

UNIVERSITY OF MACEDONIA



Department of Balkan, Slavic and Oriental Studies

GREECE

**PERFORMANCE AND
DEVELOPMENT OF BANKING
SECTOR IN THE SOUTH
EASTERN EUROPE**

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Master Thesis on Politics and Economics of
Contemporary Eastern and South Eastern Europe

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December 2009

Abstract

To contribute to the existing knowledge of bank profitability in South Eastern Europe (SEE), this study sought to identify significant bank-specific, industry-related and macroeconomic determinants of bank profitability. Using a panel data set comprising observations of 8 SEE countries over the period 2002-2007, regression results reveal that, with the exception of banking sector's size, all bank-specific determinants significantly affect bank profitability in the anticipated way. The effect of state ownership is negative while at the same time, a positive relationship between foreign ownership and profitability was not identified. Market concentration is insignificant, whilst the picture regarding the macroeconomic determinants is mixed. This study also presents the reform process in the SEE banking sector and the bank performance and developments in the selected SEE countries under study, over the examined period of time. Finally, some concluding remarks on the findings and some policy suggestions are offered.

Key words: South Eastern European banking sector, Bank Profitability, Econometric Methodology, Banking Reforms and Developments in South Eastern Europe

Acknowledgments

First of all, I would like to thank my supervisor Fotis Siokis who found my thesis idea interesting and accepted to be my mentor despite his many professional and family commitments. I would also like to express my gratitude to Pr. Harry Papapanagos who insisted and finally inspired me to select the specific MA course. My sincere gratitude to Zisis Mandas for his valuable help in the econometric methodology. Special thanks to Vaya Katsavou for being not only a colleague but also a firm friend.

Finally, I deeply thank my dear parents for their support and belief in me.

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Abbreviations:

BIS:	Bank for International Settlements
BNB:	Bulgarian National Bank
CBRT:	Central Bank Republic of Turkey
CNB:	Croatian National Bank
CR:	Concentration Ratio
CRPM :	Center for Research and Policy Making
EA:	Equity to Assets
EBRD:	European Bank for Reconstruction and Development
ECB:	European Central Bank
EIB:	European Investment Bank
EU:	European Union
FDI:	Foreign Direct Investments
FO:	Foreign Ownership
GDP:	Gross Domestic Product
IMF:	International Monetary Fund
INF:	Inflation rate
LA:	Loans to Assets
NBA:	National Bank of Albania
NBM:	National Bank of Moldova
NBR:	National Bank of Romania
NBS:	National Bank of Serbia
NIM:	Net Interest Margin
NPL:	Non Performing Loans
NBRM:	National Bank of the Republic of Macedonia
OECD:	Organization for Economic Co-operation and Development
ROA:	Returns on Assets
ROE:	Returns on Equity
SEE:	Southern Eastern Europe
SEEMHN:	South Eastern European Monetary History Network
SO:	State Ownership
UNPL:	Unemployment rate

Introduction

The banking sector plays a very integral role in the South Eastern European (SEE) economies. The financial system in the SEE is heavily reliant on the banks and therefore important milestones in the banking system have a direct and palpable effect on the SEE economies. It is worth noting that the illiquidity ratio of the Capital Market portion of the SEE financial dynamics is however very high. This is coupled with immaturity in the part of the other non-bank segment of the financial system. The banking sector reform that have been hugely accepted and implemented has been one of the major driving forces in the sustainability and profitability of the SEE banks. This is because of the necessary and closely regulated aspects of the banking industry that it has introduced. The reforms have made banking safer, more efficient and more successful due to the streamlining of the necessary institutional and legal frameworks that have been put in place to safe guard the interest of the SEE banking sector. The reforms have in fact motivated even foreign banks to venture into the SEE market. This is largely due to the friendly and safe guidelines that were considered in the drafting of the SEE banking reforms.

It is the objective of this research paper to critically highlight the effects of certain bank-specific variables on the profitability of the South-Eastern banking sector. The variables are also related to specific industries. The countries under study include the following; (Albania, Serbia, FYROM, Bulgaria, Romania, Turkey, Croatia and Moldova). The study focuses on the period of 6 years (2002-2007). This paper considers two main points of study. The initial proposition is based on the examination of the effects of both the internal and the external determinants that affect the banking profitability in the SEE countries. The second proposition however examines the direct and indirect influence of the banking sector reforms in the profitability gap of the SEE countries. A brief description of the bank performance and development in the countries of SEE under study, over the period 2002-2007, is also presented.

This paper is arranged into various sections. The first section discusses the reform process that has happened in the SEE banking sector in the last couple of years. The second section presents a brief history of bank performance and developments in the countries of SEE under study (separately for each country), over

the period 2002-2007, focusing on the bank performance indicators and the special characteristics of each country's banking sector. The third section is concerned with the literature review regarding this subject area. The content under this section concern the elements of a bank profitability and its subsequent driving force (determinants). The fourth section gives a full description of the SEE banking data sources while the fifth one discusses the methodology involved in the collection and the empirical results focusing on the econometric determination of the SEE banking sector profitability. The final section gives a presentation and the critical analysis of the obtained empirical information offering a summary of the paper and some policy suggestions.

1. Reform process in the Banking sector of SEE

The formation of sound and viable banking system in the financial circles of the South eastern European (SEE) countries was one of the most important quantum leaps in their economies. This has necessitated the transition of their economy to a market oriented type of economy which in term has offered more profitability due to a wider market and more streamlined regulatory, supervisory and operational dynamics. However the process of achieving such a transition was never easy. Several studies have proven than the onset of the financial system transition process was indeed very weak, shallow and mainly underdeveloped. This happened somewhere in the 1990s. The forces that impeded the growth and ease of operation of the financial systems was mainly due to either internal causes or several other external setbacks. The system has however over the last decade been transformed into a better one even though it still experiences some problems. Despite the challenges that affect the system, it is worth noting that there has been improved economic performance coupled with a more improved macroeconomic stability and a projected long term growth all of which are a function of the level of improvement in the operation and regulation of the financial institution's operations and the market dynamics that all form part of the more improved financial infrastructure.

The reforms of the financial system were not as a result of an academic research findings but rather were due to real lessons that were experienced and a call of action was prompted in the process. Through the assistance of the major global financial institutions, the government of these countries embarked on a journey that would see

their financial institutions being fine tuned to fit into appropriate level. This was as a result of adopting the necessary reforms that would revolutionize their financial processes and their capital markets' operations. Their collaboration was aimed at creating a coming up with a financial system that was better in more ways. The system would be institutionally stable, with better administrative functions and more sensitive to the demands of their emerging markets.

During the final years of the transition, there were various changes in the banking and financial market systems that were spearheaded by the combined action of the World Bank and the International Monetary Funds. These changes mainly centred on the legal, institutional, regulatory and supervisory framework of the financial system. Over the years however, these prescribed guideline have been continuously improved. The foundation of the contemporary banking system was therefore laid down by the World Bank using a model developed from the experience gathered from the various ways and means that the system had earlier operated.

The reforms in the banking sector have been actualized through the adoption of various programs. The main programs at the centred of the change were economic adjustment programs and stability programs. Surveillance programs were also instituted in order to provide constant reports on the changes to the system. The process of restructuring was country-specific and industry related. The promotion and implementation of the policies that revolutionized the banking sector had been made possible through the adoption of appropriate monetary policy management programs. The processes of their implementation were also fuelled by the timely management programs that were offered by the various visiting missions and the domestic advisors of the specific countries.

The process of financial restructuring has been supported by various other international financial institutions. Such institutions include OECD, EBRD, EIB, ECB and BIS. The bilateral processes between the European Union and the SEE countries have also fuelled the rate of change in the reform process.

It is worth noting that due to the variation in the banking system from country to country; all the initiatives and efforts of the international financial organizations to streamline the financial systems still face serious challenges. Such challenges include elements of weaknesses in the system together with localized fragmentation and

fragility. The problem of undercapitalization is always eminent. All these challenges have continued to emerge despite the various efforts that are put in place by the reports generated through the process of academic studies and assessments.

Several new reform measures have been instituted by the international financial institutions. These measures are concentrated around the major indicators of financial systems stability in the SEE countries. The measures mainly target the various indicators of market growth. These changes are aimed at recapitalizing the banking sector; this is achieved through the process of liquidation whereby insolvent institutions are re-liquidated. Mergers and acquisitions are also done in order to consolidate the banking industry into strong and consolidated financial units. There is also an adoption of improved administrative efficiency techniques and improved capacity of the banking sector. There have been recent changes in the system that mainly targeted the deposit insurance scheme policies and loan collateral policy guidelines.

A quick review of the banking sector progress has shown that in many ways than one, the process of development of the guidelines that govern the institutions and the accompanying fundamental principles has overtaken the demand of the real economy and the process of restructuring itself. This is evident in the various achievements in several areas of the banking sector. The introduction of the BIC principles coupled with the legislation of the central bank's independence and the introduction of transparency and accountability mechanisms into the financial framework have all added up in the list of achievements.

The level of success of the financial sector reform in the SEE countries will be determined by the level of commitment of the authorities together with the willingness of the masses to support market driven reforms in the various sectors of the economy.

Several drawbacks facing the financial sector of the SEE countries can be traced to the following root causes.

1. Problematic and incomplete privatization bids.
2. The eminent lack of ethical mechanism to monitor the level of transparency and accountability in both the public and the private financial dealings.

3. The high level of accumulation of loans(non-performing) in the state owned banking institutions
4. The lack of an appropriate corporate governance infrastructure
5. The eminent lack of confidence by the public to the public institutions.

More concerns are raised by the apparent level of increase in the number of insolvency cases in the public institutions domain. There is also a worrying increase in the level of case of improper lending. This is coupled with poor deposit taking practices.

It is important that the government of the SEE countries continue to support the initiatives and processes that would systematically lead to the elimination of the many problems that are inherent in their banking system. Their basic driving mantra would be to strive to come up with a fully consolidate financial system that would be able to absorb all the shocks (both internal and otherwise) while at the same time effectively be sensitive to react to the various changes affecting the demands, risks and challenges that go hand in hand with highly competitive financial environment. The system's applicability should be both at the national and regional levels. This would therefore help in coming up with a more accommodative European convergence at the institutional level. Such desirable regional convergence would lead to more stable macroeconomics and better social cohesion; the basic requisites for better investment in a region for improved and continued sustainability in financial growth.

It is worth noting that the restructuring of the banking system in the SEE countries has had a considerable amount of positive changes in the last decade. This however has never been satisfactory enough to earn it the rank that has been achieved in the developed markets. More work still needs to be done for the system to reach the same level as the highly evolved and developed market economies. A basic comparison of the fundamental financial systems growth indicators such as the ratio of lending to the private sector to the GDP in consideration to the Capital market size-measure by the level of capitalization expressed as a percentage to the GDP, reveal that bank intermediation is necessary. This is further reinforced by the relatively high importance that the banking system provides to the SEE country economies.

Even though faster economic growth were experienced in the second quarter of the 1990s, the stability of the financial and the microeconomic variables of the SEE

markets were still dwindling. There was the lack of the requisite high level of standard regarding the level of service provision as compared to the European Union Market and the other developed markets on the globe. This was as a result of poor macroeconomic frameworks that were applied at that time in the region. The corresponding market inefficiencies of the proceeding decades resulted in a crisis in the region. This resulted in the increase on the average private sector loan (became an eighth of the total credit given out by the European banking sector) while the level of domestic credit soared to over 120 percent of the Gross Domestic Product (2002). (ECB,2004).

This therefore meant that the banking system of the SEE countries still had be improved in order to support the rapidly expanding demands and need of the economic and investment growth in the region. That would be possible through the expansion of the macroeconomic framework coupled with a corresponding stability in the banking system institutions

This implies that the banking sector in the SEE countries, in spite of the recent expansion, has still ample field for further financing the economies' investment and growth needs, if macroeconomic and financial system's institutions are enhanced.

The collaboration between the governments of the SEE countries with the major international financial institutions have come up with better reforms that have reshaped the banking institutions together with the SEE markets. The adopted institutional framework had elements that restructured, rehabilitated and privatized the banks that were owned by the state. Apart from the earlier mentioned techniques that were improved, better methods of risk evaluation and the improved asset and liability management were also adopted in the system. The inclusion of foreign investors in the financial system also marked a turning point the SEE financial framework.

Regulatory practices that were adopted by the SEE governments and their corresponding banking legislations have improved the transparency in the SEE banking system and have also made it have a definite framework for foreign investment portfolios. The overall effect has been the increase in both the local and foreign confidence in the system which, in turn, has lead to a rapid expansion in the volume of financial capital base. The existence of Deposit Insurance schemes has also

stabilized the financial system. This is due to their corresponding effect of increasing the level of confidence and risk reduction that are integral to the level of deposit base.

The various microeconomic factors that include all the fiscal and monetary aspects, the slow but systematic reduction of interest rates and insurance premiums, the rise in disposable income level in the SEE region and the ever expanding demand for currency have all contributed to a positive improvement in the financial market sector. The results of these factors have included the intermediation among the countries in the SEE region. Therefore this led to a subsequent paradigm shift as the banking system of the region is concerned. The shift was accompanied by a corresponding economic stimulation that has led to better. The third table shows the decline in the total number of financial institutions in the region. The reduction is more notable in Serbia. There was however a, general reduction in the aggregate number of credit providing institutions. In 2002, the process of consolidating financial institutions began. All these were as a result of tight regulatory capitalization requirements as prescribed by the new policy which sort to match the SEE's capital adequacy and liquidity ratios closer to the ones of the EU countries.

2. Bank performance and development in the countries of SEE under study over the period (2002-2007)

Over the last few years, all the below countries of "New Europe", guided by the anchor of a potential future EU membership, took advantage of the favourable global economic environment to restructure their economies and address chronic problems of the past. As a result, they were able to achieve high rates of real GDP growth, improve their fiscal stance and other macro-economic fundamentals, increase the purchasing power of households and, hence, private consumption. These improved prospects resulted in a substantial decline of country risk premia-sovereign spreads are now at record lows over benchmark Euro-Area yields enabling the governments to borrow cheaply in order to finance their expansion plans. Of course, problems continue to linger as, for example, in some countries the inflow of FDI is not sufficient to cover the large current account deficits, or in others the rate of inflation has difficulty declining beyond a certain point.

2.1 Bulgaria

It is widely accepted that the major beneficiary of, and subsequently, major contributor to the rapid growth of Bulgarian economy is the banking sector. In recent years, the success of the banking sector in mobilizing savings and extending loans was so profound that the authorities had to impose restrictive measures in order to curb credit growth and prevent the virtuous process of financial deepening from turning into a vicious credit boom with negative implications not only for the banking sector's asset quality and capitalization, but also for the overall stability of the economy.

The structure of the Bulgarian banking sector was critically shaped by the severe banking crisis of 1996/1997. The crisis itself and the failed attempts, from the authorities, to address it, led to the early recognition of the need to open up the banking sector to foreign investment. As a result, the privatization process in Bulgaria is, to a large extent, completed, with foreign banks controlling more than 80% of total banking assets (BNB). The result of both privatization and the improvement in macroeconomic conditions was the rapid increase of both monetization (banking sector's assets to GDP) and financial intermediation (loans to GDP).

The combined result of the moderation in credit growth, the decrease in lending rates and the higher costs of EUR-deposits, meant that the profitability of the banking sector in the six year period 2002-2007, in terms of Net Interest Income (NIM), stood at 5.3% significantly above the EU-25 average of 1.5% for the same period. Similarly, the average ROE (2002-2007) was 18%, which compares favourably with the 9% of the EU-25 average. (*Eurobank Research Department*) The rapid credit expansion of the recent years is beginning to make an impact on the banking sector's liquidity and capital adequacy indicators. The increase of the loans to assets ratio from 21.3% in 1997 to 73% in 2007 is a reflection of the general shift of the banking sector's assets from government securities to, higher margin, household and private business lending. The shift from the zero risk-weighted government securities to more risky loans to households and enterprises is also evident from the constant decline of the capital adequacy ratio from over 40% at the end of 1999, to a still reassuring 14% in 2007. The improvement in lending standards, and has to be said the rapid expansion

of new credit, resulted in a further improvement of the ratio of non performing loans to total loans from 8% (end 1999) to 2% in 2007 (BNB).

2.2 Romania

Romania's banking sector development lags that of Bulgaria's and of other transition economies', due to the fact that credit expansion was delayed and did not start in earnest until 2001. Despite the late start, in the last few years, demand for credit and the subsequent banking sector development has been expanding at a spectacular pace – albeit from low starting levels supported by robust economic growth and the prospects of EU membership.

The development of the banking sector in Romania mirrors that of Bulgaria's in so far as it has been shaped by a banking crisis that occurred during 1999-2000. Both the process of financial deepening (loans/GDP) and the level of monetization (bank assets/GDP) followed a U-pattern, with the trough occurring during the crisis years of 1999-2000. From 2000 onwards, the restructuring of the banking sector, that involved the closure of the biggest banking institution in 1999 and the privatization of several more, signalled the beginning of a process of financial deepening with the establishment of a positive relationship between per capita GDP and credit growth. Two additional beneficial effects of privatization were the opening up of the Romanian banking sector to external competition, with the share of banking assets controlled by the 3 largest banks dropping from 66% in 1999 to 56.4% in 2007 (NBR) and the significant capital inflows from foreign institutions into the Romanian banking sector.

The increased competition in the banking sector, has resulted in the narrowing of the spreads between lending and deposits rates, in currencies, and as a consequence in the diminishing of ROE from 18.3% (2002) down to 11.9% (2007). Examining the overall level of loans to assets at 57% in 2007, it appears that the Romanian banking sector can easily finance the rapid expansion of lending activities for the foreseeable future (NBR). However, when we examine the partial ratios of loans-to-deposits in foreign and domestic currency, a very different picture emerges. While there exists an abundance of RON deposits that can finance the growth of lending in domestic currency, there also exists a shortage of foreign currency deposits compared with FX lending. The growth in FX lending has been facilitated by significant capital inflows

and short-term borrowing from abroad, which have led to a large negative foreign asset position. Hence, a possible reversal of risk appetite of foreign investors for Romanian assets can expose the Romanian banks to liquidity and FX risks (*Eurobank Research Department*).

2.3. Serbia

Analysing the structure of the Serbian banking system poses unique challenges due to the difficulty in collecting and processing the necessary data, in a way that is consistent with other transition economies. This is because the structure of the banking sector and the composition of the Serbian banks' aggregate balance sheet have been greatly affected by the military conflict in Yugoslavia in the 90s. The direct consequences of these events were a) the freezing of foreign currency deposits of commercial banks by the Yugoslav government of the time, and b) the effective default of the foreign currency loans granted by foreign governments and a collection of foreign banks, known respectively, as the Paris and London Club Creditors. The combined effect of these two factors was that a large part of both assets and liabilities of the Serbian banking sector was "frozen" and could not be allocated to interest bearing investments. The process that started in 2000 of re-normalization of the economy in general and the banking sector in particular, is beginning to yield results but the completion of the process has still significant way to go. As part of this process of re-normalization, the Serbian banks were allowed to transfer the frozen foreign currency deposits to off-balance sheets accordingly. This, in addition to the closure of several undercapitalised banks led to a significant decline of the level of financial monetization from 125.9 of GDP in 2001 to 66% in 2007.

The second important measure taken in order to deal with legacy problems was a debt for equity swap under which a part of the claims of the Serbian banks to the Paris and London Club Creditors were exchanged with equity provided by the state. This exchange resulted in a de facto nationalization of a large part of the Serbian banking system and, by the large, marked the beginning of the privatization of the Serbian banks and the opening up of the Serbian banking sector to foreign banking institutions. An additional beneficial effect of the balance sheet shrinkage and the substantial recapitalization of the banking system was, as a consequence the

improvement of the capital adequacy ratio from 0.7% in 2000 to 27.9% in 2007 (NBS).

The opening up of the banking sector to foreign banks and the general improvement of the economic conditions led to a robust growth in new loans especially after 2003. Yet, the distinction between the domestic and foreign currency loans remains problematic, since a lot of dinar denominated loans are foreign currency indexed, making them in effect foreign currency loans. In this way, the Serbian banking sector is indirectly exposed to credit risk, since adverse changes in the exchange rate can lead to the inability of the borrowers to service their debts.

The unorthodox structure of the Serbian banking sector is reflected in the composition of revenues and expenses, from 1998 onwards. A major contributor to revenues, in addition to interest and commission income, is “Other Income” that consists mainly of positive revaluation results such as reversed provisions from indirectly written-off loans and long-term and specific provisions. Conversely, on the expenses side, provisions have a dominant role, reflecting the back-log of bad loans still present on the books of Serbian banks (IMF). On the balance, the Serbian banking sector has been persistently loss-making with negative ROE and ROA until 2004. From that year and then, profitability has improved on positive levels but still remains low.

2.4 Turkey

It would not be wrong to define the pre-2002 period in Turkey as a period characterized by a poor macroeconomic environment, ineffective financial supervision framework divided between different institutions and sector-specific problems in banking such as the moral hazard issue which, taken together, led to significant economic crises in a negative global sentiment. During the 1990s, the Turkish banking sector had been dominated by inefficient public banks and the sector had serious deficiencies such as high foreign currency, interest rate and liquidity risks. The sector was also far away from sound good governance principles. After the initiation of the “Program for Transition to a Strong Economy” in 2001, the Turkish economy has experienced a notable improvement. The consumer price inflation, which was above 70% in average throughout the 1990s, declined to single-digit territory in 2004; the huge budget deficit/GDP and debt stock/GDP ratios declined to

levels well-below the Maastricht Criteria; and Turkey entered into a sustainable growth path, experiencing economic growth for 24 quarters in a row during 2002-2007.

The structure of the banking system was severely affected by the crises of 2001-2002. The number of commercial banks reduced from 79 at the end of 2000 to 43 at the end of 2007. As a consequence, the banking sector in Turkey got highly concentrated as the share of the 3 largest banks rose from 55.7% in 2001 to 62.2% in 2007. Moreover, the seven largest banks have approximately 75% of total banking assets under their control (CBRT). The size of the banking sector was also seriously compromised by the crises of 2000-2001 and contracted from a high of 102.6% of GDP in 2001 to 76.5% in 2007 (CBRT).

ROA and ROE have improved since 2002 because banks shifted their focus to traditional banking services contributed to the increase of the share of both interest and commission income in total revenues. Despite the rapid credit growth over the last years, the quality of the bank's portfolio has improved dramatically. Since 2001, when approximately 41% of all bank loans were non-performing, the ratio of NPLs to total loans has declined to 3.4% in 2007 (CBRT). The capital adequacy ratio (19.1% 2007) has also improved, although this can partially be attributed to the fact that the government securities held by Turkish Banks, although rated below investment grade, carry a zero risk weight (IMF)

2.5 Croatia

Over the past decade, the Croatian banking system has undergone tremendous change. Many of these changes occurred as a result of the last two banking sector crises in 1998-1999, and in 2002, while others occurred in preparation for pending accession into the European Union (EU). After the banking crisis of 1998, which caused several banks to exit from the market, the Croatian banking system has undergone a deep transformation process in the course of which the remain state-owned banks have been privatized and foreign investors have gained a dominating market share of total banking sector assets. By the end-2007, 48 banks operated in Croatia, with privately-owned banks accounting for approximately 95% of total banking sector assets and the share of banks majority-owned by foreign investors amounting to 91% (one of the highest shares in the region).(CNB)

The degree of banking intermediation is relatively high in Croatia compared to other SEE countries, but a comparison with the euro area average still suggests a huge growth potential for the future. By the end-2007 the level of financial intermediation (as measured by total banking sector assets in percent of GDP) stood at 98%, which is significantly higher than the 62% of 2002. Asset quality has improved significantly over the past five years, despite the reorientation of banks toward lending to the riskier private sector. Non performing loans accounted for 1.6% of total loans by end-2007 down from 3.9% in 2002 (CNB).

Despite a decline in the capital adequacy ratio owing to a stronger increase in the risk component than in the capital base, Croatian banks seem to be well capitalized and are in a satisfactory liquidity position. The overall capital adequacy ratio of Croatian banks fell from 21.3% at the end of 2000 to 15.3% by end-2007. However, this value is in line with other SEE countries and well above the low value recorded in the crisis of 1998 (12.7%), which affected 16 bank institutions (12 of these banks exited the market).

The profitability of banks has improved significantly since the 1998 and ROE in Croatia is now in line with that observed in other SEE countries. While return on assets (ROA) and return on equity (ROE) were in deeply negative ranges in 1998, they rose to 1.6 and 11.1 respectively in 2007. This improvement was primarily caused by a decrease in the cost of loan loss provisioning and a decline in the cost-income ratio, especially in 2002 and 2003 (CNB).

2.6 Albania

The Albanian banking sector had the experience of abnormal episodes during the transition decade, the 1997 pyramid crises and the 2002 deposit withdrawals. Both events were the result of the backward system inherited from the socialist system, reform sluggishness, insufficient public education on the banking system and unfavorable political developments. After 2000 a wide scale of structural reforms took place in the financial sector closely related to the privatization of the state-owned banks and the entry of new private banks, which helped to deepen financial intermediation and increased the quality of the banking services.

In March 2002 this development was interrupted when the country's economy was confronted with a deposit panic. The panic started and expanded mainly in the Savings Bank, the country's largest bank, which was on the eve of its privatization and to a lesser extent in the National Commercial Bank, the country's second largest bank. Deposit outflows from these two banks reached 12 billion lek in March and 9.4 billion lek in April (SEEMHN). The deposit crisis adversely affected the real economy since money withdrawals were associated with an increase in the currency of banks, a strengthening of the inflationary pressures and the creation of liquidity problems for the second tier banks. Central Bank's measures and intervention helped in overcoming the crisis and the deposit level was eventually replaced. During 2003, the banking sector was developed further. The entry of new banks as well as the preparations for the privatization of the Savings Bank promised an increase in productivity and competition in the banking system.

The first characteristic of these developments was the rise in the number of newly operated private banks which reached 14 during the period 2003-2007. The dominance of foreign banks was the main feature of the Albanian banking system this period. After the privatization process of the Savings Bank in 2004, the ownership structure dramatically changed. The domestic state capital weight was reduced to 4.3% in 2007 from 60% by the end of 2002, whereas the foreign capital weight increased considerably to 89% in 2007 compared with 46% in 2002 (NBA). Financial intermediation was further deepened reflecting the positive trend of banking sector development. The ratio of banking sector's assets to GDP was increasing during the period under study, reaching 76% in 2007 (NBA).

Another characteristic of these favorable developments was the improvement in the credit market. Key features were the continuous increase of the private sector credit and the reduction of the bad loans (NPL) to total credit which reached the low level of 3.4% in 2007, compared with 5.5% in 2002.

The capital adequacy ratio followed a downward trend after 2002 reaching 17.1% in 2007 above the regulatory minimum of 12%. The application of modern techniques in banking and credit expansion improved bank profitability pushing ROA to 1.6 in 2007 compared with 1 in 2002 (NBA).

2.7 Fyrom (Republic of Macedonia)

Macedonia is an exception. At the first glance it seems that the consolidation process of the Macedonian banking system is in its initial phase. The number of banks 26 (2007) in Macedonia is far greater when compared to the market size.

Furthermore, there are huge differences regarding the bank ownership across SEE. Namely, the foreign ownership in Macedonia is approximately around 50%, which is the lowest in SEE region (NBRM). It becomes obvious that the Macedonian banking system failed to attract foreign investments in the banking sector. This partly can be explained by the lack of reforms and the legal framework in this segment of the economy, discouraging foreign investors and prominent foreign-owned banks. Namely, as competition has increased only slightly, very few new products and services have been introduced on the market. Although growth of bank credit to the enterprise sector has been recorded, banks rarely manage to meet enterprise needs in terms of maturity and collateral requirements. Shortage of funds (access to cheap financing), lack of credit skills and unavailability of good lending opportunities are among the many possible factors responsible for low level of bank credit to the private sector. Domestic credit to GDP is approximately three times lower when compared with EU-12 average (CRPM).

The Macedonian banking system in 2005 experienced a positive trend regarding the profitability (although still lagging behind when compared with some other countries from SEE) reaching on average 1.1 and 7.6 for ROA and ROE respectively over the period 2002-2007 (NBRM). This was mainly due to considerable improvement in the profitability of the group of smaller banks. The main driving force behind this development was the increase in net income together with a better cost efficiency in their operating activities, which is certainly an important aspect for maintaining the stability and security of the entire banking system. Credit risk measured by the ratio of NPL to total loans stands at an average of 11% over the period 2002-2007 (NBRM) extremely high if we take into account the relevant low level of bank credit to the private sector.

The liberalization of the market segment (by removing all administrative barriers and simplifying the entry procedures for prominent financial institutions on Macedonian market), the improvement of the legal and regulatory environment, and

banking supervision can be considered as crucial reforms to increase the efficiency and existing confidence in the local banking sector (CPRM).

2.8 Moldova

The introduction on November 1993 of the national currency “Moldovan leu” with the purpose of ensuring the state’s monetary and financial independence and the efficient implementation of the economic policy within the Republic of Moldova constituted an important moment for the activity of the banking sector in the country. The functioning of a solid banking system, able to render modern and competitive services, represented the factor of a major importance for the national economy development. After the regional crisis of 1998, the period of 2000-2007 was characterized by an on-going economic upsurge.

At the end -2007, on the territory of the Republic of Moldova there were 15 joint stock banks authorized by the National Bank of Moldova, including four subsidiaries of foreign banks. Starting with the end of 2000 and up to the end of 2007 the banking system of Moldova registered an ascendant dynamics. Total assets of the banking sector enlarged by 5.5 times from the end of 2000 including the balance of extended credits by 6.6 times. Thus, the weight of net credit in total assets rose from 43.4% in 2000 to 65% in 2007 (NBM).

At the same time, the quality of credits portfolio improved and the weight of unfavorable credits (NPL) in total credits diminished by 15.9 percentage points down to the level of 3.7% at the end of 2007. It should also be mentioned the high concentration level (in terms of assets) within the banking sector: the weight of five larger bank’s assets equaled, as of end-2007, to 64% in total bank assets (NBM).

Bank’s deposits advanced during the period 2000-2007 by 7.5 times. In 2007 banks recorded the ROA in an amount of 4% and the ROE in an amount of 24.1% while the net interest margin (NIM) accounted for 7.1%. It is obvious that the efficiency of commercial banks’ activity was characterized by their capacity to generate profits. The net income derived by the banks of the Republic of Moldova in 2006 amounted to 692 million lei, increasing as compared to 2000, by 403 million lei or 139.5% (NBM).

The dynamic development and performance of banking sector in Moldova over the period 2002-2007 can be attributed to the major priority of the state to ensure national economic growth and macroeconomic stability through a well-functioned banking system which constituted the basic resource for the financing of the country's vital economic sectors. The gradual increase of terms on deposits attracted within the banking system, allowed banks to extend credits with higher maturities as compared to previous years. Similarly, the weight of credits in national currency extended for terms of 6 to 12 months equaled, in 2006, to 25.5% of total credits, while the weight of credit with terms of over 12 months soared to 56.6% (versus 40.8% and 21.3% respectively, in 2000)-(NBM). That extension allowed banks to offer constant support to the state by lending to the vital industrial and agricultural-industrial sectors of the Economy. It is worth mentioning that credits extended to industry, trade, agriculture and food industry held the high weight of 70% of total credits at the end of 2006 (NBM).

3. Literature review relating to Bank profitability

A number of studies have examined the determinants of bank's profits and margins in many countries around the world. In the literature, bank profitability is usually expressed as a function of internal and external determinants. The internal determinants originate from bank accounts (balance sheets and/or profit and loss accounts) and therefore could be termed bank-specific determinants of profitability. The external determinants both industry-related and macro-economic are variables that are not related to bank management but reflect the economic and legal environment that affect the operation and performance of credit institutions. The studies can be grouped into two categories, those that have focused on a particular country and those that have focused on a panel of countries.

3.1 Single County Studies

Berger (1995) examines the relationship between the return on equity and the capital asset ratio for a sample of US banks for the period 1983-1992. Using the Granger causality model, he shows that the return of equity and capital to asset ratio tend to be positively related. *Neeley* and *Wheelock* (1997) explore the profitability of a sample of insured commercial banks in the US for the period 1980-1995. They find that bank performance is positively related to the annual percentage changes in the

state's per capita income. *Anghazo* (1997) investigates the determinants of bank net interest margins for a sample of US banks for 1989-2003 period. The results for the pooled sample documents that default risk, the opportunity cost of non-interest bearing reserves, leverage and management efficiency are all positively associated with bank interest spread. *Barajas et al.* (1999) document significant effects of financial liberalization on bank's interest margins for the Colombian case. Although the overall spread has not declined after financial reform, the relevance of the different factors behind the bank spreads were affected by such measures. Another change linked with the liberalization process was the increase of the coefficient of loan quality after the liberalization. *Guru et al.* (2002) attempt to identify the determinants of successful deposit banks in order to provide practical guides for improved profitability performance of these institutions. The study is based on a sample of seventeen Malaysian commercial banks over the period of 1986-1995. The profitability determinants were divided in two main categories, namely the internal determinants (liquidity, capital adequacy and expenses management) and the external determinants (ownership, firm size and external economic conditions). The findings of this study revealed that efficient expenses management was one of the most significant in explaining high bank profitability. Among the macro-indicators, high interest ratio was associated with low bank profitability and inflation was found to have a positive effect on bank performance. *Athanasoglou, Brissimis and Delis* (2005) examine the effect of bank-specific, industry-specific and macro-economic determinants of bank profitability on a panel of Greek banks that covers the period 1985-2001. The estimation results show that profitability persists to a moderate extent, indicating that departures from perfectly competitive market structures may not be that large. All bank-specific determinants, with the exception of size, affect bank profitability significantly in the anticipated way.

Sayilgan and Yildirim (2009) explore bank profitability in Turkey over the period 2002-2007 using monthly data and aggregate balance sheet of the banks, through multi-variable single-equation regression method. Results showed that consumer price index inflation and ratio of off-balance sheet transactions to total assets affect profitability indicators negatively in a statistically significant manner, while industrial production index, the ratio of budget balance to industrial production index and the ratio of equity to total assets affect profitability indicators positively in a statistically

significant way. *Aburime* (2006) examine bank profitability in Nigeria using a panel data set comprising 91 observations of 33 banks over the period 2000-2004. The findings of this study revealed that capital size, size of credit-portfolio and extent of ownership concentration are significant company-level determinants of bank profitability in Nigeria. Size of deposit liabilities, labor productivity, ownership, control-ownership disparity and structural affiliation are insignificant while the relation ship between bank risk and profitability is inconclusive.

Finally, *Samy Ben Naceur* (2003) investigates the impact of bank's characteristics, financial structure and macro-economic indicators of bank's net interest margins and profitability in the Tunisian banking industry for the 1980-2000 period. The study finds that bank characteristics explain a substantial part of the within-country variation of bank interest margins and profitability. High net interest margin and profitability tend to be associated with banks that hold a relatively high amount of capital, and with large overheads. Other important internal determinants of bank's interest margins bank loans which have a positive and significant impact. The size has mostly negative and significant coefficients on the net interest margins. This latter result may simply reflect scale inefficiencies. Finally, the paper finds that the macro-economic indicators such inflation ant growth rates have no impact on bank's interest margins and profitability.

3.2 Panel country studies

Molyneux and *Thornton* (1992) were the first to explore thoroughly the determinants of bank profitability on a set of countries. They use a sample of 18 European countries during the period of 1986-1989. They find a significant positive association between the return on equity and the level of interest rates in each country, bank concentration and government ownership. *Abreu* and *Mendes* (2002) investigate the determinants of bank's interest margins and profitability for some European countries in the last decade. They report that well-capitalized banks face lower expected bankruptcy costs and this advantage "translate" into better profitability. Although with a negative sign in all regressions, the unemployment rate is relevant in explaining bank profitability. The inflation rate is also relevant.

Bashir (2000) examines the determinants of Islamic bank's performance across eight Middle Eastern countries for the period of 1993-1998. A number of internal and

external factor were used to predict profitability and efficiencies. Controlling for macroeconomic environment, financial market situation and taxation, the results show that higher leverage and large loans to asset ratios, lead to higher profitability. The paper also reports that foreign-owned banks are more profitable than the domestic one. There is also evidence that taxation impacts negatively bank profitability. Finally, macroeconomic setting and stock market development have a positive impact on profitability. In their study *Demerguc-Kunt and Huizingha (1999)* examine the determinants of bank interest margins and profitability using a bank level data for 80 countries in the period of 1988-1995. The set of variables includes several factors accounting for bank characteristics, macro-economic conditions, taxation, regulations, financial structure and legal indicators. They report that a larger ratio of bank assets to GDP and a lower market concentration ratio lead to lower margins and profits. Foreign banks have higher margins and profits than domestic banks on developing countries, while the opposite prevail in developed countries. On another linked paper, *Demerguc-Kunt and Huizingha (2001)* present evidence on the impact of financial development and structure on bank profitability using bank level data for a large number of developed and developing countries over the 1990-1997 period. The paper finds that financial development has a very important impact on bank performance. Specifically, the paper reports that higher bank development is related to lower bank performance (Tougher competition explains the decrease of profitability). Stock market development on the other hand, leads to increased profits and margins for banks especially at lower levels of financial development, indicating complementarities between bank and stock-market.

Athanosoglou, Delis and Staikouras (2006) examine the profitability behavior of bank-specific, industry-related and macro-economic determinants using a panel data set of South Eastern Europe credit institutions over the period 1998-2002. They conclude that, with the exception of liquidity, all bank-specific determinants significantly affect bank profitability in the anticipated way. For first time in bibliography a new determinant is introduced, the banking reform index which identifies the progress in areas such the adoption of regulations according to international standards and practices and the implementation of higher and more efficient supervision. A positive relationship between banking reform and profitability was finally not identified.

Most of the studies conclude that internal factors explain a large proportion of banks profitability nevertheless external factors have also an impact on the performance. However, the relations between bank's characteristics or external factors and profits and margins are not constant across countries or different periods within the same country. Therefore, further research is required. In addition given the differences in the banking sectors among countries, it is interesting to observe if the previous results are applicable to other locations.

4. Data and Determinants of Bank profitability in the Banking sector of the Southern Eastern Europe

The study of bank profitability in the banking sector of the Southern Eastern Europe bases on semi-annual bank level and macro-economic data from eight SEE countries (Turkey, Romania, Bulgaria, Serbia, Fyrom, Albania, Croatia and Moldova) over the period 2002-2007 (6 years). According to the literature, bank profitability is measured by the Return on Assets (ROA) and the Return on Equity (ROE), expressed as a function of bank-specific (Liquidity, Credit risk, Capital adequacy, size of banking sector), industry-related (foreign ownership, state ownership, market share) and macro-economic determinants (inflation, economic activity, labor). Table 1 lists the variables used to proxy profitability and its determinants together with its notation and Table 2 presents country averages. The bank variables are obtained from the Central Banks' database referring to banking sector of each country as a total, and the micro-economic variables from the IMF's International Financial Statistics (IFS) and the World-Bank.

The dependent variable of bank profitability is typically measured by the return on assets (ROA) and/or the return on equity (ROE). The first ratio is the return on average assets, calculated as net profit after tax divided by average total assets. This is probably the most important single ratio as it compares the efficiency and operating performance of banks as it indicates the returns generated from the assets that bank owns. The ROA measures bank profits per unit of assets whereas the ROE, which represents the aggregate return to stockholders before dividends, measures profitability from the shareholder's perspective. The higher the return, the better for shareholders, as banks can add more to retained earnings and pay more in cash dividends when profits are higher. The ROE's primary shortcoming as a measure

of bank performance is that it can be high because a bank has inadequate equity capital. Thus, ROA provides a clearer accounting measure of overall bank performance, in the sense that it measures how profitably a bank's on-balance-sheet assets are employed. (*Kapopoulos and Lazaretou 2007*)

4.1 Bank-specific determinants

Liquidity: The risks associated with liquidity index usual come out of a particular bank's lack of ability to take care of the decrease in the level of liabilities. It can also arise due to the increase of funds on the side of assets if the balance sheet is considered. This forms a pivotal role in the determination of bank's profitability. The risk associated with the loan market to households and various companies is particularly high. However such loans also hold higher expected return as when compared to the lower returns that are realized against government securities. This therefore draws out an interestingly good correlation between profitability and liquidity levels (*Bourke, 1989*). Usually the scenarios is that the lesser the amount of funds held in liquid investments, the greater the expected profitability index (*Eichengreen and Gibson, 2001*). The ratio of Loans to Assets (LA) is used in the study as a measure of liquidity. This ratio rose to an average of 45.5% over the period under study. It would be better to use the ratio of liquid assets to total assets as a better proxy for liquidity, however data is unavailable. The ratio of loans to deposits can also be used. The main disadvantage of this, being that it portrays nothing regarding the liquidity of the financial system's assets. It shows nothing about the nature of the liabilities either.

Credit risk: The level of changes in the risk associated with credit portrays the subsequent changes in a bank's loan portfolio. This could have great effects in the performance of the banking institution (*Duca and McLaughlin, 1990*). *McLaughlin* concluded that the changes in the profitability of a bank are mostly due to the fluctuations in the credit risk. This is because continue exposure to risks associated with credit is usually a precursor for low profitability. This in turn initiates a debate that is centred on the volume of loans and the quality of the loans given out. *Miller (1997)* suggested that the higher the rate at which banking institutions are subjected to high-risk loans, the greater the rate of accumulation of bad loans and hence a reduction in profitability. In this study, credit risk is evaluated using the rate of non

performing loans NPL (substandard plus doubtful plus loss loans) to total loans. This is close to 8% in the region over the examined period. The poor quality of the stock of credit was inherited from the old regime, where credit risk evaluation was negligible, and credit policy was used as an instrument by the governments to fit the needs of the central planned economies (*Stubos and Tsikripis, 2005*). The NPL ratio still remains higher in the SEE region as compared to Europe despite the observed improvements in the financial system.

Capital adequacy: It has however been demonstrated that the overall level of capitalization is fundamental in the explanation of a banks performance. It is also worth noting that the impact of leverage is somewhat ambiguous. This is because low ratios of capitalization usually denote a risk; therefore one would expect a negative coefficient on this determinant (*Berger, 1995*). A decrease in the cost of capital can be initiated by an increase in the equality levels. This would have a desirable effect on the profitability index (*Moleneux, 1993*). The level of expected income may also be increased by an increase in the capital. This is achieved through the reduction of distress that related to finance. Such stresses include bankruptcy. Several studies employ the method of capital ratios in the determination of the level of profitability. Example of such studies includes the works of *Burke (1989)* and *Goddard (2004)*. All of them identified a positive correlation. Eventually in 2005, *Athanasoglou* suggested that the modelling of capital is better achieved if it is considered as an external determinant of the profitability of a bank. This is because higher rates of profitability would result in a corresponding increase in the capital achieved (*Berger, 1995*).

The average of equity to assets ratio (EA), widely used in the empirical research as the key capital ratio, is also the measure of capital adequacy in the empirical stage of this research. This ratio is about 22% for the countries under study the specific period of time, much higher than the European average. The reasons behind this low financial leverage exploited in the region might be the ongoing restructuring process of newly privatised state-owned financial institutions, the relatively low credit expansions and bank's compensation for the poor access to other sources of funds. However the high ratio confirms the existence of a high risk level in lending operations and the relevant high degree of liquidity and non-banking items on bank's balance sheets (*Athanasoglou, Delis and Staikouras, 2006*)

Size of Banking sector: In general the size of a bank can be utilized in the capture of prime economies of scale in the financial sector. The effect would also be employed in the diseconomy of scale too. This variation controls for cost differences and diversification of the product risk according to the size of the credit institution. The initial factors can result in a positive correlation between the size of a bank and its subsequent profitability. This is possible under the influence of supporting economies of scale (*Akhavein 1997, Bourke 1989, Goddard 2004*). Increased level of diversification has been identified to cause a reduction in the credit risk and hence a corresponding reduction in the profitability. The work of other analysts concludes that there could be savings realized by the increase in the size of a financial institution. This is mostly true as the market expands (*Berger 1987, Boyd and Runkle 1993, Athanasoglou 2005*). *Eichengreen and Gibson (2001)* suggested that there could be a positive effect to a banks profitability caused by an increase in a bank's size. However this could only be true to certain limit. Going beyond that particular limit could result in a reduction in profitability as the expected relationship is non-linear.

The ratio of total banking sector assets of each country to country's Gross Domestic Product (GDP) is used in the study as a measure of banking sector size to account for size related economies and diseconomies of scale.

4.2 Industry related determinants

Foreign ownership: Great importance attached to the profitability element of foreign ownership. The impact on profitability could arise due to the following reasons: The very first point regarding the effect of foreign ownership's effect on a bank's profitability is tied to the fact that a lot of foreign capital would be attracted to the bank. This would have a desirable effects since the foreign capital would reduce the costs (fiscal) that are required in the bank's restructure process (*Tang 2002*). The second reason would be that there would be a corresponding influx of foreign expatriates who are well trained to handle risk management. The expatriates would also help in instilling a better corporate governance culture and thereby resulting to an increase in the bank's efficiency (*Bonin 2005*). The third reason is tied to the fact that the physical presence of the foreign bank would drive competition uphill and hence motivating the local banks to reduce their costs and interest rates and hence leading to a rise in efficiency (*Claessens 2001*). The last reason would be the overall increase in

the use of technology from the foreign countries. The foreign competitors would bring about competition through the use of better and more efficient technologies.

In this model, foreign ownership is evaluated using the rate of foreign owned assets to total banking sector assets which stands to an average of 60%, quite high for the examined countries over the period under study.

State ownership: A relationship between profitability and ownership may exist due to spill-over effects from the superior performance of privately-owned banks compared with state-owned banks, which do not always aim at profit maximization. However, little evidence is found to support the theory that privately-owned institutions will return relatively higher economic profits. *Short* (1979) is one of the few studies offering cross-country evidence of a strong negative relationship between state ownership and bank profitability. In their study *Barth, Caprio and Levine* (2004) claim that state ownership of banks is indeed negatively correlated with bank efficiency. In contrast, *Bourke* (1989) and *Molyneux-Thorton* (1992) report that ownership status is irrelevant for explaining profitability. The ratio of state-owned assets to total banking sector assets is used in this study as a proxy for state ownership.

Market concentration: The higher the level of concentration of a market, the lower is the level of competition in the market. A more concentrated structure in the market is achieved through the existence of several smaller firms. This increases the chances of the market achieving a joint price output configuration that nears the monopoly breakthrough. This results in firms in more concentrated markets achieving higher profits as a result of either collusive or maybe monopolistic reasons. This gives them an advantage over firms operating in less concentrated regions, their efficiency notwithstanding. According to the Structure-Conduct Performance (SCP) hypothesis, Banks in highly concentrated markets tend to collude and therefore earn monopoly profits (*Short* 1979 and *Gilbert* 1984). This is because Banks in more concentrated markets should be capable of adjusting spreads in response to unfavourable changes in the macro-economic environment to leave returns unaffected (*Flamini, McDonald and Schumacher* 2009). In this study, the concentration of the banking sector calculated as the total assets held by 3 largest banks divided by the total assets of the banking sector.

4.3 Macro-economic determinants

The profitability of Banks is shown to be very sensitive to the macro-economic dynamics regardless the physical location of the financial institutions. Two macro-economic variables are usually used to capture possible relationship between bank profitability and macro-economic environment: Inflation (INF) and Gross Domestic Product growth (GDP growth).

High inflation rates are generally associated with high loan interest rates, and therefore, high incomes. However, if inflation is not anticipated and Banks are sluggish in adjusting their interest rates then there is a possibility that bank costs may increase faster than bank revenues and have adversely affect bank profitability. This concept introduced by *Revell (1979)* who notes that the effect of inflation on bank profitability depends on whether banks' wages and other operating expenses increase at a faster rate than inflation. In this vein, *Perry (1992)* states that the extent to which inflation affects bank profitability depends on whether inflation expectations are fully anticipated. An inflation rate fully anticipated by the bank's management implies that Banks can appropriately adjust interest rates in order to increase their revenues faster than their costs and thus acquire higher economic profits. Most studies including *Burke (1989)* and *Molyneux-Thornton (1992)* have shown a positive relationship between inflation and profitability. It became very evident that the average of inflation in the SEE countries under study is considerably high as compared to EU. The average rate over the examined period stands at 7.6%.

GDP growth is a measure of the total economic activity and is expected to have an impact on numerous factors related to the supply and demand for loans and deposits. A positive relationship is expected between the performance of the Banks and this variable. The SEE countries under study present a reasonable average of GDP growth over the examined period on the level of 5.5% although its real per capita income is much lower compared to EU.

Finally, a third macro-economic variable related to labour Market is used in the study: Unemployment rate (UNPL). A negative relation is expected between bank profitability and this variable because high Unemployment means lack of income, lower consumption, and therefore lower demand for small loans and credit cards which are especially profitable sources for the Banks. On the contrast, in some cases,

higher Unemployment rate may lead to increase of lending without assuring profits due to higher risk and possible increase of non-performing loans and provisions.

5. Econometric methodology and analysis of the empirical results

5.1 Econometric model

The relationship between the bank profitability factors that are categorized as either bank specific, industry-related and macroeconomic determinant are governed by the equation below which is panel data regression with GLS (generalized least squares) random effects.

$$\Pi_{i,t,s} = b_0 + b_1FO_{i,t} + b_2SO_{i,t} + b_3CR_{i,t} + b_4NPI_{i,t} + b_5EA_{i,t} + b_6LA_{i,t} + b_7INF_{i,t} + b_8UNPL_{i,t} + b_9GDP_{i,t} + b_{10}S_{i,t} + u_{i,t}$$

The equation is modeled using a variety of factors and variables. The $\Pi_{i,t,s}$ denotes the bank's profitability while s profitability is denoted by $s(ROA, ROE)$ at a time t for a specific country s , when $i = 1, \dots, N$; $t = 1, \dots, T$; $s = 1, \dots, S$, b_0 denotes a constant term. The independent variables are bank-specific, industry-related and macroeconomic determinants as specified in Table 1 and u denotes the disturbance.

The model effects are tested by Hausman test

H_0 : there are no differences between fixed effects and random effects

H_1 : there are differences between fixed effects and random effects

p-value=0.4032>0.05, therefore random effects method is preferred.

$$PROB>CH_1 = 0.4032 > 0.05 \text{ (Hausman Test)}$$

A 10% significance level is also preferred because of the relevant low number of observations (96). In this way a quite great error margin is offered. Results are displayed in Table 5 and Table 6 for ROA and ROE respectively as dependent variables.

5.2 Empirical results

According to the regression results, five determinants were found to be significant in affecting bank profitability in SEE over the period 2002-2007.

First and foremost, credit risk is negatively and significantly related to bank profitability. This shows that although credit risk management has improved in the region, it still remains insufficient. It seems that banks have not managed yet to adopt an effective risk-averse strategy. Poor quality of the stock of credit was inherited from the past and high credit expansion with negligible credit risk evaluation constitute important reasons for the strongly negative relationship between credit risk and bank profitability in the region.

The positive and highly significant coefficient of the capital variable (EA) comes as no surprise. A bank with a sound capital position is able to pursue business opportunities more effectively and has more time and flexibility to deal with problems arising from unexpected losses, thus achieving increased profitability. After the unstable period of reconstruction in the SEE countries, the strengthened capital structure increased the confidence in the sector which might have contributed to a better profitability performance through lower cost of financing.

The liquidity risk variable (LA) has also a positive and significant impact on bank profitability. In previous studies, the results concerning liquidity are mixed. *Bourke(1989)* and *Kosmidou and Pasiouras (2005)* also found a significant positive relationship between liquidity and bank profits. However, *Molynex and Thorton (1992)* found a negative relationship between bank profitability and the level of liquid assets held by the bank. *Athanasoglou, Delis and Staikouras (2006)* found a positive but insignificant relationship between liquidity risk variable and ROA. As in this study, liquidity risk is measured by loans to total assets, the strong positive relationship between liquidity and profitability can be explained by the fact that banks in SEE region over the examined period connected profits with traditional banking operations such as lending. The level of development in the SEE banking sector has not apparently reached the advanced banking sectors of the West where profits come from new, more complicated banking products.

Although from the majority of previous studies little evidence is found to support the theory that state-owned institutions return lower economic profits, in this study a negative and significant relationship between state-ownership and bank profitability is observed. A possible reason for this finding may be that, during the examined period, the low percentage of state-ownership, which remained to the SEE banking sector

after the dynamic invasion of foreign capital into the local markets, did not focus on profit maximization but mainly on support to the states' reconstruction and macroeconomic stability.

Foreign ownership, banking sector's size and concentration of the market appear to be insignificant in affecting bank profitability in SEE countries over the specific period of time. A possible explanation for the insignificant relationship between foreign ownership and profitability may be the high share of market reserved by foreign banks. The strong presence of foreign capital in the region over the examined period of time brought on intense competition resulting in lower profit margins. Banking sector's size does not significantly determine bank profitability in SEE countries over this period, indicating that bank industry has not significantly enjoyed economies of scale. In fact, the negative coefficient brings to limelight the possibility that diseconomies exist, which adversely affect its profitability. Concentration market's relationship with bank profitability seems to be insignificant and inconclusive. Therefore, further research is recommended.

As far as the macroeconomic variables are concerned, the positive and statistically significant impact of GDP growth provides support to the argument of the association between economic growth and the financial sector performance. According to previous studies, inflation affects positively and significantly bank profitability. This implies that, with inflation, bank income increases more than bank costs which may be viewed as the result of the failure of bank customers (comparative to bank managers) to forecast future inflation *Athanasoglou, Delis and Staikouras (2006)*. In this study, inflation related positively but not significantly with bank performance. A possible explanation for the insignificance of the relationship is the preparation of SEE countries for accession in EU. During the examined period of time, the states of the region focused on the macroeconomic stability according to EU criteria. Thus, inflation was stable and predictable to the markets, not affecting seriously bank profitability in the region. Unemployment rate, as expected, affects negatively bank profitability but in insignificant way. Due to the lack of literature related to this determinant, further research is strongly recommended.

The evolution of the determinants which significantly affect, according to the empirical results, bank profitability is presented in figures 1 to 6 (countries' comparison).

6. Concluding remarks

In this research, the effects of a certain number of integral variables that affects the bank profitability index in selected SEE countries are explored. The study was concentrated in three major steps. The initial step included a general study of the banking system in question. The second step included the identification and analysis of the major determinants of profitability. The final step involved the testing of the empirical models that are selected randomly.

Based on the results of the empirical analysis credit risk, capital size and liquidity significantly determine bank profitability in the selected countries of SEE. Credit risk is one of the main determinants of banking sector's performance showing that SEE banks should focus more on credit risk management which has been proved problematic in the recent past. Serious banking problems may arise from the failure of banks to evaluate credit risk more effectively. An immense help towards these problems would be provided by retaining credit expansion as financial deepening continues. Capital strength is another main determinant of bank profitability providing support to the argument that well-capitalized banks face lower costs of going bankrupt, which reduces their cost of funding. Liquidity has a significant impact on profitability in SEE banking sector but as the current global environment is unstable, liquidity risks are higher. State ownership is negatively correlated with bank profitability indicating that state owned banks in the region must focus on profit maximization rather than serving governments' macroeconomic policies. Bank profits in the region are significantly affected by GDP growth supporting the argument of the association between economic growth and the banking sector performance. The estimated effect of banking sector's size does not provide evidence of economies of scale in banking industry of the region. Likewise, the foreign ownership status of the banks and inflation rate are insignificant in explaining profitability. Finally, market concentration and unemployment rate are not conclusive and further research is required.

In general, SEE financial sector achieved remarkable progress over the examined period 2002-2007. The increasing level of financial reforms (closely related to general economic growth) and the improvement in structure and management of the credit institutions contributed to the strengthening of the banking system. However, banks are by no means, immune to risks and should remain vigilant in keeping up their credit standards, liquidity and capital adequacy, becoming aware to limit their exposure in lending. The approach followed in this paper may well have considerable potential as a tool for exploring bank profitability determinants with the purpose of suggesting optimal policies to bank management. However, future research could cover a longer or different time period and include a wider range of variables.

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European Investment Bank (EIB)

Eurobank Research Department

International Monetary Fund (IMF)

National Bank of Albania (NBA)

National Bank of Moldova (NBM)

National Bank of Romania (NBR)

National Bank of Serbia (NBS)

National Bank of the Republic of Macedonia (NBRM)

Organization for Economic Co-operation and Development (OECD)

South Eastern European Monetary History Network (SEEMHN)

World Bank

TABLE 1**Definitions and notation of the explanatory variables of Bank profitability**

	Variable	Measure	Notation
Dependent variable	Profitability	Net profits/Total Assets or Net profits/Total Equity	ROA ROE
Bank-specific Determinants	Liquidity Credit risk Capital adequacy Size	Loans/Assets Non Performing Loans/Total Loans Equity/Assets Banking sector's total Assets/GDP	LA NPL EA S
Industry related Determinants	Foreign ownership State ownership Market concentration	Foreign owned Assets/Total Banking sector Assets State owned Assets/Total Banking sector Assets 3-5 largest bank's Assets/Total Banking sector Assets	FO SO CR
Macroeconomic Determinants	Inflation Economic Activity Labor	Annual average (Consumer Prices) Gross Domestic Product Growth % Unemployment	INF GDP UNPL

TABLE 2**Country averages of the variables 2002-2007**

	Turkey	Romania	Bulgaria	Serbia	Fyrom	Albania	Croatia	Moldova	SE
ROA	2.17	1.93	1.98	-0.92	1.13	1.35	1.62	3.8	1.6
ROE	13.5	15	17.9	-5.3	7.6	20.5	14.6	19.5	13
LA	37.4	47.9	52.8	49.6	38.5	21.6	57.3	58.7	46
NPL	7.75	7.43	2.82	23.52	11.4	3.85	2.56	5.52	8
EA	25.6	19.65	17.85	25.8	22.2	22.6	14.7	30.7	22
S	49.2	35.8	67.8	45.5	63.2	59.8	70.1	45.4	55
CR	55.2	56.6	37.8	33.8	60.9	65.3	86.7	68.7	58
FO	8.6	62.2	75	56.9	49.5	73.7	90.8	59.6	60
SO	31.6	17	13.8	27.6	1.7	15	3.8		16
INF	14	10.4	5.7	12	1.3	2.6	2.9	11.6	7.6
GDP Growth	7	6	5.6	5.5	3.3	5.4	4.7	6.2	5.5
UNPL	10.5	7	12.5	32.5	30.5	14.3	13	7.1	16

Sources: World-Bank, ECB, International Monetary Fund (IMF), Central Bank Republic of Turkey, National Bank of Romania, Bulgarian National Bank, National Bank of Serbia, National Bank of the Republic of Macedonia, National Bank of Albania, Croatian National Bank, National Bank of Moldova

Note: ROA: Net Profits/Total Assets, ROE: Net Profits/Total Equity, LA: Loans/Assets, NPL: Non Performing Loans/Total Loans, EA: Equity/Total Assets, S(size): Banking sector's total Assets/GDP, CR: 3-5 firm concentration ratio in terms of total assets, FO: Foreign ownership in terms of total banking sector assets, SO: State ownership in terms of total banking sector assets, INF: Inflation rate (average of year), GDP growth: Gross Domestic Product annual growth, UNPL: Unemployment rate (registered)
All the figures are means in percentages for all variables over the period 2002-2007.

TABLE 3

Number of Bank institutions over the period 2002-2007

	Albania	Turkey	Fyrom	Romania	Bulgaria	Serbia	Croatia
2003	11	56	22	36	36	107	63
2004	14	45	23	36	35	75	54
2005	13	56	22	34	36	87	47
2006	14	48	22	37	35	54	46
2007	14	43	26	33	36	53	48

Sources: Central Bank Republic of Turkey, National Bank of Romania, Bulgarian National Bank, National Bank of Serbia, National Bank of the Republic of Macedonia, National Bank of Albania, Croatian National Bank

TABLE 4**Banking Sector Size (Banking sector's Assets/GDP)**

	2002	2003	2004	2005	2006	2007
Turkey	56	54.2	47.2	61.1	67	76.5
Romania	31	32	37.6	51.5	50.2	62.3
Bulgaria	42.3	54.3	65	76	84.6	84.8
Serbia	32.5	32.4	36.8	45.9	59	66
Fyrom	46.1	50.5	54.6	62.4	75	80.3
Albania	51.6	50.2	51.9	59.3	69.4	75.9
Croatia	61.9	69.6	71.2	73.6	74.2	75.1
Moldova	35.1	37.2	41.5	47.6	50.8	59.9

Sources: IMF, Central Bank Republic of Turkey, National Bank of Romania, Bulgarian National Bank, National Bank of Serbia, National Bank of the Republic of Macedonia, National Bank of Albania, Croatian National Bank, National Bank of Moldova

TABLE 5

Estimation results using ROA as independent variable

Variable	Coefficient	Z-statistic	P-value
FO	-0.271	-0.28	0.782
SO	-3.123	-1.50	0.096
CR	0.007	0.49	0.670
NPL	-0.149	-0.29	0.022
EA	0.124	2.82	0.005
LA	0.036	2.39	0.017
INF	0.026	0.58	0.565
UNPL	-0.005	-0.11	0.909
GDP	19.362	1.38	0.099
S	-3.203	0.53	0.597

R^2 : 0.533

No of observations: 96

R^2 : coefficient of adjustment $0 < R^2 < 1$, shows how the independent variables affect the dependent variable.

TABLE 6

Estimation results using ROE as independent variable

Variable	Coefficient	Z-statistic	P-value
FO	2.878	0.50	0.617
SO	-7.177	-0.59	0.558
CR	0.000	0.01	0.993
NPL	-0.967	-2.52	0.012
EA	0.325	1.25	0.211
LA	-0.145	-0.08	0.935
INF	0.039	0.15	0.885
UNPL	-0.145	-0.56	0.578
GDP	90.043	1.09	0.276
S	0.124	1.16	0.248

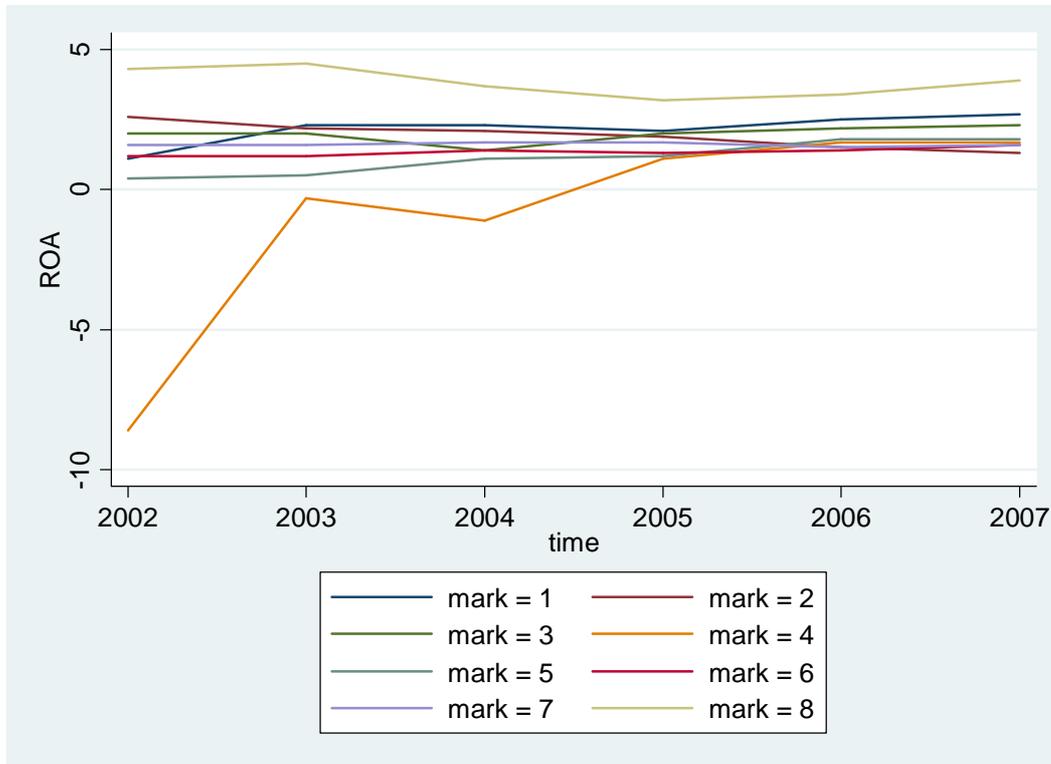
 $R^2 : 0.577$

No of observations: 96

R^2 : coefficient of adjustment $0 < R^2 < 1$, shows how the independent variables affect the dependent variable.

FIGURE 1

ROA of countries under study over the examined period



mark 1: Turkey

mark 3: Bulgaria

mark 5: Fyrom

mark 7: Croatia

mark 2: Romania

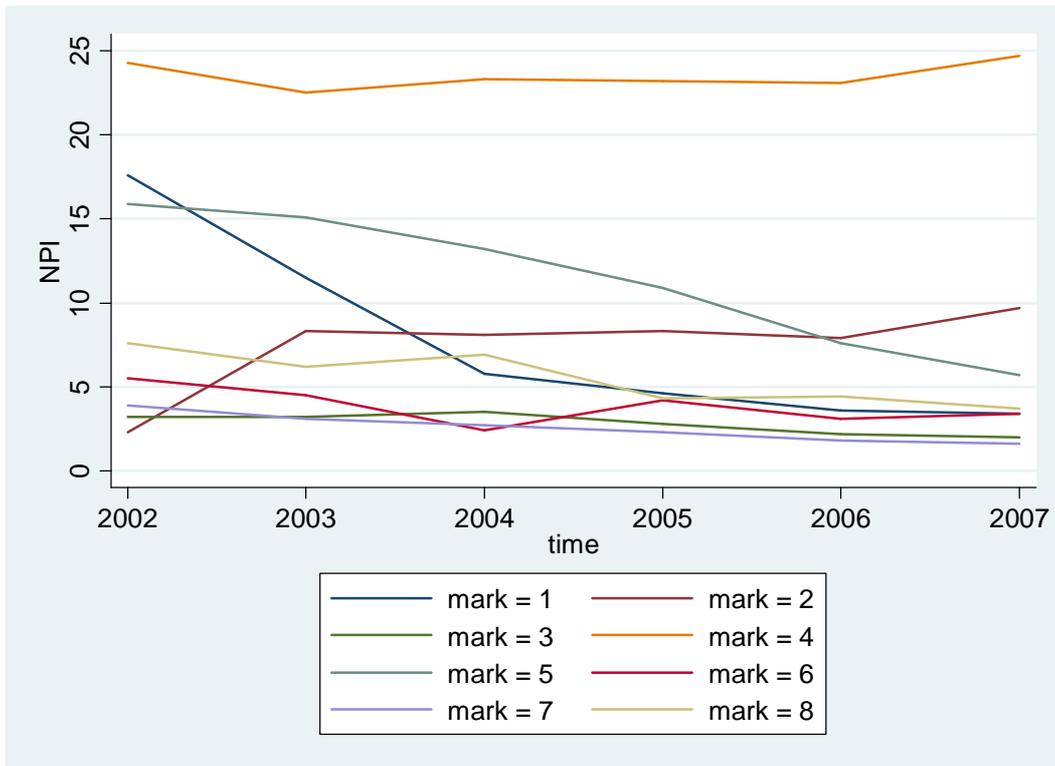
mark 4: Serbia

mark 6: Albania

mark 8: Moldova

FIGURE 2

NPL of countries under study over the examined period



mark 1: Turkey

mark 3: Bulgaria

mark 5: Fyrom

mark 7: Croatia

mark 2: Romania

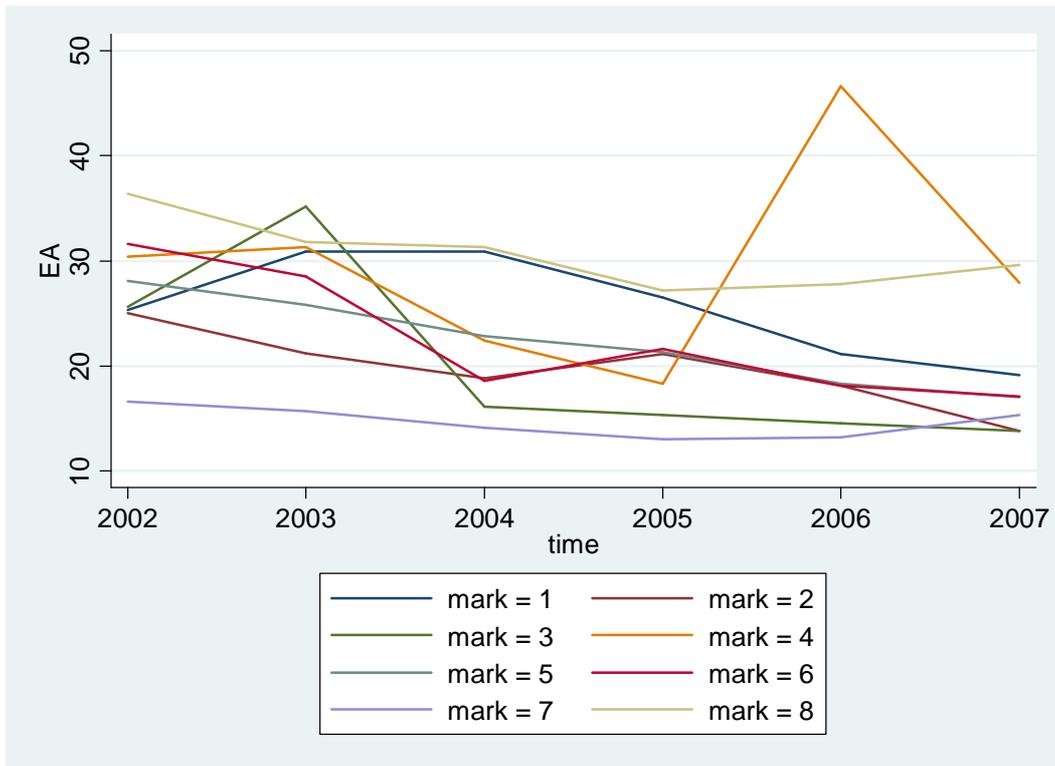
mark 4: Serbia

mark 6: Albania

mark 8: Moldova

FIGURE 3

EA of countries under study over the examined period



mark 1: Turkey

mark 3: Bulgaria

mark 5: Fyrom

mark 7: Croatia

mark 2: Romania

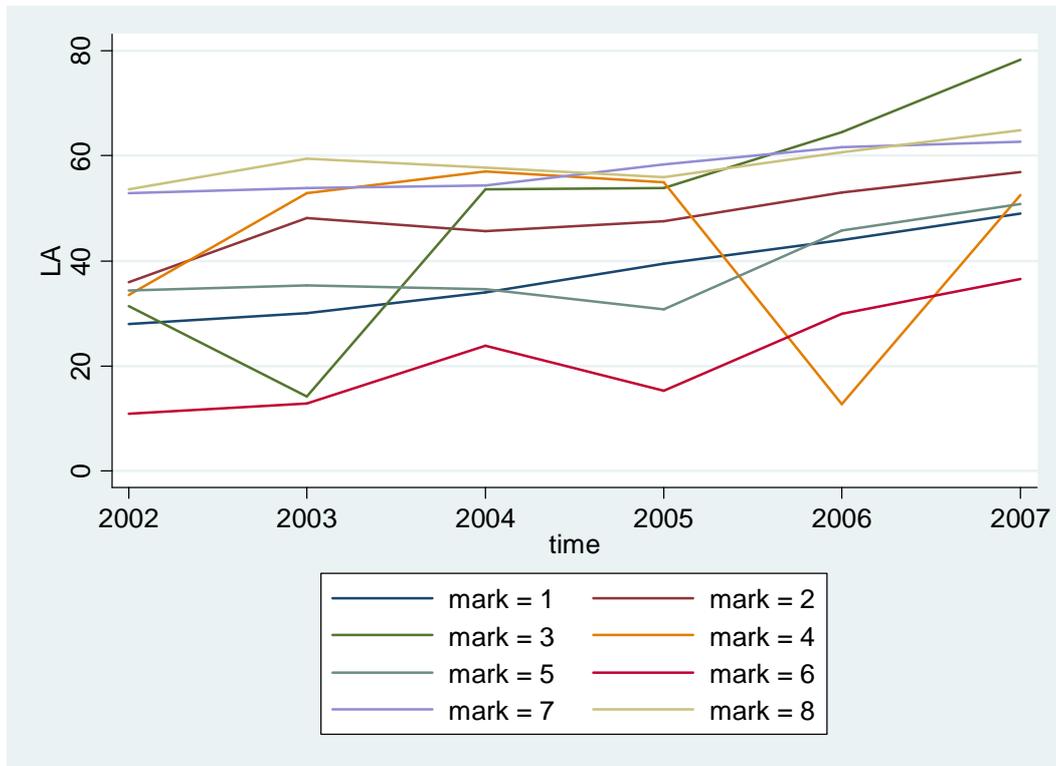
mark 4: Serbia

mark 6: Albania

mark 8: Moldova

FIGURE 4

LA of countries under study over the examined period



mark 1: Turkey

mark 3: Bulgaria

mark 5: Fyrom

mark 7: Croatia

mark 2: Romania

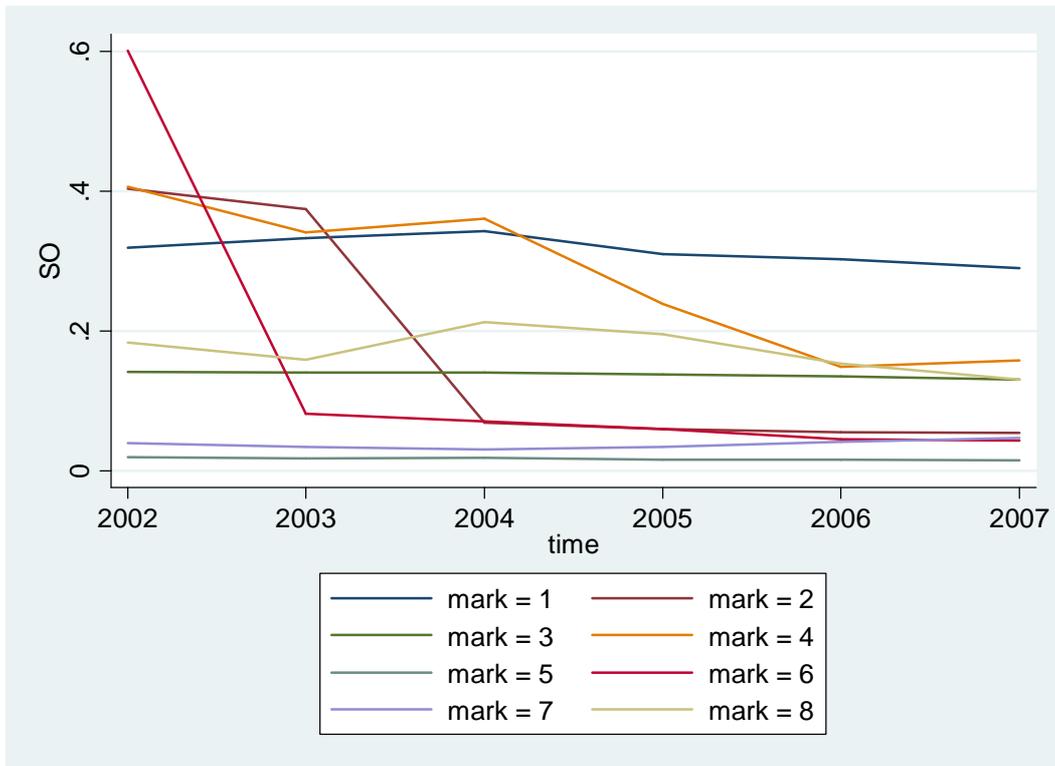
mark 4: Serbia

mark 6: Albania

mark 8: Moldova

FIGURE 5

SO of countries under study over the examined period



mark 1: Turkey

mark 3: Bulgaria

mark 5: Fyrom

mark 7: Croatia

mark 2: Romania

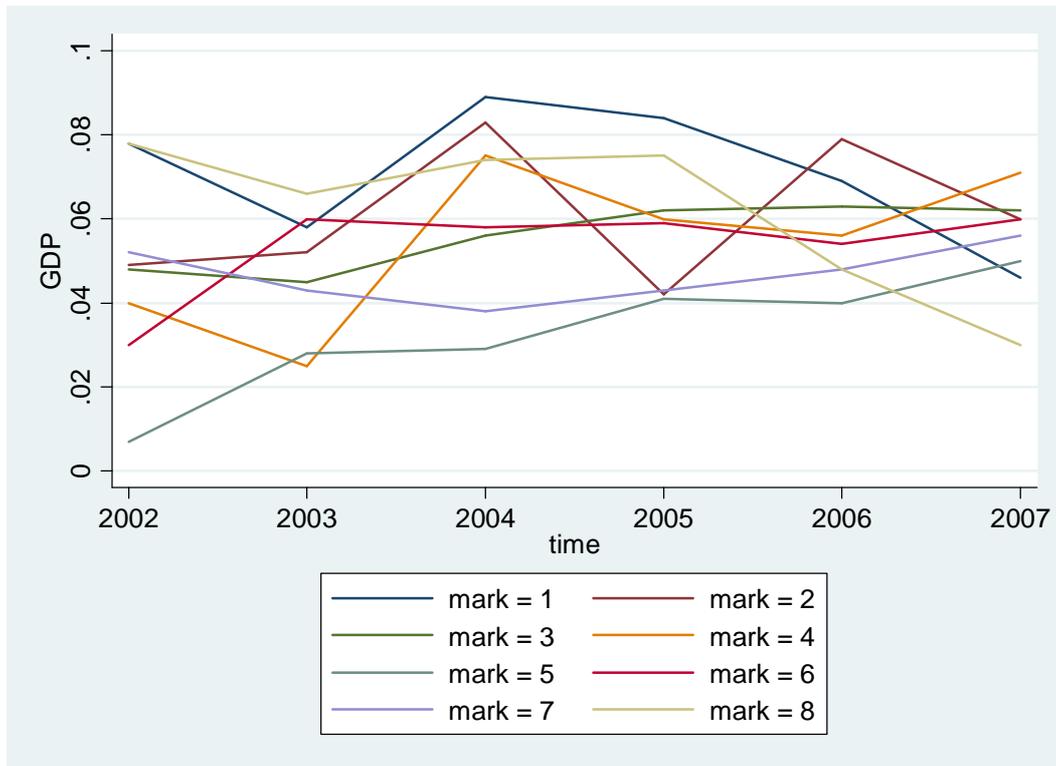
mark 4: Serbia

mark 6: Albania

mark 8: Moldova

FIGURE 6

GDP growth of countries under study over the examined period



mark 1: Turkey

mark 3: Bulgaria

mark 5: FYROM

mark 7: Croatia

mark 2: Romania

mark 4: Serbia

mark 6: Albania

mark 8: Moldova