

**Jadranka Mrsik<sup>1</sup>**  
*UAKS Institute for entrepreneurship and  
leadership development*

SCIENTIFIC REVIEW ARTICLE  
doi:10.5937/ekonomika1802111M  
Received December, 11, 2017  
Accepted: March, 27, 2018

**Goran Vasilev<sup>2</sup>**  
*University American College Skopje, Macedonia*

## EVALUATION OF MACEDONIAN BANKS' CREDIT POLICIES BEFORE AND AFTER THE 2008 CRISIS: A COMPARATIVE STUDY

### Abstract

*The aim of this paper is to evaluate the banks' credit policies in Macedonia in comparison to the developed countries before and after the 2008 crisis. In particular, it assesses the credit policies and whether and how the policies were amended following the global recession. In this regard, we formulate two research questions which we tend to analyze based on the collected data. The research is based on a quantitative approach using interviews with senior and middle credit managers from twenty banks in Macedonia, SEE and USA to analyze the changes in their credit policies. The results provide the following findings: 1) The credit policies of the Macedonian banks are more conservative than those of foreign banks in both observed periods; and 2) The financial crisis impacted the credit policies of all observed banks, yet the impact is stronger within the SEE and the USA banks. The obtained results might be of interest for ongoing improvement of the banks' credit and risk management, as well as for the policy makers to prevent future financial crises.*

**Key words:** credit policy, credit risk, banks, financial crisis

**JEL classification:** G21, G01

## ЕВАЛУАЦИЈА КРЕДИТНЕ ПОЛИТИКЕ МАКЕДОНСКИХ БАНАКА ПРЕ И ПОСЛЕ КРИЗЕ 2008. ГОДИНЕ: КОМПАРАТИВНА СТУДИЈА

### Апстракт

*Циљ овог рада је евалуација кредитне политике банака у Македонији у односу на развијене земље пре и после кризе 2008. године. Посебно се проијењује кредитне политике и да ли су и како су политике измењене након глобалне рецесије. С тим у вези, формулишемо два истраживачка питања која тежимо да анализирамо на основу прикупљених података. Истраживање се заснива на квантитативном приступу користећи интервјуе са вишим и средњим*

<sup>1</sup> jadranka.mrsik@uacs.edu.mk

<sup>2</sup> goran.vasilev@gmail.com

*кредитним менаџерима из двадесет банака у Македонији, ЈИЕ и САД-у да анализирају промене у њиховој кредитној политици. Резултати пружају следеће налазе: 1) кредитна политика македонских банака су конзервативније од страних банака у оба посматрана периода; и 2) Финансијска криза утицала је на кредитне политике свих посматраних банака, али утицај је јачи унутар ЈИЕ и америчких банака. Добијени резултати могу бити од интереса за континуирано побољшање управљања кредитима и ризиком банака, као и за доносиоце политика како би се спречиле будуће финансијске кризе.*

**Кључне речи:** *кредитна политика, кредитни ризик, банке, финансијска криза*

## Introduction

Lead by the need for constant growth of its profit as a major indicator for successfulness of a bank, the banks undertook aggressive policies for the growth of their credit portfolios. According to Stulz (2015) general rule for the bank is to undertake risks to increase shareholders' wealth and the banks which do not undertake risk lose its value. Facing with increased competition on the lending markets, banks were making greater pressure on the officers to sell more credit products. As Jiang et al. (2017) stated, an intensified competition reduces bank profit margins and encourages banks to increase the riskiness of their loan portfolios and to provide nontraditional products and services. The competition can reduce the banks' ability to select enough information about the borrowers' worthiness and to increase the level of credit risk.

The bank credit growth as measure of bank performance is justified by a large literature (Levine and Zervos 1998, Zemel, 2015). In the same time, loan growth is a crude measure of credit risk (Scala, 2012) and excessive growth may lead into financial crisis as it happened with the rapid lending expansion in the US mortgage sector before 2008. During the world economic crisis in 2008 and the post-crisis period, the banking industry suffered one of the biggest damages ever. Industry growth has slowed considerably; the growth rate of assets of the top 1000 banks globally in the post-crisis period remained 2.7%, compared to the double digit growth rates witnessed during the pre-crisis years of 2006 to 2007 and profit before tax has dropped 85.3% or \$667 billion in absolute amount in 2008 (Capgemini, 2012).

The post-crisis period is characterized by stronger regulatory and supervision activities of the banking systems and by higher requirements for capitalization in almost all world countries. In general, Europe has been suffering from a downward spiral since the financial crisis, creating atmosphere of weak or negative economic growth and high levels of non-performing loans for European banks operations. The situation of the US banking sector in the same period is much like the one of the 15 EU countries, for example the declining number of the banks because of failures, consolidation and merging processes. While, before the financial crisis, both US and European banks reported record profit levels, only the US banks are beating those nowadays, while European peers are struggling to sustainably stay above the zero line (Schludbach, 2013). Unlike the banks from developed countries, Central and Eastern Europe (CEE) banks were particularly and severely affected by the crisis.

The Macedonian financial system is bank-dominated and based on a traditional banking model with loan supply as main activity. Filipovska (2017) differentiates the large banks that are part of an international banking group and the small local banks in regard to the risk potential and development opportunities. Macedonian banking sector had lowest effect from the financial crisis (Delova Jolevska and Andovski, 2015). In the years after the financial crisis the rate of non-performing loans kept the level of around 11, 5% and fell to 7.1% during 2016.

The aim of this paper is to examine the evolution of credit policies after the crisis of the Macedonian banks and banks of developed countries (SEE countries and US). We have interviewed high and mid-level credit managers from twenty banks in Macedonia, EU and USA to evaluate their credit policies before and after the financial crisis, based on their own perception. Most of the researchers of the banking sectors mainly analyze the Macedonian banking system in context of the banks from Balkan, South East European countries or neighboring countries. The comparison of the credit policies' development of the Macedonian banks with banks from advanced economies in this paper presents a novelty in the Macedonian banks analysis.

The results of our research demonstrate more aggressive credit policies of SEE and US banks before the 2008 crisis that was remodeling in moderate credit expansion after the crisis. The rest of this article is organized in a following manner. In Section 2, we present the theoretical review of the banks' credit policies. In Section 3 we explain methods. Section 4 describes the results of the analysis. The main findings and conclusions are presented in Section 5.

## Literature review

The banks' interest income as a result of asset transformation continues to be the primary source of profits for most commercial banking companies (DeYoung and Rice, 2004). Since credit composes the largest income-earning asset in the portfolio of most banks, they have to monitor and ensure that firms effectively use resources allocated to them (Allen and Carletti, 2008).

Uppal and Kaur (2009) analyze how banks use their funds to earn the highest income with decreasing expenses so they can be competitive in a growing global competition. According to the risk-return hypothesis, higher loan to asset ratio means higher credit risk exposure which needs to be compensated through higher returns and improved overall profitability.

Skala (2012) considers the loan growth as the most natural part of every bank's activities, especially on developed markets, where the degree of market saturation is high and relatively few decent quality customers are absent from the banking system. She pointed out the differences of developing markets, where bank expansion onto a new clientele may boost credit quality, in case of earlier weak saturation. The experience from the last crises shows profitable banks are more likely to take risk when leverage constraints are less binding and the reason may stem from a better institutional environment with more protection of creditor rights. Thus, this might be an explanation for the most banks affected by the crisis were in advanced economies (Martynova et al, 2015).

Claessens et al (2013) claim that unlike the past global crises when emerging market economies often suffered more than advanced economies did, in the recent

global financial crisis emerging market economies had a shorter recession and a quicker recovery. Similarly, Cottarelli et al. (2005) and Kraft and Jankov (2005) conclude that rapid loan growth on emerging market does not necessarily translate into a higher credit risk and in some cases, may even diminish it.

Kosmidou (2008) defines credit risk as bank asset quality measured through the loan - loss provisions. The loans' provisions indicate higher risk and higher probability of loans to become non-performing, therefore negatively influence the bank profitability (Athanasoglou, Brissimis and Delis, 2008; Demircuc-Kunt and Huizinga, 1999). According to Rajan (1994) the banks are not committed to the rational profit-maximizing rule. Instead, they alter their credit policy to manipulate current earnings by convincing the market in profitability of its lending. They can achieve this with a liberal credit policy that generates up-front fees at the expense of future credit quality. By him the credit cycles may be partially fueled by banks own policies, in this way,

Berger and Udell (2003) offered a hypothesis of loss of institutional memory that may drive a pattern of business lending with deterioration in the ability of a bank to recognize potential loan problems and an easing of credit standards over its own loan cycle. According to this hypothesis, lending institutions may tend to forget the lessons they learned from their problem loans as time passes since their last loan bust. The reason for this loss of institutional memory is explained with the deterioration of the loan officer skills. This on the other hand results in an easing of credit standards as officers become less able to differentiate lower-quality borrowers from higher-quality borrowers. The work of Bouwman and Malmendier (2015), an analysis of the credit inspectors' reports of U.S., confirms the institutional memory hypothesis. Also, in some empirical studies (Malmendier et al., 2011; Chen et al., 2012), an importance of the overconfidence effect influencing the quality of loans granted is stressed.

Within the frame of credit risk management, the banks establish a clear process to approve new credits as well as monitoring existing credits. The internal factors that influence the banks credit risks according to Chilukuri and Rao (2014) are: deficiencies in loan policies, absence of prudential credit concentration limits, inadequately defined lending limits, deficiencies in appraisal of borrowers' financial position, excessive dependence on collaterals and inadequate risk pricing, absence of loan review mechanisms and post sanction surveillance, etc.

## Methodology

We use an interrupted time series (ITS) analysis in combination with qualitative interviews to assess outcomes at baseline before the financial crises (pre-testing phase) and after the financial crises (post-testing phase) to evaluate the long-term effect of the financial crisis on the banks' credit policies. ITS is a robust quasi-experimental design and is most commonly used in implementation science to evaluate the effect of interventions such as quality improvement programs or policy changes. In ITS designs, data are collected before and after the implementation or introduction of an intervention to examine whether the intervention influenced the outcome of interest relative to the underlying secular trend as well as competing non-contemporaneous interventions (Harris et al, 2006; Zhang et al, 2011).

In our ITS study design, data are collected once but for time before (respectively) and after the financial crises (at present) to detect whether the crisis had a significant effect on the banks' credit policies. Since the questioning was provided in 2015 using the same questions for the banks' credit policies before the 2008 crisis and for recent credit policies, we explain our method with ITS. However, because the participants in the interview mainly rely on their memory to identify what was the credit policy of their banks in the past it can reduce the generalizability of the results. As Grimes and Schulz (2002) claim recall bias is commonly believed to be “pervasive in case-control studies” mainly because the human memory is imprecise (p. 249).

We have used a questionnaire as a data collection tool which will enable us to collect the necessary information for evaluating and comparing the credit policies in South East Europe (SEE), USA and Macedonia. We relied on the European Central Bank Questionnaire for bank lending survey for the euro area as a basis for our survey and we adjusted them to our research question and on internal factors that influence the banks credit risks of Chilukuri and Rao (2014). The questionnaire, besides the questions directly related to the credit policy (targets, criteria, decision making, manuals etc.), contains a set of indirect questions for evaluating if the credit policy is restrictive, moderate or aggressive (impact of credit growth and of the non-performing loans on the banks' employees' remuneration). Those questions are used for determining the level of risk appetite between different banks in two observed periods. The questionnaire is comprised by two groups of sixteen identical questions regarding the tested period that is divided into two sub periods: 2004-2008 and after 2008.

The data was provided through online communication with the respondents and the survey was conducted over a period of two months, from September to October 2015. We have contacted 59 respondents, 29 from eight Macedonian banks and 30 from twelve SEE and USA. Eight out of fifteen Macedonian banks were subject of interview, and they are representatives of all the three groups of banks according to their size: big, medium and small. The following Macedonian banks were included in the interview: Alfa bank Skopje, Kapital bank Skopje, Pro Credit bank Skopje, Stopanska bank Skopje, TTK bank Skopje, NLB Tutunska bank Skopje, Halk bank Skopje and Sparkasse bank Macedonia Skopje.

Five banks from United States of America (USA), five banks from new EU Members States and one from Greece were selected mainly through a convenience sampling method joined in a group of the SEE. Convenience sampling also known as availability sampling is a specific type of non-probability sampling method that relies on data collection from population members who are conveniently available to participate in study based on the ability for negotiating access with them through existing contacts (Saunders, 2012).

The banks from SEE and US that were included in this research are: Alpha Bank Gr, National Bank of Greece, Nova Ljubljanska banka Slovenia, Wells Fargo, WI – USA, HCBS USA, Platinum bank USA, Coulee bank USA, Merchants bank USA, Kentbank Croatia, First Investment bank Bulgaria and TBC bank Georgia. All persons involved in the interviews are senior or middle loan managers in the selected banks continuously during the examined period and all have responded on the questionnaires.

The collected data are analyzed by comparing the answers for before and for after the crisis of respondents from Macedonian banks and from foreign banks for evolution

of the credit policies between the periods and the banks.

Research question 1: The credit policies of the Macedonian banks are more conservative than those of foreign banks in both observed periods.

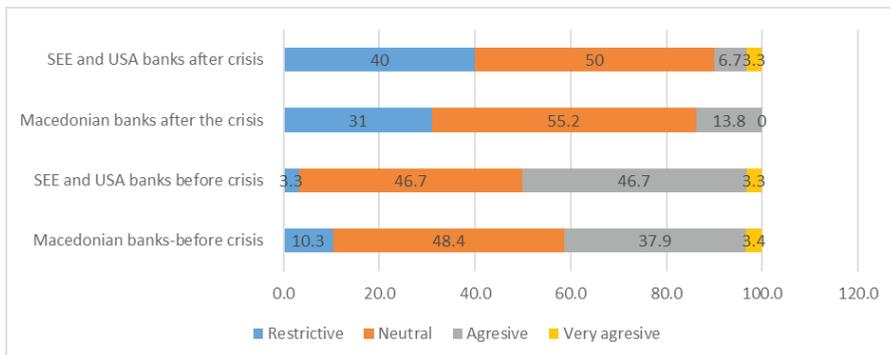
Research question 2: The financial crisis had an impact on the credit policies of all observed banks.

## Empirical Findings

This section presents the main findings of the collected data. We compared the respondents' answers for their banks credit policies before and after the crisis and the answers of the respondents from Macedonian banks and from other banks (SEE and USA). By doing this, we made inferences about the changes in credit policies of the examined banks as a result of the financial crisis.

Figure 1 presents the data on the extent of aggressiveness or conservativeness of the credit policies of the banks. The credit policies of all banks that are subject of our research switched from mostly neutral and aggressive before the crisis to restrictive and neutral after the crisis. The Macedonian banks credit policies have been more moderate than those of foreign banks, in both periods before and after the crisis. The change towards greater restrictiveness was much higher in the SEE and USA banks which can be related to the extent of the financial crises in those countries, given that Macedonia was only moderately hit by the crises.

Figure 1 Credit policy valuation of banks in Macedonia, SEE and USA before and after the crisis

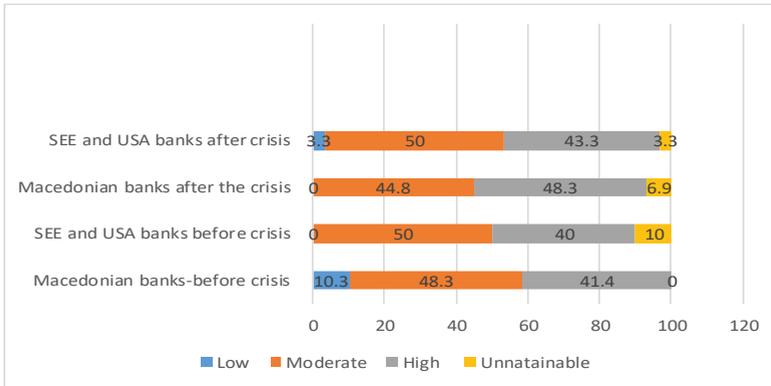


Source: Questionnaire data.

Valuation of credit targets of the Macedonian banks presented in Figure 2 shows increased targets after the crisis and especially for high and unattainable targets. This situation is in line with the moderate credit policies of Macedonian banks in the past and its ability to increase credit appetite after the crisis. Credit targets of foreign banks are mostly moderate and high in pre - and after - crisis with low decreasing of the unattainable in the favor of high and low aggressive targets. There are no significant changes in credit targets after the crisis and the explanation can be found in unchanged amount of lending

in most developed countries (mostly in the SEE).

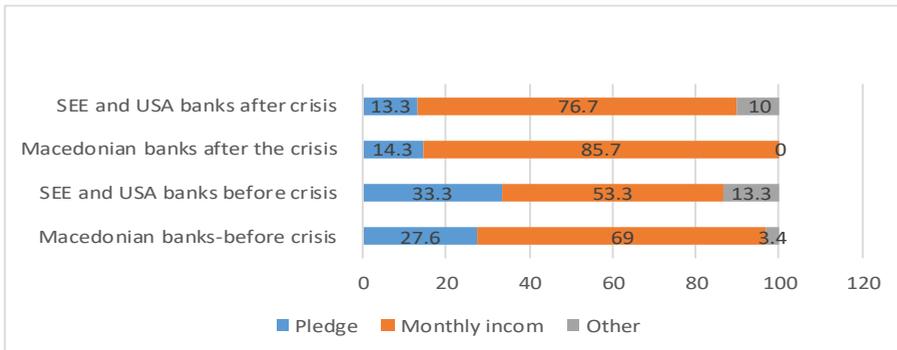
Figure 2 Credit target valuation in banks in Macedonia, SEE and USA before and after the crisis



Source: Questionnaire data.

The main credit criteria for approval of loans in Macedonian banks are financial data for corporate clients and monthly income for retail clients (Figure 3). This holds for both examined periods. The foreign banks have similar structure and trend reaching almost absolute importance of financial data after the crisis. The amended credit policies show the measures undertaken by the banks to prevent the prospective distress in credit portfolios in the future. That is likely related to the relaxed credit standards in USA, mortgage lending that relied mostly on the mortgage instead on the lender ability to repay its loan obligations, which was a key factor in the financial crisis.

Figure 3 The main credit criteria in banks in Macedonia and SEE and USA, before and after the crisis



Source: Questionnaire data.

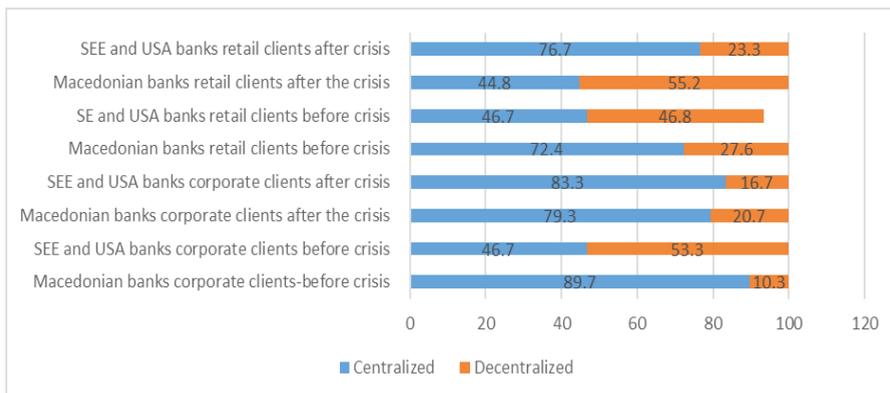
Among the most frequent types of collateral with both groups of banks are real property (more than 75%) and notes payable (17.2% in Macedonian banks and 10% in

foreign banks) while inventories are the least frequent (only 3.3% in both groups).

Both groups of examined banks made more centralized credit decisions for corporate clients in the period after the crisis and it is more significant shift from decentralized credit decisions with the group of SEE and USA banks. Before the crisis, the foreign banks made more decentralized credit decisions that enable fast and higher volume credit decisions for more aggressive lending, and in some circumstances might have caused lower quality of credit portfolio. Making centralized decisions is a way of culture in behavior and economy in Macedonian society that represents limitation for making timely decisions and processing of more activities. This is a conservative way of making decisions by high level authorities that can be characterized with higher competence, quality and responsibility.

The credit decisions for retail clients are mostly centralized (in 72.4% of cases) in Macedonian banks and slightly decentralized (53.3%) in foreign banks. The banks' operation with citizens involves a large number of clients and therefore asks for promptness and higher flexibility. The retail credit portfolio has a lower individual credit volume and more dispersed risk. Despite those characteristics that suggest decentralization, the Macedonian banks remained conservative through centralizing the credit decisions. The more sophisticated statistical base, rating models and tradition that support the decentralization are main elements behind the higher decentralization in credit decision making in foreign banks.

Figure 4 Credit decision for corporate and retail clients in banks in Macedonia and SEE and USA before and after the crisis



Source: Questionnaire data.

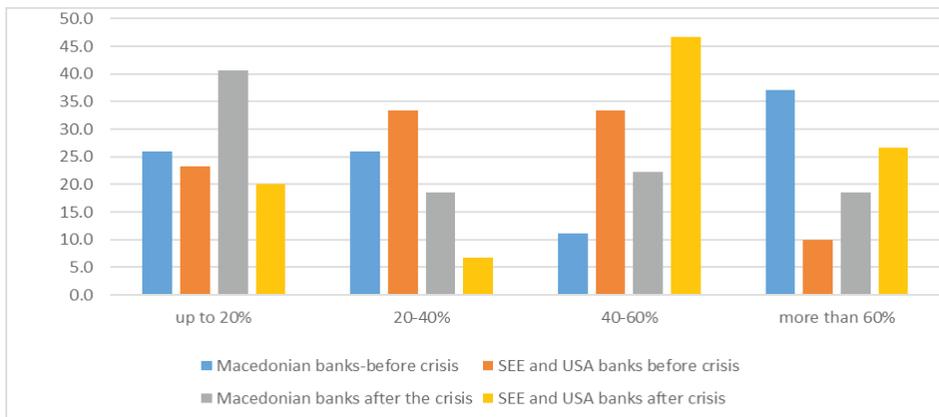
More than 60% of the credit decisions are mostly approved by the credit board in all examined banks before and after the crisis. The credit board decisions were reduced after the crisis in Macedonian banks. In the combination with the previous questions (those related to the level of decentralization of the credit decisions) this could indicate relaxation of the credit policies of the Macedonian banks as reverse trend of foreign banks.

The foreign banks mainly make decisions by system and not by human factor (this has been reported in 40 and 60% of cases, before and after the crisis, respectively). They

have used objective factors in decision making, like scoring model and other software methods. In contrast, the Macedonian banks make decisions mostly with involvement of the human factor which increases the subjectivity in decision making, but decreases deficiency of applying the “one for all” model that do not take in consideration the characteristics of each lender. This is in line with the thesis of making centralized decisions whit human factor impact.

Macedonian banks mostly relied on human factor in making credit decisions and on a high-level management (over 60%) which confirms the previous thesis for higher conservative credit policy of Macedonian banks (Figure 5). In some way, this supplements the previous question. The foreign banks have increased the percentage of credit decisions by the senior managers after the crisis and this witnesses the tightening of credit policies. Macedonian banks faced with lower participation of the senior managers in credit decisions. If this is a result of developing the banking sector and improving the lending process that leads towards the decentralization in credit decisions, it might be seen as a natural process of evolution.

Figure 5 Decisions made by high level management in Macedonian and SEE and USA banks before and after crisis



Source: Questionnaire data.

The credit manuals for corporate lending are stricter with Macedonian banks having more detailed manuals before (65.5%) and after the crisis (79.3%), comparing to more general manuals (53.3%) before the crisis and more detailed manuals (83.3%) after the crisis with foreign banks.

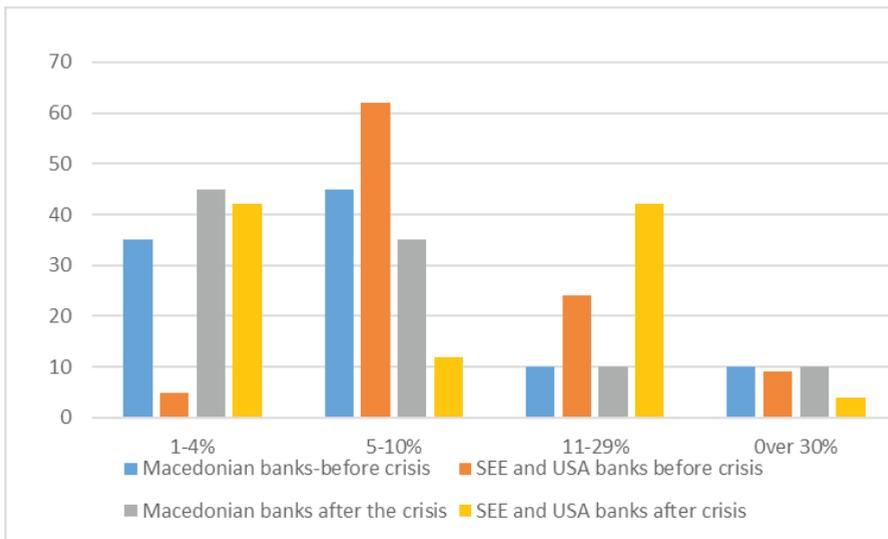
The manuals for retail lending are detailed for all examined banks before and after the crisis, with high 96.6 % with Macedonian banks and 96.7% with foreign banks after the crisis.

All the examined banks use low level of exceptions in loan approving, before and after the crisis. Macedonian banks make comparatively less exceptions. This higher “self-control” of Macedonian banks matches the picture of being more conservative banks, focused on higher quality than on quantity of the credit portfolio.

Results from the answers about the banks non-performing loans presented in

Figure 6 indicate similar percentage of non-performing loans of 1 to 4 percentage of the portfolio with both groups of banks before the crisis. However, the situation is different after the crisis with higher percentage of non-performing loans in group of up to 10% of the portfolio of Macedonian banks and in group of up to 30% of the portfolio of the SEE and the USA banks. This result is in line with evidences that emerging markets suffer less and recovers faster after the 2008 crisis (Claessens et al 2013, Cottarelli et al. 2005, and Kraft and Jankov 2005).

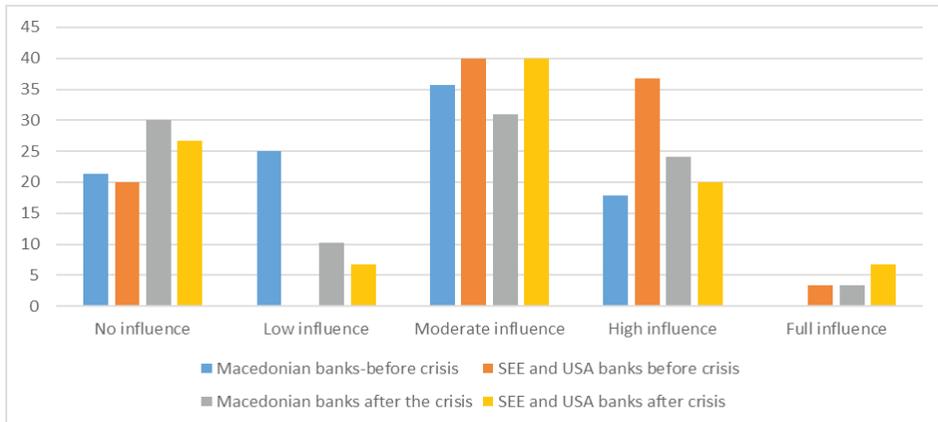
Figure 6 Nonperforming loans in banks in Macedonia and SEE and USA before and after the crisis



Source: Questionnaire data.

Figure 7 presents information on the “stimulus” for credit behaviors of the banks, either conservative or aggressive. As expected, it shows that the employees and the managers in foreign banks are motivated for higher selling / lending. The influence of the bonuses on the level of credit activities is higher with foreign banks (“moderate and high” was evaluated by 77% of respondents). Most of the Macedonian banks haven’t got any or have “low or moderate” level of correlation between the employees’ remuneration and credit growth.

Figure 7 Credit growth and bonuses in banks in Macedonia and in SEE and USA before and after the crisis



Source: Questionnaire data.

The last question correlates the remuneration process with the credit portfolio quality. The foreign banks have “weak to moderate” relation and Macedonian banks “moderate to high” relation in both observed periods. This is in line with previous conclusions that Macedonian banks place higher importance on the quality of credit portfolio on the account of the volume of the portfolio.

Based on the previous analyses we are able to provide an answer to the initial research questions:

Research question 1: *The credit policies of the Macedonian banks are more conservative than those of foreign banks in both observed periods* is confirmed completely by the analysis of answers. The stronger conservatism is recognized in: moderate credit policies before the crisis, lower credit targets, more centralized loan approval, low level of exceptions in loan approval process, conservative credit manuals, lower level of motivation for lending. Increased participation of senior management in loan decision making is one step more toward curbing the excessive lending growth in foreign banks before the crisis. Credit manuals of foreign banks became stricter after the crisis. The question about the loans` delinquency is a proof of the validity of other responses and consequent analysis.

Research question 2: *The financial crisis` impact on the credit policies of all observed banks* is confirmed, as well, but the foreign banks are more impacted than the Macedonian banks. The analyzed data from the questionnaire confirm validity of the research question 2 by indicating stronger development of accurate credit policies in foreign banks after the crisis. Financial crisis modestly influenced the credit policies of Macedonian banks, whereas, foreign banks met with considerable changes in credit policies from the period before the crisis. Foreign banks changed their credit policies from aggressive, before the crisis, to restrictive, after the crisis. They increased the importance of financial data on the account of using only collateral in process of lending decision making. The influence of the bonuses on the level of credit activities with foreign banks decreased from high before the crisis to moderate and low influence after the crisis.

Because of more conservative credit policies, non-performing loans' participation in the portfolio of Macedonian banks increased from mainly 4% before the crisis to 10% after the crisis, unlike of the changes in non-performing loans of SEE and US banks to almost 30% of the portfolio. This cyclical underestimation of the credit risk before the crisis by the banks' managers and the overestimation of credit risk after the crisis is in line with institutional memory hypothesis of Berger and Udell (2004).

## Conclusion

The aim of this paper is to evaluate the banks' credit policies in Macedonia in comparison to the developed countries before and after the 2008 crisis. In particular, it assesses the credit policies and whether and how the policies were amended following the global recession. The research is based on a quantitative approach using interviews with the senior and middle managers in twenty banks in Macedonia, SEE and USA to analyze the changes in their credit policies. The interview is conducted during 2015. The development of the credit policies of the examined banks is assessed based on the perception of the credit officers for the differences in the policies of their banks before and after the crisis.

The study sought to provide answers to two research questions: 1. Are the credit policies of the Macedonian banks more conservative than those of foreign banks in both observed periods and 2. Did the financial crisis impact the credit policies of all observed banks? Both of these questions have been verified by analyzing the received answers from the interviews. Namely, the largest part of the respondents from the SEE and USA banks characterizes their banks credit policies as aggressive before the crisis and that they shifted into slightly more restrictive after the crisis. There was also change in the credit policies of Macedonian banks from “moderate and aggressive” to “moderate and restrictive”. The answers to all other questions confirm the previous thesis. Because of the differences in the aggressiveness of the credit policies of Macedonian banks and SEE and USA banks, the non-performing loans' share of the loan portfolio of Macedonian banks increased from 4% before the crisis to 10% after the crisis, whereas the share of non-performing loans of SEE and USA banks to almost 30% of its loan portfolio. This cyclical underestimation of the credit risk before the crisis by the banks' managers and the overestimation of credit risk after the crisis is in line with institutional memory hypothesis of Berger and Udell (2004).

The general conclusions from this evaluation of the credit policies of the Macedonian and foreign banks is that Macedonian banks had more restrictive credit policies compared to foreign banks in the period before the crisis. The liberal “approach” of credit policies of the foreign banks has worsen their credit portfolios and needed to improve prudence and restrictiveness in their credit policies. From the other side, the Macedonian banks had healthy, safe and moderate restrictive credit policies before the crisis that enabled them to continue without additional restrictive measures and even to liberalize some segments of its lending. The results of our research demonstrate that the more aggressive credit policies of SEE and USA banks before the 2008 crisis were transforming into more prudent policies after the crisis.

## References

- Allen F. and Carletti E. (2012). The Roles of Banks in Financial Systems. <http://fic.wharton.upenn.edu/fic/papers/08/0819.pdf>.
- Athanasoglou, P.P., Brissimis, S.N. & Delis, M.D. (2008). Bank - specific, industry - specific and macroeconomic determinants of bank profitability. *Journal of International Financial Markets, Institutions and Money*, 18 (2): 121-136.
- Berger A.N. and Udell G.F. (2004). The institutional memory hypothesis and the procyclicality of bank lending behavior, „Journal of Financial Intermediation”, p. 458–495
- Bouwman, Christa and Ulrike Malmendier.(2015). “Does a Bank’s History Affect Its Risk Taking Behavior?” *American Economic Review: Papers & Proceedings*,105(5): 1-7.
- Capgemini (2017). Trends in the Global Banking Industry, *Capgemini analysis*, p. 3-4. [https://www.capgemini.com/wp-content/uploads/2017/07/Trends\\_in\\_the\\_Global\\_Banking\\_Industry.pdf](https://www.capgemini.com/wp-content/uploads/2017/07/Trends_in_the_Global_Banking_Industry.pdf)
- Claessens S., Kose A.M., Laeven L. and Valencia F. (2013). Understanding Financial Crises: Causes, Consequences, and Policy Responses. Australian National University. CAMA Working Paper 05/2013
- Chen, C.-P., Chih-W.H, Yi-Hsun L. and Tsung-Hsun L. (2012). The Procyclicality Phenomenon in Bank Lending Behavior: An Empirical Test of Institutional Memory Hypothesis. *Management Review*, 31:117-123.
- Chilukuri S. and Rao K.S. (2014). Effective Credit Approval and Appraisal System: Loan Review Mechanism of Commercial Banks. *International Journal of Innovative Research and Development*. Vol 3 Issue 12: 267-274
- Cottarelli C., Dell’Ariccia G., Vladkova-Hollar I. (2005). Early birds, late risers, and sleeping beauties: Bank credit growth to the private sector in Central and Eastern Europe and in the Balkans, „Journal of Banking and Finance”, p. 83–104.
- Delova Jolevska E. and Andevski I. (2015). Non-performing loans in the banking systems of Serbia, Croatia, and Macedonia: Comparative Analysis. *Ekonomika*. Vol. 61, I-III 2015, № 1, p.115-130
- DeYoung, R., Rice, T. (2004). How do banks make money? The fallacies of fee income. *Federal Reserve Bank of Chicago Economic Perspectives* 40: 34-51.
- Filipovska O. (2017). Identification of the banking business models in the financial development context (The case of the Macedonian banking sector). *Ekonomika*, Vol. 63, VII-IX 2017, No. 3, p.55-65
- Demirguc-Kunt, A. & Huizinga, H. (1999). Determinants of commercial bank interest margins and profitability: Some international evidence, *The World Bank Economic Review*, 13, (2): 379-408.
- Grimes D.A. and Schulz K.F. (2002). Uses and abuses of screening tests. *The Lancet*. Vol 359: 881-884.

- Harris A.D., McGregor J.C., Perencevich E.N., et al.(2006). The use and interpretation of quasi-experimental studies in medical informatics. *J Am Med Inform Assoc* 2006;13:16–23. 3. Wagner AK, Soumerai SB,
- Jiang L, Levine R, and Lin C. (2017). Does competition affect bank risk? <https://www.rhsmith.umd.edu/files/Documents/Departments/Finance/2017/levine.pdf>
- Kosmidou K. (2008). Determinants of banks' profits in Greece during the period of RU integration. *Managerial finance*, 34 (3): 146-159.
- Kraft E., Jankov L. (2005). Does speed kill? Lending booms and their consequences in Croatia, „Journal of Banking and Finance” 29, p. 105–121
- Levine R. and Zervos S. (1998). Stock Markets, Banks, and Economic Growth. *The American Economic Review* Vol. 88, No. 3 (Jun., 1998), pp. 537-558. American Economic Association. <http://www.jstor.org/stable/116848>Malmendier, Ulrike G. T., and Jon Y. (2011). “Overconfidence and Early-life Experiences: The Effect of Managerial Traits on Corporate Financial Policies.” *Journal of Finance*, 66(5): 1687–1733.
- Martynova N., Ratnovski L. and Vlahu R. (2015). Profitability and Risk-Taking IMF Working Paper Research Department Bank O'Connor A. (2010). Government policy, banks' strategies and the financial crisis: Contagion through interconnectedness. *Vie & sciences de l'entreprise*. (3): 185-186.
- Rajan G. R (1994). Why Bank Credit Policies Fluctuate: A Theory and Some Evidence. *The Quarterly Journal of Economics*, Vol. 109, No. 2 (May, 1994), pp. 399-441
- Schlidbach J. (2013) Bank performance in the US and EU. Deutsche Bank research. [https://www.dbresearch.com/PROD/DBR\\_INTERNET\\_ENPROD/PROD000000000320825.pdf](https://www.dbresearch.com/PROD/DBR_INTERNET_ENPROD/PROD000000000320825.pdf)
- Skala D. (2012). Loan growth in banks: Origins and consequences. NR 729 Finansyrynku Finansowe Ubezpieczenia Nr 54. [http://www.wneiz.pl/nauka\\_wneiz/frfu/54-2012/FRFU-54-113.pdf](http://www.wneiz.pl/nauka_wneiz/frfu/54-2012/FRFU-54-113.pdf)
- Stulz, R.M. (2015). Risk-Taking and Risk Management by Banks. *Journal of Applied Corporate Finance*, 27(1): 8-18.
- Uppal, R.K. and Kaur, R. (2009). Cost-Benefit Analysis of Commercial Banks in the Global Age: Strategies for Fund Management. *IUP Journal of Bank Management*, 8 (3/4): 22-36.
- Zemel, M. (2015). The Information Content of Loan Growth in Banks. Available at SSRN: <https://ssrn.com/abstract=2557111>
- Zhang F, Wagner AK, Ross-Degnan D. (2011). Simulation-based power calculation for designing interrupted time series analyses of health policy interventions. *J Clin Epidemiol* 2011; 64:1252-61. [PubMed].