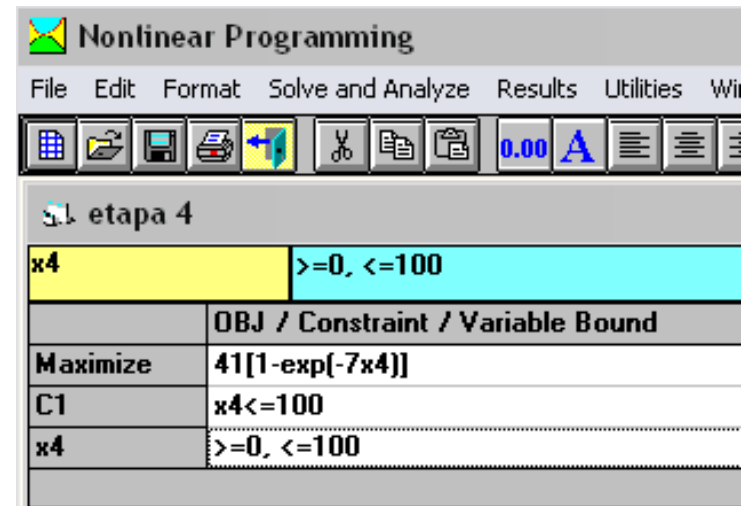
Defining the open task expressed in formula (4) by means of WinQSB, making use of the command sequence: *File* → *New Problem*:



**Fig.13 Defining the problem from the 4<sup>th</sup> step, in WinQSB**

*Step 2 of the simulation process.*

Introducing the open task from stage 1 in the WinQSB software:



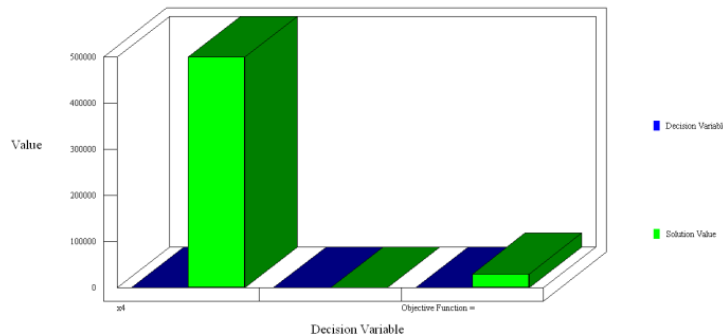
**Fig.14 Introducing the problem from the 4<sup>th</sup> step, in WinQSB**

*Step 3 of the simulation process.*

Demanding solution display by accessing the command *Solve and Analyze*, respectively, the graphic representation of the solution by means of the command sequence: *Utilities*→*Graph*. The *Nonlinear Programming* module of the WinQSB software shall automatically display iamges and results in fig. 15,16:

01-04-2012	Decision Variable	Solution Value
1	$x_4$	0
Maximized	Objective Function =	40,0000

**Fig.15** The solution to the problem from the 4<sup>th</sup> step, in WinQSB



**Fig.16** The graphic representation of the problem's solution from the 4<sup>th</sup> step, in the form of 3D bars, in WinQSB

The maximum value displayed by the *Nonlinear Programming* module of the WinQSB software is  $f_4(x_4) = 40$  for  $x_4 = 0$ . According to the assessment scale, the impact on the initial goal is moderate.

**Stage 5.**

The purpose of this stage is to assess the impact  $f_5(x_5)$  of risk factors and goals 1,2,3,4 upon goal 5 in fig.1 (learning to transform yourself and the society).

If  $i=4$ , the expression of the function in formula (2) would look like:

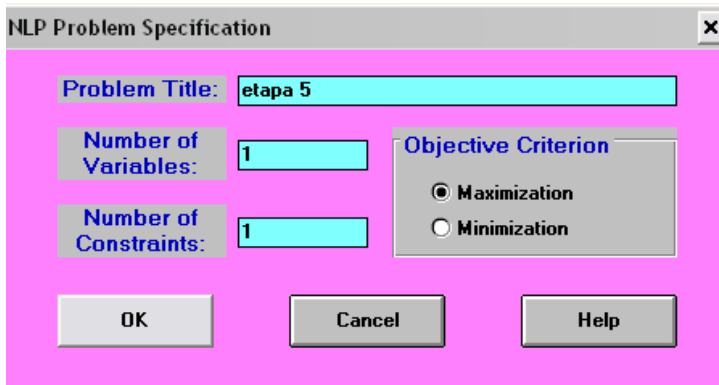
$$f_2(x_2) = \max\{95[1 - \exp(-4(x_2))]\}$$

(8)

**Step 1 of the simulation process.**

Defining the open task expressed in formula (4) by means of WinQSB, making use of the command sequence: *File* → *New Problem*:

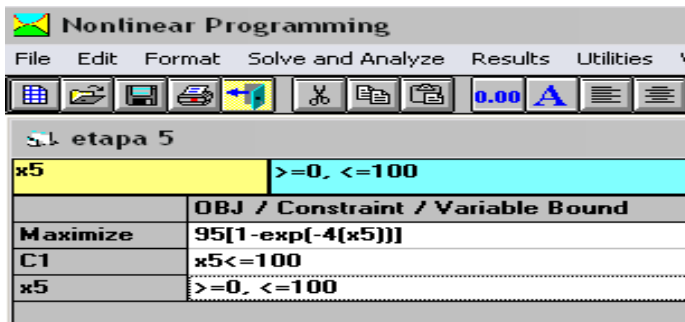




**Fig.17** Defining the problem from the 5<sup>th</sup> step, in WinQSB

*Step 2 of the simulation process.*

Let us introduce the open task form stage 5 into the WinQSB software:



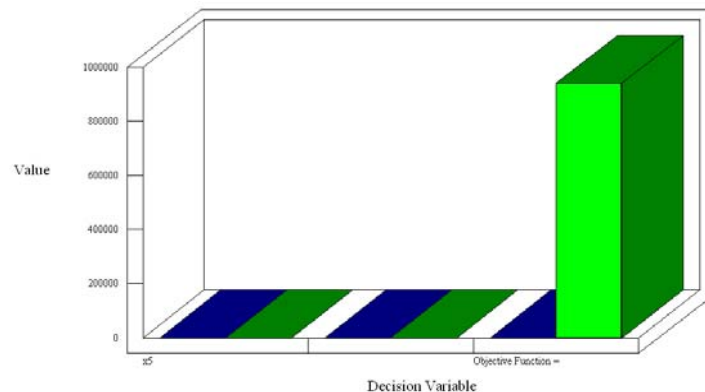
**Fig.18** Introducing the problem from the 5<sup>th</sup> step, in WinQSB

*Pasul 3 al simulării.*

Demanding solution display by accessing the command *Solve and Analyze*, respectively, the graphic representation of the solution by means of the command sequence: *Utilities*→*Graph*. The *Nonlinear Programming* module of the WinQSB software shall automatically display images and results in fig. 19,20:

01-04-2012	Decision Variable	Solution Value
1	x5	0
Maximized	Objective Function =	94,0000

**Fig.19** The solution to the problem from the 5<sup>th</sup> step, in WinQSB



**Fig.20** The graphic representation of the problem's solution from the 5<sup>th</sup> step, in the form of 3D bars, in WinQSB.

The maximum value displayed by the *Nonlinear Programming* module of the WinQSB software  $f_2(x_2) = 94$  for  $x_2 = 0$ . According to the assessment scale, the impact upon the final goal is very high.

**Results.**

The issue of risk factors may be approached as a dynamic programming task. Given the

particular situation under analysis, the maximum impact of the risk factors and previous goals upon the final goal is  $f_2(x_2) = 94$ , i.e. low, on a scale from 1 to 100, and it is given for  $x_2 = 0$ .

The value of  $x_5$  will thus indicate the probabilities that risk factors are likely to affect the goals subject to impact according to (1) that is:

$$\begin{aligned}
 p_1 &= 1 - \exp(-2,7) \\
 p_2 &= 1 - \exp(-2,7^2), p_3 = 1 - \exp(-2,7) \\
 p_4 &= 1 - \exp(-2,7^4), p_5 = 1 - \exp(-2,7^3)
 \end{aligned}
 \tag{9}$$

Identifying these probabilities will enable the decision making responsible, the manager of any organization to rank risk factors and further establish solution measures.

For instance, in the case of the above-mentioned situation, ranking and solution measure are included in the synthetical map given below:

**Table 1. Synthetical map**

Risk factors	Probabilities ( $p_i$ )	Risk degree	Measures of solving
4. Rapid increase of competition on the labour market	$1 - \exp(-2.5^2)$	High	Strategies of specializing of the human resource in order to adapt to the increasing demands of the labour market
5. Increase of the training costs	$1 - \exp(-2.5^2)$	High	Assuring, in the organization's budget, of a budgetary reserve available in case of new factors of risk
2. Expansio	$1 - \exp(-2.5^2)$	Moderate	Stages of training of the human

n of a global culture together with the local cultures			resource in intercultural fields
1. Appearance of new communicational and information al technologies	$1 - \exp(-2.5^2)$	Minor	Training of the human resource to use the new informational and communicational technologies
3. Appearance of organizations that learn and of non-	$1 - \exp(-2.5^2)$	Minor	Syllabuses corresponding to the needs of institutional and non-institutional

institutional forms of learning			training
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