THE IMPACT OF FINANCIAL CRISIS ON THE BANKING SECTOR FROM THE ALM PERSPECTIVES

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Abstract

The effects of the financial crisis on the banking sector and the economies are one of the main topic of research in the literature, usually in the framework of bank-specific or macroeconomic determinants on the profitability in this paper we adopt a different approach and analyses the performance of the banking sector from the point of view of the management of assets and liabilities in the banking sector. The structure of the assets-liabilities and the connections with the profitability brings new information regarding the most performant strategies used by the banks, using a panel of 22 European countries we find high differences in profitability between the North and South countries.

Key words: *asset-liabilities management, bank, panel data*

***JEL classification**: G21*

1. Introduction

The objective of the management of assets and liability is to achieve a certain level of profitability in the presence of risk, it is defined as the strategic management of the balance sheet (Rosen & Zenios, 2006) or as an cost /profit function (Kusy & Ziemba, 1986) which takes into account the assumed risk

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levels. Bank profitability is influenced by bank-specific, industry and macroeconomics variables (Athanasoglou et all, 2006), the analysis of economic downturn effects on the banking sector shows that a contraction of real GDP leads to a decrease in the return on bank assets (Bolt & Haan, 2012). In the context of the current financial crises one questions is regarding the impact of recession on the banking system stability and profitability, while in United States of America the financial sector was responsible for the economic downturn in European countries the causality was inverse.

In the banking sector profitability is usually measured (Athanasoglou, Brissimis, & Delis, 2008) using the return on assets (ROA) and return on equity (ROE), if the level of bank efficiency is analyzed others variables (Andries, 2010) such as non-performing loans, interest margin, non-interest expenses are used. Bank profitability depends on the level of credit risk, liquidity risk, leverage, bank size, inflation and GDP (Athanasoglou et al. 2006). Other factors influencing bank profitability are the legal and institutional indicators, level of bank taxation, deposit insurance (Demirgüç-Kunt & Huizinga 1999), macroeconomic variables play an important role in determing banks profitability, business cycles has an positive effect on banks profitability (Athanasoglou et all, 2008), empirical evidence of pro-cyclicality (Bolt & Haan, 2012) show that banks aren't immune to the local conditions in which they operate. The level of profitability depends on the regional context, in Africa profit level are higher compared to other regions (Flamini, McDonald, & Schumacher, 2009), in Asia high industry concentration doesn't affect profitability (Perera, Skully, & Chaudrey, 2013) , while different banking regulation across countries are uncorrelated with the performance of banks (Beltratti & Stulz, 2012).

The structure of asset-liabilities play an important role in bank profitability, (DeYoung & Yom, 2008) observed that the degree of correlation between asset and liabilities is lower in large banks compared to small and medium-sized banks, for Germany the dependence between asset-liability is also decreasing (Memmel & Schertler, 2010).

This paper analyzes the structure of the assets and liabilities and the connections with the profitability in the banking sector using a panel of 22

European countries. The remaining of the article is organized as follows: Section 2 present the dataset and the results, Section 3 concludes.

2. Dataset and result

Two different datasets are used in this paper. The first one is used to understand the impact of countries macroeconomic factors on the banks financial statements, we use the FSI database of the International Monetary Fund, which consists of quarterly observations for the 2009-2013 period for the following countries: Austria, Belgium, Bulgaria, Czech, Cyprus, Estonia, France, Germany, Greece, Ireland, Italia, Latvia, Lithuania, Luxemburg, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Hungary.

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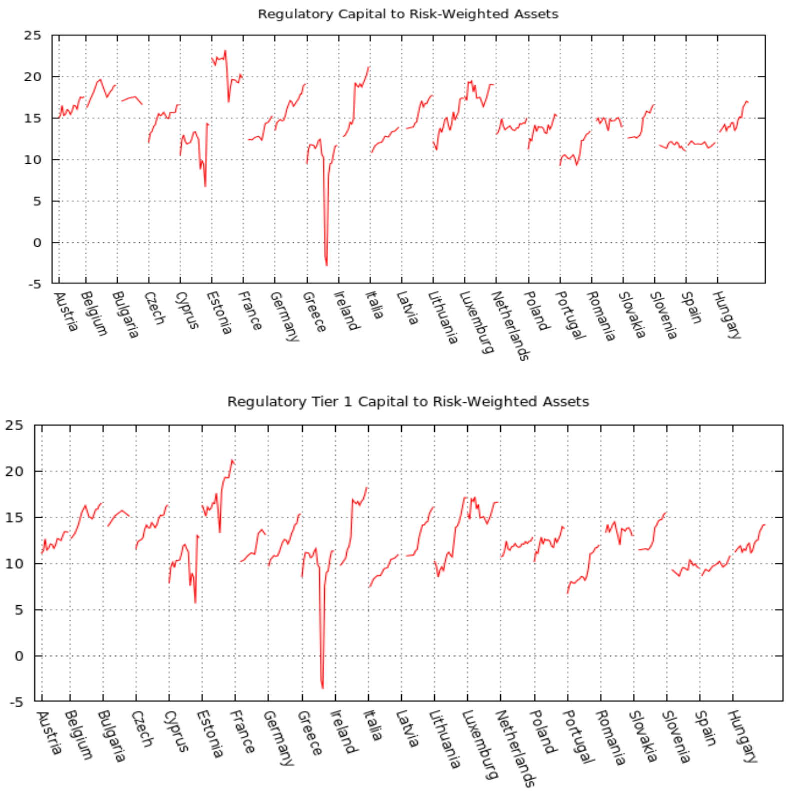
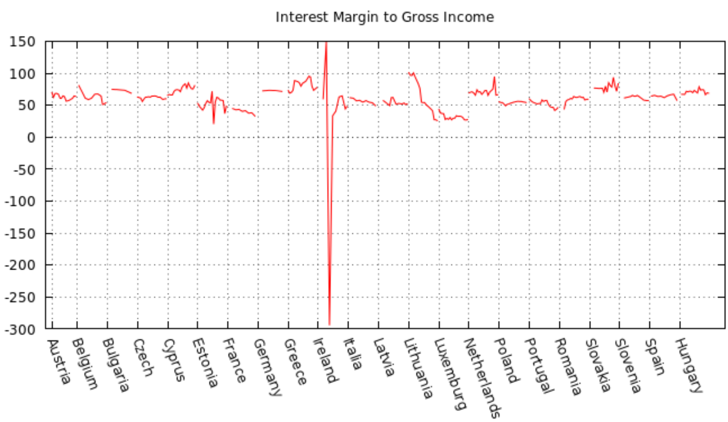
Figure 1: Capital adequacy ratio

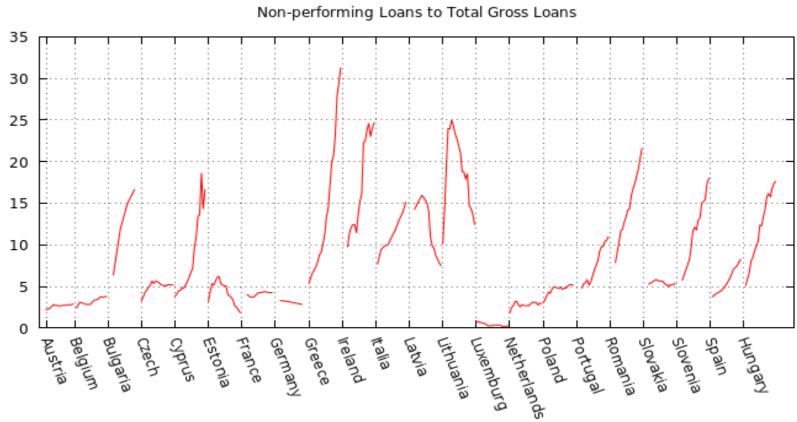


The second dataset consists of annually financial information for the following banks: Raiffeisen, Erste Group, Volksbanken, Dexia, Cyprus Bank, Bank of Cyprus, Commerzbank, Landesbank, DekaBank, Banco Santander, Banco Bilbao, Banco Popular Espanol, Banco de Sabadell, Bankinter, Caja de Ahorros y Monte de Piedad, Unicaja, Banco Pastor, Bilbao Bizkaia, Caja de Ahorros Gipuzkoa, Caja de Ahorros de Vitoria, Crédit Agricole, Eurobank, National Bank of Greece, Alpha Bank, Allied Irish, Bank of Ireland, Permanent, Rabobank, RBS, SNS Bank, Banco Millennium, Nova Ljubljanska Banka, Nova Kreditna; the data are obtained from the Bankscope database and covers the period between 2004 until 2011

In order to comply with the Basel Agreement banks must have a reasonable level of capital, for the analyzed period the mean of Capital to Risk-Weighted Assets indicator is 14.5. The lowest level, even a negative ratio, is unsurprisingly observed for Greece, also in the case of Cyprus, Italy, Portugal, Slovenia and Spain the rate of Capital to Risk-Weighted assets is below the mean; some countries, Estonia, Ireland, have the highest level, over 20%. For most of the analyzed countries (Fig.1.a) the level of capital indicators rises for the 2009-2013 period which is in concordance with the European Central Bank recommendation, a high level of capital is important in order to reduce systemic risk for the countries in the European Union and is also reducing the possibility of contagion between countries. The Tier 1 ratio (Fig.1.b) has a positive evolution for all the analyzed countries, below the mean of Tier 1 indicator (which is 12.36%) are the following countries: Cyprus , Greece, Italy, Portugal, Slovenia and Spain. Interestingly Ireland which was part of the so called PIIGS countries (Portugal, Italy, Ireland, Greece and Spain) manage to recapitalizes the banking sector, being now one of the most well capitalized sector banking in Europe.

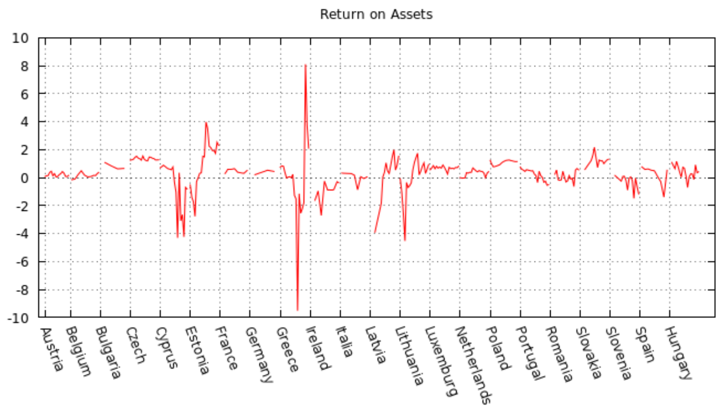
Figure 2: Loans and interest margin

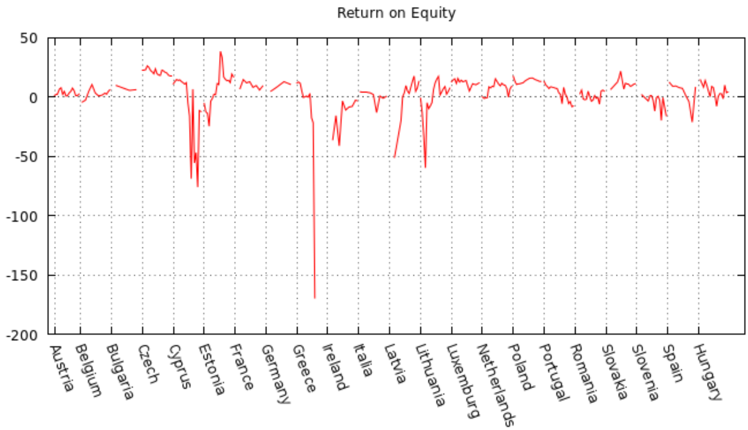




The sharpest reduction in interest margin is in Ireland (Fig.2), the phenomenon of interest margin reduction is present for all the analyzed countries. The level of non-performing loans is highest in the case of Greece, Ireland, Romania, Slovenia, Hungary, Cyprus, Italy, Lithuania and Bulgaria. For the Eastern European countries the rate of non-performing loans has an upward trend which gives rise to the possibility of banks failures in these countries. There is a clear division between the Southern, Central and Eastern countries, with high level of non-performing loans and Northern countries which, with the exception of Ireland, have a much reasonable levels of non-performing loans.

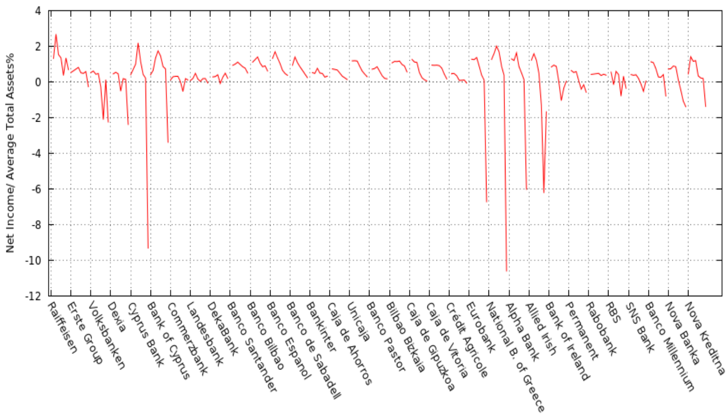
Figure 3: ROA and ROE 2009-2013





The mean for return on assets (ROA) for the analysed period is 0.28%, while the mean of return on equity (ROE) is 3.55%. The ROA and ROE are negative for Cyprus, Greece, Ireland, Portugal, Slovenia. In the Greece case the high fluctuation is explicable as an effect of the bailout program which reduced considerable the assets own by the banking sector. All of the analyzed indicators show that the most affected banks were from Greece, Cyprus, Italy, Portugal and Spain; also in some other countries (Romania, Slovenia, Hungary, Lithuania and Bulgaria) the profitability of the banking sector could be affected by the high level of non-performing loans.

Figure 4. Net income/ Total Assets



When looking at a panel of individual banks (Figure 4) we can observe that the Greek (Eurobank, National Bank of Greece, Alpha Bank) and Cypriot banks (Cyprus banks, Bank of Cyprus) have the lowest level of net income on assets, this is a widespread trend for the thirty-tree analysed banks because for all of them net income has decreased.

2. Conclusions

The decrease in the analyzed indicators of the banking sector was generated by the economical crises, in some cases large bail-out and debt restructurations programs were necessary (e.g. Cyprus, Greece). In the case of all of the analyzed banks the level of profits and income have decreased, must of the banks suffering high losses. The mismatch in maturity between assets and liabilities, high leverage and over indebtedness in conjunction with deregulation made possible one of the biggest financial crises from the Great Depression.

The Capital to Risk-Weighted Assets and TIER 1 have the lowest level in: Greece, Cyprus, Italy, Portugal, Slovenia and Spain, although the level of capital indicators rises for the 2009-2013. One the sharpest reduction in interest margin is in Ireland but this phenomenon is generalized in all the analyzed countries. We find that in the Eastern European countries the rate of non-performing loans has an upward trend which may gives rise to the possibility of banks failures in these countries. It can be observed that there is a clear division between the Southern, Central and Eastern countries, with high level of non-performing loans and Northern countries which, with the exception of Ireland, have a much reasonable levels of non-performing loans. The profitability and stability of the most affected banks were from Greece, Cyprus, Italy, Portugal and Spain; also in some other countries (Romania, Slovenia, Hungary, Lithuania and Bulgaria) the profitability of the banking sector could be affected by the high level of non-performing loans.

In order to be effective in banks the management of assets and liabilities must take into consideration the risk level, earnings, liquidity, profit, solvency, the level of loans and deposits, also an important factor for the evolution of the profitability in banks for the analyzed period were the effects of the economic crisis. The impact of the economic crisis on the banking sector has shown that the present structure of assets and liabilities is not well suited for high variability in the assets price and borrowing cost. Given their systemic importance bank failure, regardless there size, may amplify the risk associated on the national markets where banks operate, but can also have a deep impact on other markets due to the spillover effects.

3. References

- Andries, A. M. - *Performanţa şi eficienţa activităţii bancare*, Editura Universităţii „Alexandru Ioan Cuza" Iaşi, 2010
- Athanasoglou, Panayiotis P., Sophocles N. Brissimis, and Matthaios D. Delis. "Bank-specific, industry-specific and macroeconomic determinants of bank profitability." *Journal of international financial Markets, Institutions and Money*18.2 (2008): 121-136.
- Athanasoglou, P., Delis, M., & Staikouras, C. (2006). Determinants of bank profitability in the South Eastern European region. *Bank of Greece, Working Paper No. 47*, 1–31.
- Beltratti, A., & Stulz, R. M. (2012). The credit crisis around the globe: Why did some banks perform better? *Journal of Financial Economics*, *105*(1), 1–17. doi:10.1016/j.jfineco.2011.12.005
- Bolt, Wilko, et al. "Bank profitability during recessions." *Journal of Banking & Finance* 36.9 (2012): 2552-2564.
- Demirgüç-Kunt, A., & Huizinga, H. (1999). Determinants of commercial bank interest margins and profitability: Some international evidence. *The World Bank Economic Review*, (November).
- DeYoung, R., & Yom, C. (2008). On the Independence of Assets and Liabilities: Evidence from U.S. Commercial Banks, 1990-2005. *Journal of Financial Stability*, *4*(3), 275–303
- Flamini, Valentina, Liliana Schumacher, and Calvin A. McDonald. *The determinants of commercial bank profitability in Sub-Saharan Africa*. International Monetary Fund, 2009.
- Kusy, M., & Ziemba, W. T. (1986). A bank asset and liability management model. *Operations Research*.
- Memmel, C., & Schertler, A. (2010). The dependency of the banks' assets and liabilities: evidence from Germany. *European Financial Management*, *49*(4), 602–619
- Perera, S., Skully, M., & Chaudrey, Z. (2013). Determinants of Commercial Bank Profitability: South Asian Evidence. *Asian Journal of Finance & Accounting*, *5*(1), 365–380. doi:10.5296/ajfa.v5i1.3012
- Rosen, D., & Zenios, S. A. (2006). Enterprise-wide asset and liability management: issues, institutions, and models. *Handbook of Asset and Liability Management: Theory and Methodology*, *1*, 1.