NON-PERFORMING LOANS

An analysis of the relationship between non-performing loans and profitability among European banks.

NÖDLIDANDE LÅN

En analys om sambandet mellan nödlidande lån och lönsamhet hos europeiska banker.

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During the last decade, many European banks have been troubled with low profitability, while the amount of non-performing loans (NPLs) has increased. This thesis investigates and analyses how the increasing amount of NPL affects banks' profitability and the financial system. With econometric models using panel data we examined the relationship between NPLs, banks' profitability and the economic cycle (GDP-growth). This combined with qualitative economic theories provided a solid analysis of this relationship. We found strong evidence the NPL-ratio has a negative correlation with both the profitability of banks and the economic cycle. With these results in mind we think the NPLs need to be dealt with by the banks and authorities soon. In accordance with our result and analysis we came up with recommendations for the banks and authorities to deal with the issue. We recognize they need to improve the secondary markets for non-performing loans, lifting the loans from their balance sheets, increase the use of Asset Management Companies and improve the NPL-management within banks.
Definition of terms

**Loan loss provisioning (LLP)**
How much a company sets aside of its total loans as a reserve for expected default losses. It is known as a “shock absorber” to offset probable future losses.¹

**Non-performing loans (NPLs)**
Loans that are in default or close to being in default. This is normally when the debtor has not made her scheduled payment for at least 90 days. NPLs includes nonaccrual loans, reduced rate loans and renegotiated/restructured loans. The NPL-ratio is calculated as the amount of non-performing loans divided by total loans.²

**Operating leverage**
The percentage change in net revenue less the percentage change in operating expense for the fiscal year.³

**Return on equity (ROE)**
The ratio of net profit to shareholders’ equity.⁴ This is a measurement of the profitability of stockholders’ investment and how well a company uses shareholders’ funds to generate a profit.⁵

**Standard & Poor's (S&P) credit rating**
Expresses S&P’s opinion about the ability and willingness of an issuer to meet its financial obligations in time. The rating varies from AAA, extremely strong capacity to meet financial commitments, to D, where a bankruptcy petition has been filled or similar.⁶

**Zombie banks**
Banks that are continuing their business despite having a negative net worth. They can do this with government support and bailout.⁷

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¹ Reuters Eikon.
² Ibid.
³ Ibid.
⁴ Financial Times, ROE.
⁵ Accounting Explained, ROE.
⁷ Financial times, zombie banks.
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1 Introduction

1.1 Background

In today’s Europe, low profitability is prevailing in the banking sector which induces a risk for both the banks and the financial stability in the region. The return-on-equity (ROE) for banks in the Euro-area has decreased from 15.92% in 2007 to 3.3% in 2016. At the same time, the ratio of non-performing loans (NPL) for these banks has increased from 1.8% to 5.38%. The figure below illustrates the relationship between ROE and NPL during the last decade. This relationship makes it interesting to study if and how the amount of NPLs affect the bank’s profitability.

![ROE and NPL](image)

**Figure 1**

Weak banks with low profitability can destabilize the financial system and be costly for all parties involved in the economy. On the 10th of May, a bailout package of 750 billion euro were given from the European central bank (ECB) to the countries in PIIGS (Portugal, Italy, Ireland, Greece and Spain.) to help them stabilize after the financial crisis. These bailouts are costly for the governments and is a scenario no country wants to experience. In Italy, the bailout planned for Monte De Pasci in December last year would cost the government 8.8 billion euro. This makes the question about profitability important for so many more than just the bank itself.

The debate and discussion regarding the risk of high levels of NPL within the European banking sector has emerged during the last years. Several studies have proven a strong negative relationship between NPL and economic growth, but there is a lack of previous research about how NPL

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8 EBA, Risk Dashboard, Data as of 2014.
9 KPMG, The profitability of EU banks.
10 Ibid.
11 The economist, The PIIGS that won’t fly
12 Bloomberg, Italy’s Monte Paschi Bailout has some ESB Supervisors Grumbling.
affects the bank’s profitability. If the banks could increase their profits by reducing their ratio of NPLs, and simultaneously reduce the risk for the financial system would be worth analyzing.

1.2 Delimitations
Our thesis will focus on the European area and European banks and it includes 12 banks and 12 countries. Most banks were chosen because of their previous issues with profitability. We also selected them after the availability of historic data. The countries included in the analysis is selected from the originating country of the banks previously chosen. The time-span includes 20 years from 1997 until present, with the longer period including important events taking place during that time.

1.3 Aim
The aim with this thesis is to analyze if European banks can increase their profitability by reducing their NPL-ratio. We also want to analyze the effects NPLs have on the financial system. If there is evidence of negative correlation between the profitability of banks and NPL-ratio the aim is also to analyze how these loans can be decreased.

1.4 Research questions
- How do the NPL-ratio correlate with the economic cycle and profitability of banks?
- Why is it important for banks and the financial system to decrease NPLs?
- What do we recommend banks and authorities to do to solve the issue of NPLs?
2 Previous research

In this chapter, we will present research that is relevant regarding NPLs and its consequences. We will mention the economic impacts of NPL, earlier econometric studies, zombie banks and Asset management companies.

2.1 Economic impacts of NPL

Balgova, Nies and Plekhanov\textsuperscript{14} analyzed the economic impacts of reducing NPL. They found moving NPL of the bank's balance sheet was associated with a 3 to 4\% increase in GDP-growth as well as investment growth. Beck, Jakubik and Piloiu\textsuperscript{15} found GDP-growth has a negative impact on the NPL-ratio and has been an important aspect in the recent rise of the nonperforming-loans. Castro\textsuperscript{16} found when GDP grows and unemployment falls nonperforming loans are decreasing significantly. Espinoza and Prasad\textsuperscript{17} also found a strong evidence of a significant inverse relationship between real (non-oil) GDP and nonperforming loans. Several other publications as Jiménez and Saurina\textsuperscript{18}; Messai and Jouini 2013\textsuperscript{19}; Makri and Tsagkanos\textsuperscript{20} also found this negative relationship between GDP-growth and the NPL-ratio. Lareya, Ntow-Gyamfi and Azumah Alu\textsuperscript{21} found a significant relationship between GDP-growth and NPL, but that inflation did not show a significant correlation with NPL according to their econometric model. These studies prove there are plenty of evidence for an inverse relationship between GDP-growth and NPL.

Many studies have also found a close relationship between asset quality, credit risk and GDP-growth. In most of these studies loan-loss provisioning (LLP) and NPLs have been used as proxy variables\textsuperscript{22} for credit risk. Danvee Floro\textsuperscript{23}, the central bank of England and the Federal Reserve of San Francisco have done studies where they found positive relationship between LLP and NPL. Andrea Enria\textsuperscript{24} found slow reduction of NPLs and the risk of increasing NPLs in the future leads to an increased credit risk for European banks. Julian Nyawuana\textsuperscript{25} found a negative relationship between credit risk management and NPLs in commercial banks in Kenya. Beaton, Myrvold and

\textsuperscript{14} Balgova, Nies and Plekhanov 2016.
\textsuperscript{15} Beck, Jakubik and Piloiu 2013.
\textsuperscript{16} Castro 2013.
\textsuperscript{17} Espinoza and Prasad 2010.
\textsuperscript{18} Jimenez and Saurina 2006.
\textsuperscript{19} Messai and Jouini 2013.
\textsuperscript{20} Makri and Tsagkanos 2014.
\textsuperscript{21} Lareuya, Ntow-Gyamfi and Azumah Alu 2015.
\textsuperscript{22} A proxy variable can be used as measurement for an abstract effect.
\textsuperscript{23} Danvee Floro 2010.
\textsuperscript{24} Andrea Enria 2017.
\textsuperscript{25} Julian Nyawuana 2009.
Thompson\textsuperscript{26} found increased NPLs tend to be correlated with both lower economic growth and weaker credit growth. Seifallah Sassi\textsuperscript{27} found an increased credit growth had positive impacts on the economic growth.

### 2.2 Econometric studies

Beck, Jakubik and Piloiu\textsuperscript{28} used panel data techniques to prove the macroeconomic and bank-specific impact as determinants on NPL. They also used fixed effect estimators to control for time-constant unobserved heterogeneity. Makri and Tsagkanos\textsuperscript{29} uses an unbalanced panel with purpose of being able to include more observations and have less dependent periods. Other studies that also used panel data to estimate this correlation is Espinoza and Prasad\textsuperscript{30}; Messai and Jouini\textsuperscript{31}. A study by Lareya, Ntow-Gyamfi and Azumah Alu\textsuperscript{32} is using ROE as a proxy variable for banks profitability when determining how NPL affects this variable.

### 2.3 Zombie banks and Asset Management Companies

Caballero, Hoshi and Kashyav\textsuperscript{33} published a study in the American Economic Review identifying zombie lending and zombie banks present in Japan. ECB have recognized the issue with NPL affecting banks profitability. Authorities as the Asian Development Bank has considered how AMCs might become a moral hazard\textsuperscript{34}. The International Monetary Fund\textsuperscript{35} found the development of a secondary market for NPLs in Italy could be one solution for decreasing NPLs.

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\textsuperscript{26}Myrvold and Thompson 2016.  
\textsuperscript{27}Seifallah Sassi 2014.  
\textsuperscript{28}Beck, Jakubik and Piloiu 2013.  
\textsuperscript{29}Makri and Tsagkanos 2008.  
\textsuperscript{30}Espinoza and Prasad 2010.  
\textsuperscript{31}Messai and Jouini 2013.  
\textsuperscript{32}Lareya, Ntow-Gyamfi and Azumah Alu 2015.  
\textsuperscript{33}Caballero, Hoshi and Kashyav 2008.  
\textsuperscript{34}Asian Development Bank 2005.  
\textsuperscript{35}The International Monetary Fund 2015.
3 Theoretical framework

The following theories are the framework that are needed to answer the purpose and research questions of the thesis. The framework will include theories about asset removal schemes, asymmetric information, misallocation of capital, regulations and zombie banks.

3.1 Asset removal schemes (ARS)

The government have two main strategies in how to support banks that have many impaired (damaged) assets. It is either by asset-insurance schemes (AIS) or by asset removal schemes (ARS).\textsuperscript{36} In AIS the assets are maintained on the bank’s balance sheets while in ARS the assets are transferred to a separate institution. In the ARS approach, the assets are often transferred/bought by special asset management companies (AMCs). The problem with both strategies is to set the right price of the impaired asset.\textsuperscript{37}

AMCs are companies who gather money from retail investors. The AMCs invest this money into matching securities to the financial objectives that the AMC declare.\textsuperscript{38} This can for example be as a mutual fund, hedge fund, pension fund or similar. The AMCs’ are charging a fee to earn profit on their investments and can provide more diversification than normal management consulting services would. AMCs are prevalent both in the primary and secondary market and can be centralized or decentralized, government funded or privately funded. Government AMCs are expensive to initiate and is therefore not as prevalent as they otherwise would be.\textsuperscript{39}

3.2 Asymmetric information

The asymmetric information theory refers to a situation where the principal, business owner or manager, has more knowledge and information about business risks than the lender or shareholder (the so-called agent).\textsuperscript{40} The American economist George Akerlof described a famous theory called the “lemon problem” about issues that can arise because of asymmetrical information.\textsuperscript{41} In the “lemon problem” the asymmetrical information occurred in the car-market but it can be applied to any market with asymmetric information. In the car market, there are four types of cars; new cars, used cars, good cars and bad cars (lemons). The buyer of the car does not know if she is

\textsuperscript{36} Financial Crisis Containment and Government Guarantees.
\textsuperscript{37} ECB, Guiding principles for bank asset support schemes.
\textsuperscript{38} Vanier. 2001.
\textsuperscript{39} ADB, Experience of Asian Asset Management Companies: Do They Increase Moral Hazard?
\textsuperscript{40} Akerlof. 1970.
\textsuperscript{41} Ibid.
buying a good car or a lemon (bad car). The seller of cars knows if the car is good or bad and have more information about the car than the buyer has. Because the buyer does not have full information about the car she is buying she cannot be sure if the car is a lemon or a good car. The buyer will therefore never pay the full price of the good car. The seller acknowledges this and will sell fewer good cars. The result of this information asymmetry is that a disequilibrium occurs on the market and that the good cars will never be sold.

3.3 Misallocation of capital

Misallocation of capital is when money or capital is not used in its most efficient way. A consequence of this is that the alternative cost of misallocated capital increases. Alternative cost is defined as “the loss of potential gain from other alternatives when one alternative is chosen”.

When capital is misallocated it creates an alternative cost for the financial system.

3.4 Regulations

3.4.1 Loan loss provisioning

The banking authorities can use many tools to regulate the banking sector. One of these is the level of provisioning the banks must set aside to cover for loan losses. Banks that provide credit takes on risk which requires proper risk management in which loan loss provisioning (LLP) is an important part. A loan not being paid back to the bank means the bank loses income. The bank cannot entirely trust the borrower to pay back the loan and therefore need to set aside capital to cover for these losses. This money that the bank is putting aside is called loan loss provisioning. A problem with determining the right level of LLP is when valuing the loans on the bank’s balance sheets. The two ways it can be calculated is on already incurred losses or on expected future losses.

3.4.2 Basel

The Third Basel Accord is a global set of regulatory measures created by the Basel Committee on Banking Supervision to strengthen the regulation and supervision of risk management in the banking sector. Basel III’s intention is to specifically increase liquidity and decrease leverage within banks by improving capital requirements.

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42 Oxford dictionaries, misallocate.
43 New Oxford American Dictionary, alternative cost.
44 Financial times, loan-loss provisioning.
45 KPMG, Loan impairment modeling according to IAS 39 by using Basel II parameters.
46 Bank for international settlements, Basel III: international regulatory framework for banks.
3.5 Zombie banks

Zombie banks are banks that are operating with a negative net worth. They can do this with government support and bailouts. The reason why zombie banks exist is the high NPL-ratios within these banks. In slow economies where businesses fail to fulfill their loan obligations the banks will lose profit and in some cases turn insolvent. When they receive capital injections from government and other creditors, while still operating with a negative net worth, they are referred to as zombie bank. In some cases these zombie banks can themselves create zombie businesses. It happens when banks are extending outstanding loans to businesses which are already having troubles meeting their loan obligations. These businesses then become insolvent themselves and are only able to still operate because of the extended loans.

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47 Financial times, zombie banks.
48 Economies that are experiencing slow economic growth.
49 Caballero, Ricardo, Takeo and Anil 2008.
4 Methodology

We have in this thesis combined quantitative and qualitative methods. Our quantitative methods are built on earlier studies to answer the aim of our thesis. Our qualitative methods are an extension to the result from our quantitative methods and includes interviews and further data-collection.

4.1 Quantitative studies

4.1.1 GDP impact and correlation with NPL

In our first econometric model, we regressed the GDP against the NPL-ratio. Beck et. al (2013), Jimenéz and Saurina (2006) and several other studies have already proven this to be a significant correlation but we still found it interesting to consider the matter ourselves.\(^{50}\) We conducted two econometric models for this study. First, we used ordinary least square (OLS) model to regress every individual countries GDP-growth against their logged NPL-ratio. This was to prove if any specific countries have an abnormal high correlation between GDP-growth and NPL, as well to see if all countries were significant.\(^{51}\) Second, we used a random effect model with all countries regressed together against the combined NPL. This to prove our hypothesis that GDP-growth is correlated with the NPL-ratio. We conducted an F-test and a Hausman-test to see which models we should use and found the random effect model (REM) to be the best pooled model to use.

4.1.2 NPL impact and correlation with ROE

In our second econometric study, we regressed certain bank-specific variables against banks profitability. Our goal with this study was specifically to find out how much NPL affected the profitability, but also how other ratios NPL affect correlates with ROE. The key ratios we included in this study was ROE, NPL, LLP, Operating leverage, Credit ratio and GDP-growth. We chose the bank-specific variables after what other studies found correlating with ROE and with NPL.\(^{52}\) We used ROE as a proxy-variable for profitability which has previously been done by Lareya, Ntow-Gyamfi and Azumah Alu (2015).\(^{53}\) We conducted a pooled regression model with the 12 banks and bank-specific variables. Because we knew that NPL correlated with both the credit ratio and the LLP we conducted two studies here as well. In the first study we included ROE, NPL, leverage and GDP-growth and in the second study we included leverage, LLP and credit ratio. We

\(^{50}\) Espinoza & Prasad (2010).
\(^{51}\) The result of this regression can be found in Appendix A.
\(^{52}\) International Monetary Fund. 2016.
\(^{53}\) Inekwe, Murumba. 2013.
\(^{54}\) Inekwe, Murumba. 2013.
used F-test and Hausman test in both studies and found that fixed effect model was the best one to use for both studies.

4.1.3 Transformation of variables and model-specification

We transformed GDP to GDP-growth to get rid of the time-variance in the models. The GDP-growth was then lagged as well. This because NPL and ROE have proven to be more affected by the previous year’s GDP-growth. For the other ratios, NPL, leverage, LLP and credit ratio the present year was more relevant and therefore not lagged. We logged NPL to generate a linear relationship between our variables.\(^55\) OLS was used in the country-specific model due to only one dependent variable changing over time. The model looks as:

\[
NPL - ratio = \alpha + \beta_{GDPgrowth_1} + e
\]

In the other two models we used panel data, which fits best when variables vary over time and over variables. Makri and Tsagkanos (2008), Espinoza and Prasad (2010) and many others have used panel data as well for similar studies. The three general ways to conduct panel models is by a pooled model, fixed effect model or random effects model. The pooled model is the simplest one and it assumes no heterogeneity or time specificity. We thought it could be heterogeneity in our sample and therefore conducted a test to try this. We found that it probably where heterogeneity because the test showed that FEM and REM should be used instead of the pooled OLS model.

The Hausman test in the first model, pooled GDP-growth against NPL, indicated the random effect model should be used. The random effects model uses a weighted mean subtracted from the variables using a generalized least square (GLS)-model. The Y-term and X-term is transformed to allow for the GLS to be done. The serial correlated error terms are transformed to serially uncorrelated error terms. The random effect model is more efficient than the pooled model because it uses uncorrelated error terms. It uses less dummy variables than the fixed effect model and therefore fewer degrees of freedom and generates more efficient estimates. But for the random effect model to generate significant results the error terms must be uncorrelated with the explanatory variables, because the error terms are still in the model.\(^56\) If the error terms correlate with the explanatory variables it will lead to biased coefficient estimates.

\(^{55}\) Wooldridge, Introductory Econometrics.

\(^{56}\) Desilva & Sanjaya, 2008.
\[ ROE = \alpha + \beta_{GDPgrowth} + e \]

The fixed effect model was proven to the best fit model in our second study, which included pooled bank-specific variables regressed against return on equity. We decided that the best type of fixed model would be the fixed cross-section model. In this model, the error term is decomposed into an entity-specific effect and the error term varies over time. It is also possible to fix the model over time by having an error term that neither varies over time or entries. We believe that GDP would be the only term that varies over time and since this term was already transformed it did not needed to be fixed into time-specific terms.

\[ ROE = \alpha + \beta_{NPL} + \beta_{Leverage} + \beta_{GDPgrowth} + e \]

\[ ROE = \alpha + \beta_{NPL} + \beta_{Leverage} + \beta_{Creditgood} + \beta_{Creditbad} + e \]

4.1.4 Data-collection and data-sets

The data for the country-specific NPL was exclusively collected from the world bank.\(^{57}\) For the GDP-growth we complemented the data from the world bank with data from the global economy.\(^{58}\) For the bank-specific variables we collected most of the data from Reuters Eikon\(^{59}\), but also complemented with data from the bank’s annual reports.

**Data-set model 1 (table 1)**

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<th>Variables</th>
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<td>Spain</td>
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</table>

\(^{57}\) World Bank, World Bank Open Data.  
\(^{58}\) The Global Economy, Economies.  
\(^{59}\) Thomson Reuters, Eikon.
Sweden NPL, ROE 1997-2016
United Kingdom NPL, ROE 1997-2016
United States NPL, ROE 1997-2016

Data set model 2 (table 2)

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</table>

CrR = credit rating, OPL = Operating leverage.

4.1.5 Control- and omitted variables
We knew that GDP-growth has an influence on both ROE and on the NPL directly. It was therefore needed to use GDP-growth a control variable in the model. We choose not to use any more macroeconomic variables than GDP-growth, as interest rate and net exports, because they had not conclusively proven a significant correlation in earlier studies. We also omitted total loans from the model, because it strongly correlated with NPL and LLP, and did not use LLP and GDP-growth in the same model for the same reason.

4.2 Qualitative studies
We complemented our quantitative methods with qualitative methods to broaden the perspective and provide the thesis with more comprehensive foundation for analysis. In the qualitative
method, we studied the correlation between NPL and ROE from different economic perspectives. This method was focused on three parts, why it is important to decrease NPLs, why the NPLs are stuck on bank’s balance sheets and how these loans can be decreased. We were specifically considering how NPLs stuck on bank’s balance sheets are affected by inefficient markets. The concept of inefficient markets is important to the subject to provide reasoning on how this could be solved. This leads us to which role authorities have in the issue, how can this be regulated or even deregulated?

A central part in our qualitative analysis is to find out why it is important for the banks, governments and even the world economy to solve the issue with NPL. This part made use of economic theories to answer these questions with the theory about misallocation of capital and alternative cost as central concepts. Furthermore, much of our quantitative reasoning circulates around risk management for different parties involved. To provide even further insight into the subject we have conducted an interview with one of the banks that we are analyzing. Deutsche Bank answered a couple of questions regarding their work with NPL, which was helpful to get insight from the parties involved.

4.3 Methodology critique

In our first study, we only used a time-span of 20 years with one dependent variable. People could argue we should have used a longer time-span, quarterly data or more than one dependent macro-economic variable. We agree this is few variables but many studies regarding this have already been made and our focus in this thesis was the bank-specific variables. We also used panel data which increased the degrees of freedom significantly. There are plenty of qualitative economic theories that could be applied to NPLs. We choose the ones we are considering the most relevant and that provides the best foundation for our analysis.

Regarding the qualitative method, the interview we conducted was done through mail. This limit the possibility of further discussion and reasoning with the respondent. Arguments could be made regarding the validity of the economic theories of previous research. As for our analysis, we are assuming the theories are correct and valid and relevant to the subject we are researching.
5 Results

Our results will be focused on two parts, quantitative and qualitative. In our quantitative results, we will interpret the results we got from our econometric models. In our qualitative results, we will present facts from the empirical insight we found.

5.1 Quantitative results

5.1.1 Correlation between GDP and NPL

Our first model, which pooled our 12 countries, indicates that GDP-growth has a strong significant correlation with the NPL-ratio. This can be seen at the t-value of -4.3300029 and the p-value at 0.0000. The p-value also indicates it is significant at 99% certainty. This result is consistent with the earlier studies by Jiménez and Saurina 2006 and others, which also implied this same inverse relationship. The coefficient of -0.068 can be read as an increase of the GDP-growth of 1% will decrease the NPL-ratio with 6.8%, ceteris paribus. The degree of explanation of 7.8% can be caused by the few variables we have, as there is only one dependent variable included (GDP).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std.Error</th>
<th>t-statistic</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP-growth (Pooled)</td>
<td>-0.067968</td>
<td>0.015697</td>
<td>-4.3300029</td>
<td>0.0000</td>
</tr>
<tr>
<td>Other tests</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adj. R-2</td>
<td>0.078001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-test</td>
<td>21.998195</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hausman-test</td>
<td>1.689551</td>
<td>0.1937</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For most of the individual countries that we regressed for were there also a significant correlation between the GDP-growth and the NPL-ratio. In appendix A, the result from the regression of the 6 countries (Spain, Greece, Hungary, Portugal, Slovenia and the United States) can be found. They proved a significant correlation between GDP-growth and NPL. Ireland proved a significant correlation lagged while Italy proved a significant correlation when not lagged. The 4 countries France, Germany, Sweden and United Kingdom did not show any significant correlation between GDP-growth and the NPL-ratio. All significant countries indicated a negative correlation between
the GDP-growth and the NPL-ratio as well. As seen in the correlation matrix\textsuperscript{60} the correlation between these variables was between 51.6\% (Portugal) up to 77\% (United States). The explanation degree was between 22\% (Ireland) and 57\% (United states). In appendix A, all the descriptive statistics from the study can be found.

5.1.2 Correlation between NPL and ROE
The second study dealt with the impact NPL has on bank profitability concerning other bank specific variables. The results prove that all variables are significant at 5\% significance level and at 1\% significance level. The NPL-ratio and loan-loss provisioning has a negative correlation with the profitability of banks. The leverage, credit quality and GDP-growth have positive correlation with the profitability of banks. The inverse relationship between NPL-ratio and ROE was the same as we had found in previous research. Both models have an explanation degree of 66\%. If the NPL-ratio increases with 1\% will the ROE decrease with 0.46\%. An increase in the LLP with 1\% will decrease the ROE with 8.85\%. Banks which have a credit ratio below A has a ROE that is 0.10\% lower than banks that have A or higher.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-statistic</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modell 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leverage</td>
<td>0.19813***</td>
<td>0.11735</td>
<td>16.87961</td>
<td>0.0000</td>
</tr>
<tr>
<td>Creditgood</td>
<td>0.111945***</td>
<td>0.14182</td>
<td>7.893589</td>
<td>0.0000</td>
</tr>
<tr>
<td>Creditworse</td>
<td>0.080208***</td>
<td>0.13662</td>
<td>5.870872</td>
<td>0.0000</td>
</tr>
<tr>
<td>Loanloss</td>
<td>-8.851759***</td>
<td>0.485845</td>
<td>-18.21932</td>
<td>0.0000</td>
</tr>
<tr>
<td>Modell 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NPL_Ratio</td>
<td>-0.4613586***</td>
<td>0.133074</td>
<td>-3.466928</td>
<td>0.0007</td>
</tr>
<tr>
<td>Leverage</td>
<td>0.200998***</td>
<td>0.028396</td>
<td>7.0782978</td>
<td>0.0000</td>
</tr>
<tr>
<td>GDP_lagged</td>
<td>0.010136***</td>
<td>0.002872</td>
<td>3.528553</td>
<td>0.0006</td>
</tr>
</tbody>
</table>

*** = Significant at 99\%

We found NPL-ratio to have a positive correlation with LLP at 28.7\% and a negative correlation with good credit ratio at 24.24\%.

\textsuperscript{60} Can be found in Appendix 3A.
5.2 Consequences of NPL

After proving that the NPL-ratio weighs on both bank’s profitability and the country's GDP-growth we will apply various economic theories to answer why it is important to decrease NPL.

5.2.1 Misallocation of capital

The theory about misallocation of capital described earlier in this thesis is applicable to the issue with NPLs. The economy consists of a limited amount of resources, which are allocated in a certain way. In the best of worlds all these resources are allocated as efficiently as possible, with no misallocation present. When capital gets stuck in loans that are not performing misallocation of capital takes place.61 The financial system and credit market origins from the fact that money is used to generate more money62. The credit market also allows for individuals to increase their consumption which increases the GDP and productivity growth.

\[ GDP = C + I + G + NX \]

The GDP-model illustrates the effect taking place in the economy. When credit is provided to businesses it increases investments, I, which then increases the GDP. Increasing the credit to individuals has a positive effect on consumption and thereby a positive effect on the GDP. This model proves that credit is important to the financial system for both business creation and expansion. It is simultaneously increasing the possibilities for both households and firms to extend their daily working capital.

We recognize the issue with misallocation of capital that NPLs brings. These loans were from the beginning meant to perform and spur economic growth and when they are no longer performing the problem with misallocation begins. Capital is stuck in bad investments and could have been used more efficient elsewhere. The return on this money not used in more efficient ways creates an alternative cost, a cost which has a large burden on the financial system in Europe. Further, various analyses have proven that decreasing the NPL-ratio leads to lower unemployment, increased ratio of investments and improved economic growth.63 This supports the theory of NPL creating misallocation of capital. When capital stuck on the bank’s balance sheets are coming to

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63 Ibid.
better uses it enhances economic growth.\textsuperscript{64} In situations when the borrowers are not able to fulfill their obligations the chances of receiving new loans decreases.\textsuperscript{65}

5.2.2 Decreased credit supply

Risk management is one of the most important functions within a banks organization. The organization's task is to analyze, identify and protect assets which are under any type of uncertainty.\textsuperscript{66} There is also misallocation present within banks when it comes to NPLs. The allocation of lending within banks tends to shift from regular lending activity to more credit quality improvements when the NPL-ratio increases\textsuperscript{67}. This shift represents how risk management-priorities within banks differ depending on their situation with NPLs. When the number of loans that are not performing increases, it makes the bank more risk averse and thereby decreases its lending. This slows down the credit supply and the economic growth. A sounder risk management with solid quality requirements have positive impacts on the NPL-ratio within the bank.\textsuperscript{68} The credit supply is crucial to the financial system and is the reason to why the central banks in Europe are using monetary policy to influence it, this to maintain economic stability. The credit supply decreases when the NPL-ratio increases which makes monetary policy less powerful.\textsuperscript{69}

5.2.3 Creation of zombie banks

It is also important to decrease the NPL-ratios regarding the risk of becoming zombie banks. These banks have significant economic impact on the financial system and the presence of them is troublesome. banks with high ratios of NPLs may need assistance from the government to survive. This allows banks to operate even though they are making an economic loss. Eventually this also creates a misallocation of capital where the money from the government in some cases ends up as extended lending to businesses. The banks might think the solution to their NPL-problem is to increase lending. This becomes a problem as the companies who are likely to default receive extended loans. This leads to a situation where zombie banks create zombie companies.\textsuperscript{70} There is also a problem with the extended lending taking place when feeding these zombie banks, which creates agency-cost-problems.\textsuperscript{71} Another problem for the financial system is that zombie

\textsuperscript{64}Maria Balgova, Alexander Plekhanov: The economic impact of reducing nonperforming loans.
\textsuperscript{65}Ibid.
\textsuperscript{66}Bank for international settlements, Basel III: international regulatory framework for banks.
\textsuperscript{67}Voxeu, Maria Balgova, Alexander Plekhanov: The economic impact of reducing nonperforming loans.
\textsuperscript{68}Nyawuana Nyong’o 2009.
\textsuperscript{69}ECB, What are non-performing loans?
\textsuperscript{70}International Banker, Jones Alexander: The Spectre of Zombie banks.
\textsuperscript{71}J. Kane. 2000.
banks need to offer higher rate of return than other banks to attract investors. This is a misallocation problem as it affects the non-zombie banks on the market. They lose investors and customers which affects their profitability and if the zombie banks remain unprofitable this shift will lead to inefficient use of capital.\textsuperscript{72}

Zombie banks all have one thing in common which is they have been bailed out by their government. The help they receive is subject to the theory of moral hazard, when financial institutions proceed their business with higher risk thinking they are insured by the government.\textsuperscript{73} This might lead to investors taking larger risks while forgetting that their risk-reward decreasing on their investment which could be harmful for the economy. The figure below illustrates the scheme when a bank receives financial bailout from the government.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure2.png}
\caption{Figure 2}
\end{figure}

5.3 Methods of decreasing NPL

5.3.1 Improving secondary markets

As seen in our quantitative studies many European banks are holding a large amount of NPL even if this is not optimal in the long run. The reason is that the secondary market for NPL is not working and the bid-ask spread is too big which are creating a disequilibrium.\textsuperscript{74} There are numerous reasons that are the projectors for this market failure.

Many studies regarding market failures in NPLs identifies the problem with asymmetrical information. ECB writes that the secondary market for NPL in Europe has big problems of asymmetrical information and could be classified as “a market for lemons”\textsuperscript{75}. The principals are here the banks, the agents the investors and the lemons are the bad NPLs. The investors do not have enough information about the NPLs to pay the price the banks demand as they do not know the quality of the loan. The banks then decide to not sell the good loans because they cannot get

\textsuperscript{72} J. Kane. 1993.
\textsuperscript{73} Financial times, moral hazard.
\textsuperscript{74} ECB, Addressing market failures in the resolution of nonperforming loans in the euro area.
\textsuperscript{75} Ibid.
the right ask price for them. The result is the only loans that are sold on the market is the bad NPLs and that many NPLs get stuck on the banks balance sheet. Another reason for the demand and supply price to not match is the work it takes to collect the collaterals that the loans are secured with. This is a process which takes both time and money for the banks and the whole process can take as much as seven years. This process is not part of the bank’s regular business.

ECB mentions several reasons for the presence of a wide bid-ask gap in the NPL-market. The secondary markets are not that active, with only 10% of NPL outstanding stocks (100 billion) traded on the market, which creates a factor immobility in NPL-market. There is low availability of high-quality data for NPLs which creates the asymmetrical information problem. There is an ineffective legal framework governing debt recovery and collateral enforcement which make them unattractive to buy for the investors. The capacity to deal with unexpected and sudden raises in NPL is also lacking. Banks are ‘Cherry-picking’ assets for sale which origins in the lemon problem where the price would not be enough for the banks to sell the good NPLs.

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76 Ibid.
77 ECB, Addressing market failures in the resolution of nonperforming loans in the euro area.
The International Monetary Fund are dividing the disequilibrium in supply and demand-side factors. As supply side factors, they are pointing out the problem with the low provisioning, heavy dependence on collateral, close relationship between borrowers and lenders, tax disincentives to provisioning and accounting regime favorable to holding NPLs.\(^{78}\) As demand side factors they are pointing the problems with lengthy and inefficient judicial process and a small investor base with limited risk capital.

### 5.3.2 Asset removal schemes

An often-used strategy to solve the problem with NPLs is by using Asset removal schemes (ARS). This strategy can remove the amount of NPLs a bank has by transferring them to another institution.\(^{79}\) One example of ARS is for the government to establish an asset management company (AMC) just like a “normal” AMCs and crowd fund it with money from investors. The financial objectives of the companies are to buy NPLs from specific banks and then sell them to private investors.\(^{80}\) ECB mention three AMCs which have decreased the NPL-ratio in countries during the last 5 years.\(^{81}\) These are the National Asset Management Agency (NAMA) in Ireland, Sociedad Bank Asset de Gestión de Activos Procedentes de la Reestructuración Bancaria (SAREB) in Spain and Bank Asset Management Company (BAMC) in Slovenia. In these cases, the banks exchange the NPLs for state-guaranteed bonds. This is less expensive for the government's than buying the NPLs below market price, because the risk in government bond is much lower than in NPLs the banks are willing to take this trade off. A problem with these AMCs is they are expensive to set up. Sweden and Finland were two of the first countries to use AMCs as buyers of impaired loans in 1992.\(^{82}\)

The AMCs are sometimes preferred over other ARS because they operate over longer time-spans, sometimes as much as 10-15 years. In situations where high ratios of NPLs depends on a long time to collect collaterals then these long time-spans of AMCs is to prefer.\(^{83}\) It can also be preferable to let AMCs handle the NPLs instead of the banks because they can specialize their skills in this sector. banks would need to focus in many other aspects of the industry as well. AMCs can then handle NPLs faster and with a higher success rate than normal banks would.\(^{84}\)

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\(^{78}\) Jassaud and Kang, 2015.
\(^{79}\) ECB, Asset support schemes in the Euro Area.
\(^{80}\) Enria, Andrea. The EU Banking sector - risk and recovery a single market perspective.
\(^{81}\) ECB, Asset support schemes in the Euro Area.
\(^{82}\) Financial Crisis Containment and Government Guarantees.
\(^{83}\) ECB, Asset support schemes in the Euro Area.
\(^{84}\) Ibid
5.4 Interview with Deutsche Bank AG

To get more insight in how banks work with the issue of NPLs we conducted an interview with Ronald Weichert, representing Deutsche Bank AG in Germany. We prepared questions regarding their work with NPLs that we took up with him. Deutsche Bank concluded that their focus in preventing loans to stop performing is to conduct good qualified credit assessment. This to reduce their lending to customers they think have worse chances of fulfilling their loan obligations. They work a lot on preventing this with the help of credit mitigation techniques in form of comprehensive credit documentation with adequate terms and conditions. The next step for Deutsche Bank to decrease NPLs is according to Ronald to monitor their outstanding loans, if loans stop performing the bank has specialists that helps the customer in a workout-process. The goal is to either support the customer to develop a sustainable strategy or reduce the credit exposure of the bank.

Weichert is highlighting that NPLs on banks books are expensive and non-transparent, therefore it is important to develop a strategy on how these loans can start performing again. This strategy should be developed together with the customer. During this process, the bank must accept there is going to be some sunk costs doing this. In cases where there are no signs the loan can ever start performing again it will be written off by the bank. He continues pointing out loan losses are part of the business and that the bank must accept that. Focus should be on preventing the unexpected losses for these loans, which are above the expected and calculated probability of default for Deutsche bank’s loan portfolio.

He continues by stating it is mainly these unexpected losses that affect the bank’s profitability. The worse scenario for the bank is when the risk assessment and management is underestimated. For the future Weichert points out it is important to keep the management of NPLs as efficient as possible. This needs to be done with credit arrangements that are enforceable and the lender needs quick access to collaterals.

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85 Can be found in Appendix B.
86 Costs that has already happened and cannot be recovered. (Financial Times, Sunk Cost).
6 Analysis

6.1 The vicious circle between NPL and GDP-growth

The banking sector in Europe has been struggling financially for the last couple of years, with low profitability as a common factor among many banks. This is a risk factor for both the banks and the financial system they are present in. One of the increasing problems for banks since the financial and debt crises in 2007-2012 has been the high levels of NPLs. We have identified that as GDP-growth increases with 1% the NPL-ratio will decrease with 6.8%, ceteris paribus. This indicates an inverse relationship between GDP-growth and the NPL-ratio, which indicates that NPL increases in recessions and decreases in booms. All the countries we included in our study that was affected by the financial crisis proved a significant relationship between these variables. We consider this to be an important factor in why countries and banks need to come up with solutions to how to decrease NPLs in the future.

Our theory of misallocation of capital states that a loan that stops performing has a negative effect on the economic growth. The slowdown of the economy that NPL causes is troublesome for the countries affected by the issue. We have recognized that misallocation appears wide through many areas of the financial markets and also internally in the banks. Specifically, we found three ways how the misallocation harms economic growth. First the increased NPL-ratio shifts the banks focus from lending to improving their credit quality, which can potentially harm the credit supply. Second the capital stuck in bad loans can otherwise be used in more efficient ways. Third it is important to mention the long-term issue with NPLs, when borrowers face problems paying their loans it can affect their future possibilities of new loans. The harm in credit supply, the inefficient use of capital and the hard time for borrowers to acquire new capital could therefore all affect the economic growth.

The problem with the inverse relationship between GDP-growth and NPL-ratio, together with the issues mentioned above, creates a vicious circle in the economy. The figure below describes this circle. When the GDP-growth decreases it will increase the NPL-ratio in the country. which in turn will increase the misallocation of capital which will decrease the GDP-growth.
6.2 NPL and its relationship with profitability

Our second econometric study proves NPLs have a significant inverse relationship with the profitability of banks. We found that as NPL increases with 1% the ROE will decrease with 0.46%, ceteris paribus. Our results suggest that banks should focus on decreasing NPLs to increase their profitability. We have also found that as NPLs increases, the amount the banks set aside in loan loss provisioning increases (LLP), as well as causing worse credit ratios. The NPL-ratio has a positive correlation of 28.7% with LLP and a negative correlation with good credit ratio of 24.24% as we saw in our second econometric study. We saw that both variables have a significant inverse relationship with ROE.\(^7\) This implies the NPL-ratio has an even stronger impact on ROE than seen in our econometric model.

The figure below shows this relationship, how NPL both direct and indirect affects the profitability of banks. When the NPL-ratio increases, the amount of LLP needed increases as well, which decreases the ROE of banks. The increased NPL-ratio also affects the ROE as the bank misses out on profits they should have received on performing loans. Their credit ratio will also decrease when their level of NPL increases.\(^8\)

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\(^7\) If LLP increases with 1% ROE will decrease with 8.85%. A credit ratio below A will decrease the ROE with 0.10%.

\(^8\) This increases their own borrowing costs which also affects their ROE.
6.3 Risk management

The central banks in Europe have important tasks in maintaining economic stability in their respective country with the help of monetary instruments and tools. We want to highlight the importance of keeping these instrument as effective as possible. When the NPL-ratios are increasing these instruments become less powerful, which is another reason for why the NPL-ratios need to be kept at a minimum level. These high ratios of NPL also increases the risk of creating zombie banks. The risk of a dangerous domino-effect when banks turn into zombie banks is obvious and this risk needs attention. The real problem occurs when these banks are trying to solve their NPL-issue by extending outstanding loans to their borrowers. When they are extending these loans, this could turn the borrowing firms into zombie firms. This chain of events, with government capital intended to help the bank out of its problems, is creating even worse issues for both the bank and the economy.

6.4 How can be NPL be decreased?

6.4.1 Asset removal schemes

One way banks and governments can decrease the NPL-ratio is by using asset removal schemes (ARS). The most important aspect of these is to let AMCs handle the NPLs and lift the NPLs of the bank’s balance sheets. The banks can transfer the bad assets to the AMCs, who are more specialized in dealing with these assets. This makes it possible for the banks to focus more on
regular banking activities. As we identified the banks do not want to deal with the bad assets on their balance sheets, therefore there is a need for solutions to assist the banks. We think one of the most important aspects of this is to move these NPLs off the banks books. As of today, most banks do not have either the expertise or ability to do this. There is also a problem that banks do not want to realize these loans as losses, which tends to keep them stuck on their books. The figure below concludes the important aspects in how banks can decrease their NPL and why it is important to do so.

Figure 6

6.4.2 Information asymmetry and regulations
The banks disability to lift the bad assets of their balance sheets is much due to information asymmetry. It is obvious to us that the secondary markets for these loans are not working. We recognize this as one of the major problems regarding NPL within banks today. The wide bid-ask spread due to information asymmetry needs to be fixed for the markets to work better. It is difficult to recognize the true value of these assets. For the buyer to understand the value it is important that the seller knows it first.

Insufficient regulation and legal frameworks also contribute to the failing markets. With more guidelines and quality information about these loans we think a larger volume would be traded on
the market. Authorities can use different tools to regulate these markets. One way is through using the international BASEL-regulations all European banks must adhere to.

6.4.3 NPL-management within banks
The banks themselves have a large responsibility of preventing and reducing NPLs. Deutsche Bank mentioned in our interview that one large part of this is having a solid credit assessment of the borrowers. The better the bank know their customers the better knowledge they will have about their ability to fulfill their loan obligations. Deutsche Bank mentioned it is important to find a workout-solution for the loans that are not performing. Many seem to forget the part of actually rescuing these NPLs. It should be a priority for banks to make these loans perform again.
7 Conclusion

We can prove the NPL-ratio to have a strong negative correlation with both the economic cycle and the profitability of banks. Our study finds that when the GDP increases by 1% the NPL-ratio will decrease by 6.8%, ceteris paribus. There is also significant evidence of weakened economic growth as the NPL-ratio increases which indicates the correlation goes two ways. Further, when NPL increases with 1.0% the ROE will decrease with 0.46%, which indicates that higher levels of NPLs affect profitability negative. We could also see that both LLP and credit ratio, which has strong positive correlation with NPL, has negative effect on the ROE. These results prove that NPL is important for banks and authorities to focus on and creates a foundation for further analyzes regarding how the issue can be resolved. We have also seen that high ratios of NPL imposes significant risk to both the banks themselves and to the financial system. The creation of zombie banks could start a domino-effect which would be harmful for the financial system as a lot of capital would be stuck in non-working investments. This together with a lack of working secondary markets and weak NPL-management within the banks tends to keep these loans stuck on their balance sheets. The harm in the credit supply and the inefficient use of capital affects the economic growth.

This thesis concludes that an increased amount of NPL brings significant risk to the financial system. The high level of NPL is one of the reason the profitability of banks remains low. This also leads to capital not used in its most efficient way. If the European banks could lower their NPL-ratios they would need less loan loss provisioning, achieve a higher credit rating and use their capital more efficiently. The situation in Europe with profit-weak banks is not sustainable in the long run, therefore action from banks and authorities is needed to stabilize the financial system. One way to improve profitability and stabilize the financial system is by reducing the NPLs in Europe. Our recommendations to decrease the NPL-ratio in Europe is listed in the upcoming chapter.
8 Recommendations

After proven the importance of decreasing NPL for both the bank’s profitability and the financial system in Europe we are recommending doing this by:

**Improve secondary markets for NPL**

Our research has proven significant malfunction of the secondary markets for NPLs. Consequently, the banks keep these bad loans on their books even though they know it is affecting their profitability. Improved secondary markets with decreased information asymmetry will move demand closer to supply, make it easier for banks to sell of NPLs and make wonders for the bank’s profit.

**Asset Management Companies & regulations**

Improving the secondary markets for NPL is hard and it is going to take a significant amount of time. In the short run, we have identified the AMCs to be one solution. These institutions are better equipped to deal with NPLs and they will move them off the banks books. As the market is not working the government must be a part of this solution and accept some sunk costs. We consider these costs being worth taking since the NPLs and weak bank profitability imposes significant risk to the financial stability. Another way the government can play a key role in the solution of NPLs is through improving the regulatory rules that apply to the banks. We recognize that there should be enough and realistic provision to cover for expected losses of these loans. To regulate loan loss provisioning is therefore an important tool to maintain the risks of NPLs.

**Improved NPL-management within banks**

We have identified the importance of NPL-management within the banks, which is also confirmed by our interview with Deutsche Bank. As the banks grow it will be more important for them to maintain the relationship between borrower and lender. This relationship is one of the important parts in NPL-prevention, as it improves credit assessments of the borrower. It also has significant value when it comes to the workout-process, where there seem to be some ignorance within the banks. We therefore propose there should be more focusing on making the NPLs to start performing again and that this has to be done together with the borrower.

There is also room for improvement when it comes to the seizure of collaterals89 tied to the loans. This is not regular bank activity and the complex process is the reason why they do not want to

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89 Could include estates, machinery and vehicles.
deal with the issue. Failing loans are part of the banks daily activity and so should the seizure of collaterals be. They need to improve these functions within the bank and we recognize the need of governmental regulations to provide enough incentives for this.
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Investopedia, Market failure (2017-04-29).


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The global economy, Economies. (2017-04-15)


## 10 Appendix

### Appendix A

### Appendix 1A - Descriptive statistics model 1

<table>
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<tr>
<th></th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>J-B</th>
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Appendix 2A - Descriptive statistics model 2

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LLP = Loan loss provisioning, GDP(-1) = lagged GDP, CrG = Good credit ratio, CrW = Bad credit ratio

Appendix 3A - Correlation matrix

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<th>LLP</th>
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</tbody>
</table>

LLP = Loan loss provisioning, GDP(-1) = lagged GDP, CrG = Good credit ratio, CrW = Bad credit ratio

90 Lagged variable.
Appendix 4A - Figures over NPL and GDP
Appendix 5A – Figures over bank variables
Appendix B

Appendix 1B - Interview with Ronald Weichert working at Communications at Deutsche Bank AG.

Questions:

- How much have you specifically focused on lowering your non-performing loans the last couple of years? What can you as a bank do in order to decrease non-performing loans?
- Do you think that a low ratio of non-performing loans is an important aspect to be able to improve profitability in the banking sector?
- We have identified market failures on markets for non-performing assets, have you experienced this and in what ways?

Answers:

- The focus of Deutsche Bank with respect to loan-business is in the first instance a qualified credit assessment and client selection before you give a loan. We aim to price credit risk adequately and to prevent undue client, industry and country concentrations. In addition to determining the credit quality of a client, we use credit mitigation techniques e.g. in the form of a comprehensive and enforceable credit documentation with adequate
terms and conditions and in the form of collateral held as security to reduce losses by increasing the recovery of obligations.

- We monitor outstanding loans constantly. In case of the non-performance of loans we have specialists who help the client in a workout-process to stabilise his company and who support him to develop a sustainable strategy - or to reduce the credit exposure of the bank.

- It is expensive and intransparent to have non-performing loans on the books which have no perspective to recover. Therefore it is important to develop together with the customer a strategy how, accepting sunk costs, a currently non-performing credit will become profitable again. If there is no realistic perspective the loan will be written off.

- Loan losses are part of the business. But by the above mentioned measures we aim to prevent “unexpected” losses, which means losses above the expected and calculated probability of default for a given loan-portfolio.

- For the profitability of a bank it is important, that you have no “unexpected” losses, i.e. that the loan losses are in line with the risk-evaluation when the loan was priced.

- For an efficient management of non-performing loans it is important, that credit arrangements are enforceable and that the lender gets quick access to collateral in case that the creditor cannot fulfil his obligations.