

UNIVERSITY OF LJUBLJANA
FACULTY OF ECONOMICS

MASTER'S THESIS

**THE PHENOMENON OF NON-PERFORMING LOANS AND THE
IMPROVEMENT OF NON-PERFORMING LOANS MANAGEMENT
IN THE SLOVENIAN STATE-OWNED BANKS**

Ljubljana, 17th September, 2018

ANTONIO DIMITROVSKI

AUTHORSHIP STATEMENT

The undersigned Antonio Dimitrovski, a student at the University of Ljubljana, Faculty of Economics, (hereafter: FELU), author of this written final work of studies with the title “The phenomenon of non-performing loans and the improvement of non-performing loans management in the Slovenian state-owned banks”, prepared under supervision of prof. Vlado Dimovski Ph.D.

DECLARE

1. this written final work of studies to be based on the results of my own research;
2. the printed form of this written final work of studies to be identical to its electronic form;
3. the text of this written final work of studies to be language-edited and technically in adherence with the FELU’s Technical Guidelines for Written Works, which means that I cited and / or quoted works and opinions of other authors in this written final work of studies in accordance with the FELU’s Technical Guidelines for Written Works;
4. to be aware of the fact that plagiarism (in written or graphical form) is a criminal offence and can be prosecuted in accordance with the Criminal Code of the Republic of Slovenia;
5. to be aware of the consequences a proven plagiarism charge based on the this written final work could have for my status at the FELU in accordance with the relevant FELU Rules;
6. to have obtained all the necessary permits to use the data and works of other authors which are (in written or graphical form) referred to in this written final work of studies and to have clearly marked them;
7. to have acted in accordance with ethical principles during the preparation of this written final work of studies and to have, where necessary, obtained permission of the Ethics Committee;
8. my consent to use the electronic form of this written final work of studies for the detection of content similarity with other written works, using similarity detection software that is connected with the FELU Study Information System;
9. to transfer to the University of Ljubljana free of charge, non-exclusively, geographically and time-wise unlimited the right of saving this written final work of studies in the electronic form, the right of its reproduction, as well as the right of making this written final work of studies available to the public on the World Wide Web via the Repository of the University of Ljubljana;
10. my consent to publication of my personal data that are included in this written final work of studies and in this declaration, when this written final work of studies is published.

Ljubljana, September 17th, 2018

Author’s signature: _____

TABLE OF CONTENTS

INTRODUCTION	1
1 COMMERCIAL BANKING	3
1.1 Classification of Commercial Banking	4
1.2 Functions	7
1.2.1 Primary functions	7
1.2.2 Secondary functions	10
2 REGULATIONS.....	10
2.1 Bank Regulation Objectives	11
2.2 Different Regulation Acts in United States of America	11
2.3 Dual Banking System	12
2.4 European Banking Supervisory System	12
2.5 The Basel Accords	14
2.5.1 Basel 1	14
2.5.2 Basel 2	16
2.5.3 Basel 3	18
3 NON-PERFORMING LOAN MANAGEMENT	21
3.1 Problem Statement	21
3.2 Credit Risk	24
3.3 Non-Performing Loans	27
3.4 Non-Performing Loan Management and Solutions	30
3.4.1 Enhanced Supervision	32
3.4.2 Insolvency Reform	32
3.4.3 Distressed Debt Market	33
4 RESEARCH METHODOLOGY	33
4.1 Scope, Data Sampling and Data Analysis.....	34
4.2 Model Specification	35
4.3 Research Variables.....	35
4.4 Hypothesis	38
4.5 Results and Discussion	39
5 COMPARING SWEDISH AND SLOVENIAN NON-PERFORMING LOAN MANAGEMENT	42

5.1 Slovenian Banking Sector	42
5.2 Swedish Banking Sector.....	46
CONCLUSION.....	50
REFERENCE LIST	52
APPENDICES	61

LIST OF TABLES

Table 1: 10 largest commercial banks in the world (by total assets)	6
Table 2: Credit Risk Weights under the Standardized Approach	17
Table 3: Basel 3 capital ratios:	19
Table 4: ASF and RSF factors:	21
Table 5: Range of solutions to the NPL problem.....	31
Table 6: Presentation of the independent variables.....	38
Table 7: Top 10 players in the Slovenian banking sector.	42
Table 8: Swedish NPL ratios (2009-2014) and other indicators	48

LIST OF FIGURES

Figure 1: Money market structure	3
Figure 2: Functions of Commercial Banks	7
Figure 3: Lamfalussy framework	13
Figure 4: NPL trend starting to rise after the crisis	23
Figure 5: Risk Management process	25
Figure 6: NPL ratios in Member States as of December 2016.....	28
Figure 7: Bad debt across Europe 2017	29
Figure 8: NPL in state-owned banks vs. foreign-owned banks (2010–2012).....	43
Figure 9: NPL trend in Slovenian banking sector (2008–Q3 2011)	44
Figure 10: NPL trend decreasing	45
Figure 11: Arrears developments	46
Figure 12: Bank profits and Credit Losses 1990–9.....	47
Figure 13: SEB NPLs on the Baltic market	49
Figure 14: Handelsbanken’s Asset Quality (2014–2017)	50

LIST OF APPENDICES

Appendix 1: Povzetek (Summary in Slovene language).....	1
Appendix 2: List of the Swedish and Slovenian banks.....	4

Appendix 3: SPSS Output (Model Summary; ANOVA; Coefficients)	5
Appendix 4: Descriptive Statistics	7
Appendix 5: Correlations matrix.....	8
Appendix 6: Histogram, Normal P-P Plot of Regression Standardized Residual, Scatterplot	11

LIST OF ABBREVIATIONS

ABS CDO - Asset Backed Securities Collateralized Debt Obligation
AMC - Asset Management Company
ASF – Available Stable Funding
AQR – Asset Quality Reviews
ATM – Automated Teller Machines
BAMC – The Bank Assets Management Company
BCBS – Basel Committee on Banking Supervision
BHC – Banking Holding Company
BIS – Bank for International Settlements
CB – Commercial Bank
CEO – Chief Executive Officer
CD – Certificate of Deposit
GDP – Gross Domestic Product
EBA – European Banking Authority
ECB – European Central Bank
EEC – European Economic Community
EU – European Union
FDIC – Federal Deposit Insurance Corporation
FRA – Forward Rate Agreement
HQLA – High Quality Liquid Assets
IMF – International Monetary Fund
IRB – Internal Ratings Based
LCR – Liquidity Coverage Ratio
NCD – Negotiable Certificate of Deposit
NIM – Net Interest Margin
NOW – Negotiable Order of Withdrawal
NSFR – Net Stable Funding Ratio
NPL – Non-Performing Loans
OCC – Office of the Comptroller of the Currency
ROA – Return on Assets
ROE – Return on Equity
RSF – Required Stable Funding

RWA – Risk Weighted Assets
SMEs – Small and Medium Enterprises
SRC – Specific Risk Charge
SSM – Single Supervisory Mechanism
USA – United States of America
VaR – Value at Risk
WB – The World Bank

INTRODUCTION

Non-performing loans were a popular topic during the last 10 years from the early beginning of the economic crisis. The NPL ratio is an indicator for defaults in the financial sector and it measures the credit risk signal. From 2012 until 2016 the NPLs in Slovenia started to decrease with small intensity but still remained high (compared to the other EU countries). They are very high in the constructing sector and small and medium enterprises (SMEs). The state owned banks are having higher NPLs than the foreign-owned. There are many various factors beyond the creating of the non-performing loans which will be analyzed in this written work. One of the most important factors is the organization and credit risk management in the banks.

The master thesis starts with commercial banking insight and continues with the evolution of the banking regulations, explaining the credit risk management and the NPL phenomenon. The main purpose of the thesis is to construct a proper econometric model that would observe the NPLs effect on the bank's performance. In addition, there is an exploration of the Slovenian and Swedish banking sector and their NPL management mechanisms.

The main idea is to analyze and discuss the NPL management in the Slovenian banking sector, and how its segments can be improved. The Slovenian NPL management will be compared with the Swedish-Nordic model (Nordic countries had the lowest level of NPL). The focus is placed on the question "What further with the NPLs?" The establishment of the system-wide bad banks (the AMCs) and sale of the NPL to the secondary market will be also analyzed. The reforms of insolvency frameworks, restructuring of the bad debts and other measures for deleverage of bad loans (in Slovenia and Sweden) will be also a topic of discussion. Different areas of improvement are connected with the NPL puzzle as bank restructuring, bank supervision, secondary distressed markets and insolvency frameworks. It is obvious that the Slovenian banks need improvement in the credit risk management, from semi-effective to full effective, so they can reduce or totally eliminate the controllable risk. The improvements need to be done vis-à-vis the unfavorable macroeconomic situation so the banks can re-construct and regenerate the financial condition of the borrowers and decrease the bad debts and also to increase the quality of credit activities and financial capacity.

The main questions that the master thesis addresses are:

- How the NPL affects the performance of the bank?
- Is the wrong NPL management the main cause for the slow NPL decreasing in Slovenia?
- Which are the main differences between the Swedish and Slovenian NPL management?

The first goal is the explanation of bad loans phenomenon in details, its macro and micro indicators and the possibilities of reshaping. The second goal is to inspect how the Swedish and the Slovenian commercial banks effectively managed (or they are still managing) their NPLs and how to deal with the future ones. The major aim would be the comparison between the Slovenian and Swedish NPL management performance and its potential improvements. I will draw comparison between these two countries including their banking sector specifics, tools and NPL solving strategies. The motive for the comparison with Sweden is the so called “Swedish model” of NPL resolution in the 1990s and their low NPL ratios through the 2008 crisis. This country would be a benchmark, so their method of work can be compared with the Slovenian one.

Finally, based on the findings, the conclusion would be shaped, supported with recommendations and suggestions for improvement of the Slovenian banking sector (helping the banks to reduce the problem loans ratios in the next years).

Combination of quantitative and qualitative methods (to evaluate and measure the related data) would be applied during the research. The thesis is having comparative and analytical character. The master thesis is including theoretical and empirical part. The first part is mainly theoretical connected to the chosen topic. Series of literature in the field of credit risk management, financial management, banking, management and organizational behavior were used. It is constructed from several types of reports from IMF, WB, EBA, EC, ECB, OECD, Banka Slovenije and Eurosystem. Another scientific articles, reports, journals and books listed in the references bellow were utilized. The theoretical review helps for better understanding of the topic and the problem. The second part is empirical and is answering the first research question “How the NPL affects the performance of the bank?” I was using the following statistical model (1):

$$Y_{i,t} = \alpha + \beta_1 X_{1i,t} + \beta_2 X_{2i,t} + \beta_3 X_{3i,t} + \beta_4 X_{4i,t} + \beta_5 X_{5i,t} + \beta_6 X_{6i,t} + \beta_7 X_{7i,t} + \beta_8 X_{8i,t} + \varepsilon \quad (1)$$

The model (1) involves:

Dependent variable (Y) = ROE (Return on Equity) as a measure for performance of the banks and profitability ratio.

Unknown parameters: α = Constant; β_i = beta coefficient; ε = error term;

i = individual dimension, t = time dimension (from 2008 till 2016)

Independent variables: X_1 = NPL ratio (Non-Performing Loans / Gross Loans); X_2 = Total Regulatory Capital Ratio; X_3 = ROA (Return on Assets); X_4 = Growth of gross loans; X_5 = Net Loans to Total Assets; X_6 = GDP growth; X_7 = Inflation; X_8 = Unemployment rate.

The objective of this master thesis is to examine the bank’s performance through its explanatory variables. To be more accurate, I will analyze the NPL effect on the bank’s

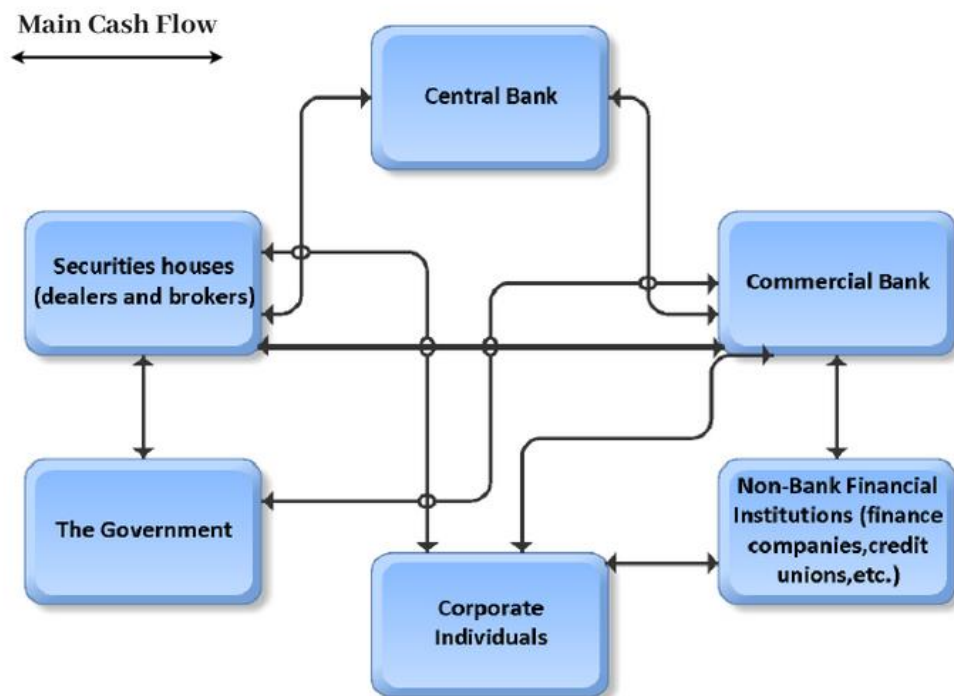
performance (profitability) through multiple linear regressions. Another objective is to discover the factors of successful Swedish NPL management.

The research is based on primary and secondary data. The theoretical part is strictly focused on commercial banking and its regulations as well as on credit risk and NPL management. From a geographic perspective it is concentrated on European Union with a focus on Slovenian and Swedish banking sector. In the center of attention is the financial crisis of 2008 (but also 1990s for the Scandinavian crisis). For the empirical part, the database was extracted from the credit analytics platform called Fitch Connect. It is limited to 22 commercial banks, 13 from Sweden and 9 from Slovenia, observed over 8 years from 2008 till 2016. The econometric model is based on bank specific and macroeconomic determinants, limited to eight variables that are divided in two groups: microeconomic and macroeconomic variables.

1 COMMERCIAL BANKING

The first chapter is a part of the theoretical framework and it represents the inception of the master thesis. It discusses the commercial banking and its functions. It begins with a classification and distinction among the commercial, investment and central banks. In addition, the two main functions of the CBs are explained. This part is crucial to understand the following topics and the main problem.

Figure 1: Money market structure



Source: Adapted from Choudhry (2012).

The commercial bank (CB) represents a financial intermediary which offers different services to the companies, businesses and general public. They offer deposit accounts (accepting deposits), providing loans (repackaged deposit funds) and basic investment products. It is a profit-seeking business entity. They create profits by asset transformation, taking small short-term deposits and transforming them in long maturity credits. The commercial banks can limit their exposure to credit risk because of the ability to estimate the creditworthiness of deficit units that apply for loans. Because of the existence of the secondary money market, commercial banks are financial intermediaries that are involved in indirect financing. CBs are the dominant financial institutions, in most economies (Ross & Marquis, 1997).

1.1 Classification of Commercial Banking

The commercial banks differ from the central banks in many aspects, mainly in their functions and rolls. First of all, they have different type of objectives. Commercial banks are profitable institutions making business from borrowing and lending money and central banks are organizing, supervising, regulating and developing the monetary-financial system (providing public service). The central banks are monitoring and controlling various activities of commercial banks. The central bank is issuing notes and coins (the commercial banks do not have that right) and implements the government's economic policy. They are related between them through their financial activities on the money market (See Figure 1) (Choudhry, 2012).

Investment banks differ from the commercial banks too and their separation was declared in the Glass-Steagall Act of 1932. Investment banks underwrite securities, helping companies to make IPOs (initial public offerings), mergers and acquisition advisory, asset management and trading securities (stocks, bonds and other investments), without taking deposits (Benston, 1990).

In basic meaning, the CBs are differentiated by their services of wholesale banking and retail banking. Wholesale banking includes the provision of bank's services to their huge or medium corporate clients, different financial institutions, fund managers, real estate developers or investors. Retail banking deals with taking small-sized deposits and making low loans to little businesses or private persons (Hull, 2012).

In deeper meaning, depending on the demand, needs of the clients and specific country's industry, the commercial banks are branched as: deposit banks, industrial banks, savings banks, agriculture banks, miscellaneous banks and exchange banks. Deposit banks are the most frequent. They accept deposits from the public and make loans with duration of 3 to 6 months (short term loans). The industrial banks allow long-term loans to the industries that need enormous capital, accept long term deposits and do advisory services for purchasing or selling shares and securities. They also buy securities and shares of industrial companies (sometimes they even underwrite them). Savings banks were formed for the small savers of

money from the working and middle class people, accepting small amount of deposits. The banks that are meeting the credit requirements of the agronomists are called agricultural banks. It is also used the term of “land mortgage banks”. They are not working on the concept of maximizing the profit for the shareholders. The miscellaneous banks are handling with specific needs of the customers as: dealings in foreign exchange, travelers’ cheques, dealing with provisions (for transferring funds from one place to another), sale of national savings certificates etc. Exchange banks are occupied with the foreign trade of the country. They help businessman with transactions and buying or selling foreign currency (Somasheker, 2009).

Through the ownership structure organization, the commercial banks can be divided as public, private and foreign banks. The public sector banks are nationalized and the majority of the shares are held by the government. Usually, the government holdings are more than 50 %. The private sector banks are held by shareholders as corporations, institutions, private units or individuals. The foreign banks are operating in home and host countries by following the regulations of the both countries. The organizational structure is almost identical as in the other corporations. Commercial banks are subdivided in different specific bank units. The main bank facility and branch banks are connected. The board of directors is headed by a chairman and his main role is to oversee the bank operations. The bank's president together with the vice presidents is supervising the managers from the other bank’s segments. Corporate officers are in control of trust committees, loan committees, personnel, public relations and other corporate services. On the lower levels, branch managers are handling with daily operations of a branch and controlling the loan officers, accounting and secretarial operators (Mian, 2003).

The financial conglomerates appeared with the expansion of the CBs. They began acquiring different financial service companies and banks so the final result was diversification and specification in their offered services. These entities often appear with large balance sheets (also with off-balance sheet positions), affording broad list of financial services in different geographic locations. Some of them are providing financial services dependent on the client’s desire. The diversification of the services brought economic benefits. Commercial banks are evolving in the world of global banking with the help of information technology tools (Madura, 2006).

Furthermore, the CBs are securing the social and economic stability in the society. They represent the lifeblood of the society, thinking in the directions of consuming, building, trading and investment as productive activities in the society (Choudhry, 2012). In the developing countries exists shortage of capital, initiative and ideas and the unemployed rate is high. Commercial banks are taking special place in this kind of societies. They promote capital formation by introducing different deposit schemes as savings. Savings (especially from the rich entities or businesses) are converted in financial resources that are spent in productive investments. The CBs are directly financing the industry with long-term, medium-term and short-term loans and are influencing the development of the capital

market. Because of that, many big banks appeared on the world market (for example, as shown in Table.1). In addition, they promote the external and internal trade by providing exchange facilities to exporters and importers of stock. The intercourse of national and international commerce was eased because of the credit cards, letters of credit, accepting bill of exchange, checks, etc. Banks are establishing export promotion cells and give general info about economic conditions in the countries. With the launching of the agricultural credit, CBs started to meet the credit requirements of the countryside citizens. For example, this kind of credits are helpful for the farms productivity, equipment's modernizing, products diversification, mechanization and even the increasing of the farmer's income (Koch & MacDonald, 2000).

Table 1: 10 largest commercial banks in the world (by total assets)

Bank	Country	Total assets, US \$b	Balance Sheet
Industrial and Commercial Bank of China	China	3,615.17	03.31.2017
China Construction Bank Corporation	China	3,149.25	03.31.2017
Agricultural Bank of China	China	2,950.21	03.31.2017
Bank of China	China	2,746.05	03.31.2017
Mitsubishi UFJ Financial Group	Japan	2,713.44	03.31.2017
JPMorgan Chase & Co.	USA	2,546.29	03.31.2017
HSBC Holdings PLC	UK	2,416.47	03.31.2017
BNP Paribas	France	2,348.65	03.31.2017
Bank of America	USA	2,247.70	03.31.2017
Wells Fargo & Co.	USA	1,951.56	03.31.2017

Source: Adapted from S&P Global Market Intelligence (2017).

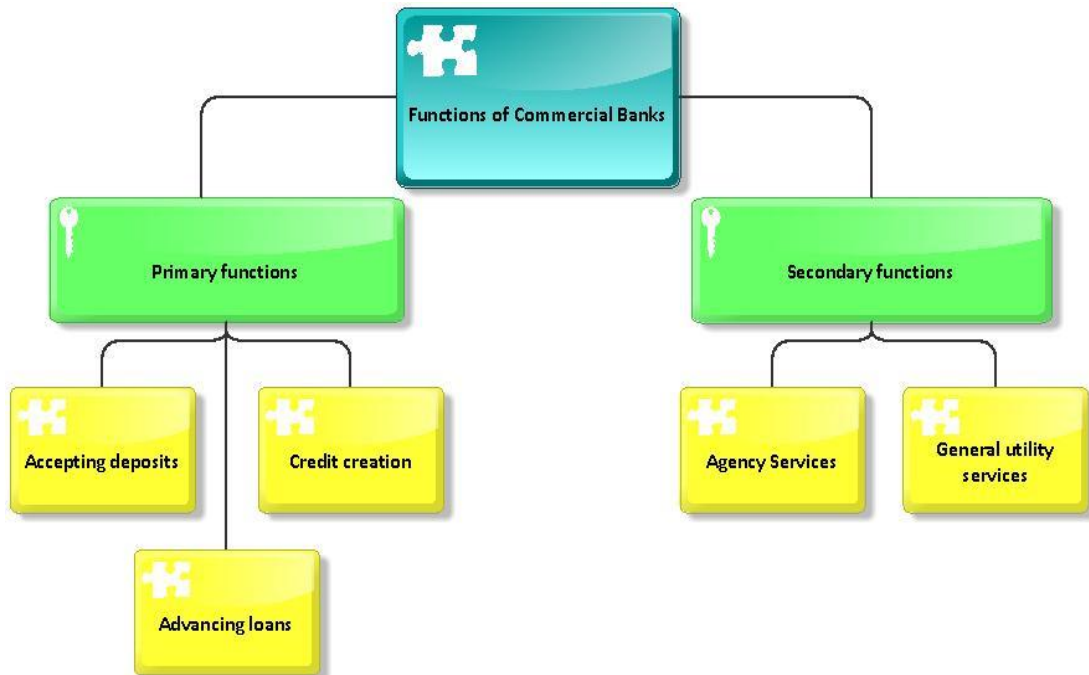
Another important role is raising the standard of living by financing consumer activities. In other words, they provide loans for houses, transport vehicles and household appliance. CBs are taking important place in balanced development of different regions. They are transferring surplus capital from the developed areas to the less developed areas. The future students, businessman, star-ups are also benefiting from CBs, because CBs provide loans for starting education or business. CBs are implementing the monetary policy of the central bank which brings the price stability. Modern commercial bank functions are actively helping the process of economic development (Mukherjee, 2002).

Commercial banks are having three principal sources of funds: deposit accounts, borrowed funds and long term sources of funding. Borrowed funds are categorized as purchased federal funds, repurchase agreements (repo), Eurodollar borrowings and borrowing from Federal Reserve banks. The long-term sources of funds are manifested as bank capital and bonds issued by the bank. Deposit accounts are briefly explained in the next subchapter. Uses of funds by banks include cash, fixed assets, bank loans, Eurodollar loans, repurchase agreements, investment in securities and federal funds sold (Koch & MacDonald, 2000).

1.2 Functions

The commercial banks perform variety of functions and they can split in two big categories, primary functions and secondary functions (See figure 2). Some of the functions are crucial for their economical role and the other with marginal meaning.

Figure 2: Functions of Commercial Banks



Source: Adapted from Kaptan (2002).

1.2.1 Primary functions

Accepting deposits is one of the bank sources for funds. It is the primary function for mobilizing savings in CBs. The banks are collecting deposits from private units, governments and developing businesses. Deposit accounts can be split in transaction deposits, savings deposits, time deposits and money market deposit accounts (Madura, 2006).

Transaction deposits or also called demand deposits are having the following characteristics: they can be withdrawn at any time, no interest is charged on the deposits and the customers should leave minimal undrawn money on the account. The industries and entrepreneurs which are doing and receiving payments through bank are keeping these kinds of deposits (Madura, 2006).

This source of funds can be used by the CBs till they are withdrawn (in generally, in form of written cheques). The bank charges the customers certain tax for the provided services. Negotiable order of withdrawal (NOW) are additional transaction deposit accounts that

pays interest, and allows to write drafts against finances held on deposit. The electronic banking helped in promoting the transaction deposits. With the expending of technology, customers are able to check their bank account online, transfer funds on other accounts, pay online and withdraw their money from the automated teller machines (ATMs) (Hoang & Ducie, 2013).

Savings deposits account attracts society's middle class to participate with determinate amount of funds which encourages the thrift. These accounts have no required minimum balance and can be open without introduction. For withdrawing funds, customers should present written notice (in duration of 30 days) so the banks can allow the withdraw process. Restriction exists during a specific period on the amount that can be withdrawn. Another example of savings account is ATS or automatic transfer service. As its name implies, it's a deposit account which automatically transfers the funds from savings account to checking account (Madura, 2006).

Time deposits, or also known as fixed term deposits, can be withdrawn only on a specific expiration time date and can't be withdrawn before that. Depositors are interested in these accounts because of the payments of interest (lengthy period - higher interest) and the safeness. There are two frequent types of time deposits: certificate of deposit (CD) and negotiable certificate of deposit (NCD). CD is saving certificate that requires particular amount deposited funds with determined maturity date and fixed interest rate. CD interest rates differ between banks (even between maturity types). These types of deposits restrict access to funds until the period of maturity of the investment. Secondary market for CDs doesn't exist. There is a possibility of withdrawing the money before the maturity date, but this action incurs penalty. With the appearance of the bull market CDs (market doing well - depositors are rewarded) and bear-market CDs (market is functioning badly - depositors are rewarded) shows us that the CDs became more complicated and exotic. In some perspectives the NCDs are similar as CDs. The negotiable certificate of deposit is type of receipt issued by CBs for the deposited money. These certificates are having short term maturity; the deposit requirement is minimum \$ 100.000 and secondary market exists. Money Market Deposit Accounts differ from time deposits in the sense of not specifying the maturity period. It offers market rate of interest, large minimum balance, limited cheque writing (different than NOW accounts) and higher earnings (Burton, Nesiba & Brown, 2010)

The profitability of the loans is the key to the commercial bank's performance. Making advances or advancing loans refers to providing loans in different forms as: cash credit, overdraft facility, discounting bills of exchange, consumer credit, term loans and miscellaneous advances and money at call. These are the most common ways of lending to all types of subjects. Loans are classified by their terms, the borrowed amount of money and the expected use of proceeds. In the commercial banking are recognized "secured loans" (loans backed by an asset / collateral for the loan) and "unsecured loans" (not secured against borrower's asset / without collateral) (Babu, 2006).

Cash credit is secured cash loan given to a company for a short-term. The company as a borrower is receiving the loan after a security is offered as collateral to the bank. The security is presented as commodity or asset in a physical form (tangible asset). The borrower can extract small sums of money in cheque forms, (can't extract the entire loan in single time) and he can't exceed the credit limit. Parallel to this, it must pay interest on the allowed amount of credit (Apostolik & Donohue, 2015).

Overdraft facility is supplementary source of liquidity accessible to commercial and retail customers. With this instrument, companies can easier handle with short-term cash flow problems. Depositors can pull out more funds (drawing over their account) than the deposited on their checking account. The interest rate for overdraft facilities is remarkably higher compared to the other options of financing. When the overdraft is repaid, the "leftover" funds are applied as deposits on the borrower's account (Apostolik & Donohue, 2015).

Discounting bill of exchange is a written order that ties one party to pay fix sum of finances to another party at predetermined future date. The holder of the bill gets discount by the bank, with determinate fee and charged interest. It's a secured bill, very safe which supply liquid asset which can be transformed in cash. After the maturity of the bill, the bank is securing the payment from the holder which accepted the bill (Babu, 2006).

Consumer credits are represented in a shape of personal loans. CBs are granting credits for specific needs of the costumers. Those credits are used from the borrowers for buying: automobiles, home improvements, television and computers or personal expenses as paying hospital bills, marriage etc. They are secured by real-property or co-signer. Consumer credit often requires tax returns, pay stubs and person's credit history. The maturities are generally durable less than five years (Madura, 2006).

In most cases, term loans are borrowed for purchasing fixed assets (machinery) by the industries. The purchased machinery also serves as collateral on the loan. The banks are offering term loans to agriculture, heavy industry and traders. The maturity period of these types of loans commonly range from 1 to 5 years, sometimes even reaching 10 years. Term loans are negotiated long term debts and are having unfixed interest rate. The loan agreement is specified with numerous conditions (so-called "protective covenants") between the two parties. Protective covenants are limiting the borrowers in their actions. For example: specify the maximum paid dividends to shareholders, the bank is deciding the approval for certain activities as mergers, approving or limiting additional debt (Madura, 2006).

The last forms of loans are miscellaneous advances. They refer to credits to the public or cooperative sector, short duration credits to exporters, financial packages to self employed, export bills discounted etc. (Somasheker, 2009).

Money at call is a short term debt without following fixed repayment schedule. It is repayable on demand immediately in full. This short term loans are the banks most liquid assets after the cash. These funds can be lent to corporate customers, money brokers, stock exchange, discount houses etc. Brokerages are using these funds as tool for covering their margin accounts (Bhole, 2004).

Credit creation is very important and remarkable function of the CBs. The bank deposits are the basics for credit creation. The CB is granting a loan to its borrowers, but it doesn't provide cash to him, practically they open a deposit account so the customer can withdraw. Simply, the BCs are creating deposits for every loan issued. The borrower can extract the finances in particular time. The multiple-expansion of credit is an ability of the banking system. This process is characterizing with creating credit often bigger than the original increase in the deposits of CB. The creation of credit must be limited by the following elements: cash reserve ratio, amount of cash, nature of business conditions, banking habits, leakages in credit-creation, sound securities, monetary policy of central bank, liquidity preference (Dwivedi, 2005).

1.2.2 Secondary functions

Besides the primary functions, the commercial banking is also executing different "secondary" functions. The secondary functions can be divided in two subgroups based on providing services: agency services and general utility functions.

Agency functions are functions performed by the banks to their customers for a small commission. The CBs are acting as an agent to their clients. More or less, the following services can be subordinated under this function: collecting cheques and their payment, collecting interest warrants and dividends, making payments of expenses (as rent, insurance, etc.), dealing in foreign exchange transactions, purchasing and selling securities, acting as trustee, agent or tax consultant, accepting tax proceeds and tax returns (Hoang & Ducie, 2013).

General utility functions are connected to the idea of general public services. Some of the general utility functions are: providing locker facilities, issuing of traveler's cheques, safe custody, accepting diverse bills for payment, sharing of principal trade information, shares and debentures underwriting, money transfer facility, acting as referees, credit and smart cards issuing, providing merchant banking facility (Hoang & Ducie, 2013).

2 REGULATIONS

This chapter incorporates the international regulations for the commercial banks, emphasizing the USA double banking system, EU banking supervisory systems (with focus on the Lamfalussy framework) and the Basel Accords as a part of the theoretical

framework. It starts with bank regulation objectives and ends with Basel 3. The Basel Accords 1, 2 and 3 would be explained in details.

2.1 Bank Regulation Objectives

Bank regulations are part from the government regulations, which provide safer banking environment by imposing discipline measures. Regulations are preventing banks from becoming too risky. Their composition is a sum of restrictions, guidelines and precise requirements that are creating market transparency between the banking institutions and the users of their services (individuals, businesses and corporations). Also, they sustain the public confidence, protecting the banks from miss-management, protecting from default and reducing the bank's tendency to raise credit bubbles. There are five types of bank regulation objectives. The first one is market structure and competition related to separation of banking and commerce, entry restrictions and bank chartering, branching restrictions and acts that restricts mergers and bank holding companies. The second objective is connected with "safe and sound" banking system. Safety and soundness regulation is subdivided to federal deposit insurance, regulatory monitoring, deposit interest-rate ceilings, capital requirements, portfolio restrictions and separation of banking and commerce, market value accounting and limits on bank lending to an individual borrower. Consumer protection is the third objective represented through "regulation E" on Electronic Funds Transfer, "regulation C" or home mortgage disclosure act, "regulation B" as Equal credit opportunity act, "regulation Z" or truth-in-lending laws and usury ceilings on consumer loan interest rates. As fourth objective, credit allocation is subdivided in "regulation BB" or community reinvestment act and deposit interest-rate ceilings. The last objective is tied to monetary control: reserve requirements and the discount rate (Greenbaum & Thakor, 2007).

2.2 Different Regulation Acts in United States of America

Various regulation acts were introduced in US. "The Banking Holding Company Act" was introduced in 1956, which regulated the actions of bank holding companies (BHC). In 1970, the act was enacted, so the bank ownership regulation allowed the BHCs to practice different nonbanking activities as data processing, leasing and mortgage (reaching product diversification). BHC is defined as company that has control over a bank and in generally owns one or more commercial banks (multibank holding). "Equal Credit Opportunity Act" is an anti-discriminatory law and prohibits discrimination on race, sex, age or marital status during the process of issuing credit. Another one is "The Community Reinvestment Act" of 1977 with whom, the bank is forced to grant loans to moderate-income and low-income neighborhoods. "Truth in lending act" of 1968, promotes transparently the information for costs, rates and terms of the credit. Similar to this one is "Truth in savings", an US federal law that reveal the terms and conditions of opening a saving account. Later on, the

“Electronic fund transfer act” was introduced to strengthen the electronic transaction transparency (Madura, 2006).

2.3 Dual Banking System

In the United States of America, the bank regulations are coordinated at federal and state levels. This regulatory structure is called dual banking system. The banks in the US can choose to work under national charter or state charter. Also, they are supervised by three federal and fifty state agencies. To be more specific, national banks are regulated by the office of the Comptroller of the currency (OCC), Federal Deposit Insurance Corporation (FDIC) and the Federal Reserve System (the Fed). State banks are under the jurisdiction of their state agency, FDIC and the Fed (only for members). The state-chartered banks are periodically evaluated by the FDIC and the Fed. The Fed is having this responsibility only for their members. The banks that are not members of the Fed are evaluated by the FDIC. The national banks are evaluated by the OCC (Singh, 2016).

2.4 European Banking Supervisory System

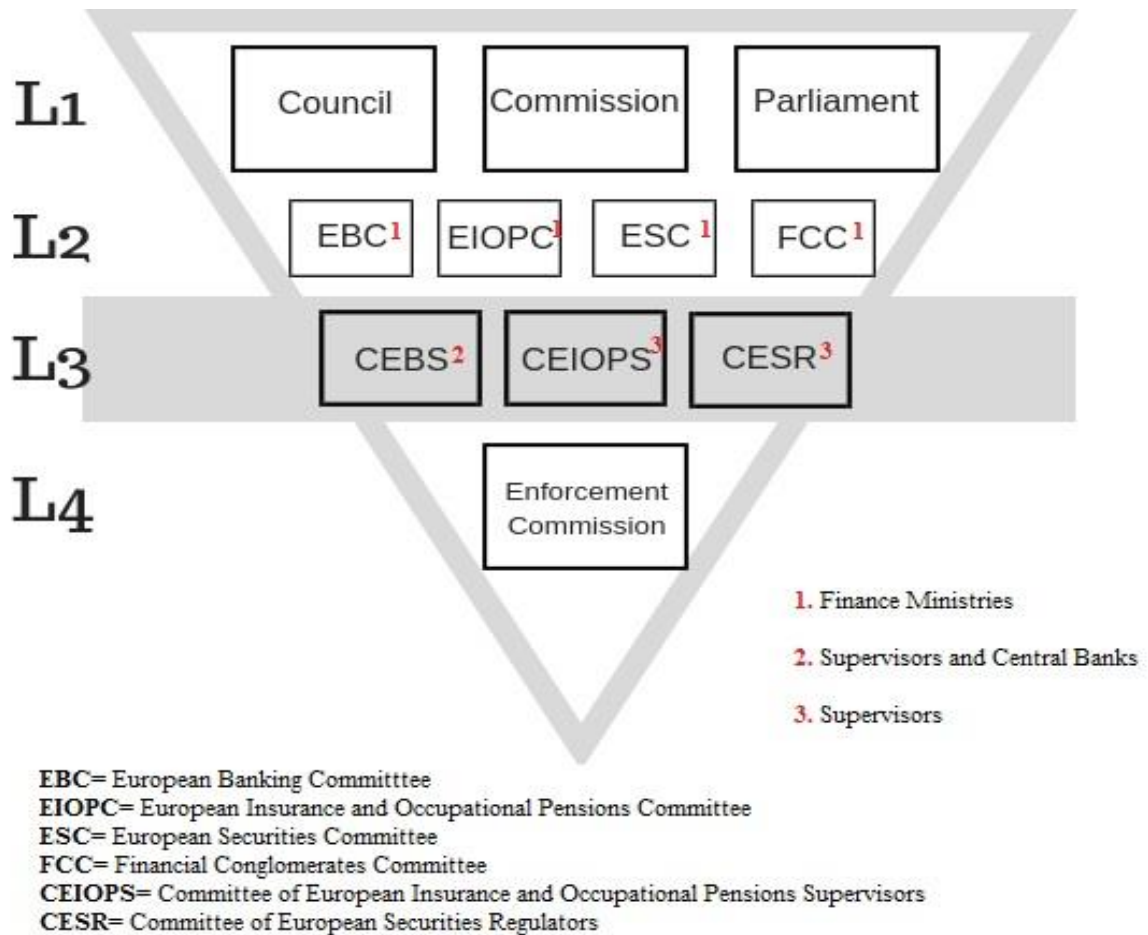
Before the economic crises, the EU banking supervisory system had the characteristics of discrete supervision structure with diverse supervision models and rules (traditional vs. cross-sector model). In 1972, the European Economic Community (EEC) members created the “GdC – Groupe de Contact” with the function of sharing information and communication among the supervision institutions. Later on, EEC invented the Banking Advisory Committee (BAC) in 1978 for consulting about the supervision rules. For the stability of financial market and its supervision was introduced the Banking Supervision Committee in ESCB (European System of Central Banks) which was providing consulting services to the supervision institutions of the EU countries (Dermine, 2002).

In 2002, European Union started to construct financial supervision system under the instruction of Financial Services Plan. The so-called Lamfalussy framework of four levels was introduced (See Figure 3) (Commission of the European Communities, 2007). We can notice that additional explanation for the mentioned institutions is added on the bottom of the framework.

In the first level the main characters are European Parliament, the Council and European Commission. After a full consultation process, the commission adopts proposal for regulations or directives. The European Parliament and the council agree on the framework principles through co-decision. These institutions are responsible for financial supervising at European Union level through normal legislative procedure. On the second level are made the technical implementing measures. These kinds of measures are related to market development. The European Banking Committee is the leading entity in level two. In the third level, the different national supervision institutions are cooperating and getting

connected. CEBS, CESR and CEIOPS are working on joint recommendations, guidelines of legal provisions and covering the common standards that are not covered by the other two levels. The CEBS (Committee of European Banking Supervisors) is taking the leading position in the third level. The last one is about strengthened enforcement of Community Law done by the Commission (Commission of the European Communities, 2007).

Figure 3: Lamfalussy framework



Source: Adapted from Alexander (2009).

After the crisis, numerous new institutions were introduced as: European Banking Authority (EBA), the European Insurance and Occupational Pension Authority (EIOPA), the Joint Committee of the European Supervisory Authorities (ESAs) and the European Systemic Risk Board (ESRB). EBA, EIOPA and ESAs along with each national's supervision institutions and the Steering Committee established the European System of Financial Supervisors (ESFS). This system is coordinating, regulating and supervising the action of each EU country. ESRB is different kind of institution that deals with the systematic risk that can bring whole financial system in collapse. We must to mention that this risk was not monitored before the crisis, so the responsibility of ESRB is very important for the post-crisis financial regulatory system (Baldwin & Wyplosz, 2015).

2.5 The Basel Accords

International regulations appeared through the process of harmonizing the standards between the world countries. The countries were concerned about the stable economic environment and wanted to ensure that the banks have enough capital for the taken risks. They were afraid of the systematic risk that can create “ripple effect” and bring default on many financial institutions. After the failure of Bankhaus Herstat and Franklin National bank, in 1974 was formed the Basel Committee (in Basel, Switzerland) under the assistance of Bank for International Settlements. The committee was composed by bank supervisory authorities from the G10 countries (USA, UK, Sweden, Netherlands, Japan, Italy, Germany, Belgium, Canada and France) together with Switzerland and Luxembourg. Their objective was to generate effective international supervision model for the banking operations. The result of their meetings was launched in a form of a document so-called “International Convergence of Capital Measurement and Capital Standards” also known as “The 1988 BIS Accord” or most known as Basel 1 (Hull, 2012).

2.5.1 Basel 1

Basel 1 or “the Accord” took the first serious effort to set common capital adequacy standards for the international banks of the member countries. It required all the banks to have adequate capital backing, based on “Basel” risk assets ratio, originally known as Cooke Ratio (2):

$$\frac{CAPITAL (tier 1 \& tier 2)}{Assets (weighted by credit type) + Credit Risk equivalents (weighted by counterparty type)} \quad (2)$$

The components of the capital are branched in tier 1 (core capital) and tier 2 (supplementary capital). Heffernan (2005) is arguing that the tier 1 is composed of common stock, retained earnings, disclosed capital reserves, non-cumulative preferred stock, hybrid equity shares, minority interests in consolidated subsidiaries, less goodwill and other deduction. Tier 2 represents the supplementary capital divided into upper tier 2 and lower tier 2. Upper tier is constructed by cumulative perpetual preferred stock, revaluation reserves (equity or property with changeable value), loan loss allowances, undisclosed reserves, general loan loss reserves and hybrid capital instruments (convertible bonds). Lower tier 2 is represented by subordinated debt such as cumulative preference shares and convertible bonds (Heffernan, 2005).

According to Basel 1, capital requirements level is determinate as equation (3) shows:

$$CAR = \frac{\text{Tier 1} + \text{Tier 2}}{\text{Risk adjusted exposure}} \geq 8\% \text{ and } \frac{\text{Tier 1 capital}}{\text{Risk adjusted exposure}} \geq 4\% \quad (3)$$

CAR or capital adequacy ratio as a measure of bank's capital protects the depositors and the stability of whole financial system. This ratio shows us the bank's capital to its risk. The ratios set minimum levels and can't go under the given percentages (Choudhry, 2012).

Heffernan (2005) also argues that "the more creditworthy the loan, the lower the risk weight". By measuring the total credit risk exposure, the risk-weighted assets are subordinated through conversion factor (in percents) and asset qualification. Hull (2012), Choudhry (2012), Greenbaum and Thakor (2007) are introducing a list for qualification of assets that are having different risk profiles:

- 0 %; cash, claims on Federal Reserve Banks, claims on OECD (treasury bonds or residential mortgages), loan commitments with maturities (less than one year), claims on Federal Reserve Banks, US direct obligations (91 days – maturity).
- 20 %; bonds issued by OECD government agencies, public sector units and federal entities.
- 50 %; revenue bonds, uninsured residential mortgage loans, unused loan commitments (maturities more than 1 year), medium-risk standby letters of credit and note issuance facilities.
- 100 %; other corporate loans and bonds by non-OECD banks (certain standby letters of credit, sales subjects to repurchase agreements, guaranty-type instruments, etc.)

Off balance sheet items were declared as "credit risk equivalents". They were weighted by the opposite party of a given claim. Some of them are similar to unfunded credits which can be transformed in on-balance sheet items (credit conversion factor). There were no capital requirements for off balance sheet items as FRAs and swaps (maturity less than one year).

"The 1996 Amendment (BIS 98)" brought capital charge for the market risk that can appear in different forms as: commodities price risk, currency risk, interest rate risk and equity price risk. The value of financial instruments is changeable during a specific time period and can cause losses in on- and off-balance sheet items. BIS98 was upgrading of Basel I, in which the off-balance sheet items started to be treated direct (not converting them in "credit risk equivalents").

The VaR - value at risk model (Riskmetrics model) was established:

$$VaR_x = V_x \left(\frac{dV}{dP} \right) \Delta P_t \quad (4)$$

The components in the equation (4) are explained by Heffernan (2005): market value of given portfolio (V_x), sensitivity to price movement ($\frac{dV}{dP}$) and adverse price movement through given time (ΔP_t).

In the theoretical work of Hull (2012) is mentioned another type of value at risk formula that is used in internal model-based approach. It is calculated with 99 % confidence level with 10 day time period. The formula (5) for capital requirement is:

$$\text{Max} (VaR_{t-1}, m_c \times VaR_{avg}) + SRC \quad (5)$$

In this equation (5): VaR_{t-1} is the previous day VaR, m_c is multiplicative factor (minimum value = 3), VaR_{avg} is the average VaR over the last 60 days and SRC is a specific risk charge. SRC is measuring specific risks as changing in stock prices or credit spread. VaR and SRC are important elements in the formula, because value at risk is capturing the interest rate risk and specific risk change is capturing the credit risk.

After the implementation of The Amendment, the capital requirement for market and credit risk took different equation (6) form:

$$\text{Total Capital} = 8 \% \times (\text{credit risk RWA} + \text{market risk RWA}) \quad (6)$$

2.5.2 Basel 2

New rules for capital regulations and recommendations on banking laws were proposed in June 1999, known as Basel 2. After a few revisions, Basel 2 was adopted in June 2004 as a set of new rules, subordinated in three pillars: minimum capital requirements, supervisory review and market discipline. Basel 2 was implemented in all international banks except the banks of USA, which applied Basel 1A as a regulatory scheme. Balthazar (2006) is arguing that Basel 2 was response to the critics of Basel 1, which was inefficient. Also, it was reflection of the capital arbitrage opportunities that current product developments had facilitated.

The way of calculating the minimum capital requirement (1st pillar) was changed. New measurement of credit risk was added and the market risk measurement kept unchanged. In addition, innovative concept was introduced: new capital charge for operational risk. The total capital remained 8 % of RWA and the general formula form (7) is listed:

$$\text{Total Capital} = 8 \% \times (\text{credit risk RWA} + \text{market risk RWA} + \text{operational risk RWA}) \quad (7)$$

Three approaches were adopted in Basel 2 for the credit risk: The standardized approach, the foundation internal ratings based (IRB) approach and the advanced IRB approach (See Table 2) (Bank for International Settlements, 2003).

Banks are capable to choose between these approaches when calculating their capital requirements for credit risk. The standardized approach is giving the chance to calculate the capital requirements through credit ratings given by qualified export credit agencies or external rating agencies like Moody's or Standard & Poor's. If the banks chose the IRB approach, then they must be able to custom their own internal risk assessment. The usage of IRB approach should be approved by supervisory body from the country where the bank is located (Bank for International Settlements, 2003).

Table 2: Credit Risk Weights under the Standardized Approach

Credit Rating							
Asset	AAA to AA	A+ to A-	BBB+ to BBB-	BB+ to B-	B+ to B-	Below B-	Unrated
Sovereign Banks	0%	20%	50%	100%	100%	150%	100%
Option 1 *	0%	20%	50%	100%	100%	150%	100%
Option 2 **							
< 3 months	20%	20%	20%	50%	50%	150%	20%
> 3 months	20%	50%	50%	100%	100%	150%	50%
Corporates	20%	50%	100%	100%	150%	150%	100%
	* Based on the risk-weighting of the sovereign in which the bank is incorporated						
	** Based on the assessment of the individual bank.						

Source: Adapted from Choudhry (2012).

As we mentioned before, in Basel 2 the operational risk was included in the denominator of bank's capital ratio. The root of the operational risk can be found in breakdowns in the internal processes and systems, people mistakes or external events. Basel 2 is defining 3 approaches for calculating the capital charge for covering bank's operational risk: the basic indicator approach (20 % of total capital would be allocated), the standardized approach (different risks allocated to different lines of businesses) and the advanced measurement approach (the bank is using own internal models to compute the operational risk) (Bank for International Settlements, 2003).

The supervisory review (responsibilities of national supervisors) as a second pillar is put in a function as support to the first pillar. Heffernan (2005) identifies four principles of the second pillar and defines the relation between the supervisors and the banks. Supervisors are forcing the banks to use suitable methodology to calculate the capital requirements and

the other Basel 2 ratios. They also review bank's internal rating procedures and acting if they don't fit the standard. The supervisors are encouraging the banks to keep capital above the minimum level. The last principle is the intervention of the supervisors, if the bank's capital requirements fall under the minimum.

Market discipline is the third actor in the banking regulatory framework of Basel 2. It is important component for the banks that are using internal ratings based approach. The Basel Committee on Banking Supervision (2003) is defining the third pillar as reinforcement of Pillar 1 (minimum capital standards) and Pillar 2 (the supervisory review process) through the market discipline with a scope of promoting safety and soundness in the whole financial system and the banks.

This pillar induces greater market discipline through enhanced disclosure, which means more transparent information about risk assessment and calculating methods. To be more precise, the banks that work under Basel 2 are expected to disclose about the methods for computing capital requirements, capital adequacy, risk exposure and another type of material information. Disclosures need to be done on semi-annual basis but in the case of risk exposure it should be quarterly done (Bank for International Settlements, 2001).

2.5.3 Basel 3

Basel 3 appeared in December 2010 as an extension of Basel 2 by introducing new banking regulatory capital rules. As an idea, this framework was designed to strengthen bank capital requirements by decreasing bank leverage and increasing bank liquidity. The concept of liquidity risk was added in this framework as a lesson from 2008 credit crises, where BCBS realized that the capital shortage was not a problem, but the taken liquidity risk. From 2013 till 2019, Basel 3 framework is in the procedure of implementation (Eubanks, 2010).

Under Basel 3, the total capital is divided in: Tier 1 equity capital, additional tier 1 capital and tier 2 capital (See Table 3). The third tier is eliminated. Tier 1 equity capital (or core tier) is consists of ordinary shares and retained earnings which are subordinated and perpetual. The additional tier 1 is composed of noncumulative preferred stock with characteristics like: perpetual (no incentive to redeem), fully discretionary coupon and call feature allowed. In this section are also entering contingent convertibles. Tier 2 is represented by long-term subordinated debt (maturity of five years) (Hull, 2012).

Capital conservation buffer is a form of provision that was added in Basel 3 with a scope of building up capital in normal times. The banks are raising capital in normal times easier than in a period with financial difficulties. It represents additional amount of core Tier 1 equity capital equivalent to 2.5 % of risk-weighted assets. The capital conservation buffer should be composed of common tangible equity. The buffer needs to meet the requirements as reducing discretionary distribution of earnings, salary bonus payments and

dividend payments. For example, if the conservation buffer has been used (partially or fully), banks are restricting their dividends until the capital has been reloaded. The capital conservation is showing that in standard economic times the Tier 1 equity capital is 7 % of risk weighted assets, the total Tier 1 should be 8.5 % and the sum of Tier 1 and Tier 2 necessary needs to be 10.5 % of risk-weighted assets. In financial stressed conditions these numbers can decrease to 4.5 %, 6 % and 8 % (Eubanks, 2010).

Countercyclical capital buffer is providing protection for periodical falling and rising of bank earnings (cyclicality of earnings). The buffer is building up during normal economic conditions and reducing during economic declining. Under Basel 3, the countercyclical buffer is having a range between 0 % and 2.5 % of total risk-weighted assets connected to the Tier 1 equity capital. It is subject to national supervising and its implementation is left to the national authorities of specific countries. Some of the countries are requiring bigger capital than in the Basel 3 framework, for example Switzerland requires Tier 1 equity capital with 10 % of risk-weighted assets and total capital of 19 % for its biggest banks UBS and Credit Suisse. The best explanation for these changes is that these banks are enormous, and if only one fails can create domino effect of failures in the Swiss economy and even more broadly (Hull, 2012).

Table 3: Basel 3 capital ratios

	Core Tier 1 Equity Capital	All Tier 1 Capital	Total Capital
Minimum	4.5%	6.0%	8.0%
Conservation buffer	2.5%		
Minimum + Conservation buffer	7.0%	8.5%	10.5%
Countercyclical capital buffer range	0-2.5%		

Source: Adapted from Hull (2012).

The ratio of capital to total exposure is called leverage ratio (also called Tier 1 leverage ratio) and was introduced along the Basel 3 capital requirements framework. The minimum leverage ratio is 3 % and is calculated with the following formula (8):

$$\frac{\text{Tier 1 Capital}}{\text{Total Exposure}} \geq 3 \% \quad (8)$$

The equation (8) is constructed by dividing the Tier 1 capital by the total exposure (all items on the balance sheet plus loan commitments). This ratio is used as an instrument by central monetary authorities, which are protecting the capital adequacy of banks and limiting them to leverage their capital base (Glantz, 2002).

After the economic crisis, the experts found out that the financial institutions didn't have problems only with capital shortage, but also, they were facing liquidity obstacles. In generally, the liquidity risk appears in forms of funding liquidity risk and market liquidity risk. The funding liquidity risk manifests in the situation when the financial institutions can't be liquidated and the required funding is not accessible. The market liquidity risk is the impact on the market prices of assets that can't be traded so quickly in a period of market disruptions (market declining). The weak liquidity leads to acquiring of liabilities to refinance maturing claims and liquefy assets. Because of that, Basel 3 introduced two liquidity ratios measuring the ability of surviving the liquidity pressure. The first is called liquidity coverage ratio (LCR) and the other is named net stable funding ratio (NSFR) (Glantz, 2002).

The LCR was developed by the Committee as a ratio that points the capacity of quick recovering and surviving a 30 calendar days of liquidity disruptions by ensuring sufficient high quality liquid assets (HQLA). In other words the LCR allude to HQLA that is held by the banks to meet short-term obligations (30 day period). This ratio represents internal stress test for the banks and supervisory approach to liquidity risk. The formula (9) is constructed by two components:

$$\frac{\text{Stock of High Quality Liquid Assets}}{\text{Total net cash outflows over the next 30 calendar days}} \geq 100 \% \quad (9)$$

The fundamental characteristics of HQLA are ease and certainty of valuation, low risk, listed on a developed and recognized exchange and low correlation with risky assets. Another type of market related characteristics are active and sizable market, low volatility and flight to quality (Bank for International Settlements, 2013).

The NSFR was also proposed in Basel 3 framework as a ratio that calculates the amount of long-term assets that are funded by long-term stable funding. It is managing the liquidity during a period of one year. The equation (10) is designed as:

$$\frac{\text{Available amount of stable funding}}{\text{Required amount of stable funding}} \geq 100 \% \quad (10)$$

The available amount of stable funding (nominator) is calculated by multiplying the funding categories by available stable funding factor (ASF). The required amount of stable funding (denominator) is calculated by multiplying each category of funding with required stable funding factor (RSF) (See Table 4) (Hull, 2012).

Table 4 : ASF and RSF factors:

ASF factor	Category	RSF factor	Category
100%	Tier 1 and Tier 2 capital , Preferred stock and borrowing with a remaining maturity greater than 1 year	0%	Cash ; short term instruments, securities, loans to financial entities if they have a residual maturity of less than one year
90%	"Stable" demand deposits and term deposits with remaining maturity less than one year provided by retail or small business customers	5%	Marketable securities with a residual maturity greater than one year if they are claims on sovereign governments or similar bodies with 0% risk weight
80%	"Less Stable" demand deposits and term deposits with remaining maturity less than one year provided by retail or small business customers	20%	Corporate bonds with a rating of AA- or higher and a residual maturity greater than one year; Claims on sovereign governments or similar bodies with a risk weight of 20%
50%	Wholesale demand deposits and term deposits with remaining maturity less than one year provided by nonfinancial corporates, sovereigns, central banks, multilateral development banks and public sector entities	50%	Gold, equity securities, bonds rated A+ to A-
		65%	Residential mortgages
		85%	Loans to retail and small business customers with a remaining maturity less than one year
0%	All other liabilities and equity categories	100%	All other assets

Source: Adapted from Hull (2012).

3 NON-PERFORMING LOAN MANAGEMENT

The third chapter starts with the statement of the problem, elaborating the phenomenon of the non performing loans and how it is connected to its micro and macro environment. The basics of credit risk and NPL management are demonstrated for easier understanding of the following empirical research.

3.1 Problem Statement

The financial crisis of 2007-2008 started with the defaults on mortgage in US and it was the worst financial crisis since the Great Depression. The crises spread in Europe and all around the world so it took international dimensions and became global banking-financial crisis. The collapse of the fourth biggest investment bank “Lehman Brothers Holdings Inc.” was the beginning of this financial catastrophe. Citygroup, Merrill Lynch, Union bank of Switzerland and other similar banks suffered enormous losses. Many monetary and fiscal policies were applied; bailouts and financial supports were allowed just to avoid the insolvency and the collapse of the global financial system. Many factors contributed in the appearance of the crisis. The bursting of the US housing bubble was just the trigger. The mortgage lenders, the investors in ABSs or ABS CDOs and the companies that were selling protection on the tranches were thinking that the house prices in US would continue to increase. The house prices were increasing rapidly between 2000 and 2006. In addition,

the supply of houses for sale also increased. With the rising of the prices the demand started to decline. Also, some borrowers couldn't afford their mortgage when the teaser rates ended. From these subprime mortgages were created the ABS CDOs, complicated financial products. The tranches of ABS (asset backed securities) and ABS CDOs (collateralized debt obligation) were downgraded in 2007 by the rating agencies. Many investors were relied on credit ratings and they preferred buying tranches of ABSs and ABS CDOs. The investors had inadequate information about the quality of the underlying asset. With the default on mortgages, those investors and financial institutions that bought asset backed securities, lost a lot of money (Baldwin & Wyplosz, 2015).

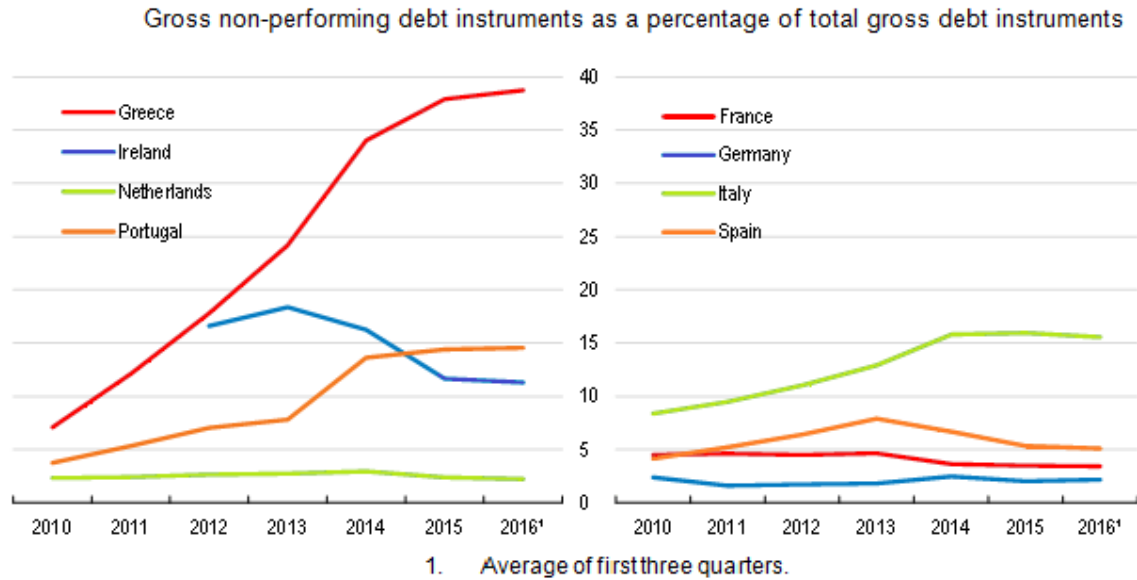
European Member States were hit hard by the global economic and financial crisis in 2008. As a consequence, this was reflected on the European banking sector, with appearing of the numerous bad loans and disturbing increase of the NPL ratios (See Figure 4), especially in Cyprus, Greece, Portugal, Ireland and Italy. The reasons for the rapid NPL's growth can be seen through the prism of three major elements: the lenders, the borrowers and the macroeconomic conditions (global economy). Those three elements are connected among them with unbreakable chain of economic activities.

The source of the financial crisis was the poor lending (not the accounting or reporting). The banks (lenders) "contributed" to the bad loan problem with their aggressive lending, high exposure to sectors that suffered most by the financial crises, lax credit control (that led to unnecessary extension of the cash cycle), poor supervision and governance, loose credit underwriting policies. The "domino effect,, was created and highly leveraged borrowers were the most likely to default. After the crisis, the regulatory requirements for NPL management were strengthened and it caused even bigger NPL's volume growth in EU. (Bholat, Lastra, Markose, Miglionico & Sen, 2016) Other authors are suggesting that the size of the banks, credit conditions, efficiency and risk profiles are essential determinants of NPL. In addition, the non performing loans are declining if the banks are state owned (Dhal & Ranjan, 2003).

Most of the bank's income is coming from the credit activities, so the non-performing debt is leading the bank to lower profitability and performance, higher capital requirements, higher funding costs, bad reputation, lower liquidity and even insolvency (Anastasiou, Louri & Tsionas, 2016). High NPL decreases the volume of lending (Bloem & Gorter, 2001). Actually, it requires greater loan provisions which reduce the capital resources prepared for lending. Reducing NPLs is crucial to support the credit growth (credit that the bank lends to the companies, institutions, businessman etc.) which positively affects the economic development (business can borrow and invest more). Small and medium enterprises (SMEs) are the most affected because their principal investments rely on bank lending. The bank's performance is directly affected by a high NPL ratio. It creates increase in impairments costs, additional servicing costs and management time, increased cost of funding and lower ratings (adversely affecting equity valuation), extra capital

requirements for risky weighted assets, reduction in net interest income (Balgova, Nies & Plekhanov, 2016).

Figure 4: NPL trend starting to rise after the crisis



Source: Adapted from OECD ECOSCOPE (2017).

From borrower’s perspective, the ability of debtors to repay the credits is the main struggle. When the economic activities slow, borrower’s cash inflows are reduced and that causes difficulties for paying the interest and principal of bank loans. This situation is also known as liquidity shortage. Their payments will delay and will not be able to meet their financial obligations. When the companies (borrowers) are unable to repay their loan, the bank needs to correct the value of the loan on its balance sheet, sometimes even to zero (to “write off” a loan) (Radivojevic & Jovovic, 2017).

Macroeconomic conditions are also directly related to the NPLs and many economists showed relationship between NPLs and macroeconomic-financial indicators through econometric methodology. NPLs are having tendency of rising during financial stress episodes, build up as a credit bubble that bursts. There are many studies suggesting that GDP growth means increase in the capacity of debtors to fulfill the loan obligations. In other words, GDP declining manifests with increasing of unemployment and rising of NPL ratios. Large current account deficits are linked to large stock of nonperforming loans. Others scholars as Bholat, Lastra, Markose, Miglionico and Sen (2016) and Balgova, Nies and Plekhanov (2016) are arguing that currency depreciation is increasing the NPL ratio. The amount of bad debts is positively affected by the floating interest rate. It means that the leveraging influenced by the increase in payments of interest rate creates growth of bad

loans (Bofondi & Ropele, 2011). Credit conditions; national policy and the juridical system are also making part of the factors that affect the NPL (Aiyar et al., 2015).

3.2 Credit Risk

The bank for international settlements (BIS) is defining the credit risk as a potential that may arise from counterparty (borrower) failing to meet its obligations for payment in accordance with agreed terms (loan agreement). The loan agreements are constructed by eight headings: preamble, amount and term of the loan, representations and warranties, conditions of lending, default provisions, description of collateral, covenants of the borrower and miscellaneous. The commercial banks are bearing the risk of unpaid principal and interest also as increasing the collection costs and disturbances to cash flow (Gestel & Baesens, 2009). This risk is associated with the primer function of CBs - granting loans which are bringing the main revenues (Bass, 1991). The biggest source of credit risk are the loans, but also on and off balance sheet items like options, swaps, financial futures, interbank transactions, foreign exchange transactions etc. (Bank for International Settlements, 2000). There are findings that the credit risk is associated with other types of risks as operational, liquidity and market risk (Htay & Salman, 2002).

The effective managing of credit risk is the essential point for long term successful banking. Credit risk management is a practice of “maximizing a bank’s risk-adjusted rate of return by keeping credit risk exposure within acceptable parameters”, explained in the chapter before (2.4.2 Basel 1). The CBs need to recognize, to measure, monitor and control the credit risk besides determining the adequate capital requirements. There are five steps in the risk management process (See Figure 5).

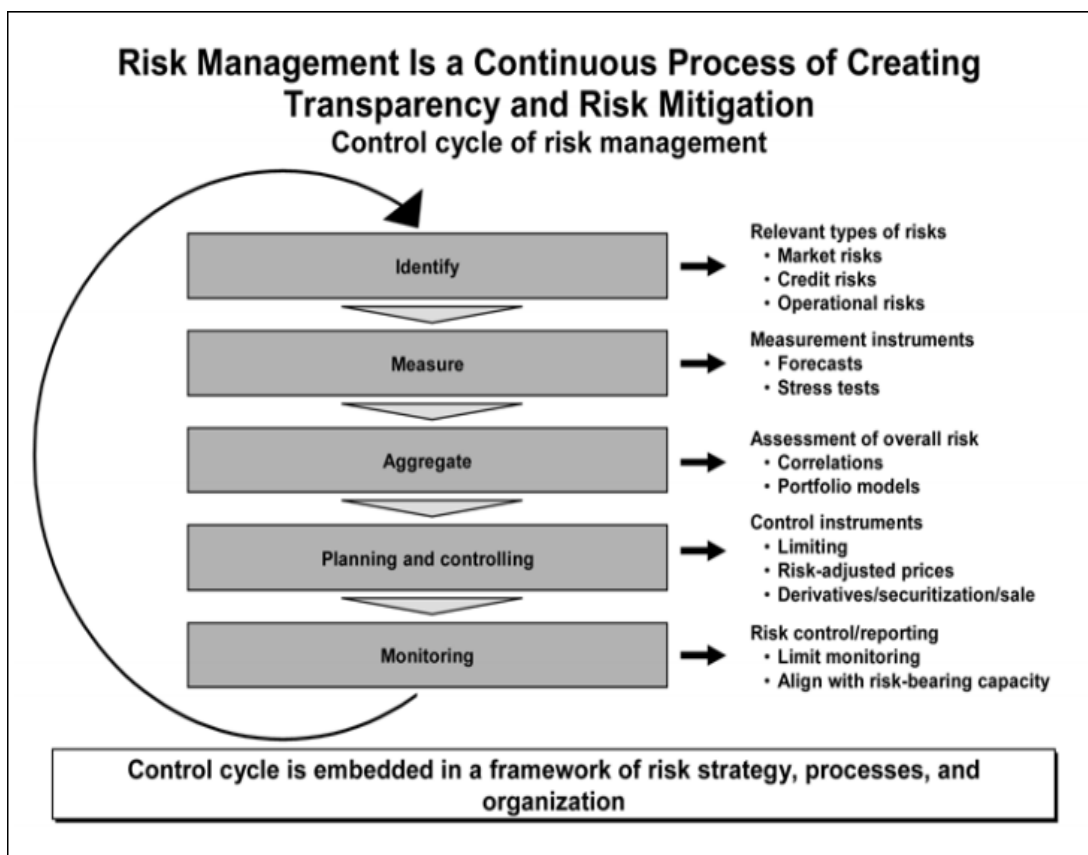
As we can notice from the scheme, the first step is the identification (recognizing) the risk. After the fact that the risk exists, measures are taken (measuring the intensity of the risk) and assessments (aggregate step) of the outcome is being done. The level of credit risk is based on the possible potential losses which are classified as expected and unexpected. The planning and controlling step stands for avoiding the risk or decreasing its intensity. Different management tools are used in this step as selling assets, setting risk limitation for different portfolios, utilizing derivatives, credit insurance and guarantees. At the end, the monitoring is done just to see if the expected results are favorable and to ensure that the financial institution is having capacity of bearing risks (OeNB, 2004).

The CBs should be able to manage the risk in individual credits or transactions but more important is to handle with credit risk inherent in the entire portfolio. Furthermore, the OCC established the essential components of a portfolio risk management process: evaluating the institution’s credit culture, setting portfolio objectives and risk tolerance limits, establishing portfolio management information system, portfolio segmentation and risk diversification objectives, analyzing adequately loans originated by other lenders,

creating underwriting exceptions system and aggregate policy, portfolio's stress tests, independent controls maintaining and portfolio risk analyzing (Glantz, 2002).

The sound practices for managing credit risk were issued by the Basel Committee (2000), and were grouped in four different areas: credit risk environment establishment; operating under a sound credit-granting process; maintaining an appropriate credit administration, measurement and monitoring process; ensuring adequate controls over credit risk.

Figure 5: Risk Management process



Source: OeNB (2004).

“Credit risk environment establishment” means that the board of directors should establish a credit risk strategy (strategy for selecting risks and maximizing profits) based on its objectives. The board needs to adopt the necessary policies for credit-granting. Credit-granting should be categorized by exposure type, geographical location, maturity, economic sector and anticipated profitability. The financial results should be observed periodically. The board should select the best senior managements that are capable of managing the credit activities. For implementing the credit risk strategies, responsible are the senior managers. They also need to develop policies and procedures for identifying, measuring, monitoring and controlling the risk. The credit risk should be recognized and managed in every bank activity and product (Bank for International Settlements, 2000).

The second area practice is the “operating under a sound credit-granting process”. The bank’s credit-granting criteria, target market, credit’s structure and its source of repayment should be well defined. The banks need to establish overall credit limits that would differ for individual debtors, counterparties and connected counterparties. Credit approval process should be clear. The amendments, renewal and re-financing of existing credits should be also well defined. Debtors need to be carefully monitored (Bank for International Settlements, 2000).

Under the area of “maintaining an appropriate credit administration, measurement and monitoring process”, Basel Committee is suggesting creation of administrative system for the numerous risk-bearing portfolios and system for monitoring the individual credits. In addition, banks should create an internal risk rating system parallel to the size, nature and complexity of bank’s activities. The banks need to develop management information system for preparing information related to the composition of the credit portfolio. Also, they need to establish analytical techniques to measure the credit risk through on- and off-balance sheet activities. BC is suggesting establishment of system for monitoring and assessing the individual credits and quality-credit portfolios (Bank for International Settlements, 2000).

In the fourth area (Ensuring adequate controls over credit risk), suggestions were made related to the establishment of independent assessment system of bank’s credit risk management processes. Internal controls should be timely defined. Early action should be applied by the appropriate level of management if deteriorating credits appear or similar problems (Bank for International Settlements, 2000).

Basel Committee wanted to motivate and encourage banking supervisors around the globe to promote those practices in Basel 2, were introduced two principal techniques for measuring the credit risk: the standardized approach and the internal ratings-based (IRB), explained in the chapter before (see 2.5.2 Basel 2).

The credit risk is directly connected with the NPL phenomenon. A study based on panel data analysis is showing that the NPL growth malfunction is related to systematic and non-systematic factors like asset bubbles and risk management quality. The systematic factors are variables that can’t be controlled by the banks. In addition, the non-systematic risk factors are actually bank-specific variables that can be controlled by the bank’s management (Al-Jarrah, 2012). Another study showed that the commercial banks with higher levels of risk appetite are disposed to higher losses (Keeton & Morris, 1987). Similar conclusions were brought by the authors Haneef et al. (2012) which stated that the NPLs are increasing because of poor risk management.

3.3 Non-Performing Loans

In the IMF's report "The Treatment of Nonperforming Loans", the nonperforming loan (NPL) is precisely defined as:

"A loan is nonperforming when payments of interest and/or principal are past due by 90 days or more, or interest payments equal to 90 days or more have been capitalized, refinanced, or delayed by agreement, or payment are less than 90 days overdue, but there are other good reasons such as a debtor filing for bankruptcy to doubt that payments will be made in full. After a loan is classified as nonperforming, it should remain classified as such until written off or payments of interest and/or principal are received on this or subsequent loans that replace the original" (International Monetary Fund, 2005, p.8).

Around the globe, the NPL definitions differ, because of the different views on the phenomenon. There are definitions emerged from "product views" and other ones resulted on "customer views". According to the Working group on NPLs in Central, Eastern and South-Eastern Europe (CESEE), established under the European Bank Coordination Initiative (EBCI), the Slovenian definition is:

"NPLs cover classified claims with delays over 90 days. Classified claims include financial assets at amortized cost and some risk-bearing off-balance sheet items on which a payment liability could arise. NPLs definition accounts for the total amount of classified claims (in case that the amount of the overdue customer's liabilities to the bank exceeds EUR 1.000, the number of delays has to be started to count and the entire exposure to customer has to be assigned as non-performing – not only the overdue part)" (European Banking Coordination "Vienna" Initiative, 2012, p.15).

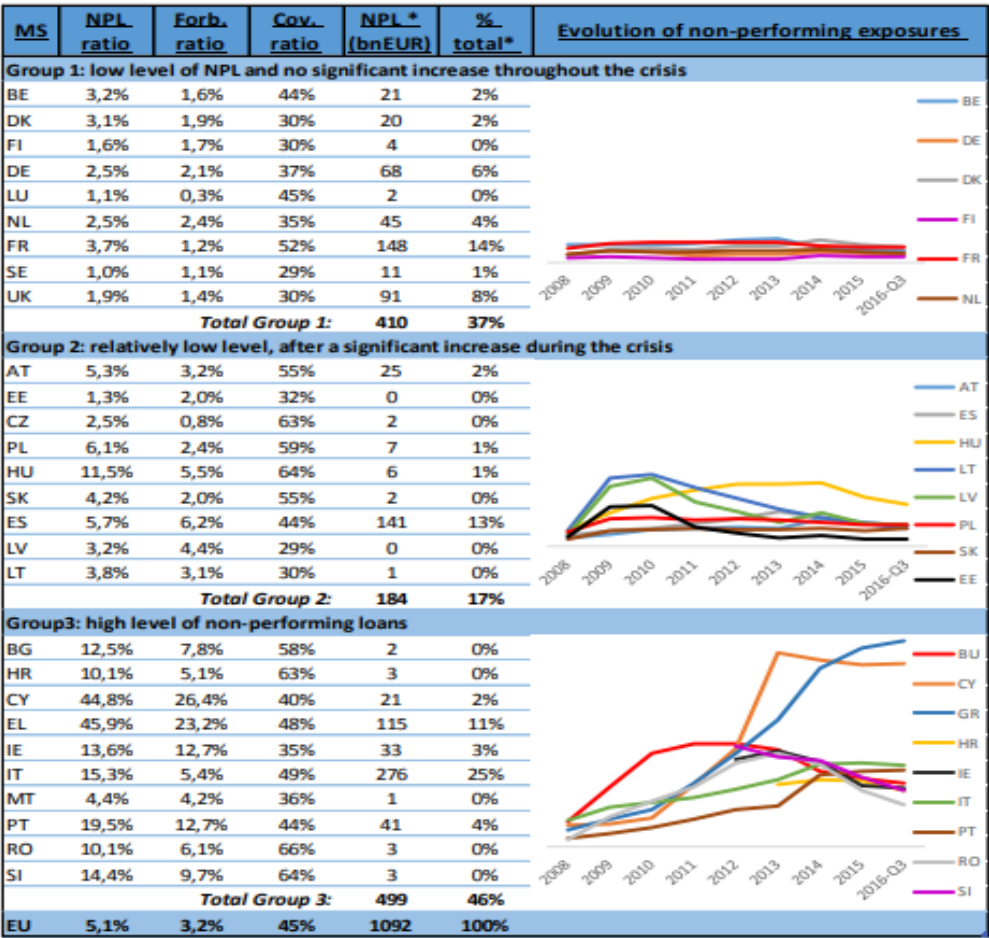
There are two situations when the loan is classified as nonperforming. The first one is when the loans are placed on nonaccrual status and the second is when the loan terms are reestablishing. Nonaccrual status is explained by Koch and MacDonald (2000) in their book "Bank Management": "banks deduct all interest on the loans that was recorded, but not really collected". When debt payments are more than 90 days past due, banks are stopping accruing interest.

NPLs are creating double effect on financial statements. Net Interest Income is increasing because of the interest accrued but not collected, so it appears overstating of return on assets (ROA), return on equity (ROE) and net interest margin (NIM). The credit risk is higher than it appears if the NPLs are understated on the balance sheet. The maximum size of the provision is set by IRS regulation (for tax purposes) because the bank's provisions for loan losses and the reserve for losses can disfigure the financial reports (Koch & MacDonald, 2000).

Different indicators are used for measuring bank's lending activity. As we mentioned before, the non-performing loans to total loans (NPL ratio) is shown as main indicator for

identifying credit risk. Also, we should mention the loan loss provision to total loans (LLP ratio). NPL ratio is calculated as total non-performing loans divided by the total amount of outstanding loans in the bank's portfolio, expressed as percentage. LLP is a created expense as an allowance for the loans that are not collected (Ozili, 2018). Another ratio that is connected to this phenomenon is the coverage ratio. It's a ratio that shows the firm's capability to meet its financial obligation to another party, calculated as net operating income divided with debt service obligation. It shows the firm's capacity of managing debt. This ratio can help in identifying financial difficulties of the firms (Kolbe, Greer & Runder, 2003)

Figure 6: NPL ratios in Member States as of December 2016



Source: European Commission (2018b).

Crucial information for the banks is the NPLs stock size and the availability of bank capital to absorb the losses. The Financial Stability Institute is promoting three key tools for measuring the size of the NPL problem: asset quality reviews (AQRs), stress testing and on-site inspections (OSIs) (Baudino & Yun, 2017). OSIs are represented as deep investigations, controls and governance of risk. Primary, the AQRs are form of risk analysis based on bank's data, checking the securities and credit portfolios and assessing

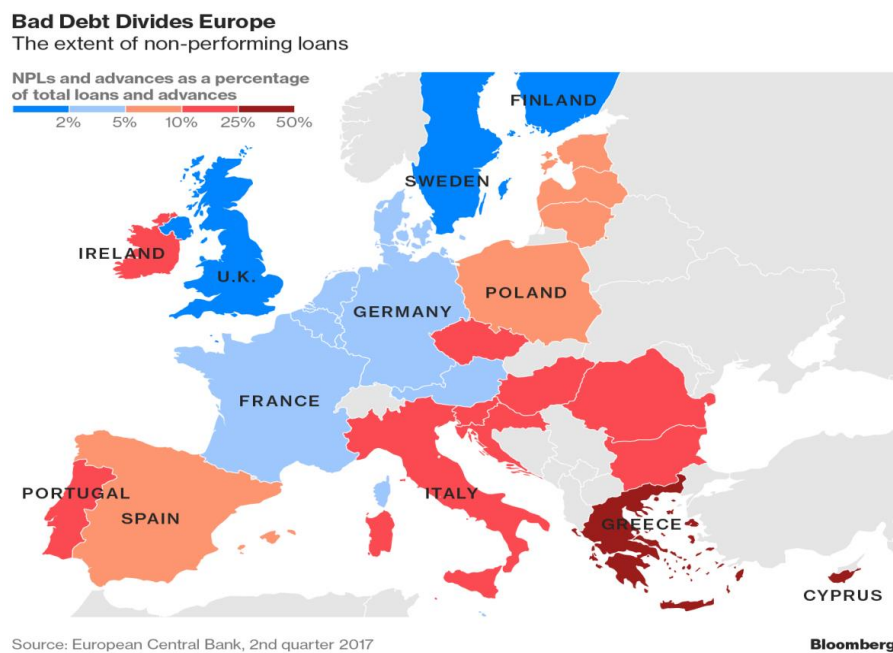
the NPL problem. AQRs should be done by a third party – competent authorities. Stress-testing is a simulation model with forward-looking nature, focusing on credit, market and liquidity risk. It is a form of scenario analysis that is evaluating the risk of not having enough capital during bad economy (Malta Financial Service Authority, 2015).

Based on different country-specific characteristics, the size of the non-performing loan phenomenon can vary. Predominately, the NPL issue is responsibility of the national authorities, but also the EU has particular duties. Because of the deep financial and economic integration in Euro Area, member states with high NPL ratios can affect the financial stability of the other countries in the union (cross-border spillovers). The national authorities should collaborate with the European institutions to reduce the high NPL (Council of the EU, 2017).

In 2016, ECB categorized the member states in three different groups (see Figure 6):

- Member States with low level of NPLs and with no significant level of NPL growth during the financial crisis (Belgium, Denmark, Finland, Germany, Luxemburg, the Netherlands, France, Sweden and UK).
- Another 9 countries with low level NPLs, but with significant level of NPL growth during the crisis (Austria, Estonia, Czech Republic, Poland, Hungary, Slovak Republic, Spain, Latvia and Lithuania).
- The third group is formed by Bulgaria, Croatia, Cyprus, Greece, Ireland, Italy, Malta, Portugal, Romania and Slovenia. In this group are placed countries with critically high level of NPLs.

Figure 7: Bad debt across Europe 2017



Source: Bloomberg (2018).

For further empirical research, we chose one country from the first group (low level NPLs and no significant growth) as a benchmark and one from the third group (critically high level of NPLs) to make comparison (See Chapter 4).

In the end of 2016, the NPL amount reached approximately € 1 trillion, which is 5.1 % of total loans in EU and 6.7 % of European Union's GDP. There are EU countries with low NPL ratios (below 3 %) and some of them with high NPL ratios (above 10 %). The bad debts across Europe varied (See Figure 7). In 2017, EU banks started to "clean-up" their balance sheets and the NPL ratio in the EU banking sector dropped from 5.4 % to 4.5 %. The data for this research was collected and compared from 132 banks over Europe (EBA, 2017).

According to EBA, in the end of 2016, the NPL ratio was highest in the SMEs sector with 15.5%, large corporate sector with 7.0 % and households sector with 4.6%. Through the perspective of bank's size, NPL ratios are highest in medium-sized banks (EBA, 2017).

3.4 Non-Performing Loan Management and Solutions

Non-performing loans should be kept on the lowest possible level in the balance sheets, because that will lead the CBs to profit and success in the long run. With a low NPL levels, the banks can reach the most desired situation of lower risk. It would reflect in the macroeconomic environment with restored health of the banking sector. It is very important the banks to clean their balance sheets, to prevent the buildup on new NPLs stocks and consolidate the trend, using different policy instruments (See Table 5). The quality of banks' loans portfolios, need to improve.

The NPL management objective is to manage and handle the bank's bad debts, develop and implement a regulations, policy and strategies which will keep the lowest level of risk in the banks and prevent the appearance of non-performing loans. The hardest task for the CBs, national authorities and EU institutions is to find the exact method for resolving the NPL problem. Two main obstacles in resolving the bad debts (identified by ECB research) are expensive insolvency processes and inefficiency of non-performing loans market. Another issue is the poor data quality as incomplete loan documentation, lack of data records of exposure, poor collateral data, low data quality (changes in data sources) (PwC, 2017).

Many authors are arguing that the best method for resolving the non-performing loans is early detection. Mr. Onich (2010) is explaining the process of managing loan portfolio in two simple steps: origination and monitoring. Origination is based on three C's criteria: character (integrity and competence), capacity (repayment ability of the client) and collateral (security hold for the loan). Monitoring is having much more to do with the early detection and warning signs of problem loans. It categorizes the symptoms in three segment indicators: liquidity, behavioral and financial indicators.

Table 5: Range of solutions to the NPL problem

Policy instruments to resolve systematic NPLs	
Debtors (non-financial companies)	
Policy instruments	How it works ?
Debt restructuring, including out-of-court workouts.	Either corporate or loan restructuring, involving the banks that are creditors to the same customer.
Banks	
Policy instruments	How it works ?
Write-off	Loans are written off from banks' balance sheets.
Direct Sale	Banks or AMCs sell NPLs in dedicated markets.
Securitisation	Banks, SPVs or AMCs pool and tranche loans and sell the securitised products in dedicated markets.
Asset protection schemes	State-backed entities offer insurance on loss on NPLs in order to restart banks' credit provision.
Centralised asset management company (AMC)	Dedicated companies buy bad assets from the problem banks.

Source: Adapted from Baudino & Yun (2017).

Similar to this model, the WB is proposing the EWS (early warning system) as a part of the bank's risk management. It provides early warning signal of possible payment difficulties of a debtor and arranges action plan at a very early phase. Compared to Onich's two stepped model, this one is having three stages: identification, action and monitoring. The signal identification starts with establishment of parameters. Monitoring is implemented in the frame of the risk management, through separate units in the middle and back office. If the EWS unit notices a warning signal, the high level management is warned. The account officer is contacting the borrower and reviews the potential future difficulty in payments. Risk management analyses are done and corrective action plan is revealed. The exposure is put on a watch list as monitoring subject for 12 months (The World Bank, 2017).

In addition, the indebted banks with high NPL should have separate work-out units (NPL WUs) that will manage the bad debt through its life cycle. It is an operating model for managing the bad debts. NPL WUs are taking part in building the relationship with the client, decision making process and loan origination. "Early arrears" is the first stage of the NPL life cycle, and the NPL WUs are collecting information about the debtor's financial position and making portfolio segmentation (grouping debtors with same characteristics). In this stage they are focusing on early recovery. The second stage is "restructuring" in which the WUs are re-formulating the agreements with their clients-borrowers. After the agreement restructure, the debtors are putted under monitoring. The last stage is the "debt

recovery”, where the WU’s are assessing the liquidation options (out-of court or in-court procedures) of the non-viable firms based on cost-benefit analysis (European Central Bank, 2017).

A comprehensive NPL resolution strategy was created by IMF in 2015 and it relies on three principal pillars: enhanced supervision, insolvency reforms and the development of distressed debt market.

3.4.1 Enhanced Supervision

The tightened supervisory policies are conducted by SSM and EBA, by pursuing a robust application of accounting standards. They manifest with more conservative provisioning, income recognition and write offs. Management judgment and assumptions, provisioning methodologies for collectively evaluated loans and suitable impairment triggers are the focus of the particular guidance on provisions. The enhanced supervisory policy should write-off the timely uncollectible loan, before falling in legal procedures to collect the debt. Different constrains in accessing, estimating and disposing of the securities are making part of the conservative approach to collateral valuation. The securities should be valued by third party competent experts. Another form of enhanced supervision is strengthen capital requirements (to encourage asset disposal), and was discussed before (in 2.5 The Basel Accords). In addition, the CBs with high NPLs should be placed under intensive monitoring and set operational targets for them to write-off or restructure their problem loans. This is called prudential oversight. Through, the development of internal NPL management capabilities, the banks would be able to create particular tools for early arrears (the arrears amount is calculated after the first missed payment), to give priorities to the fragile cases based on risk scoring, to make customer charter that would care for the difficulties in the complicated cases. For the NPL oversight, the CBs need to strengthen the regulatory sanctions toolkit and enhance disclosure (Aiyar et al., 2015).

3.4.2 Insolvency Reform

As a part of the NPL issue resolution, Mr. Constâncio (vice-president of ECB) recommended survival and early restructuring for the viable but distressed companies. The non-viable firms should be expelled (European Central Bank, 2017). This should be based on legal framework (in and out of court solutions) and adequate institutional framework (courts that would efficiently implement the law). One of the resolution methods that enhance the insolvency reforms is debt-for-equity swap. This method prolongs life-cycle to the companies, protects the employment and influences the company’s growth (Anastasiou, Louri & Tsionas, 2016). Out of court workout schemes for loan restructuring are giving quick results and are less costly. Other methods that enforce the insolvency laws are pre-insolvency restructuring processes. It means that the firm’s indebtedness can be restructured before reaching non-viability. The European authorities should also improve

the institutional framework (strengthening of the juridical system) and to facilitate participation of public creditors in restructuring process.

3.4.3 Distressed Debt Market

NPL restructuring market is developed on the basis of NPL sales, collateral values and financial information about the distressed debtor. Asymmetric information is one of the main obstacles in the enlarging of the secondary NPL market. As a part of the solution and developing the market, the IMF proposed securitization and Asset Management Companies (AMCs) or also known as bad banks (Aiyar et al., 2015).

Securitization is a resolution approach that stimulates the secondary market of distressed debt. ESRB is defining securitization of impaired assets as significant transfer of risk, without needing complete separation from those assets. This technique is related with the creation of special purpose vehicles (SPVs). Securitization starts with transferring the NPL portfolios in SPV. Actually, the originating banks are selling their NPLs to a SPV for a price smaller than the face value. Then the SPVs are issuing debt instruments to different investors in distinct tranches with a purpose of generating some cash flow from the NPLs. The cash flow is collected by the SPV and the collector is actually a third party so called “the servicer”. There are examples where the originating bank can be a collector. Some structural features as hedging, liquidity and credit enhancement are activated in the case of generating insufficient cash flow. This technique is beneficial for the banks burdened with NPLs, but also for the external investors (European Systemic Risk Board, 2017).

AMCs are constructed to clean up the troubled assets from bank’s balance sheets and to decrease the related uncertainty premia. This is a practice of selling NPLs. Their aim is to stabilize the national banking sector through bank’s restructuring. From bank’s perspective this is a great opportunity to be saved from the NPL burden. AMCs are selling bad assets (NPLs) to private investors, using the pricing gap (the gap between bank’s NPL sells price and the price that the investors are willing to pay). They could be public or private, but the Commission is working on creating national AMCs. These companies can develop economies of scale (that’s why they are more practical than the individual banks), greater bargaining power, encouraging specialization, better valuation and credit discipline and all these segments lead to price discovery. AMCs are improving the transparency in the secondary market with actual information and they are encouraging new investors to enter the market (Aiyar et al., 2015).

4 RESEARCH METHODOLOGY

The aim of this chapter is to answer on the first research question: “How the NPL affects the performance of the bank?” This represents the empirical part of the master thesis. It comprehends data collection techniques and result analysis. The statistical model is

explained throughout its dependent and independent variables, linked to the theoretical part of the master thesis.

4.1 Scope, Data Sampling and Data Analysis

The first research question is referring to the Swedish and Slovenian commercial banking sector. As mentioned before, the scope of this study is to inspect and analyze the effect of the NPL on the commercial bank's performance in these two countries. In Chapter 3 (See 3.3 Non Performing Loans) were listed three groups of countries categorized by ECB through their NPL ratio. So, Sweden as a country is a representative of the first and Slovenia of the third group. The scope of this chapter is to identify the negative or positive relationship between the bank's performance/ profitability and the NPL, through statistical measures.

First of all, we should explain and precise some basic terms that would be used through this chapter. During the process of collecting data and preparation for analysis, we chose a specific and precise statistical population. Primary, the population is defined and then a sample is taken. The population represents a set of events, component or units connected with the exploring of certain phenomenon. The sampling is another term that needs explanation. It is a method of selecting subset of the population (Levy & Lemeshow, 2008). In this case, the units of the population are 22 commercial banks, 13 from Sweden and 9 from Slovenia. The list of the banks is presented in Appendix 2. At the beginning, the data base was much bigger; it was limited to 42 commercial banks. Because of the numerous missing values, only the CBs with almost complete data were selected.

It is important to note that, the data in this research is secondary. It means that the data was collected by other subject. The source of the collected secondary data is Fitch Connect, an online world-wide platform for credit data, current ratings, corporate profiles and fundamental financial data. This platform is designed by one of the biggest credit rating companies – Fitch Ratings. From this platform, was extracted a microeconomic data for the bank-specific variables. Another platform that was used is The World Bank Open Data. From this platform was extracted a data for the macro-economical variables.

This study is having a longitudinal character, because of the panel data usage. It means that the data was observed over time and is having a time dimension (Frees, 2004). In this example, the data was observed nine years, from 2008 till 2016. It represents the starting crisis period in which the NPL ratio was rapidly growing through Europe and the post-crisis period characterized with decreasing of the NPL ratio.

In addition, the data was classified and divided by individual commercial banks for every year in the period of 2008–2016, using the software program Microsoft Excel. The specific banks as well as the exact years were located in the Excel rows and the variables were located in the Excel columns. Lastly, the data was processed with the software for

statistical analysis - IBM SPSS Statistics 22. For explaining the relationship between the dependent variable and the other independent variables was used a standard multiple linear regression analysis. In the SPSS program it is called the “Enter” method. These analyses are the most frequent in empirical researches. Different estimation statistical techniques were utilized as: descriptive analyzes (mean and standard deviation), correlations, model summery (R, R Square, Adjusted R Square, Durbin-Watson etc.), ANOVA, coefficient correlations, collinearity diagnostics, residuals statistics and descriptive statistics (measures of Skewness and Kurtosis).

4.2 Model Specification

In the statistical and econometrical theory, the multiple linear regression is defined as analysis with predictive nature, which explains the relationship between a dependent variable and numerous (more than one) independent explanatory variables. During the specification of the model, the researcher is defining which explanatory variables would be included in the equation. The model specification is always backed with a theoretical knowledge (Allen, 1997).

For the purpose of the research, the following multi-linear regression model was designed:

$$ROE_{i,t} = \alpha_i + \beta_1 NPL_{i,t} + \beta_2 CAR_{i,t} + \beta_3 ROA_{i,t} + \beta_4 GGL_{i,t} + \beta_5 NLTA_{i,t} + \beta_6 GDPG_{i,t} + \beta_7 INF_{i,t} + \beta_8 UNM_{i,t} + \varepsilon_{i,t} \quad (11)$$

From the equation (11), the following components can be identified:

- Return on Equity ratio ($ROE_{i,t}$) as a dependent variable (Y), measuring profitability and bank’s performance.
- i = individual dimension (specific bank); t = time dimension (precise year)
- α_i as a constant or intercept term.
- β_1 - β_8 as a beta coefficients or parameters of the independent variables that are determine the effects on the dependent variable.
- There are 8 independent variables (X_1 - X_8) that affect the Y: Non-Performing Loans ratio (NPL), Total Regulatory Capital ratio (CAR), Return on Assets ratio (ROA), Growth of Gross Loans (GGL), Net Loans to Total Assets ratio (NLTA), Gross Domestic Product Growth (GDPG), Inflation (INF) and Unemployment (UNM).
- $\varepsilon_{i,t}$ is the error term or disturbance.

4.3 Research Variables

The chosen econometrical model is designed by one dependent variable and eight independent variables. The dependent variable is also called regresandor explained variable. In this econometrical model the “Return on Equity (ROE)” represents the independent variable. As we mentioned before, ROE ratio is a profitability performance

indicator. It can be calculated as bank's net income divided with shareholder's equity (Robinson, Henry, Pirie & Broihahn, 2015). The theory is saying that the independent variables are having direct effect on the dependent variable. Additional terms used for the independent variables are regressors and explanatory variables. In this case the ROE could be demonstrated and explained as a function (12) of NPL, CAR, ROA, GGL, NLTA, GDPG, INF and UNM. Algebraically expressed as:

$$ROE = f(NPL, CAR, ROA, GGL, NLTA, GDPG, INF, UNM) \quad (12)$$

Therefore, the explanatory variables can be divided in two subgroups. The first one is the bank-level micro-economic variables. This subgroup includes: the non-performing loans ratio, total regulatory capital ratio, return on assets ratio, growth of gross loans and net loans to total assets ratio. The second subgroup incorporates external macroeconomic variables as: the gross domestic product growth, inflation and unemployment.

Non-performing loan ratio is the key explanatory variable. To be more precise, the dependent variable (ROE) and the first independent variable (NPL) are of primary interest in this experiment. It is important to note that, the main scope of this investigation is the impact (effect) of the non-performing loans (NPL) on the bank's profitability (ROE). All of the variables are expressed as a percentage (%).

As we explained in the previous chapter, the NPL ratio typifies the bank's effectiveness in collecting repayments on its loans. With this variable starts the first microeconomic part of the model. The ratio is calculated as a percentage of non-performing loans to the total gross loans that the bank holds. Some scholars as Klein (2013), Anastasiou, Louri and Tsionas (2016), Alper and Anbar (2011) are arguing that the return on equity is negatively correlated with non-performing loans. The logic behind this statement is that the profitability of the banks is decreasing when the debt repaying is stopped. For more detailed explanation about the non-performing loans, look in the previous chapter.

The second explanatory variable is CAR, the capital adequacy ratio or more precise the total regulatory capital ratio. This ratio indicates stability and safety for the CBs, because the capital absorbs losses and provides protection. However, this variable is best described in the third chapter, under the Basel regulations. The vast majority of published researches claim that the relation between CAR and ROE is positive. This affirmation was confirmed by Goddard, Molyneux and Willson (2004) same as Kim and Rasiah (2010). Another early study that justifies this evidence is written by Berger (1995). The rational explanation behind this statement is that the CBs are expecting higher returns if they raise the risk assets (Bateni, Vakiliford & Asghari, 2014).

Another variable included in the model is the profitability ratio ROA (return on assets). It can be calculated as a ratio of net income during a certain period to the total bank's assets. This ratio is directly connected to ROE and it represents a benchmark for profitability. In other words, this measurement measures the bank's efficiency of rising profits with its

available assets. Many articles are showing the strong positive relationship between ROA and ROE ratios. The improvement of return on asset can improve the return on equity (Robinson, Henry, Pirie & Broihahn, 2015). Some scholars as Grier (2007), Koch and MacDonald (2000) claim that these two ratios are connected each other through the equity multiplier (total assets divided by equity).

The fourth independent variable is the growth of gross loans (GGL), which is determined as an asset quality ratio by the platform Fitch Connect. It is a measure for bank's lending activity. Köhler (2012) in his analysis explains that significant drop in the bank's performance was measured in the EU banks, after the growth of loan rates through the financial crisis. However, the ROE ratio was reduced during this period, while the average rate of loan growth was rising. In other hand, he suggests permanent monitoring by the supervisors to the gross loans growth because that leads to bank risk and miss-performance. Another scholars as Fahlenbrach, Prilmeier and Stulz (2016) indicate that the rapid growth of loans can guide the banks to a poor performance.

Additionally, the model also contains the net loans to total assets (NLTA) as a liquidity ratio. The theory is suggesting that, with the rise of this ratio, the bank loans become less liquid assets and the bank risk is boosting. In some studies, the return on equity is having negative relationship with the loans to total assets ratio (Trujillo-Ponce, 2013). Other scholars as Abreu and Mendes (2002) are showing that this ratio affects positively the bank's profitability. One thing is clear by this research evidence loans to total assets ratio is having an impact on the ROE, whether is positive or negative.

The second part of the model is constructed by macroeconomic variables. The first element is the gross domestic product growth (GDPG), an indicator for a country's economic health and prosperity. As a measurement for the economy size, GDP is the market value of all services and goods produced in a specific country for a specific period (one year) (Baumol & Blinder, 2016). In this study, the GDP growth is measured at annual level. Accordingly, Rumler and Waschiczek (2010), Albertazzi and Gambacorta (2009), Bordeleau and Graham (2010) are showing evidences that bank's ROE and the growth of GDP are positively correlated. Their studies are proving that the CBs are having higher profits in a period of economic growth.

The second macroeconomic variable is the inflation (INF), a variable that is frequently used by the authors in this kind of bank related researches. Inflation as a determinant is influencing the bank's lending. In the example of the Korean banking sector, the inflation is positively affecting the bank's profitability with pro-cyclical impact (Sufian, 2011). The results are consistent with the study of Pasiouras and Kosmidou (2007) for the commercial banks in the European Union and the case of China by Tan and Floros (2012). Some of the evidences are showing that the bank's profitability is increased by high inflation rates (Guru, Staunton & Shanmugam, 2002). Contrariwise, some authors like Abreu and

Mendes (2002) are claiming that the relationship between inflation and performance is negative.

The last explanatory variable in the model is the unemployment rate (UNM). Many authors noticed negative relationship between the CB's ROE and unemployment. Samhan and Al-Khatib (2015) found the negative relationship between these variables in the Jordanian Islamic banks. Another study by Bordeleau and Graham (2010) based on a sample of Canadian and US banks is showing the same empirical evidence. The unemployment rate is calculated as a number of unemployed workers divided with total labor force. Higher unemployment rate can lead to bigger probability of loans default that can reduce the bank's profitability (Bordeleau & Graham, 2010).

Table 6: Presentation of the independent variables

Category	Variable	Symbol	Expected sign
Microeconomic variables (bank-specific)	Non-Performing Loans ratio	NPL	(-)
	Total Regulatory Capital ratio	CAR	(+)
	Return on Assets ratio	ROA	(+)
	Growth of Gross Loans	GGL	(-)
	Net Loans to Total Assets ratio	NLTA	(+) / (-)
Macroeconomic variables	Gross Domestic Product Growth	GDPG	(+)
	Inflation	INF	(+) / (-)
	Unemployment	UNM	(-)

Source: Own work.

4.4 Hypothesis

The null and alternative hypotheses are represented in the following order:

- a) $H_0: \beta_1=0$ (Exists an insignificant impact of NPL on ROE); $H_1: \beta_1 \neq 0$ (Exists a significant impact of NPL on ROE).
- b) $H_0: \beta_2=0$ (Exists an insignificant impact of CAR on ROE); $H_1: \beta_2 \neq 0$ (Exists a significant impact of CAR on ROE).
- c) $H_0: \beta_3=0$ (Exists an insignificant impact of ROA on ROE); $H_1: \beta_3 \neq 0$ (Exists a significant impact of ROA on ROE).

- d) $H_0: \beta_4=0$ (Exists an insignificant impact of GGL on ROE); $H_1: \beta_4 \neq 0$ (Exists a significant impact of GGL on ROE).
- e) $H_0: \beta_5=0$ (Exists an insignificant impact of NLTA on ROE); $H_1: \beta_5 \neq 0$ (Exists a significant impact of NLTA on ROE).
- f) $H_0: \beta_6=0$ (Exists an insignificant impact of GDPG on ROE); $H_1: \beta_6 \neq 0$ (Exists a significant impact of GDPG on ROE).
- g) $H_0: \beta_7=0$ (Exists an insignificant impact of INF on ROE); $H_1: \beta_7 \neq 0$ (Exists a significant impact of INF on ROE).
- h) $H_0: \beta_8=0$ (Exists an insignificant impact of UNM on ROE); $H_1: \beta_8 \neq 0$ (Exists a significant impact of UNM on ROE).

4.5 Results and Discussion

The interpretation of the regression results, obtained with SPSS software would be presented in this section. In the Appendices part is included the whole SPSS output.

However, the explanation of the multiple linear regression's output starts with the model summary that is located in Appendix 3. The first statistical measures are R; R^2 and adjusted R^2 . The R value is representing the simple correlation between the independent variables and the dependent variable. In the model summary, this value is equal to 0.95 which means a high degree of correlation. Furthermore, the R square is suggesting how much can be the bank's profitability (ROE) explained by the chosen independent variables. In this case, R^2 is 0.92 which indicate that the model is explained almost 92%. The value is large and it means that the model fits the data. Also, the adjusted R^2 is showing a satisfactory explanatory power of 0.897 or 89.7 %. Another important component is the F test, with value of 178.021 and p-value of 0.000 which suggests that the result is statistically significant. The Durbin-Watson test statistic value is 1.597 which is normal and is between the critical values of 1.5 and 2.5. It suggests that there is no first order linear auto-correlation in the model.

The next table from Appendix 3 represents the analysis of variance (ANOVA) and this test shows how much the experiment is significant. In other words, the ANOVA test describes the prediction of the dependent variable, through the regression equation. In the first column, the total represents the variance that is explained by the model (Regression) and the unexplained variance (Error). The p-value is less than 0.05 and the model is statistically significant (it is noted in the Sig. column).

Furthermore, the third table from Appendix 3 is the coefficients table. The coefficients table of Appendix 3 can directly answer on the first research question. The results are showing that the NPL coefficient (-0.512) is negatively affecting the profitability (performance) of commercial banks in Slovenia and Sweden. The p-value of 0.000 is declaring a statistical significance. So, if the NPL ratio will increase yearly, the bank's performance will decrease, holding the other regressors constant. The regression equation

shows that for each increase of 1 % in percentage change of non-performing loans ratio, the Slovenian and Swedish banks ROE decrease by 0.512 %.

From the same table, we can also notice that only four parameters are statistically significant, for the following variables: NPL, CAR, ROA and NLTA. So, the H_0 hypothesis would be rejected for those variables (See 5.4 Hypothesis). They are having a p-value that is smaller than 0.05. Those variables are representing the micro-economical part of the model. Unexpectedly the second variable (CAR) is showing a negative relationship to the ROE with statistical significance of $p = 0.0001$. The following explanatory variable (ROA) is in a line with the previous existing theory. There is a strong positive relationship of 9.621 and it is significant. The variable growth of gross loans is also confirming the theory. A negative relationship exists between the GGL and ROE, but the impact is insignificant. The last bank-specific variable, the NLTA is having a negative and significant impact on the bank's performance. In addition, the macroeconomic variables as GDP, Inflation and Unemployment rate are statistically insignificant and are pointing a positive relationship with ROE.

In the last table of Appendix 3 are located the collinearity diagnostic factors "Tolerance" and the "variance inflation factor (VIF)". The tolerance indicates that there is no multicollinearity, because the values are bigger than 0.2. In our case they vary between 0.403 and 0.863. In addition, the VIF range is between 1.240 and 2.482, which is quite satisfactory. Results are showing that the model is not having a multicollinearity problem, because the VIF values lie between 1 and 5.

During the empirical analysis, the descriptive statistics were also inspected. The results obtained are located in Appendix 4. Key figures that make part from the descriptive statistics are mean, min-max values, standard deviation, Skewness and Kurtosis measures.

Primarily, the dependent variable ROE (Net Income / Equity) ranges between -144.51 % and 34.07 %. During the financial crises, most of the Slovenian banks had negative return on equity and this is the reason for high disparity. Secondly, the NPL ratio ranges from 0.02 % to 57.27 %. CBs with highest NPLs during the inspected period are the Slovenian banks: Abanka, SID, NKBM and Gorenjska in the critical period of 2012 till 2015. Further, the total regulatory capital ratio varies between 1.13 % minimum and 261 % maximum. The Swedish banks are revealing the highest capital ratios, especially the Handelsbanken Finans AB bank. Also, the results suggest that some of the inspected banks did not meet the capital requirements during the 2008–2016 time-periods. Same results can be observed for the ROA as for the ROE. During the financial crisis, many of the Slovenian banks had negative return on assets. The ROA ratio ranges between -13.30 % and 3.86 %. Last but not least, growth of gross loans variety is spreading between minimum -51.34% and maximum 115.54 %. The highest negative GGL refers to Handelsbanken Finans AB bank. Some of the banks reduced their lending activity to protect themselves from credit risk.

The last bank-specific variable (net loans to total assets) is having range of 11.79 % minimum and 96.94 % maximum.

Continuing with the macroeconomic variables from the model, the gross domestic product growth is showing values of min. -7.80 and max 5.99. Because of the financial crisis, Slovenia and Sweden were having some negative growth of GDP especially in 2009. The inflation as second variable varies between -0.99 and 4.51. The high inflation can be observed for the years 2008 and 2009 for the both countries. Unemployment rate as the last variable of the model indicates min-max value of 4.37 and 10.10. The highest rates are connected to Slovenia.

Skewness and Kurtosis measures are making part of the descriptive statistics, and they are giving insights for the shape of the distribution. Skewness represents the lack of symmetry and Kurtosis measures the size of the two-tails (Morgan and Griego, 1998). In our example, some of the explanatory variables are having above normal skewness and kurtosis values. From the histogram that is located in Appendix 6, we can see that the curve is bell-shaped which is indicator for normal distribution. It is not perfectly symmetrically normal, but is closed to the normal curve.

The second table from Appendix 6 represents the normal probability plot technique (P-P plot of regression standardized residual) that assesses data's normal distribution. In the example below, we can notice that the normal P-P plot indicates satisfactorily normality assumption of the regression.

With the correlation matrix (located in Appendix 5), we inspected the relationship and correlation among the variables. As was mentioned before, the key variables in this model are the ratios NPL and ROE, so the interpretation would be done only for this two. First of all, the matrix is showing that between ROE and NPL exists significant negative correlation. Person's r is close to 1 (more precise -0.57), which suggests that there is a strong relationship between the variables. But the sign is negative so we could conclude that if the NPL ratio is increasing, than the bank's profitability would decrease. From the results, it is evident that ROE is having a weak positive insignificant correlation with the variables: CAR, NLTA and INF. The bank's profitability indicator displays a weak positive but significant relationship with the variables GGL and GDPG. Finally, a strong positive significant relationship exists between ROA and ROE. The unemployment rate and ROE are in weak negative significant correlation.

The Pearson Correlation is giving different results for the NPL correlation with the other variables. The matrix results are showing a weak negative insignificant relationship between NPL and CAR as between NPL and GDPG. The NPL ratio is having a weak negative significant correlation with the micro-variables ROA, GGL, NLTA and with the macro-variable INF. The only positive correlation is with the unemployment rate, which is not so weak (0.489) and is significant.

5 COMPARING SWEDISH AND SLOVENIAN NON-PERFORMING LOAN MANAGEMENT

This chapter incorporates comparative theoretical analysis, focused on answering the research questions: “Is the wrong NPL management the main cause for the slow NPL decreasing in Slovenia?” and “Which are the main differences between the Swedish and Slovenian NPL management?” Different types of reports for Slovenian and Swedish banking sector would be used. Sweden is taken as a benchmark with the lowest NPL ratio in the Euro-area.

5.1 Slovenian Banking Sector

The banking sector in Slovenia in comparison with EU countries is small-sized (less than the euro-zone average) and mainly state owned (See Table 7). Domestic banks like NLB, NKBM, SID and Abanka (state owned financial institutions) were facing declining in their credit portfolios which provided pressure on the capital buffers (Deloitte, 2017).

Table 7: Top 10 players in the Slovenian banking sector.

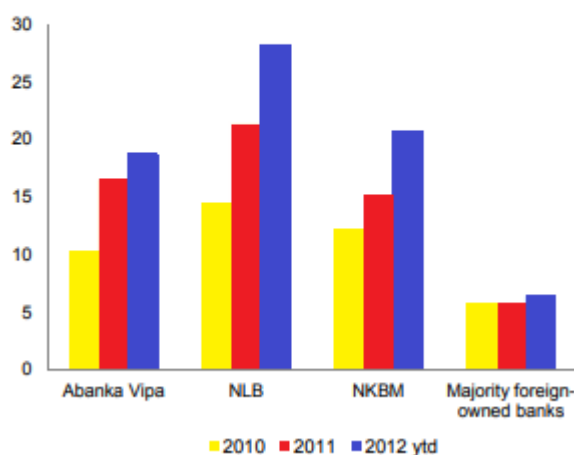
Bank (2015, EUR mn)	Assets	Loans	Equity	Net Profit	ROA	ROE	NPL ratio	NPL vol.	Major Owner
NLB	8,706	5,021	1,242	44	0.5%	3.5%	16.80%	844	State
Abanka	3,828	2,160	548	42	1.1%	7.7%	15.20%	328	State
NKBM	3,563	1,965	607	34	1.0%	5.6%	22.40%	440	State
SID Banka	3,198	805	364	10	0.3%	2.7%	14.80%	119	State
SKB Banka	2,561	1,926	358	34	1.3%	9.5%	11.60%	223	Societe Generale
UniCredit Banka	2,545	1,870	256	10	0.4%	3.9%	16.60%	310	UniCredit
Banka Koper	2,272	1,624	286	12	0.5%	4.2%	13.30%	216	Intesa Sanpaolo
Sberbank Banka	1,902	1,277	168	-3	-0.2%	-1.8%	17.60%	225	Sberbank
Gorenjska Banka	1,451	872	184	3	0.2%	1.6%	17.30%	151	Sava, d.d
Addiko Bank	1,344	n.a.	98	-52	-3.9%	-53.1%	n.a.	n.a.	Advent
Banking Sector Total	40,421	18,924	4,592	161	0.40%	3.50%	10.40%	1,967	

Source: Adapted from Deloitte (2017).

Because of the loose credit standards before the crisis (2004–2008), the sector was attracted by risky borrowers. This pre-crisis period was characterized with rise of credit growth, corporate indebtedness, poor risk assessment and lax lending standards. The economic recession in Slovenia started in 2008, more precise in the fourth quarter. The banking crisis had a credit risk character and this contributed to the rise of the non-performing loans (Volk, 2015).

The period between 2009 and 2013 was marked with economic unstable events as GDP drop, unemployment and financial distress. Public debt and budget deficit increased. Credit quality deterioration was leading the banks in constant losses. The overall NPL ratio sharply increased (See Figure 9), from 5.4 % in 2009 to 11.2 % in 2011 and 14.4 % in 2012 (European Commission, 2013). The state-owned banks were having higher NPL than the foreign-own banks (See Figure 8). The NPL distress was highest in the constructing sector, but the manufacturing sector was also afflicted. Biggest construction indebted firms (SCT Ljubljana and Vegrad Velenje) went bankrupt which directly affected the Slovenian banking sector (European Commission, 2012).

Figure 8: NPL in state-owned banks vs. foreign-owned banks (2010–2012)



Source: Adapted from European Commission (2013).

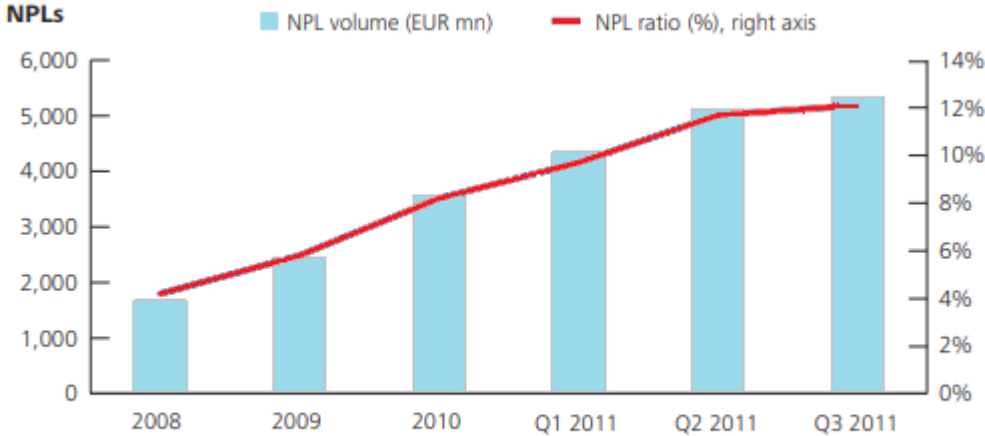
The lending activities slowed and decreased. Lending standards started to be more tightened to avoid additional portfolio quality deterioration. Capital adequacy ratio was on a very low level and the banks needed restructuring and recapitalization (Deloitte, 2012).

The creation of BAMC (Bank Asset Management Company) was introduced in 2012 with “The Stability of Banks Act”. This company is state-owned and was designed for stabilizing the Slovenian corporate sector and to assist in bank’s liquidity and solvency

problems. This is the center of the NPL management operations in this country (DUTB, 2017). The non-performing loans (and other troubled assets) from state-owned banks were transferred in BAMC with a scope to be restructured and sold. Additionally, in 2013, from NKBM and NLB were transferred bad loans that were valued 3 301 million EUR (European Commission, 2013). Later on, in 2014 another NPL burden was transferred in BAMC from Banka Celje and Abanka. In the same year it acquired assets from Probanka and Faktorbanka. The total gross value of the received assets reached around 5 billion. BAMC was undertaking the risky assets from the banks and that actually helped in strengthening of their balance sheets. Led by their methodology, assets that could be transferred can be the ones that are “reducing bank’s ability to meet its capital adequacy requirements” as real estate, bond holdings, equity investments and loans (European Commission, 2016).

The top three players in the Slovenian banking sector, NLB, Abanka and NKBM were recapitalized. The European Commission proposed privatization of the state-owned banks for efficiency improvement. NKBM was the first that started the privatization process, which ended in April 2016. The Slovenian state-owned banks indicated fragile supervision and poor governance framework which led them into NPLs stock rise based on immoderate risk taking, misallocation of credit and poor credit standards (OECD, 2017).

Figure 9: NPL trend in Slovenian banking sector (2008– Q3 2011)



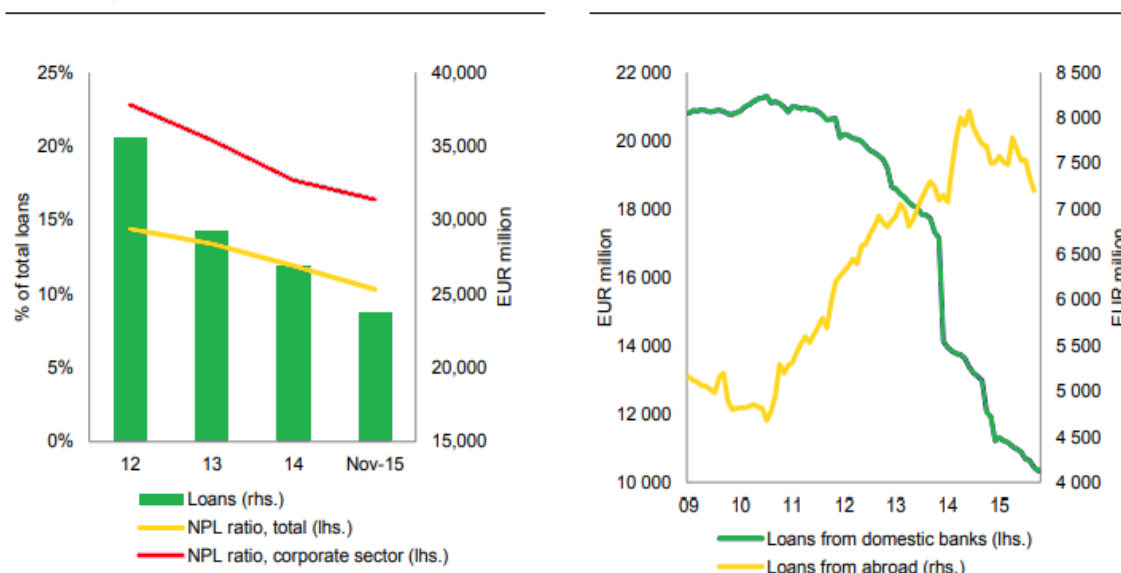
Source: Adapted from Deloitte (2012).

From 2014 till 2017 the economic situation was stabilized and started the process of rehabilitation. In 2014, the foreign NPLs were representing 22% from overall NPL stocks and were not transferred in BAMC (only the domestic were transferred). Lending was done in the Balkan countries (Bulgaria, Ex-Yu countries and Romania) to different firms or subsidiaries of the Slovenian banks. In 2014, the restructuring of the Slovenian banking

sector was still a difficult task, but improvements appeared. For example the risk management in banks was upgraded: modern IT solutions, data collection and new risk modeling. In 2015, the banks returned on their pre-crisis profitability levels, the provisioning expanded and the capital ratios increased. The Slovenian banking sector was restructuring through different methods like: changing interest rate, maturity extensions, selling the impaired assets to BAMCs and write offs (Deloitte, 2017). The NPL ratios finally started to decrease (See Figure 10). The bad debts were reduced in the corporate sector from 20.4 % in 2013 to 16.4 % in 2015, but they still stayed high compared to the countries in the Euro zone. New loan contracts and poor quality loans were offered in the Balkan region, that's why the NPL ratio stayed still high in the state-owned banks (compared to foreign owned) (European Commission, 2016 ; OECD, 2015).

The declining trend continued even in 2016, the overall NPL ratio changed from 14.2 % (2015–June) to 9.1 % (2016–September). Asset quality, profitability and solvency have been improving in the banking sector and the NPLs were satisfactorily provisioned. Institutional investors bought non-performing loans worth 500 million EUR from NLB. The 50% reduction in NPLs was caused mainly by the generated portfolio sales and transfers to the BAMC, 30 % reduction by write offs and 20 % by restructuring. Slovenian banks started to use the IRB approach for enhancement of their risk management (See Chapter 3). Another important event from 2016 was the merger between NKBM, Poštna Banka Slovenije and Raiffeisen bank (European Commission, 2017).

Figure 10: NPL trend decreasing



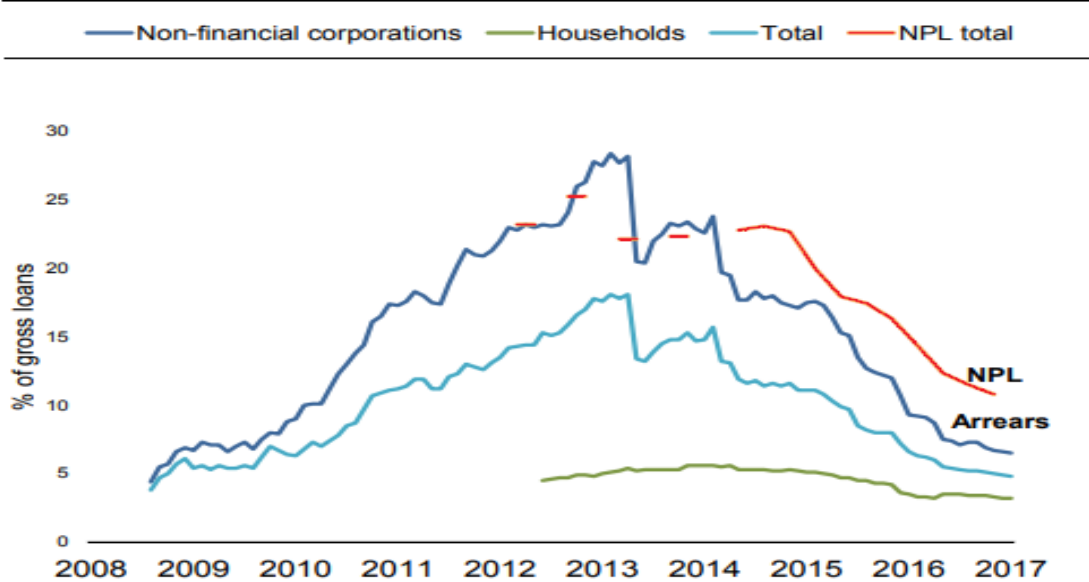
Source: Adapted from European Commission (2016).

The banking sector in Slovenia was stable in 2017. The NPL trend was still decreasing together with the arrears (See Figure 11). So, the banks were capitalized, profitable and

had enough liquidity. SSM together with Bank of Slovenia are monitoring the NPL target plans designed by the Slovenian banks. Based on their forecasts, the NPL reducing trend will continue even in the future. However, the NPL stock decrease was mainly guided by loan restructuring solutions (re-arrangements), from non-performing to performing status (European Commission, 2018a).

As a final point, the vulnerability in the Slovenian banking sector still exists and it is associated with the NPL stocks which are decreasing but are still high compared to the other EU countries. The banking sector should focus on resolving the outstanding SME NPLs, because the big firms NPLs have predominantly been resolved. That would help for further economic growth. Additional suggestions were done by OECD and IMF about the BAMC independency and NLB privatization (International Monetary Fund, 2017a).

Figure 11: Arrears developments



Source: Adapted from European Commission (2018a).

5.2 Swedish Banking Sector

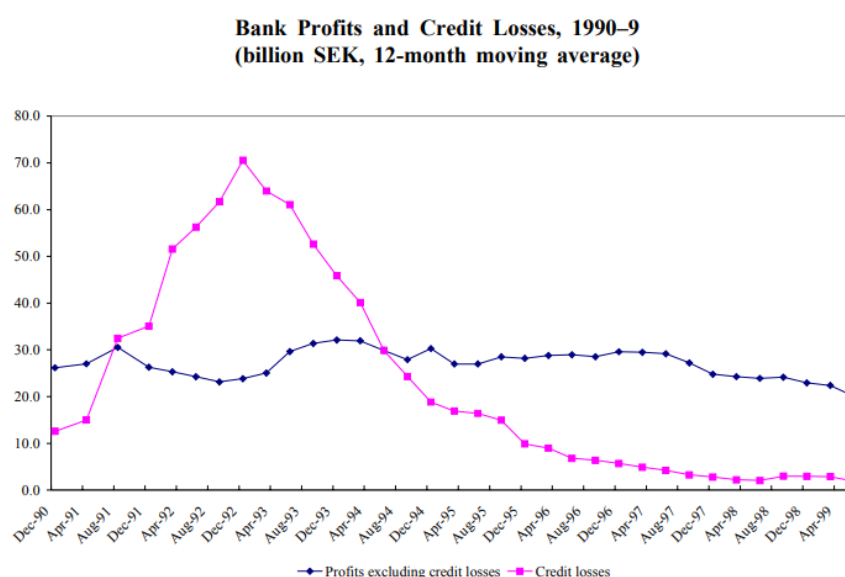
Swedish banking sector is much larger than the Slovenian (one of the biggest banking sectors in Europe relative to GDP) and is directly connected with the financial system of Nordic-Baltic region. It has a systematic importance to this region (International Monetary Fund, 2017b). The commercial banks in Sweden are categorized in three different groups. The first one is represented by the dominant players in the Swedish commercial banking: Nordea, Skandinaviska Enskilda Banken (SEB), Swedbank and Handelsbanken – the biggest and the largest financial groups there. Nordea is definitely the biggest CB in Sweden and Finland, predominantly focused on mortgage credits and fund management. It is likewise the greatest bank in Scandinavian region. Swedbank and SEB

are mostly focused on the Baltic region with their business. SEB is concentrated on corporate and minor firms customers. Handelsbanken is geographically orientated to the UK and Nordic markets. The second category is composed by savings banks that act like joint stock companies with shareholders like Swedbank. Swedbank assists those banks (59 savings banks) with different financial services. In addition, the third group is formed by smaller CBs for retail banking focused on individual consumers. Most of the Swedish banks are characterized with high efficiency and good profitability (Swedish Bankers' Association, 2010).

Banks in Sweden are supervised by two financial bodies: Riksbank and Financial Supervisory Authority (FSA). Riksbank as a central bank has a general obligation of promoting secure and efficient financial system. Furthermore, the FSA is designing financial regulations, monitoring the financial market and offers customer protection. The FSA is under the jurisdiction of Swedish Ministry of Finance (European Central Bank, 2003).

In 1991 till 1993, the Swedish banking system was in crisis (very similar to that one of 2008) after housing bubble bursts. The main difference between the 2008 and 1991 crises is that the 1991 crises was a local (Scandinavian / Nordic region) and not global. The lax lending standards of 1985 (ending the quantitative limitations of banks' lending volume) contributed directly to this crisis. Because of that, excessive and fast credit expansion happened especially to housing. Asset prices started to grow extremely. After the bubble burst, credit losses were recorded and high NPLs. The credit losses were rising through the period 1990–93 and reached the level of 17 % of total lending (See Figure 12). Alongside, currency crisis appeared and the fixed exchange rate could not be kept (Jonung, 2009).

Figure 12: Bank profits and Credit Losses 1990–9



Source: Englund (1999).

The Swedish banks were in a hard liquidity and solvency position, so the government decided to create a bank support authority called Bankstödsnämnd. Using systematic approaches, they provided transparent information about the banks problems by due diligence. More precise, they were using “the hammock approach” – computer forecasting model that classifies the banks in three categories A, B and C grounded on profitability predictions for 3 to 5 years. As an example for “A” bank was SEB, it showed profitability in the predicted term, capital requirement at 8 % and never got government assistance. The group “B” had the similar characteristics of “A”, but they showed decreasing of their capital under 8 %. Most of the B banks were transferring their non-performing debts to AMCs. Föreingsbanken was pure example for B bank. Moreover, for the non-profitable banks (C banks with capital less than 0) were using the model of selling bad assets, consolidating and mergers. In addition, two AMCs (Retriva and Securum) were established as external work out units for managing their NPLs. Retriva was managing the Gotabanken's non-performing loans and Securum was responsible for Nordbanken. Many other Swedish banks created their own internal-work out units (Andersson & Viotti, 1999).

One of the Swedish AMCs was “Securum” (1993–97), a state-owned company that was restructuring the non-performing loans of Nordbanken (also state-owned). Securum as a bad bank took 20% of the Nordea’s loan portfolio amounted to 3.000 credits contracted with 1.247 firms. Different asset disposals methods were used (private contracts, packages, and whole firms) with 98% completeness till 1996 (Baudino & Yun, 2017).

Table 8: Swedish NPL ratios (2009–2014) and other indicators

Financial soundness indicators						
(%)	2009	2010	2011	2012	2013	2014
Non-performing loans	n.a.	n.a.	0,6	0,5	0,5	0,4
Coverage ratio	126,8	126,3	69,8	63,5	63,0	62,6
Capital adequacy ratio	12,7	12,2	11,8	12,1	12,3	22,0
Tier 1 ratio	10,6	10,7	10,9	11,3	11,5	19,2
Return on equity	5,4	10,2	10,6	11,3	11,1	12,5
Return on assets	0,2	0,5	0,4	0,5	0,5	0,6

Source: Adapted from European Commission (2015).

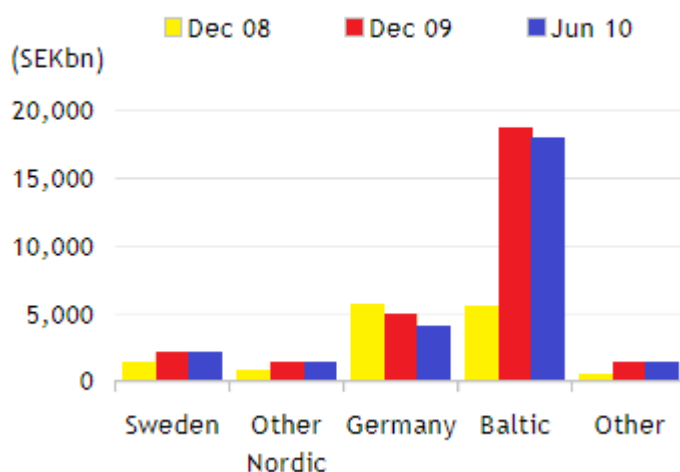
Based on 1990s experience, the Swedish bankers enhanced specific credit risk culture and they didn’t repeat the same mistakes in 2008. The Swedish model of dealing with financial-banking crisis became an exemplary framework to the other countries. During the 2008 crisis, Sweden was one of the countries with lowest NPL ratio, more exact under 1 % (See Table 8). The fact that the EU average NPL ratio during the crisis was 5.4 % indicates good asset quality. One of the reasons for low NPL was the activation of “Kronofogden”- Swedish Enforcement Authority that was promoting ethical behavior of paying debts and

debt collection. The greater parts of the impaired loans were resolved in under a year (European Commission, 2017).

Most of the NPLs that occurred in Sweden (2008–2016) were based on consumer credit portfolios. The foreign credit exposure is mostly done in the Baltic and Nordic countries because of the Swedish banks' system of subsidiaries. Almost 56 % from credit exposure in foreign countries was done in the neighboring Nordic countries and 5 % to Baltic costumers (International Monetary Fund, 2014).

NPLs were increasing in the Swedish banks during the financial-banking crisis of 2008. More precise, Nordea bank was having the highest NPL ratio (around 2 %) compared with the other Swedish banks in 2017. That reflects the lending operations in the neighbor country Denmark which were manageable for Nordea (Fitch Ratings, 2017b). In 2012 the bad loans increased to 16 bp of gross loans (Fitch Ratings, 2013b). In the case of SEB, the NPLs were highest on the Baltic market (See Figure 13). SEB was domestic orientated lender up to 70 % (stable market), but the other 30 % were credits intended for foreign markets (unstable). In 2013, the total NPL was estimated to 41 bp gross loans in the corporate portfolio (Fitch Ratings, 2013c). More or less, the NPL ratio in SEB stayed low during the crisis and the NPLs were decreasing after 2012 (Fitch Ratings, 2017c).

Figure 13: SEB NPLs on the Baltic market:

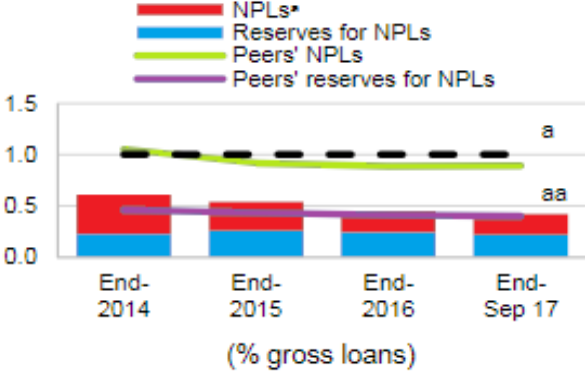


Source: Adapted from Fitch Ratings (2010).

Similar as SEB, in Swedbank express credit growth was noticed in the Baltic region which led to numerous non-performing loans in 2008. In 2010, they had 15 % of total lending only in Baltic region and 2 % in Ukraine and Russia, which were representing the key risk areas. It was classical deterioration in the asset quality, but they managed and reduced the Baltic NPLs till 2014 (Fitch Ratings, 2013d). Around 80 % of total lending was done on

the domestic market where meaningful impaired loans didn't appeared (Fitch Rating, 2017d). Handelsbanken's NPL ratio also started to rise sharply in 2009 but still was low, from 0.49 % in 2009 to 0.54 % in 2010 (Fitch Ratings, 2013a). The problem loans stayed below 1 % during the stressed economic environment which indicates resilient asset quality (See Figure 14). The NPLs were driven predominantly by household lending. This bank was not so affected by the trouble loans because it was collaborating mostly with large corporations that had stable cash flow and strong balance sheets (Fitch Ratings, 2017a).

Figure 14: Handelsbanken's Asset Quality (2014–2017)



* NPLs includes impaired loans as well as loans past due +60 days but not impaired (90 days for Swedbank and Nordea)

Source: Adapted from Fitch Ratings (2017a).

CONCLUSION

In the last decade, the European banks were working carefully and energetically to reduce their high NPL ratios and to recover from the economic and financial crisis. After the rapid credit growth in the period of 2003 till 2008, the economic crisis appeared and the NPLs in the EU countries were dramatically rising. The banks were struggling on the market; they were restructuring the loan agreements with their debtors and were cleaning up their own balance sheets through different techniques, methodologies and approaches. Some of the NPLs stocks were resolved through sales and other through write-offs. Parallel to this, the macroeconomic environment was rapidly changing and new challenges appeared on their way.

Moreover, the NPL phenomenon can be observed at multiple levels. It could be perceived through three main elements: the banks as lenders, the companies as borrowers and the

global economy or macroeconomic environment. They are all connected among as a full cycle.

According to the listed literature, high levels of non-performing loans are causing obstacles for the financial stability. The bad debts indicate higher capital requirements, higher funding costs, lower performance and lower liquidity. It also jeopardizes the bank's reputation, which can lead to losing of key customers. Those high amounts of NPL can even put the bank in a stage of insolvency and bankrupt.

The general conclusion that can be drawn from this master thesis is that the rising of the NPL ratio is negatively affecting the Slovenian and Swedish bank's profitability performance. This is the answer on the first research question. In the empirical part, the regression's results showed that the Slovenian and Swedish banks profitability drops by 0.512 % for each increase of 1 % in the NPL ratio. We can also conclude that the bank specific variables as CAR, ROA and NLTA are statistically significant and are having impact on the profitability of the Slovenian and Swedish banks. Another interesting fact is that the macroeconomic variables from the model (GDP growth, inflation and unemployment rate) are not affecting the Swedish and Slovenian bank's performance.

We can also summarize that the NPL amounts are negatively affecting the credit supply. This assumption was presented by the European Banking Coordination "Vienna" Initiative (2012). The results obtained in the empirical part through the correlation matrix, are confirming the same idea. The NPL is having a negative significant correlation with the growth of gross loans. If the growth of gross loans facilitates economic growth, the robust amount of NPL stocks is a direct threat for the economic development.

In the course of the world crisis, the Slovenian NPL ratio was sharply rising, till 2012. After this turbulent period, the ratio started to decrease, but still remained high. From the comparative analysis in Chapter 5, we can conclude that the "wrong" NPL management is not the main cause for the continuous slowly decreasing. The inadequate NPL management is only partially affecting the NPL downward trend. For example, the OECD reports reveal fragile supervision, poor governance framework and deficient credit risk management in the Slovenian state-owned banks. Many new loan contracts were signed during the period of NPL reduction, with debtors from the Balkan region. But there are factors out of the range of the bank's NPL management as: insufficient reform measures, changeable macroeconomic conditions and borrowing culture. Those factors are also influencing the process of NPL reduction.

Another scope in the research was defining the differences between the Slovenian and Swedish NPL management. There are many differences between the Swedish and the Slovenian banking sector and how they managed their NPL burden. First of all, their banking sector is different sized, the Slovenian is small-sized and the Swedish banking sector is one of the biggest in EU. In Sweden were established numerous asset

management companies. Slovenia has only the BAMC. Another difference exists in their cross-border lending activities. Most of the Slovenian CBs are having subsidiaries in the Balkan region. This region is still developing and the Slovenian bank's subsidiaries are having many NPLs which can't be resolved through BAMC. Swedish banks are operating in the Nordic-Baltic region which is well developed and wealthier. Additionally, Sweden successfully resolved the NPL phenomenon in the 90's and didn't have significant growth of bad debts during the 2008 crisis, compared to Slovenia that is still struggling with finding the best operational framework for decreasing the NPLs. But that is also connected with the size of the banks and size of the banking sector. Sweden was using the "hammock approach" and later on established the Kronofogden Enforcement Authority as debt collecting company handling with evictions and distraint. Most of the NPL shares that appeared in Sweden (2008–2016) were based on consumer credit portfolios. But in Slovenia, they mostly originate from SMEs and corporate sector.

Significant improvements were observed in the Slovenian banking sectors in the last years. But still, there is a space for more advancement. The Slovenian banks need to follow the Council recommendations from 2013–2014. The Slovenian banking sector should focus on asset quality reviews, governance improvements and risk management upgrade, reducing the still existing NPLs through transfer of the impaired assets in BAMC and privatization of the state-owned banks. Additionally, they need more safety credit operation and well trained employees with specific knowledge, modern approaches in the credit risk management, strict inspection during and after granting the credit (whole profile of the debtor), avoiding asymmetric information and using the appropriate IT equipment.

Other improvements that should take place in the Slovenian state owned banks are the creation of effective EWS that would react on the payment difficulties of the bank's customers. This system should have a clear interpretation of the signals. In addition, their risk management should establish strong and independent NPL WUs that would monitor the NPL cycle. The process of NPL portfolio segmentation should be based on accurate data and well designed management information system.

REFERENCE LIST

1. Abreu, M. & Mendes, V. (2002). Commercial bank interest margins and profitability: evidence from E.U. Countries. *Porto Working Paper Series*, 122.
2. Aiyar, S., Bergthaler, W., Garrido, J., Ilyina, A., Jobst, A., Kang, K., Kovtun, D., Liu, Y., Monaghan, D. & Moretti, M. (2015). *A strategy for resolving Europe's problem loans*. Retrived September 11, 2018 from <https://www.imf.org/external/pubs/ft/sdn/2015/sdn1519.pdf>
3. Albertazzi, U. & Gambacorta, L. (2009). Bank profitability and the business cycle. *Journal of Financial Stability*, 5(4), 393–409.

4. Alexander, K. (2009). *Proposals for European Macro and Micro Prudential Financial Regulation*. Retrived September 11, 2018 from <https://publications.parliament.uk/pa/cm200809/cmselect/cmtreasy/1088/1088we04.htm#note3>
5. Allen, M. P. (1997). *Understanding Regression Analysis*. New York: Plenum Press.
6. Al-Jarrah, I. (2012). Evaluating the riskiness of the banking sector of Jordan. *European Journal of Economics, Finance and Administrative Science*, 48, 86–95.
7. Alper, D. & Anbar, A. (2011). Bank Specific and Macroeconomic Determinants of Commercial Bank Profitability: Empirical Evidence from Turkey. *Business and Economic Research Journal*, 2, 139–152.
8. Anastasiou, D., Louri, H. & Tsionas, M. (2016). Determinants of Non-Performing Loans: Evidence from Euro-area Countries. *Finance Research Letters*, 18, 116–119.
9. Andersson, M. & Viotti, S. (1999). Managing and preventing financial crises. Lessons from the Swedish experience. *Sveriges Riksbank Quarterly Reviews*, 10, 71–89.
10. Apostolik, R. & Donohue, C. (2015). *Foundations of financial risk: An overview of financial risk and risk-based regulation*. Hoboken: John Wiley & Sons.
11. Babu, G. R. (2006). *Financial Markets and Institutions*. New Delhi: Concept Publishing.
12. Baldwin, R. E. & Wyplosz, C. (2015). *The Economics of European Integration*. London: McGraw Hill Education.
13. Balgova, M., Nies, M. & Plekhanov, A. (2016). The economic impact of reducing non-performing loans. *EBRD Working Paper*, 193.
14. Balthazar, L. (2006). *From Basel I to Basel 3: The integration of State-of-the-Art Risk Modeling in Banking Regulation*. New York: Palgrave Macmillan.
15. Bank for International Settlements. (2000, January). *Principles for the management of credit risk*. Retrived September 11, 2018 from <https://www.bis.org/publ/bcbs75.pdf>
16. Bank for International Settlements. (2001, September). *Working Paper on Pillar 3 – Market Discipline*. Retrived September 11, 2018 from https://www.bis.org/publ/bcbs_wp7.pdf
17. Bank for International Settlements. (2003, April). *Consultative Document: Overview of the New Basel Capital Accord*. Retrived September 11, 2018 from <https://www.bis.org/bcbs/cp3ov.pdf>
18. Bank for International Settlements. (2013, January). *Basel III: The Liquidity Coverage Ratio and liquidity risk monitoring tools*. Retrived September 11, 2018 from <https://www.bis.org/publ/bcbs238.pdf>
19. Bass, R. M. V. (1991). *Credit Management: How to Manage a Credit effectively and Make a real Contribution to Profit*. (3rd ed.). London: Stanley Thornes Ltd.

20. Bateni, L., Vakiliford, H. & Asghari, F. (2014). The influential factors on capital adequacy ratio in Iranian banks. *International Journal of Economics and Finance*, 6 (11), 108–116.
21. Baudino, P. & Yun, H. (2017). Resolution of non-performing loans – policy options. *BIS FSI Insights on policy implementation*, 3.
22. Baumol, W. J. & Blinder, A. S. (2016). *Macroeconomics: Principles and Policy*. Boston, Mass: Cengage Learning.
23. Benston, J. G. (1990). *The Separation of Commercial and Investing Bank*. Houndmills: The MacMillan Press Ltd.
24. Berger, N. A. (1995). The Relationship between Capital and Earnings in Banking. *Journal of Money, Credit and Banking*, 27 (2), 432–456.
25. Bholat, D., Lastra, R., Markose, S., Miglionico, A. & Sen, K. (2016). Non-performing loans: regulatory and accounting treatments of assets. *Bank of England Staff working paper*, 594.
26. Bhole, L. M. (2004). *Financial Institutions and Markets: Structure, Growth and Innovations* (4th ed.). New Delhi: Tata McGraw-Hill.
27. Bloem, A. M. & Gorter, C. N. (2001). The treatment of nonperforming loans in macroeconomic statistics. *IMF Working Paper*, WP/01/209.
28. Bloomberg. (2018, February). *Five charts that explain how European banks are dealing with their bad-loan problem*. Retrived September 11, 2018 from <https://www.bloomberg.com/news/articles/2018-02-14/get-a-grip-on-europe-s-bad-loan-problem-with-these-five-charts>
29. Bofondi, M. & Ropele, T. (2011). Macroeconomic determinants of bad loans: evidence from Italian banks. *Bank of Italy Occasional Papers*, 89.
30. Bordeleau, E. & Graham, C. (2010). The impact of liquidity on bank profitability. *Bank of Canada Working Paper 2010–38*.
31. Burton, M., Nesiba, R. F. & Brown, B. (2010). *An Introduction to Financial Markets and Institutions* (2nd ed.). Armonik (N.Y.): M. E. Sharpe.
32. Choudhry, M. (2012). *The Principles of Banking*. Singapore: John Wiley & Sons.
33. Commission of the European Communities. (2007, January). *Communication from the commission. Review of the Lamfalussy process. Strengthening supervisory convergence*. Retrived September 11, 2018 from <https://publications.europa.eu/en/publication-detail/-/publication/67baf2a2-ac16-4ca1-9b4d-5c27591bd090/language-en>
34. Council of the EU. (2017, July). *Banking: Council sets out action plan for non-performing loans*. Retrived September 11, 2018 from <https://www.consilium.europa.eu/en/press/press-releases/>
35. Deloitte. (2017, January). *CEE NPL markets in full swing. A record year in 2016*. Retrived September 11, 2018 from <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/About-Deloitte/central-europe/ce-non-performing-bank-loans-study-npl.pdf>

36. Deloitte. (2012, April). *Restructuring Central Europe Evolution of NPLs*. Retrived September 11, 2018 from <https://www2.deloitte.com/content/dam/Deloitte/hu/Documents/finance/hu-fas-npl-2012.pdf>
37. Dermine, J. (2002). *European Banking: Past, Present and Future*. *SSRN Electronic Journal*.
38. Dhal, S. C. & Ranjan, R. (2003). Non-performing loans and terms of credit of public sector banks in India: An empirical assessment. *Reserve Bank of India Occasional Papers*, 24(3), 81–121.
39. Dwivedi, D. N. (2005). *Macroeconomics: Theory and Policy*. (2nd ed.). New Delhi: The McGraw-Hill.
40. DUTB. (2017, April). *BAMC annual report 2016*. Retrived September 11, 2018 from http://www.dutb.eu/SiteAssets/en/corporate_documents/BAMC%202016%20annual%20report.pdf
41. EBA. (2017, November). *Risk Assessment of the European Banking System*. Retrived September 11, 2018 from <https://www.eba.europa.eu/documents/10180/2037825/Risk+Assessment+Report+-+November+2017.pdf>
42. Englund, P. (1999). The Swedish Banking Crisis: Roots and Consequences. *Oxford Review of Economic Policy*, 15(3), 80–97.
43. Eubanks, W. W. (2010, October). *The Status of the Basel III Capital Adequacy Accord*. Retrived September 11, 2018 from <https://fas.org/sgp/crs/misc/R41467.pdf>
44. European Banking Coordination “Vienna” Initiative. (2012). *Working Groups on NPLs in Central, Eastern and Southeastern Europe*. Retrived September 11, 2018 from <https://www.imf.org/external/region/eur/pdf/2012/030112.pdf>
45. European Central Bank. (2003, June). *Developments in national supervisory structures*. Retrived September 11, 2018 from <https://www.ecb.europa.eu/pub/pdf/other/supervisorystructureen.pdf?0f743e9708e739d49f24ca9c3504215d>
46. European Central Bank. (2017, February). *Resolving Europe’s NPL burden: challenges and benefits*. Retrived September 11, 2018 from <https://www.ecb.europa.eu/press/key/date/2017/html/sp170203.en.html>
47. European Commission. (2012, May). *Commission Staff Working Document, In-Depth Review for Slovenia 2012*. Retrived September 11, 2018 from https://ec.europa.eu/info/sites/info/files/file_import/idr2012_slovenia_en_0.pdf
48. European Commission. (2013, April). *Macroeconomic imbalances, Country Report – Sweden 2015*. Retrived September 11, 2018 from http://ec.europa.eu/economy_finance/publications/occasional_paper/2013/pdf/ocp142_en.pdf
49. European Commission. (2015, June). *Macroeconomic imbalances, Country Report – Sweden 2015*. Retrived September 11, 2018 from

- http://ec.europa.eu/economy_finance/publications/occasional_paper/2015/pdf/ocp226_en.pdf
50. European Commission. (2016, February). *Commission Staff Working Document, Country Report Slovenia 2016*. Retrived September 11, 2018 from https://ec.europa.eu/info/sites/info/files/cr_slovenia_2016_en.pdf
 51. European Commission. (2017, February). *Commission Staff Working Document, Country Report Slovenia 2017*. Retrived September 11, 2018 from <https://ec.europa.eu/info/sites/info/files/2017-european-semester-country-report-slovenia-en.pdf>
 52. European Commission. (2018a, March). *Second Progress Report on the Reduction of Non-Performing Loans in Europe*. Retrived September 11, 2018 from http://ec.europa.eu/finance/docs/policy/180314-communication-non-performing-loans_en.pdf
 53. European Commission. (2018b, March). *The development of secondary markets for non-performing loans by removing undue impediments to loan servicing by third parties and the transfer of loans (Part 1/2) and Accelerated Extrajudicial Collateral Enforcement (Part 2/2)*. Retrived September 11, 2018 from https://eur-lex.europa.eu/resource.html?uri=cellar:854e9fa8-2771-11e8-ac73-01aa75ed71a1.0001.02/DOC_2&format=PDF
 54. European Systemic Risk Board. (2017, July). *Resolving non-performing loans in Europe*. Retrived September 11, 2018 from https://www.esrb.europa.eu/pub/pdf/reports/20170711_resolving_npl_report.en.pdf
 55. Fahlenbrach, R., Prilmeier, R. & Stulz, R. M. (2016). *Why does fast loan growth predict poor performance for banks?* Cambridge, MA: National Bureau of Economic Research.
 56. Fitch Ratings. (2010). *SEB Fitch Rating 2010*. (internal material). New York: Fitch Ratings.
 57. Fitch Ratings. (2013a). *Handelsbanken Fitch Rating 2013*. (internal material). New York: Fitch Ratings.
 58. Fitch Ratings. (2013b). *Nordea Fitch Rating 2013*. (internal material). New York: Fitch Ratings.
 59. Fitch Ratings. (2013c). *SEB Fitch Rating 2013*. (internal material). New York: Fitch Ratings.
 60. Fitch Ratings. (2013d). *Swedbank Fitch Rating 2013*. (internal material). New York: Fitch Ratings.
 61. Fitch Ratings. (2017a). *Handelsbanken Fitch Rating 2017*. (internal material). New York: Fitch Ratings.
 62. Fitch Ratings. (2017b). *Nordea Fitch Rating 2017*. (internal material). New York: Fitch Ratings.
 63. Fitch Ratings. (2017c). *SEB Fitch Rating 2017*. (internal material). New York: Fitch Ratings.

64. Fitch Ratings. (2017d). *Swedbank Fitch Rating 2017*. (internal material). New York: Fitch Ratings.
65. Frees, E. W. (2004). *Longitudinal and Panel Data, Analysis and Applications in the Social Sciences*. Cambridge: Cambridge University Press.
66. Gestel, T. V. & Baesens, B. (2009). *Credit risk management: Basic concepts: Financial risk components, rating analysis, models, economic and regulatory capital*. Oxford: Oxford University Press.
67. Glantz, M. (2002). *Managing bank risk: An introduction to broad-base credit engineering*. Amsterdam: Academic press.
68. Goddard, J., Molyneux, P. & Wilson, J. O. (2004). The Profitability of European Banks: A Cross-Sectional and Dynamic Panel Analysis. *The Manchester School*, 72(3), 363–381.
69. Greenbaum, S. I. & Thakor, A. V. (2007). *Contemporary Financial Intermediation* (2nd ed). Amsterdam: Academic press.
70. Grier, W. A. (2007). *Credit Analysis of Financial Institutions* (2nd ed). London: Euromoney Books.
71. Guru, B. K., Staunton, J. & Shanmugam, B. (2002). Determinants of Commercial Bank Profitability in Malaysia. *University Multimedia Working Papers*.
72. Haneef, S., Riaz, T., Ramazan, M., Rana, M. A., Ishaq, H. M. & Karim, Y. (2012). Impact of Risk Management on Non-Performing Loans and Profitability of Banking Sector of Pakistan. *Internationa Journal of Business and Social Science*, 3(7), 307–315.
73. Heffernan, S. (2005). *Modern Banking*. Chichester: Wiley.
74. Hoang, P. & Ducie, M. (2013). *Cambridge IGCSE and 0 level economics*. London: Hodder Education.
75. Htay, S. N. N. & Salman, S. A. (2002). Quantitative analysis on the correlation between risks: empirical evidence from banks in United Kingdom. *IOSR Journal of Business and Management*, 9(5), 51–58.
76. Hull, J. C. (2012). *Risk Management and Financial Institutions* (3th ed.). Hoboken: John Wiley & Sons.
77. International Monetary Fund. (2005, June). *The Treatment of Nonperforming Loans*. Retrived September 11, 2018 from <https://www.imf.org/external/pubs/ft/bop/2005/05-29.pdf>
78. International Monetary Fund. (2014, August). *IMF Country Report No. 14/261 Sweden*. Retrived September 11, 2018 from <http://www.imf.org/external/pubs/ft/scr/2014/cr14261.pdf>
79. International Monetary Fund. (2017a, May). *IMF Country Report No. 17/125 Republic of Slovenia*. Retrived September 11, 2018 from <https://www.imf.org/en/Publications/CR/Issues/2017/05/15/Republic-of-Slovenia-2017-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-44921>
80. International Monetary Fund. (2017b, October). *IMF Country Report 17/305 Sweden*. Retrived September 11, 2018 from

<https://www.imf.org/en/Publications/CR/Issues/2017/10/05/Sweden-Financial-Sector-Assessment-Program-Technical-Note-Banking-Regulation-and-Supervision-45299>

81. Jonung, L. (2009, February). *The Swedish model for resolving the banking crisis of 1991–93. Seven reasons why it was successful*. Retrived September 11, 2018 from http://ec.europa.eu/economy_finance/publications/pages/publication14098_en.pdf
82. Kaptan, S. S. (2002). *New Concepts in Banking*. New Delhi: Sarup and Sons.
83. Keeton, W. R. & Morris, C. (1987). Why do banks' loan losses differ? *Economic Review*, 72(5), 3–21.
84. Kim, P. & Rasiah, D. (2010). Relationship between corporate governance and bank performance in Malaysia during the pre and post Asian financial crisis. *European Journal of Economics, Finance and Administrative Sciences*, 21, 39–63.
85. Klein, N. (2013, March). *Non-Performing Loans in CESEE: Determinants and Impact on Macroeconomic Performance*. Retrived September 11, 2018 from <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Non-Performing-Loans-in-CESEE-Determinants-and-Impact-on-Macroeconomic-Performance-40413>
86. Koch, T. W. & MacDonald, S. S. (2000). *Bank Management* (4th ed). Orlando: The Dryden Press / Harcourt College Publishers.
87. Kolbe, P. T., Greer, G. E. & Runder, H. G. (2003). *Real Estate Finance*. Chicago: Dearborn.
88. Köhler, M. (2012). *Which banks are more risky? The impact of loan growth and business model on bank risk-taking*. Retrived September 11, 2018 from https://www.bundesbank.de/Redaktion/EN/Downloads/Publications/Discussion_Paper_1/2012/2012_12_07_dkp_33.pdf?__blob=publicationFile
89. Levy, P. S. & Lemeshow, S. (2008). *Sampling of Populations, Methods and Applications* (4th ed.). New York: John Wiley and sons.
90. Madura, J. (2006). *Financial Markets and Institutions* (7th ed.). Mason Ohio: Thomson/South-Western.
91. Malta Financial Service Authority. (2015, April). *Request for proposal for asset quality review: Banking book audit and real estate appraisal*. Retrived September 11, 2018 from https://www.mfsa.com.mt/pages/readfile.aspx?f=/files/International%20Affairs/Request_for_proposal_Real_Estate_Appraisal_Banking_Book_Auditlatest.pdf.
92. Mian, A. (2003). Foreign, private, domestic and government banks: New evidence from emerging markets. *Journal of Banking and Finance*, 27(7), 1219–1410.
93. Morgan, A. G. & Griego, O. V. (1998). *Easy use and interpretation of SPSS for windows: Answering research questions with statistics*. Manwah, NJ: LEA.
94. Mukherjee, S. (2002). *Modern economic theory*. New Delhi: New Age International Publishers.

95. OECD. (2015, May). *OECD Economic Surveys: Slovenia 2015*. Retrived September 11, 2018 from <http://www.oecd.org/eco/surveys/Slovenia-2015-overview.pdf>
96. OECD. (2017, September). *OECD Economic Surveys: Slovenia 2017*. Retrived September 11, 2018 from https://read.oecd-ilibrary.org/economics/oecd-economic-surveys-slovenia-2017_eco_surveys-svn-2017-en#page21
97. OECD ECOSCOPE. (2017, May). *Solving Non-Performing Loans in Europe to speed up the recovery*. Retrived September 11, 2018 from <https://oecdecoscope.blog/2017/05/23/solving-non-performing-loans-in-europe-to-speed-up-the-recovery/>
98. OeNB. (2004). *Guidelines on Credit Risk Management: Credit Approval Process and Credit Risk Management*. Retrived September 11, 2018 from https://www.oenb.at/daam/jcr:8cf70145.../credit_approval_process_tcm16-23748.pdf
99. Onich, M. T. (2010). Problem Loans: Early Detection for Lender. *Commercial Lending Review*, 48–51.
100. Ozili, P. K. (2018). Bank loan loss provisions, investor protection and the macro-economy. *International Journal of Emerging Markets*, 13(1), 45–65.
101. Pasiouras, F. & Kosmidou, K. (2007). Factors influencing the profitability of domestic and foreign commercial banks in the European Union. *Research in International Business and Finance*. 21(2), 222–237.
102. PwC. (2017, September). *Non Performing Loans. Leveraging the right strategy to optimize your company's balance sheet*. Retrived September 11, 2018 from https://www.pwc.ch/en/publications/2017/White-Paper-NPL-Strategy_20171211.pdf
103. Radivojevic, N. & Jovovic, J. (2017). Examining of determinants of non-performing loans. *Prague Economic Papers*, 26(3), 300–316.
104. Robinson, T. R., Henry, E., Pirie, W. L. & Broihahn, M. A. (2015). *International Financial Statement Analysis* (3rd ed). Hoboken: John Wiley & Sons.
105. Ross, P. S. & Marquis, M. H (1997). *Money and Capital Markets: Financial Institutions and Instruments in a Global Marketplace* (6th ed.). Boston, MA: McGraw – Hill.
106. Rumler, F. & Waschiczek, W. (2010). The impact of economic factors on bank profits. *Monetary Policy & the Economy, Oesterreichische Nationalbank*, 4, 49–67.
107. S&P Global Market Intelligence. (2017, April). *The world's 100 largest banks*. Retrived September 11, 2017 from <https://platform.mi.spglobal.com/web/client?auth=inherit#news/article?id=44027195&cdid=A-44027195-11060>
108. Samhan, H. M. & Al-Khatib, A. Y. (2015). Determinants of Financial Performance of Jordan Islamic Bank. *Research Journal of Finance and Accounting*, 6(8), 37–47.
109. Singh, D. (2016). *Banking Regulation of UK and US Financial Markets*. Aldershot: Ashgate.

110. Somasheker, N. T. (2009). *Banking*. New Delhi: New Age International Publishers.
111. Sufian, F. (2011). Financial depression and the profitability of the banking sector of the Republic of Korea: Panel evidence on bank-specific and macroeconomic determinants. *Asia-Pacific Development Journal*, 17(2), 65–92.
112. Swedish Bankers' Association. (2010). *Banks in Sweden, Facts about the Swedish banking market*. Retrived September 11, 2018 from <https://www.swedishbankers.se/media/2665/banks-in-sweden-2010-march.pdf>
113. Tan, Y. & Floros, C. (2012). Bank profitability and inflation: the Case of China. *Journal of Economic Studies*, 39(6), 675–696.
114. The World Bank. (2017). *Handbook for Effective Management and Workout of MSME NPLs*. Retrived September 11, 2018 from https://bankaslovenije.blob.core.windows.net/publication-files/gdgettKhbgichh_msme_npl_handbook_final_version_post-workshop_eng_clean.pdf
115. Trujilo-Ponce, A. (2013). What Determines the Profitability of Banks? Evidence from Spain. *Accounting and Finance*, 53(2), 561–586.
116. Volk, M. (2015). *Credit risk and the business cycle*. Ljubljana: University of Ljubljana.

APPENDICES

Appendix 1: Povzetek (Summary in Slovene language)

V zadnjem desetletju so bile evropske banke prisiljene skrbno in odločno zmanjšati visoke stopnje slabih posojil (NPL) ter tako stremeti k okrevanju po ekonomski in finančni krizi. Hitri kreditni rast v obdobju od 2003 do 2008 je sledila ekonomska kriza, s katero so se v državah Evropske unije drastično povečala tudi slaba posojila. Banke so se na trgu spopadale s številnimi težavami; potrebno je bilo preoblikovanje posojilnih pogodb s posojilojemalci in čiščenje lastnih bilanc z različnimi tehnikami, metodami in prijemi. Nekatere NPL zaloge so bile razrešene preko prodaje, druge preko odpisa. Istočasno se je makroekonomsko okolje iz dneva v dan hitro spreminjalo in tako ustvarjalo nove izzive na tržišče.

Glavni namen te magistrske naloge je analiza in razprava o upravljanju slabih posojil v slovenskem bančnem sektorju, ter kako lahko izboljšati njegove segmente. Slovensko upravljanje NPL bomo primerjali s švedsko-nordijskim modelom (nordijske države so imele najnižjo stopnjo slabih posojil). Posebna pozornost je namenjena vprašanju "Kako in kaj naprej z NPL?" Prav tako analiziramo tudi vzpostavitev sistema slabih bank (AMC – Družba za upravljanje premoženja) in prodaja NPL na sekundarnem tržišču. Dodatno je tema razprave tudi reforma okvira finančne insolventnosti, preoblikovanje slabih dolgov in drugi ukrepi za zmanjšanje slabih dolgov (v Sloveniji in na Švedskem). Za izboljšanje stopnje NPL je potrebno izboljšanje večih segmentov v NPL krogu: preoblikovanje bank, nadzor bank, sekundarna izčrpana tržišča in okviri insolventnosti. Očitno je, da potrebujejo slovenske banke izboljšanje v upravljanju kreditnih tveganj, od deloma do popolnoma učinkovitega. Tako lahko zmanjšajo ali celo popolnoma izločijo obvladljivo tveganje.

Glede na navedeno literaturo visoke stopnje NPL povzročajo luknje v željeni finančni stabilnosti. Slaba posojila kažejo na višje kapitalske zahteve, povečane stroške financiranja, slabe rezultate in slabšo plačilno sposobnosti. Prav tako je ogrožen ugled banke, kar lahko vodi do izgube pomembnih, ključnih strank. Visoka stopnja NPL lahko privede celo do plačilne nesposobnosti in bankrota.

Glavna ugotovitev tega magistrske naloge je, da rast NPL stopnje negativno vpliva na slovensko in švedsko dobičkonosnost ter uspešnost. To je odgovor na prvo vprašanje raziskave. V empiričnem delu je nazadovanje slovenskih in švedskih bank očitno: dobičkonosnost bank pade 0.512 % ob vsakem dvigu NPL stopnje za 1 %. Zaključimo lahko tudi, da so bančno-specifične spremenljivke CAR, ROA in NLTA statistično pomembne in imajo vpliv na dobičkonosnost slovenskih in švedskih bank. Zanimivo je tudi dejstvo, da makroekonomski faktorji modela (BDP rast, inflacija in stopnja nezaposlenosti) ne vplivajo na delovanje švedskih in slovenskih bank.

Ravno tako lahko povzamemo, da količina NPL negativno vpliva na ponudbo posojil. To predpostavko je predstavila "European Banking Coordination, (Vienna Initiative)", (2012). Rezultati, pridobljeni v empiričnem delu skozi korelacijski vzorec, temu pritrjujejo. Slaba

posojila imajo precejšnje negativno korelacijo z rastjo bruto posojil. Če rast bruto posojil pomaga pri ekonomski rasti, je potemtakem veliko število NPL delnic neposredna grožnja za ekonomski in gospodarski razvoj.

Tekom svetovne godpodarske krize je stopnja NPL v Sloveniji naglo rasla vse do leta 2012. Po prvotnem turbulentnem obdobju je stopnja počasi začela upadati, vendar pa je vseeno ostala visoka. Glede na primerjalno analizo v petem poglavju lahko zaključimo, da "napačno" NPL upravljanje ni glavni vzrok za kontinuiran počasen upad. Neustrezno upravljanje NPL le deloma vpliva na padec NPL. Poročila OECD (Organizacija za gospodarsko sodelovanje in razvoj) kot primer navajajo tudi šibek nadzor, slab okvir ekonomskega upravljanja in nezadostno upravljanje kreditnega tveganja v slovenskih državnih bankah. V obdobju upada NPL je bilo podpisanih veliko novih posojilnih pogodb s posojilojemalci z Balkana. Poleg navedenih razlogov obstaja tudi veliko dejavnikov, ki niso povezani s samo banko in z njenim načinom upravljanja NPL: nezadostni reformni ukrepi, spremenljivi makroekonomski dejavniki in sama kultura posojanja. Tudi ti dejavniki vplivajo na proces znižanja NPL.

Drugo področje zanimanja v raziskavi je bilo definiranje razlik med slovenskim in švedskim upravljanjem NPL. Obstaja veliko razlik med švedskim in slovenskim bančnim sektorjem in načinom soočanja s svojim NPL bremenom. Prvič, je pomembna razlika že v sami velikosti bančnega sektorja; slovenski je majhen, medtem ko je švedski bančni sektor eden izmed največjih v Evropski uniji. Na Švedskem je bilo ustanovljenih veliko število družb za upravljanje. Slovenija ima samo BAMC. Obstaja tudi razlika v čezmejnem posojanju denarja. Večina slovenskih bankimajo hčerinska podjetja na Balkanu, v regiji, ki se še vedno razvija. Veliko slabih posojil, ki jih imajo subsidiarna podjetja, tako ne more biti razrešena preko BAMC. Švedske banke delujejo v Nordijsko-Baltski regiji, ki je veliko bogatejša in bolj razvita. Poleg tega se je Švedska uspešno soočila z NPL fenomenom že v devetdesetih in tako med krizo leta 2008 ni imela večjega porasta slabih posojil. Slovenija se po drugi strani še vedno trudi najti najboljši način upravljanja za znižanje NPL. Obenem je to povezano z velikostjo bank in velikostjo bančnih sektorjev. Švedska se je polastila tako imenovanega principa »hammock« in kasneje ustanovila "Kronofogden Enforcement Authority", podjetje, ki zbira dolgove, in se ukvarja z deložacijami ter odvzemi. Večina deležev NPL, ki se je pojavila na Švedskem (2008–2016), je temeljila na potrošniških kreditih, medtem ko so v Sloveniji večinoma nastajali zaradi SME (malih in srednjih podjetij) ter podjetniškega sektorja.

V zadnjih letih je možno v slovenskem bančnem sektorju zaznati pomembne spremembe. Seveda še vedno ostaja prostor za izboljšave. Slovenske banke morajo slediti nasvetom Sveta Evropske unije iz leta 2013–2014. Slovenski sektor bi se tako moral posvetiti pregledom kakovosti sredstev, izboljšanju vodenja in posodobitvi sistema upravljanja tveganj, zmanjšanju še obstoječih NPL s prenosom oslabljenih sredstev na BAMC in privatizacijo državnih bank. Dodatno bi potrebovali varnejše kreditne transakcije in dobro izurjene zaposlene s strokovnim znanjem, modernimi pristopi pri upravljanju kreditnega

tveganja, strogim nadzorom med in po odobritvi kredita (celovit profil posojilojemalca), izključevanje nesimetričnih informacij in uporaba primerno napredne IT opreme.

Drugo izboljšanje, ki je nujno potrebno v slovenskih državnih bankah, je tudi ustanovitev in vzpostavitev učinkovitega EWS, ki bi opozarjal na plačilne težave bančnih strank. Ta sistem mora imeti jasno interpretacijo opozorilnih signalov. Poleg tega bi slovensko obvladovanje tveganja moralo vzpostaviti močan in neodvisen NPL WU (Oddelek za reševanje), ki bi nadziral krog NPL. Proces segmentacije NPL mora temeljiti na natančnih podatkih in dobro oblikovanem informacijskem sistemu za nadzor.

Appendix 2: List of the Swedish and Slovenian banks

Country	Bank
Slovenia	Abanka d.d.
	Banka Sparkasse d.d.
	Dezelna banka Slovenije d.d.
	Gorenjska Banka d.d., Kranj
	Nova Kreditna Banka Maribor
	Nova Ljubljanska banka d.d.
	SID Bank Inc Ljubljana
	SKB Banka DD
UniCredit Banka Slovenija dd	
Sweden	Handelsbanken Finans AB (publ)
	ICA Banken AB
	Landshypotek Bank AB
	Lansforsakringar Bank AB
	Nordea Bank AB
	Nordnet AB
	Resurs Bank AB
	SBAB Bank AB (publ)
	Skandinaviska Enskilda Banken AB
	Sparbanken Rekarne AB
	Svea Ekonomi AB
	Svenska Handelsbanken AB
Swedbank AB	

Source: Own work.

Appendix 3: SPSS Output (Model Summary; ANOVA; Coefficients)

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.950 ^a	.902	.897	7.32217	.902	178.021	8

Model Summary^b

Model	Change Statistics		Durbin-Watson
	df2	Sig. F Change	
1	154	.000	1.597

a. Predictors: (Constant), Unemployment rate, GDP growth, Net Loans/Total Assets (%), Total Reg. Cap. Ratio, ROA, Growth of Gross Loans, Non Performing Loans/Gross Loans (%), Inflation

b. Dependent Variable: Net Income/Equity (%)

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	76355.506	8	9544.438	178.021	.000 ^b
	Residual	8256.581	154	53.614		
	Total	84612.087	162			

a. Dependent Variable: Net Income/Equity (%)

b. Predictors: (Constant), Unemployment rate, GDP growth, Net Loans/Total Assets (%), Total Reg. Cap. Ratio, ROA, Growth of Gross Loans, Non Performing Loans/Gross Loans (%), Inflation

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.323	6.876		1.501	.135
	Non Performing Loans/Gross Loans (%)	-.512	.065	-.269	-7.834	.000
	Total Reg. Cap. Ratio	-.061	.018	-.093	-3.318	.001
	ROA	9.621	.363	.840	26.524	.000
	Growth of Gross Loans	-.073	.060	-.040	-1.202	.231
	Net Loans/Total Assets (%)	-.175	.036	-.138	-4.842	.000
	GDP growth	.330	.201	.045	1.643	.103
	Inflation	.258	.730	.012	.353	.724
	Unemployment rate	.791	.736	.043	1.076	.284

Source: Own work.

Coefficients^a

Model		95.0% Confidence Interval for B		Correlations		
		Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	-3.261	23.908			
	Non Performing Loans/Gross Loans (%)	-.641	-.383	-.570	-.534	-.197
	Total Reg. Cap. Ratio	-.097	-.024	.057	-.258	-.084
	ROA	8.904	10.337	.921	.906	.668
	Growth of Gross Loans	-.192	.047	.400	-.096	-.030
	Net Loans/Total Assets (%)	-.246	-.103	.001	-.363	-.122
	GDP growth	-.067	.726	.270	.131	.041
	Inflation	-1.184	1.700	.101	.028	.009
	Unemployment rate	-.662	2.245	-.387	.086	.027

Coefficients^a

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Non Performing Loans/Gross Loans (%)	.539	1.856
	Total Reg. Cap. Ratio	.807	1.240
	ROA	.632	1.583
	Growth of Gross Loans	.584	1.711
	Net Loans/Total Assets (%)	.784	1.276
	GDP growth	.863	1.158
	Inflation	.532	1.880
	Unemployment rate	.403	2.482

a. Dependent Variable: Net Income/Equity (%)

Source: Own work.

Appendix 4: Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Net Income/Equity (%)	190	-144.51	34.07	3.1530	21.83234	-4.179
Non Performing Loans/Gross Loans (%)	184	.02	57.27	8.3277	11.43670	1.953
Total Reg. Cap. Ratio	171	1.13	261.10	23.4187	36.48781	4.626
ROA	185	-13.30	3.86	.2831	1.94320	-3.812
Growth of Gross Loans	185	-51.34	115.54	5.1043	15.61628	1.892
Net Loans/Total Assets (%)	190	11.79	96.94	63.4414	19.06467	-1.028
GDP growth	198	-7.80	5.99	1.0239	3.31821	-1.016
Inflation	198	-.99	4.51	1.5913	1.14097	.564
Unemployment rate	198	4.37	10.10	7.7743	1.23806	-.727
Valid N (listwise)	163					

Descriptive Statistics

	Skewness	Kurtosis	
	Std. Error	Statistic	Std. Error
Net Income/Equity (%)	.176	21.324	.351
Non Performing Loans/Gross Loans (%)	.179	3.744	.356
Total Reg. Cap. Ratio	.186	21.501	.369
ROA	.179	20.985	.355
Growth of Gross Loans	.179	14.290	.355
Net Loans/Total Assets (%)	.176	.845	.351
GDP growth	.173	.697	.344
Inflation	.173	.934	.344
Unemployment rate	.173	1.042	.344
Valid N (listwise)			

Source: Own work.

Appendix 5: Correlations matrix

		Correlations		
		Net Income/Equity (%)	Non Performing Loans/Gross Loans (%)	Total Reg. Cap. Ratio
Pearson Correlation	Net Income/Equity (%)	1.000	-.570	.057
	Non Performing Loans/Gross Loans (%)	-.570	1.000	-.134
	Total Reg. Cap. Ratio	.057	-.134	1.000
	ROA	.921	-.466	.155
	Growth of Gross Loans	.400	-.374	-.238
	Net Loans/Total Assets (%)	.001	-.378	.216
	GDP growth	.270	-.137	.120
	Inflation	.101	-.279	-.014
	Unemployment rate	-.387	.489	-.026
Sig. (1-tailed)	Net Income/Equity (%)	.	.000	.237
	Non Performing Loans/Gross Loans (%)	.000	.	.045
	Total Reg. Cap. Ratio	.237	.045	.
	ROA	.000	.000	.024
	Growth of Gross Loans	.000	.000	.001
	Net Loans/Total Assets (%)	.497	.000	.003
	GDP growth	.000	.040	.064
	Inflation	.100	.000	.429
	Unemployment rate	.000	.000	.369
N	Net Income/Equity (%)	163	163	163
	Non Performing Loans/Gross Loans (%)	163	163	163
	Total Reg. Cap. Ratio	163	163	163
	ROA	163	163	163
	Growth of Gross Loans	163	163	163
	Net Loans/Total Assets (%)	163	163	163
	GDP growth	163	163	163
	Inflation	163	163	163
	Unemployment rate	163	163	163

Source: Own work.

Correlations

		ROA	Growth of Gross Loans	Net Loans/Total Assets (%)
Pearson Correlation	Net Income/Equity (%)	.921	.400	.001
	Non Performing Loans/Gross Loans (%)	-.466	-.374	-.378
	Total Reg. Cap. Ratio	.155	-.238	.216
	ROA	1.000	.391	.071
	Growth of Gross Loans	.391	1.000	-.014
	Net Loans/Total Assets (%)	.071	-.014	1.000
	GDP growth	.240	.111	-.028
	Inflation	.073	.329	.004
	Unemployment rate	-.383	-.518	-.053
	Sig. (1-tailed)	Net Income/Equity (%)	.000	.000
Non Performing Loans/Gross Loans (%)		.000	.000	.000
Total Reg. Cap. Ratio		.024	.001	.003
ROA		.	.000	.184
Growth of Gross Loans		.000	.	.431
Net Loans/Total Assets (%)		.184	.431	.
GDP growth		.001	.080	.361
Inflation		.176	.000	.479
Unemployment rate		.000	.000	.250
N		Net Income/Equity (%)	163	163
	Non Performing Loans/Gross Loans (%)	163	163	163
	Total Reg. Cap. Ratio	163	163	163
	ROA	163	163	163
	Growth of Gross Loans	163	163	163
	Net Loans/Total Assets (%)	163	163	163
	GDP growth	163	163	163
	Inflation	163	163	163
	Unemployment rate	163	163	163

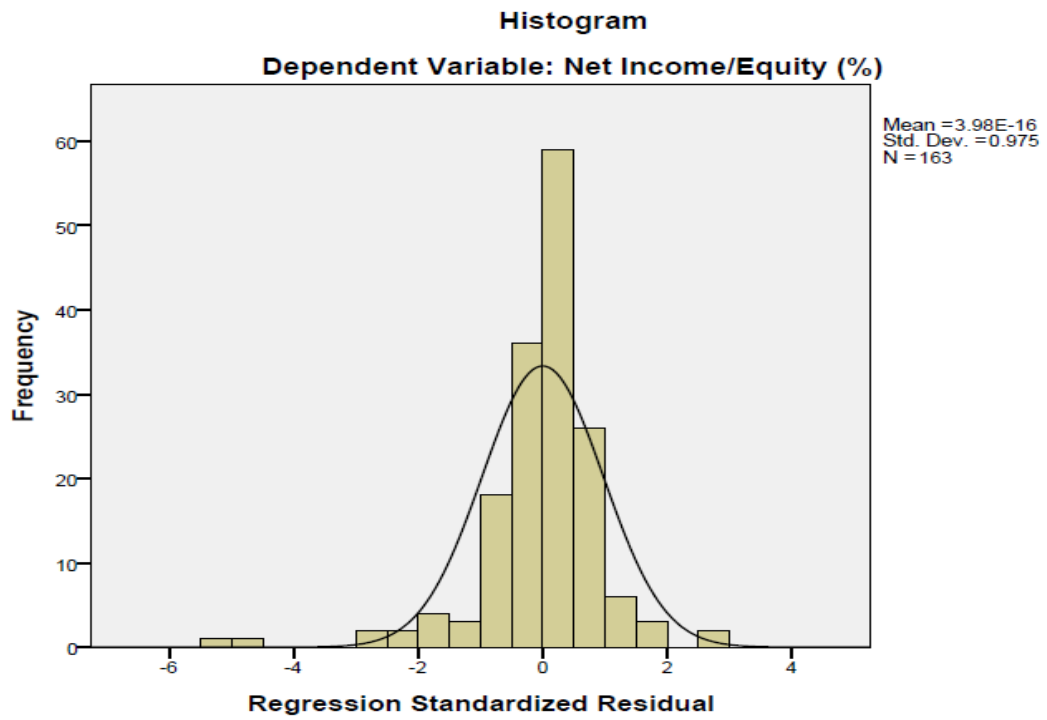
Source: Own work.

Correlations

		GDP growth	Inflation	Unemployment rate
Pearson Correlation	Net Income/Equity (%)	.270	.101	-.387
	Non Performing Loans/Gross Loans (%)	-.137	-.279	.489
	Total Reg. Cap. Ratio	.120	-.014	-.026
	ROA	.240	.073	-.383
	Growth of Gross Loans	.111	.329	-.518
	Net Loans/Total Assets (%)	-.028	.004	-.053
	GDP growth	1.000	-.187	.024
	Inflation	-.187	1.000	-.641
	Unemployment rate	.024	-.641	1.000
	Sig. (1-tailed)	Net Income/Equity (%)	.000	.100
Non Performing Loans/Gross Loans (%)		.040	.000	.000
Total Reg. Cap. Ratio		.064	.429	.369
ROA		.001	.176	.000
Growth of Gross Loans		.080	.000	.000
Net Loans/Total Assets (%)		.361	.479	.250
GDP growth		.	.008	.381
Inflation		.008	.	.000
Unemployment rate		.381	.000	.
N		Net Income/Equity (%)	163	163
	Non Performing Loans/Gross Loans (%)	163	163	163
	Total Reg. Cap. Ratio	163	163	163
	ROA	163	163	163
	Growth of Gross Loans	163	163	163
	Net Loans/Total Assets (%)	163	163	163
	GDP growth	163	163	163
	Inflation	163	163	163
	Unemployment rate	163	163	163

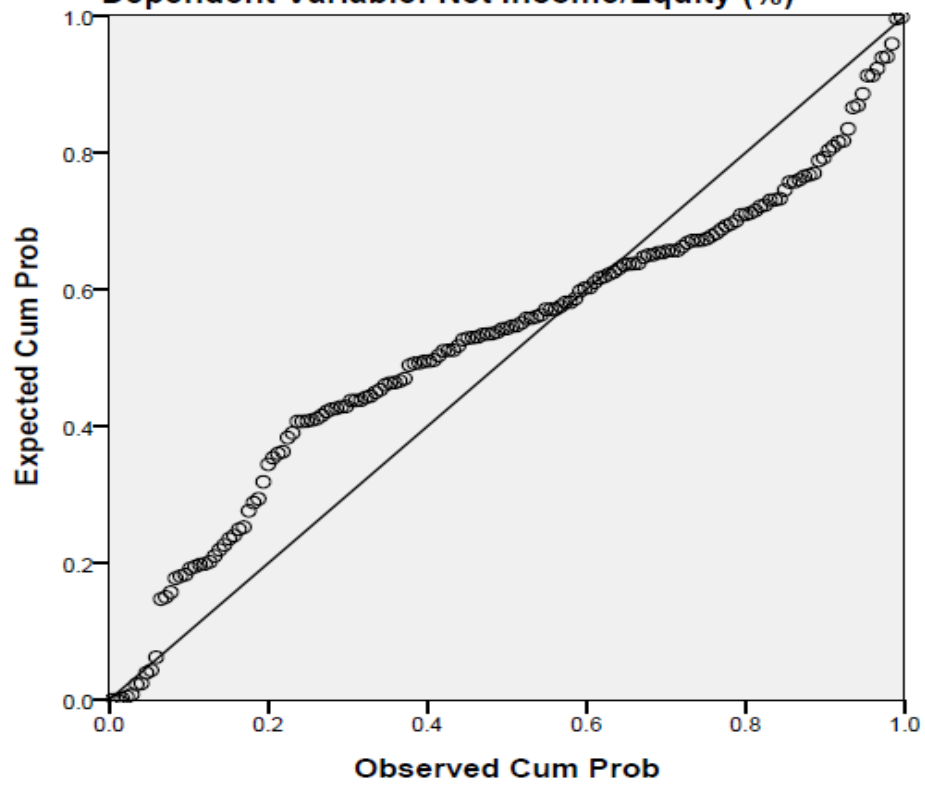
Source: Own work.

Appendix 6 (Histogram, Normal P-P Plot of Regression Standardized Residual, Scatterplot)

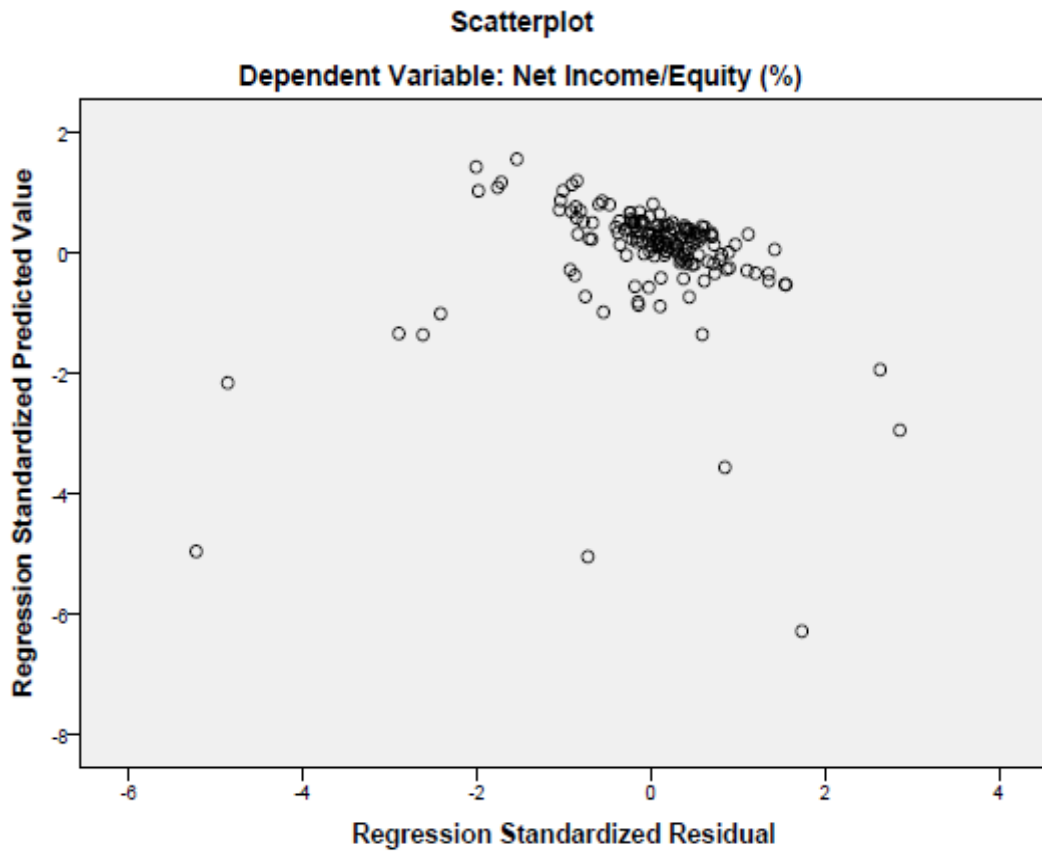


Source: Own work.

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Net Income/Equity (%)



Source: Own work.



Source: Own work.