

Bank Value using Camels Model Evidence from Balkans Banking System

Kyriazopoulos Georgios

Corresponded Author, Accounting and Finance Department

Assistant Professor, University of Western Macedonia

E-mail: kyriazopoulosg@yahoo.com and kyrzog@gmail.com

Kondili Elvis

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Abstract

In September 2008, the global financial crisis erupted and many economies around the world were in recession. The ongoing economic crisis is a major challenge for the financial systems and governments of states. This study investigates and illustrates the impact of the economic crisis on the banking system of all Balkan countries. Of course, normalizing the situation requires first and foremost a restoration of confidence, a key element of which is to ensure that banks are adequately capitalized. Camels is a financial model that helps with his measurements to restore that confidence.

Banks are considered to be the main pillar of the economy, but at the same time they are also characterized as the Achilles' heel. The banking industry has evolved rapidly in recent decades and has shifted from a financial intermediary to a risk manager. Recent developments in the economy have brought banks and their operations into the limelight. The present paper deals with the CAMELS methodology as a system for evaluating banks. This assessment was conducted to examine the progress of the eight Balkan banks from 2009 to 2016. So the subject of this paper is to investigate the solvency of the largest Balkan banks using the CAMELS method. We are looking at eight major - according to their assets - Balkan banks in particular: Greece (Piraeus Bank), Albania (National Commercial Bank or NCB), FYROM (FYROM Bank for Development Promotion or MBDP), Bulgaria (UniCredit Bulbank), Romania (Banca Commercial or BCR), Serbia (Banca Intesa), Croatia (Zagrebacka Banca or ZABA), and Slovenia (Nova Ljubljanska Banka or NLB group) which we compare and evaluate and at the end we classify them according to the camels score.

Keywords: Capital Adequacy, Financial Performance, Banks, CAMELS Model

Jel Classification: G21, G34

1. Introduction

In most Balkan countries, ongoing structural and economic reforms have helped to restore macroeconomic stability and to reduce inflation to single digits. The presence of the major European banks is justified in the Balkans as privatization in the Balkans is already at an advanced stage, with 2/3 of the banking system assets being already controlled by foreign banks. The highest rates of private foreign banks are recorded in Albania, Bulgaria, Romania and FYROM.

Using the CAMELS methodology gives us results and opportunities for each bank compared to other banks in the industry. It also enables them to identify their strengths and weaknesses. The methodology we use is based on International Accounting Standards and we specifically consider CAMELS financial ratios.

In most Balkan countries, ongoing structural and economic reforms have contributed to restoring macroeconomic stability and lowering inflation to single digits. The presence of the major European banks is justified in the Balkans as privatization in the Balkans is already at an advanced stage, with 2/3 of the banking system assets being already controlled by foreign banks. The highest rates of private foreign banks are recorded in Albania, Bulgaria, Romania and FYROM.

Of course, normalizing the situation requires first and foremost a restoration of confidence, a key element of which is to ensure that banks are adequately capitalized. There is a significant sustainability problem, at least from the asset side, which is related both to the losses arising from government debt restructuring and to the particularly unfavorable trends in servicing their loan portfolios.

Systematically rationalizing the management of Non Performing loans will reduce the negative effects of these data on banks' creditworthiness. If the banks' profitability increases and therefore their capital position improves, and even as cash flows increase, the conditions for a larger volume of credit will be created, which in return they will support the economic activity of the firms.

According to Boot and Thakor (1997), the banking system is recognized as the core axis of the financial system, which in turn consists of:

- financial markets
- financial products
- financial institutions

A healthy banking system is characterized by the fact that the majority of banks are solvent and the chances of maintaining their solvency are high. A bank's solvency is reflected in its positive net worth. The positive net worth of a bank results from the difference in the value of assets minus the value of liabilities, based on its balance sheet (Papakitsou, P., 2004, p. 2).

The weakness of the banking system is when the bank fails to cope with one of the risks it faces, followed by a decline in depositors' loyalty to it. This is the main reason for the onset of a crisis. The crisis then spreads to the interbank market and gradually most or all of the country's banking capital is depleted, creating the banking system crisis. Adopting a regulatory framework to ensure the proper functioning of the system and preventing a crisis is necessary as the economic and social costs of a crisis are high. The banking system crisis is completed in three phases: Phase 1 is the creation of banking risks stemming from mismanagement of banks, and bad financial environment. Phase 2 is the manifestation of a banking crisis manifested by a lack of confidence from lenders such as foreign investors and private lenders as well as international organizations. Phase 3 is the spread of the banking crisis that manifests with banking concern and crisis in the financial system and the domestic interbank market (Kassidari, G., 2013, p. 2).

2. Literature Review

Various studies relating to the performance, profitability and efficiency of banks have been conducted by researchers. Sanni (2009) had a look at the 2005 consolidation of banks exercise in Nigeria with a view of finding out the short term effect of increase in the minimum paid-up capital of banks on their performance. After an examination of thirteen banks, Sanni had a mixed result for his selected banks. K. V. N. Prasad and A. A. Chari (2011) carried out a research to evaluate financial performance of both public and private banks' sector in India. In this research they compared the financial performance of the top four banks in India viz., SBI, PNB, ICICI and HDFC and concluded that on overall basis HDFC rated top most position. Nimalathan B. (2008) underlined the comparison of financial performance of banking sector in Bangladesh using CAMELS rating system. Dash and Das (2013)

compared the performance of public sector banks with private/foreign banks under the CAMELS framework. They found that private/foreign banks fared better than public sector banks on most of the CAMELS factors in the study period, and that the two contributing factors for the better performance of private/foreign banks were Management Soundness and Earnings and Profitability.

The Uniform Financial Institutions Rating System (UFIRS) was developed following a proposal by the Federal Financial Institutions Examination Council (FFIEC) in November 1979. The Federal Reserve adopted it first, followed by other US banking organizations, and over time the UFIRS system has been implemented internationally and has become one of the most effective Solvency Assessment and Internal Audit tools of banking institutions (Christopoulos, A., & Dokas, I., 2012, p. 219).

The UFIRS system became widely known through the CAMEL methodology, since the indicators were initially five, then the sensitivity to market changes (S) was added, due to the developments in the banking sector that necessitated its integration in 1997. More specifically, the indicators of CAMELS banks according to Christopoulos & Dokas (2012) are the following:

- **Capital adequacy** = Tier I + Tier II / Weighted assets. The capital adequacy ratio represents the degree to which banks are leveraged and shows the relative proportion of equity and debt used to finance the bank's assets.
- **Asset quality** = Loans in arrears > 90 days - Provisions / Loans. The asset quality ratio evaluates the percentage of bad loans in relation to total loans.
- **Management** = Administration Expenses / Sales. The management ratio measures the quality of management in a bank's profitability by revealing how much profit a bank generates with the money invested by shareholders.
- **Earnings: Profitability:** a) Return on Assets ROA = Net Profit before Taxes & Interest / Average Assets and b) Return on Equity ROE = Net Profit before Taxes & Interest / Equity. The ROA calculates the bank's profitability relative to its assets and therefore informs the bank's overall performance and therefore how well the bank operates. The ROE indicator shows how efficiently a bank uses the equity to generate additional profit. That is, it shows us the wealth of shareholders.
- **Liquidity**, a) Liquidity L1 = Loans / deposits & b) Liquidity L2 = Current assets / Average Assets. The liquidity ratio calculates the percentage of deposits relative to total assets and therefore the risk of liquidity.
- **Sensitivity to market risk** = Total securities / Average Assets. This indicator reflects the degree of dependence of the bank's profitability on fluctuations in interest rates and exchange rates as well as on changes in selling and buying prices.

These ratios provide the bank with a rating for its overall performance and six sub-ratings for each ratio category separately. Each index is characterized by a specific weighting, according to which the overall situation of the bank concerned is formed.

Table 1: Ratio of camels model

Evaluation Elements	C	A	M	E	L	S
Ratios	(Tier I + Tier II) / Average Assets	(NPLs > 90 days - Provisions) / Loans	Administration Expenses / Sales	ROE & ROA	L1 & L2	Total securities / Average. Assets
Gravity Factor	3	2	1,5	3	1,5	1

Source: Christopoulos, GA & Dhokas, G.I. (2012)

For each risk there are the corresponding CAMELS indexes, which give a score of 1 to 5. At the end we weighted sums and the bank is overall scored. A timely comparison of bank ratings gives us an indication of the direction of change over the years and informs us how the financial position and performance of the company improved, deteriorated or remained stable. These indices provide the bank

with a score for its overall performance and six individual ratings for each index category separately. Each index is characterized by a specific weighting according to which the overall situation of the bank in question is formed (Christopoulos A., & Dokas, I., 2012). CAMELS is a method that is used to analyze performance of the banks. It was generated by regulatory authorities in the United States in 1970s. The main purpose of this analysis is to control, supervise and follow performance of the banks. In addition to this situation, this analysis also helps to understand whether banks adopt related laws and regulations and create an effective internal control system. Hence, by using this analysis, it will be possible to define any problems at an early stage (Dinçer, et. al, 2011).

Capital Adequacy indicates whether the bank has enough capital to absorb unexpected losses. It is required to maintain depositors' confidence and preventing the bank from going bankrupt. In the standard CAMELS framework, capital adequacy focuses on the total risk weighted capital intended to protect the depositors from the potential shocks of losses that a bank might incur. It is assessed according to: the volume of risk assets, the volume of marginal and inferior assets, bank growth experience, plans, and prospects; and the strength of management in relation to all the above factors (Sundarajan and Errico, 2002).

Scientific studies on performance analysis using CAMELS method in banking spotlighted satisfactory clues linking the bank performance and credit rating. Notwithstanding this poor banking performance has been also attached to lower earnings ratio, capital adequacy problems, poor management systems and unsatisfactory liquidity levels. As a successful and useful way of measuring the bank performance, the CAMELS method becomes a pioneering tool to assess the level of sensitivity to market risk. Moreover, the possible bankruptcies in banking system such as Lehman Brothers could be prevented by using CAMELS method and financial stress in market could be measured in such a satisfactory way. In the last five years, the performance measurement and stress tests practices using CAMELS methods in banking industry in the USA and the other advanced economies became contributory factors for stability and control in banking system. (Yuksel S., Dincer H., and Hacıoglu U., 2015)

3. Methodology

Based on the works of John H. Rogers (2007), John Goddard, et al (2007) and by collecting data from the Balkan Banks that we examine the present study describes the performance environment of them established in Balkan Countries from years 2009-2016.

This methodology was originally applied in North America for the purpose of evaluating US commercial banks and to date is the most basic assessment tool for the ranking of approximately 8,500 US banks. Historically, on August 15, 1994, the CAMELS indicators replaced the MACRO¹ system, which had been implemented by the audit services from 1984 to 1994.

The use of the CAMELS methodology, in addition to its effect on the capabilities of each bank compared to other banks in the sector, enables the bank to identify the strengths and weaknesses of the bank. In this case, the banks in question can be ranked not only by their overall picture, but also by each individual index, eg. banks' ranking of their capital adequacy, their liquidity, their profitability etc. According to Christopoulos (2012) the analysis of CAMELS indicators is based on data collected mainly from the following sources of information:

- Annual usage results
- Annual activity report
- Supervisory reports submitted by banks to the central bank
- Reports by the Internal Audit Service of banks and chartered auditors that audit their financial statements

¹ MACRO is the acronym for the word Management, Asset quality, Capital adequacy, Risk management and Operating results. The methodology was the same as for CAMELS, with a score of 1 representing the best organization and a score of 5 the worst.

The CAMELS indices provide for each bank a Composite Rating score and six individual ratings for each ratio category separately. On the basis of a weighting for each of the six indexes, the overall situation of the bank concerned is formed. The rating scale ranges from 1 to 5. Rating 1 is the highest return, reflecting the excellent performance and the existence of adequate risk management mechanisms that meet both the size of the banking institution and the complexity of its operations. Respectively, 5 corresponds to the lowest possible score and is considered to be an indication of low performance that requires special attention and management. Consequently, the banks with the lowest scores per year are considered to perform best (Mehta, Dileep & Fung, Hung-Gay, 2004).

CAMELS Ratios allow the analyst to identify potential factors, if any, that can contribute to a bank's bankruptcy. The most important indicator, however, is the ability to allow the analyst to predict failure and take immediate action to avoid a massive run on bank deposits that would lead to its collapse (Sapoutzoglou C., & Pentotis Ch., 2009).

Completion of the bank evaluation should be based on common methodology, common criteria and common elements, both at national, regional or international level. The methodology used is based on international accounting standards and examines specific financial ratios (CAMELS) as well as qualitative characteristics of each banking institution. The qualitative characteristics that can be used are the number and distribution of bank branches, management (private or public), foreign investment etc. According to Christopoulos & Dokas (2012) the six (6) risk areas banks face and for which a number of ratios are calculated:

1. Capital risk (**Capital adequacy** = Tier I + Tier II / Weighted assets)
2. Asset risk: credit risk and concentration risk (**Asset quality** = Loans in arrears > 90 days - Provisions / Loans)
3. Administration risk: ineffective management, bad reputation, operational risk and illegal activities, compliance (**Management** = Administration Expenses / Sales)
4. Profitability risk (**Earnings**: Profitability: a) Return on Assets ROA = Net Profit before Taxes & Interest / Average Assets and b) Return on Equity ROE = Net Profit before Taxes & Interest / Equity).
5. Liquidity risk (**Liquidity**: a) Liquidity L1 = Loans / deposits & b) Liquidity L2 = Current assets / Average Assets).
6. Market risk: interest rate, foreign exchange and operating risk (**Sensitivity to market risk** = Total securities / Average Assets).

In the table 2 we give analytical informations about CAMELS Model cumulatively.

Table 2: Explanation of CAMELS Model

Capital adequacy	<ul style="list-style-type: none"> • The level and quality of capital and the overall financial condition of the institution • The ability of management to address emerging needs of additional capital • Balance-sheet composition
Asset quality	<ul style="list-style-type: none"> • The adequacy of underwriting standards • The level, severity, and trend of problem loans • The adequacy of the allowance for loan losses • The diversification and quality of the loan and investment portfolio • The adequacy of loan and investment policies, procedures, and practices • The adequacy of internal controls
Management	<ul style="list-style-type: none"> • The capability of the board of directors and management to identify, measure, monitor, and control the risks of an institution's activities • The level and quality of oversight and support of all institution activities by the board of directors and management • The accuracy and timeliness of management information and risk-monitoring systems • Management depth and succession • Reasonableness of compensation policies and avoidance of self-dealing
Earnings	<ul style="list-style-type: none"> • The level, trend, and stability of earnings • The quality and sources of earnings
Liquidity	<ul style="list-style-type: none"> • The adequacy of liquidity sources compared to present and future needs • The availability of assets that can be converted to cash without undue loss • The trend and stability of deposits • Access to money markets and other sources of liquidity
Sensitivity to market risk	<ul style="list-style-type: none"> • The sensitivity of earnings or economic value to adverse changes in interest rates, foreign exchange rates, commodity prices, or equity prices • The ability of management to identify, measure, monitor, and control exposure to market risk given the institution's size and complexity
Banks are rated on a scale from 1 (best) to 5 (worst) for each rating category. In addition, a composite rating is formed based on the six component ratings.	

Source: Department of Supervision, FDIC, *Manual of Exam Policies*.

In conclusion, a bank with a CAMELS of between 1 and 2 is considered a high quality institution. On the other hand, a bank with a CAMELS of 3 to 5 is considered to be below the level of successful institutions (less than satisfactory). But to reach the right conclusions, the results of all six ratios need to be considered together, a time-lapse analysis for each bank, both on a per-index basis and on the basis of the CAMELS score. Only in this way will the supervisory authority or analyst be able to draw correct conclusions about the strengths and weaknesses of each bank (Christopoulos & Dokas, 2012).

4. Results

According to the article by Alina Hyz & Grigorios Gikas, (2015) we gave each bank a score on a scale from one (best) to five (worst) for each factor. We later calculated the weighted average CAMELS score. To calculate the weighted average CAMELS rating, we use the CAMELS rating data, in accordance with the Grand Banking Final Rules, with the following standard weights: 20% Capital Adequacy, 20% Quality, 20% Management, 10% Profit, Cash % and sensitivity to market risk 10%. As a result, the CAMELS ratio is obtained as follows:

$$\text{CAMELS} = 0,20 \times \text{CAR} + 0,20 \times \text{A} + 0,20 \times \text{M} + 0,10 \times (\text{ROA} + \text{ROE}) / 2 + 0,20 \times (\text{L1} + \text{L2}) / 2 + 0,10 \times \text{S}$$

The following Table 3 shows the definition of the CAMELS score.

Table 3: Classification ratio of CAMELS scores

CAMELS	RANKING				
	1	2	3	4	5
Capital Adequacy	> 14%	11-13,99%	7-10,99%	4-6,99%	<3,99%
Asset Quality	< 1,5%	< 3,5-1,51%	< 7-3,51%	< 9,5-7,1%	> 9,51%
Management	< 0,011	0,025-0,012	0,038-0,026	0,049-0,039	> 0,050
Profitability ROA & ROE	> 1,25%	0,9-1,24%	0,35-0,89%	0,25-0,34%	< 0,24%
	> 21%	15-20,99%	10-14,99%	5-9,99%	< 4,99%
Liquidity L1 & L2	≤ 0,55	0,62-0,056	0,68-0,63	0,80-0,69	≥ 0,81
	≥ 0,50	0,45-0,49	0,38-0,44	0,33-0,37	≤ 0,32
Sensitivity to Market Risk	≤ 0,20	0,30-0,21	0,40-0,31	0,49-0,41	≥ 0,50

Source: Babar and Zeb (2011)

In the table 4 below we have calculate the Capital Adequacy Ratio from years 2009 to 2016 and according to this calculation we present the ranking of the Balkan banks.

Table 4: Capital Adequacy Ratio

Banks		2009	2010	2011	2012	2013	2014	2015	2016
1	Piraeus Bank Rate	14,01 1	16,58 1	-26,44 5	-31,29 5	9,77 3	11,19 3	7,77 4	7,29 4
2	NCB Rate	13,15 2	11,66 2	12,49 2	11,68 2	11,44 2	10,16 3	8,30 3	7,63 3
3	MBDP Rate	1,14 5	2,77 5	4,20 4	5,06 4	5,63 4	5,71 4	6,15 4	5,03 4
4	UniCredit Bulbank Rate	6,02 4	5,32 4	4,92 4	5,05 4	5,22 4	5,79 4	6,07 4	5,95 4
5	BCR Rate	9,51 3	9,40 3	9,17 3	9,77 3	7,99 3	11,63 2	9,61 3	8,92 3
6	Banca Intesa Rate	5,18 4	5,27 4	3,88 5	3,59 5	3,31 5	3,49 5	3,26 5	3,44 5
7	ZABA Rate	5,85 4	6,00 4	5,85 4	5,64 4	5,80 4	5,37 4	6,51 4	5,86 4
8	NLB Rate	14,75 1	16,34 1	15,48 1	11,52 2	8,82 3	7,70 3	7,15 3	6,89 4

Source: Author's Calculations from Published Financial Statements of the Balkan banks

From the above results according to the consolidated balance sheets of the banks we can see that the National Commercial Bank of Albania and the Slovenian NLB are the best banks with the best capital adequacy. In fact, from 2009 to 2011, the bank of Slovenia shows the largest share compared to the other banks and it seems that it has not been affected by the financial crisis yet. During 2011 and 2012 we see a decrease in the banks' capital and in particular, the Piraeus Bank index where in 2011 it declined to -26.44 and to -31.29 in 2012. It should be mentioned here that the advance received from the Financial Stability Fund under its capitalization had not been accounted for in Equity until the end of 2012 and therefore we had negative Equity. From 2013 onwards we observe an improvement in the results of Piraeus Bank, which has probably resulted from the additional recapitalization it received as one of the four systemic banks in Greece to cover the inflated provisions and the non-performing loans. In the table 5 below we have calculated the Assets Quality Ratio from years 2009 to 2016 and according to this calculation we present the ranking of the Balkan banks.

Table 5: Asset Quality Ratio

Banks		2009	2010	2011	2012	2013	2014	2015	2016
1	Piraeus Bank Rate	2,57 2	3,67 3	7,23 4	11,78 5	18,06 5	21,70 5	25,68 5	25,42 5
2	NCB Rate	1,99 2	1,87 2	1,70 2	1,85 2	2,61 3	2,49 2	2,25 2	3,36 3
3	MBDP Rate	5,24 3	2,41 2	1,42 1	1,40 1	1,44 1	1,96 2	1,26 1	0,01 1
4	UniCredit Bulbank Rate	4,11 3	5,94 3	6,50 3	6,82 3	8,38 4	7,69 4	8,49 4	7,64 4
5	BCR Rate	7,38 4	9,27 4	10,44 5	15,69 5	19,33 5	19,46 5	15,58 5	10,01 5
6	Banca Intesa Rate	7,16 4	5,86 3	5,79 3	6,38 3	7,56 4	8,17 4	8,19 4	7,01 3
7	ZABA Rate	4,45 3	5,07 3	5,43 3	6,41 3	8,00 4	8,68 4	9,18 4	9,58 5
8	NLB Rate	6,14 3	8,57 4	12,07 5	16,21 5	19,14 5	19,24 5	15,06 5	10,95 5

Source: Author's Calculations from Published Financial Statements of the Balkan banks

We want the Asset Quality Ratio to be as low as possible, which means that forecasts for delays are relatively close to those that result. In the table above we observe an unfavorable trend in the asset quality index for most Balkan banks from 2011 onwards. We understand that there is a big problem of repaying loans. The current financial crisis and the feeling of uncertainty make it difficult for banks to consistently cover their debt obligations. This results in a deterioration in the quality of the loan portfolio. The number of 'red' loans is growing very rapidly. In general, it seems that the situation for banks is not changing, as it is getting worse. Since 2014, Romania's BCR Bank and Slovenia's NLB have significantly improved the index, although the ratio remains at high levels. Therefore banks with a high asset quality index have a lot of debt and are considered to have a poor quality portfolio or alternatively this bank is investing in junk bonds. In this case the bank's assets are considered to be of poor quality. Piraeus Bank is in the worst position of all banks. Since 2013, efforts have been made to regulate non-performing loans and to settle arrears. Piraeus Bank, Romania's BCR Bank and Slovenia's NLB appear to be making the most of this effort. In terms of asset quality, however, FYROM's MBDP Bank is ahead, with Albania's NCB Bank making very little difference. The other banks, as mentioned above, are in a relatively inappropriate or even inappropriate zone.

In the table 6 below we have calculated the Management Quality Ratio from years 2009 to 2016 and according to this calculation we present the ranking of the Balkan banks.

Table 6: Management Quality Ratio

Banks		2009	2010	2011	2012	2013	2014	2015	2016
1	Piraeus Bank Rate	0,004 1	-0,007 5	-0,171 5	-0,007 5	0,034 3	-0,030 5	-0,026 5	-0,002 5
2	NCB Rate	0,025 2	0,041 4	0,021 2	0,045 4	0,029 3	0,035 3	0,049 4	0,040 4
3	MBDP Rate	0,018 2	0,022 2	0,011 1	0,006 1	0,009 1	0,008 1	0,009 1	0,007 1
4	UniCredit Bulbank Rate	0,026 3	0,017 2	0,022 2	0,022 2	0,014 2	0,018 2	0,031 3	0,031 3
5	BCR Rate	0,021 2	0,009 1	-0,0002 5	-0,023 5	0,013 2	-0,062 5	0,025 2	0,026 3
6	Banca Intesa Rate	0,031 3	0,029 3	0,036 3	0,034 3	0,031 3	0,018 2	0,027 3	0,029 3

		2009	2010	2011	2012	2013	2014	2015	2016
7	ZABA Rate	0,016 2	0,016 2	0,015 2	0,013 2	0,008 1	0,011 1	-0,001 5	0,016 2
8	NLB Rate	-0,004 5	-0,015 5	-0,022 5	-0,020 5	-0,152 5	0,011 1	0,010 1	0,015 2

Source: Author's Calculations from Published Financial Statements of the Balkan banks

The calculation of Management Quality Ratio reveals how much profit a bank generates with the money invested by shareholders. Piraeus Bank has been deteriorating since 2010 and moving to the same levels and years, with the exception of 2013 where we observe a slight improvement but the management is less than satisfactory. Specifically, this negative development of Piraeus Bank and the Slovenian NLB in 2009-2013, and the Romanian BCR in 2011, 2012, 2014 is mainly due to the increase in overdue loans and the non-issuance of new loans. The result was a reduction in interest income. At this point, the quality of management of these banks is lagging behind and immediate action is needed to replace management. FYROM's MBDP Bank shows better management quality than the other banks, followed by Croatia's ZABA Bank, followed by Unicredit Bulbank and the latest being Slovenia's NLB Bank which seems to be having a big problem in this regard, and the Piraeus Bank of Greece, which pioneered acquisitions and mergers during the years of the financial crisis.

In the table 7 below we have calculated the Earnings - a) Profitability Ratio ROA from years 2009 to 2016 and according to this calculation we present the ranking of the Balkan banks.

Table 7: Earnings - a) Profitability Ratio ROA

	Banks	2009	2010	2011	2012	2013	2014	2015	2016
1	Piraeus Bank Rate	0,26 4	-0,51 5	-12,87 5	-0,53 5	2,86 1	-2,42 5	-2,06 5	-0,15 5
2	NCB Rate	1,04 2	1,69 1	1,02 2	2,06 1	1,12 2	1,41 1	2,13 1	1,87 1
3	MBDP Rate	1,60 1	1,85 1	1,03 2	0,54 3	0,81 3	0,71 3	0,74 3	0,61 3
4	UniCredit Bulbank Rate	2,27 1	1,49 1	1,91 1	1,97 1	1,33 1	1,57 1	1,58 1	2,04 1
5	BCR Rate	1,52 1	0,68 3	-0,01 5	-1,65 5	0,93 2	-4,07 5	1,56 1	1,37 1
6	Banca Intesa Rate	1,95 1	2,12 1	2,44 1	2,30 1	2,07 1	1,34 1	1,81 1	1,73 1
7	ZABA Rate	1,29 1	1,26 1	1,25 1	1,05 2	0,62 3	0,95 2	-0,11 5	1,31 1
8	NLB Rate	-0,31 5	-1,17 5	-1,72 5	-1,62 5	-11,42 5	0,83 3	0,70 3	1,01 1

Source: Author's Calculations from Published Financial Statements of the Balkan banks

The ROA indicator evaluates the bank's profitability relative to its assets and therefore informs the bank's overall performance and therefore how well a bank operates. We note that in most banks the ROA is moving at positive levels, but things are different for three banks. Piraeus Bank, where it starts its negative trend from 2010 to 2016, with the exception of 2013 where it has the highest ROA rate of 2.86% overall from all the banks we are considering. The change in the profitability ratio is probably due to the acquisitions and mergers that took place in 2013 and is mainly due to the absorption of the Agricultural Bank of Greece (ATE) and the domestic branches of the Cypriot banks showing great value. Also, Slovenia's NLB Bank starts the negative trend from 2009 to 2013 and Romania's BCR Bank performs relatively well, showing only three years with a negative index. Croatia's ZABA Bank also shows a negative ratio only in 2015 due to the negative income presented that year. Banca Intesa,

Serbia, has the best ROA Ratio. Next comes Bulgaria's UniCredit Bulbank which also has very good ROA Ratio. Albania's NCB have a satisfactory ROA Ratio.

In the table 8 below we have calculated the Earnings - b) Profitability Ratio ROE from years 2009 to 2016 and according to this calculation we present the ranking of the Balkan banks.

Table 8: Earnings - b) Profitability Ratio ROE

Banks		2009	2010	2011	2012	2013	2014	2015	2016
1	Piraeus Bank Rate	3,93 5	-9,00 5	327,53 ² 5	16,19 5	30,80 1	-29,54 5	-18,05 5	-1,29 5
2	NCB Rate	14,70 3	21,46 1	13,85 3	26,10 1	13,96 3	15,71 2	19,78 2	16,13 2
3	MBDP Rate	3,42 5	7,01 4	5,37 4	3,28 5	5,38 4	4,81 5	5,31 4	3,65 5
4	UniCredit Bulbank Rate	15,96 2	9,42 4	11,34 3	11,90 3	8,28 4	10,67 3	14,90 3	14,17 3
5	BCR Rate	15,97 2	7,08 4	-0,13 5	-17,80 5	8,33 4	-51,03 5	16,52 2	13,65 3
6	Banca Intesa Rate	12,08 3	13,30 3	11,93 3	10,54 3	8,93 4	6,01 4	7,70 4	7,69 4
7	ZABA Rate	8,84 4	8,83 4	8,54 4	6,95 4	4,24 5	6,05 4	-0,87 5	9,03 4
8	NLB Rate	-4,88 5	-20,31 5	-28,41 5	-20,28 5	-112,24 5	7,19 4	5,69 4	7,99 4

Source: Author's Calculations from Published Financial Statements of the Balkan banks

Table above shows a variation in ROE values across most Balkan banks. The ratio values at Piraeus Bank in 2009 are positive and since 2010 prices have been mostly negative except for 2013. The PSI program has negatively affected the IT and subsequently all the financial institutions in Greece, where decrease in interest income. Also bad in this category are Slovenia's NLB Bank and FYROM's MBDP. This situation is ringing the alarm for a direct support to banks' profitability to avoid bankruptcy. Albania's NCB Bank is the best and most powerful bank, which uses its funds better and more efficiently to create additional profitability. This significantly increases the wealth of shareholders. The next two relatively good banks are Bulgaria's UniCredit Bulbank and Serbia's Banca Intesa, which are in dire need of improving their profitability. Romania's BCR is uptrend in the index. It starts well in 2009, then gets worse and improves in the last two years.

In the table 9 below we have calculated the Liquidity Ability Ratio a) L1 = Loans / Deposits from years 2009 to 2016 and according to this calculation we present the ranking of the Balkan banks.

Table 9: Liquidity Ability Ratio a) L1 = Loans / Deposits

Banks		2009	2010	2011	2012	2013	2014	2015	2016
1	Piraeus Bank Rate	0,87 5	0,79 4	0,79 4	0,73 4	0,94 5	0,93 5	0,92 5	0,96 5
2	NCB Rate	0,44 1	0,46 1	0,52 1	0,50 1	0,42 1	0,45 1	0,50 1	0,53 1
3	MBDP Rate	1,65 5	1,13 5	1,11 5	1,09 5	1,05 5	1,01 5	0,96 5	1,03 5
4	UniCredit Bulbank Rate	1,03 5	1,07 5	1,10 5	1,09 5	1,13 5	1,04 5	0,79 4	0,77 4
5	BCR Rate	0,90 5	0,87 5	0,85 5	0,89 5	0,88 5	0,75 4	0,71 4	0,62 2
6	Banca Intesa	0,81	0,92	0,90	0,88	0,89	1,03	0,88	0,80

² In the case of Piraeus Bank in 2011 and 2012 they have net income and equity minus negative and when divided they make a positive sign, but these numbers do not substantially reflect the real situation of the bank.

Banks		2009	2010	2011	2012	2013	2014	2015	2016
	Rate	5	5	5	5	5	5	5	4
7	ZABA	0,94	0,95	0,98	0,97	0,97	1,02	0,99	0,98
	Rate	5	5	5	5	5	5	5	5
8	NLB	1,24	1,31	1,23	1,13	0,98	0,96	0,92	0,87
	Rate	5	5	5	5	5	5	5	5

Source: Author's Calculations from Published Financial Statements of the Balkan banks

In Table 9 above, we see that when the ratio approaches or exceeds Unit 1, deposits fall dramatically in relation to the total number of loans that are higher. Therefore, the ratio indicates the need for the bank to borrow from the interbank market in order to be able to lend. Otherwise, when the ratio is lower than the unit, then the deposits are larger than the loans, so the bank will have good liquidity. We can clearly conclude that the NCB Bank of Albania has the best liquidity position for all the years under consideration compared to the other banks. Piraeus Bank and Romania's BCR Bank appear to follow the Bank of Albania. The Bank of Romania is following an upward trend from 2013 to 2016 where its index is at a very good level. UniCredit Bulbank and Slovenia's NLB bank have been on a bad track since 2009, with the index being above the unit, the last three years improving dramatically. The weakest bank appears to be FYROM's MBDP where the index is permanently above the unit and demonstrates the need for the bank to borrow from the interbank market to be able to lend. In conclusion, the smaller the ratio, the better the liquidity of the bank. It would be desirable for a bank to have indicator L1 under unit (1), which is interpreted as collateral in the case of loans, since deposits are sufficient for lending.

In the table 10 below we have calculated the Liquidity Ability Ratio a) $L1 = \text{Loans} / \text{Deposits}$ from years 2009 to 2016 and according to this calculation we present the ranking of the Balkan banks. The Ratio L2 indicates the degree of (indirect) liquidity of the bank with respect to its current assets, ie its liquid assets. The higher the value of the index, the better the bank's liquidity.

Table 10: Liquidity Ability Ratio b) $L2 = \text{Current assets} / \text{Average Assets}$

Banks		2009	2010	2011	2012	2013	2014	2015	2016
1	Piraeus Bank	0,92	0,95	0,87	1,13	1,19	1,04	1,04	1,02
	Rate	1	1	1	1	1	1	1	1
2	NCB	0,95	0,96	1,02	1,02	0,96	0,94	0,92	0,98
	Rate	1	1	1	1	1	1	1	1
3	MBDP	1,12	1,30	1,19	1,10	1,08	1,03	1,06	0,92
	Rate	1	1	1	1	1	1	1	1
4	UniCredit Bulbank	1,03	1,01	1,06	1,06	1,09	1,13	1,13	1,07
	Rate	1	1	1	1	1	1	1	1
5	BCR	0,97	1,01	1,03	1,04	1,04	1,03	1,06	1,04
	Rate	1	1	1	1	1	1	1	1
6	Banca Intesa	0,82	0,90	0,79	0,86	0,92	1,09	1,04	1,07
	Rate	1	1	2	1	1	1	1	1
7	ZABA	0,98	0,98	1,02	1,00	1,02	1,01	1,03	1,01
	Rate	1	1	1	1	1	1	1	1
8	NLB	1,02	0,96	1,00	0,99	0,99	1,01	1,02	1,03
	Rate	1	1	1	1	1	1	1	1

Source: Author's Calculations from Published Financial Statements of the Balkan banks

From the above table, we observe a relatively steady trend of the ratio for all banks which is interpreted as a comfortable coverage of their liabilities by their immediately liquid assets. Table 10 shows that FYROM's MBDP bank appears to be in a better position than the other banks by 2012. From 2012 to 2013 we see Piraeus Bank ahead and UniCredit Bulbank from 2014 until the end. of Bulgaria. The latest banks seem to be Serbia's Banca Intesa from 2009 to 2013 and Albania's NCB from 2014 onwards.

In the table 9 below we have calculate the Sensitivity to Market Risk Ratio from years 2009 to 2016 and according to this calculation we present the ranking of the Balkan banks. This ratio reflects the performance that is generated overall by the bank's securities portfolio. The aim of the bank's management is to keep the index low so that financial institutions are less susceptible to market risks.

Table 11: Sensitivity to Market Risk Ratio

Banks		2009	2010	2011	2012	2013	2014	2015	2016
1	Piraeus Bank Rate	0,16 1	0,20 1	0,12 1	0,23 2	0,22 2	0,20 1	0,23 2	0,20 1
2	NCB Rate	0,40 3	0,40 3	0,38 3	0,41 4	0,46 4	0,45 4	0,41 4	0,41 4
3	MBDP Rate	N.A. ³ -	N.A. -	N.A. -	N.A. -	N.A. -	N.A. -	N.A. -	0,01 1
4	UniCredit Bulbank Rate	0,08 1	0,08 1	0,08 1	0,09 1	0,09 1	0,12 1	0,14 1	0,17 1
5	BCR Rate	0,09 1	0,14 1	0,19 1	0,21 2	0,23 2	0,27 2	0,28 2	0,31 3
6	Banca Intesa Rate	0,04 1	0,06 1	0,05 1	0,09 1	0,10 1	0,13 1	0,16 1	0,23 2
7	ZABA Rate	0,06 1	0,07 1	0,06 1	0,08 1	0,09 1	0,10 1	0,08 1	0,08 1
8	NLB Rate	0,20 1	0,18 1	0,18 1	0,16 1	0,20 1	0,21 2	0,22 2	0,23 2

Source: Author's Calculations from Published Financial Statements of the Balkan banks

According to Table 11, in the case of the Balkan banks, there is a significant improvement in terms of market risk sensitivity. Figure 7 shows that Croatia's ZABA Bank is in the first place, followed by Bulgaria's UniCredit Bulbank, followed by Banca Intesa of Serbia. Albania's NCB is in the last position with an increased market risk sensitivity index. Therefore, this bank is exposed to market risks due to fluctuations in interest rates and exchange rates. The other banks find that they control the market risk properly or at least the market risk is handled satisfactorily.

The CAMELS methodology enables the financial analyst to examine all the parameters of an organization's financial situation, evaluate, compare and classify them. It also allows for centralized evaluation and conclusions on the overall position of the agency concerned. Capital Adequacy 20%, Assets Quality 20%, Management 20%, Earnings 10%, Liquidity 20%, Sensitivity to Market Risk 10%.

According to the above and after calculations we arrive at the results presented in Table 11. It should be noted that the results came only from the use of the CAMELS methodology and were not combined with other bank valuation methods. In this way, the analyst can have a picture of the situation of the Balkan banking system in the period of economic crisis.

The following procedure for calculating the final CAMELS score is as follows:

$$\text{CAMELS} = 0.20 \times \text{CAR} + 0.20 \times \text{A} + 0.20 \times \text{M} + 0.10 \times [(\text{ROA} + \text{ROE}) / 2] + 0.20 \times [(\text{L1} + \text{L2}) / 2] + 0.10 \times \text{S}$$

Table 12: Aggregate Ratio scoreboard of Camels Model

Banks		2009	2010	2011	2012	2013	2014	2015	2016	Average
1	Piraeus Bank	1,95	2,90	3,90	4,10	3,00	3,80	4,00	4,00	3,46
2	NCB	1,95	2,20	1,95	2,30	2,45	2,35	2,55	2,75	2,31
3	MBDP	2,90	2,65	2,10	2,20	2,15	2,40	2,15	2,20	2,34
4	UniCredit Bulbank	2,85	2,75	2,70	2,70	2,95	2,90	3,00	3,00	2,86

³Not Available, securities prices were not available on MBDR's balance sheets from 2009 to 2015.

Banks		2009	2010	2011	2012	2013	2014	2015	2016	Average
5	BCR	2,65	2,65	3,80	3,90	3,10	3,60	2,85	3,00	3,19
6	Banca Intesa	3,10	2,90	3,20	3,10	3,35	3,15	3,35	3,25	3,17
7	ZABA	2,75	2,75	2,75	2,80	2,90	2,80	3,80	3,15	2,96
8	NLB	3,00	3,20	3,40	3,60	3,80	2,95	2,95	3,25	3,27

Source: Author's Calculations from Published Financial Statements of the Balkan banks

The table 12 above lists all the rankings of all eight Balkan banks that emerged from the analysis of the CAMELS Ratios in the regional tables of the paper. Looking at the cumulative scoreboard of the CAMELS ratios, and in particular the overall average of the scores, we conclude the following: The best bank in the Balkans is the NCB of Albania with a score of 2.31 and the next best bank with a slight difference of 2.34 is the MBDP of FYROM. The third best bank is Bulgaria's UniCredit Bulbank with a score of 2.86. In fourth place is the Croatian ZABA with a rating of 2.96. In fifth place is Serbia's Banca Intesa with a score of 3.17. In sixth place with very little difference from the fifth bank is Romania's BCR with a rating of 3.19. Banks in the last two positions are worse off. At the penultimate position is the Slovenian NLB with a rating of 3.27 and Piraeus Bank with an average rating of 3.46.

Conclusions

This paper presents a model for the economic analysis of eight Balkan banks, namely the CAMELS method. The Basel Committee on Banking Supervision is increasingly concerned with significant loan losses and bank failures since the 1980s. Adding to this is the fact that the financial market has changed dramatically in recent years, which means that the banking system needs to be scrutinized by banks, of which the CAMELS rating model plays a key role in the supervisory process.

The evaluation of the Balkan banks through the CAMELS methodology confirms the above and proves reliable and effective. The survey reveals that the Balkan banks were adequately capitalized in general and did not address capital adequacy issues other than FYROM and Serbia. Banks had a big problem with asset quality and even liquidity. There was no issue of capital adequacy but it was raised later due to the financial crisis and during that time, due to the large deposit run, the difficulty of finding a source of funding, the increase in non-performing loans and the decrease in interest income. Another problem for banks is the quality of risk management. The quality of the management of the Balkan banks has great scope for improvement. There is also a major problem with banks' immediate liquidity, with the exception of Albania's NCB, which seems to have no problem as its deposits are sufficient for lending. That is, deposits are more than loans.

Based on the results, the banking sector in Greece, especially in the Balkans, has to make big moves. The regulation of non-performing loans and the restructuring of many of them in such a way as to enable debtors to repay their loan installments in a timely manner, which would increase banks' commission income and improve bank capital adequacy. Also, with more favorable terms of providing new business and consumer loans, it would probably give new impetus to the economy, promote new investment and entrepreneurship, and cause new deposits to be attracted. A key priority is to regain the trust of the deposit-investing public. In the midst of a crisis this is difficult but necessary. Banking institutions' liquidity needs to be increased. Deposits are the driving force for achieving this goal. Proper and effective Banking Management will help to chart the path to follow in order to cope with the difficult circumstances.

The CAMELS method is a useful tool in the hands of banks 'management, who could use it safely and together with other methods make it an important tool for expanding banks' financial standing and improving their resilience. to the risks. The ability to control and measure the most important operating parameters of credit institutions and at the same time to evaluate financial institutions as a whole is an advantage which, combined with the application of the method and the

flexibility of adjusting the weights according to the prevailing conditions, give the CAMELS methodology. functionality, efficiency and reliability.

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