UNIVERSITY OF LJUBLJANA
FACULTY OF ECONOMICS

MASTER'S THESIS

AN ANALYSIS OF FINANCIAL CRISIS CONSEQUENCES AND THE IMPACT OF SUBSEQUENT REGULATORY REFORMS ON THE SYSTEMICALLY IMPORTANT FINANCIAL INSTITUTIONS IN THE EU FROM 2007 TO 2015

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KRISTIAN JEREBIČ

AUTHORSHIP STATEMENT

The undersigned Kristian Jerebič, a student at the University of Ljubljana, Faculty of Economics, (hereafter: FELU), author of this written final work of studies with the title An analysis of financial crisis consequences and the impact of subsequent regulatory reforms on the systemically important financial institutions in the EU from 2007 to 2015, prepared under supervision of Marko Košak, PhD.

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INTRODUCTION

In this master's thesis, I am going to take a closer look at the systemically important financial institutions (hereinafter: SIFIs[1]), among them banks will be of special interest to me. With financial crisis starting in 2007 and metastasizing into a full-blown economic crisis following the demise of the Lehman Brothers Bank in 2008, the governments and regulators came under public scrutiny to reform financial institutions. Preventing future crisis of such magnitude where taxpayers' money is used to bail out banks that are perceived as too big to fail (hereinafter: TBTF) becomes of great importance. Thus, determining what constitutes a SIFI turned out to be an imperative, since new regulations would mean that the SIFIs would be exposed to higher standards and requirements.

To curb perceived greediness and riskiness caused by size and interconnectedness of the banking sector, different measures were proposed, among them the most controversial additional capital requirements also known as a capital buffer or surcharges (from now on expression surcharges will be used) to be imposed on larger FIs. The global effort to tackle this problem was suggested mainly through the new Basel III accord. Nonetheless, many governments have decided to go ahead on their own with stricter policies regarding SIFIs influenced by the public pressure. The United States and Switzerland were among these.

Although the Basel II Accord had only been implemented in 2004 and gradually phased-in in years following the enactment in different jurisdictions (Basel Committee on Banking Supervision, 2006), talks on a new accord, i.e. the Basel III, began in 2008. The Basel III Reform (Basel Committee on Banking Supervision, 2011a) is said to take many years to be fully implemented – with the start in 2013 and the planned completion in 2019. It comprises many measures taken to tackle perceived riskiness in the financial sector ranging: better supervision and regulation of the banking and financial sector, higher capital requirements, "trading book" and off-balance sheet trading oversight, standardization of over-the-counter[2] (hereinafter: OTC) instruments, reduction of risks (market, credit, counterpart…), etc.

As aforementioned, new standards and measurements had to be devised in order to define what constitutes a SIFI. Measurements vary from simple ones to more complex ones. The USA and Switzerland went ahead with the implementation of surcharges, so these two countries were the first to face the problem of determining the SIFIs. The USA has passed the law, in which the size of a bank is the sole determinant of systemic importance (Dodd-Frank Wall Street Reform and Consumer Protection Act, 2010) of a bank. Whereas in the Swiss case – In addition to size – some other indicators were used, such as interconnectedness of the banking sector (Swiss Expert Commission, 2010).

[1] For the full list of abbreviations in this thesis see Appendix B.
[2] Over the counter market: is a market where traders deal by phone (not in the exchange). Traders are usually FIs, corporations and fund managers (Hull, 2012, p. 526).

The task of determining global systemic important financial institutions (hereinafter: G-SIFIs) was entrusted to the Financial Stability Board (hereinafter: FSB) by the G20 countries at the Seoul summit (G20, 2010). The FSB employed the Basel Committee on Banking Supervision[3] (hereinafter: BCBS) measurement (Basel Committee on Banking Supervision, 2011b, 2013) to determine 29 G-SIFIs in 2011. The measurement used by the BCBS is much more complex, comprising indicators such as cross-jurisdictional activity, substitutability/financial institution infrastructure, size, interconnectedness, and complexity. The FSB was also entrusted to devise a resolution planning requirements and additional loss absorption requirements for the SIFIs. Resolution planning requirements had to be implemented by the G-SIFIs by 2012 and the additional loss absorption requirements will be phased in starting from 2016 based on the 2014 data (Financial Stability Board, 2011).

In the EU, the task of naming the EU-SIFIs was entrusted to the European Banking Authority (hereinafter: EBA). The EBA devised a myriad of variables to determine what constitutes an EU-SIFI. All of them are based on the same internationally accepted measurement that helped to determine the G-SIFIs. Nevertheless, one criterion seems to bear the greatest importance – the €200bn mark of the leverage ratio exposure measure. That means the G-SIFIs from the EU are automatically included on the list of the EU-SIFIs, along with the other EU-FIs not deemed G-SIFI, which nonetheless meet the "size" criterion and are thus considered systemically important. For the EU G-SIFIs and the EU-SIFIs, the acronym EU-SIFIs will be used unless stated differently.

Given that the EU is a community of sovereign states with different historical background, cultures and economic systems, some countries have very specific banking sector. For instance, some countries have a "home-grown", largely domestic, i.e. limited-to-one-state banking sector, others' banking sector consists of banks that are of systemic importance for the member state in question but bear no importance on the EU-level. Because of such cases, the need to make the list of other SIFIs (hereinafter: O-SIFIs) arose. Moreover, such list was needed when EU wide stress tests on banks were performed in the following years, and the list had to comprise both EU- and O-SIFIs[4].

[3] A work-group of sorts operating within the Bank for International Settlements (hereinafter: BIS).

[4] So far I have mentioned a few reasons why the need to define a systemic bank has arisen. All of them have future regulation concerns in common. In the Economic Monetary Union (hereinafter: EMU) an additional need to define what constitutes the SIFI has emerged. With the advent of the European Financial Stability Facility (European Financial Stability Facility) in May 2010, which was designed to temporarily combat the problem of illiquidity or insolvency of some member states, such as Ireland, Spain, Portugal, or Greece – the latter becoming a part of the European Stability Mechanism (hereinafter: ESM) (European Stability Mechanism) – It has become painfully clear that not all the financial institutions (hereinafter: FI) in the Eurozone are systemically important for the Union as a whole, even though a FI has a status of a SIFI in a respective member state. Different treatments of the FIs in Spain and Cyprus seem to corroborate that.

Although it seems that the surcharges are something SIFIs will have to take into account conducting future business, not all is said and done. With the economic recovery and harsh opposition (Georg, 2011; Slovik, 2011; Suttle, Wright, & Piscitelli, 2011) to surcharges, these may not be fully implemented or at least not in all of the countries in the same manner.

The goal of my master's thesis is thus to explore the changes in the EU banking sector, more specifically in the EU-SIFIs, that occurred in the years following the financial meltdown. The factors influencing, expediting and enabling said changes were both internal (FI's own measures addressing challenges affecting business) and external (market, regulation, et al.). In detail: the objective is to test which measures the SIFIs utilized in order to raise their capital levels in relation to their risk-weighted assets. Based on previous studies, the relevant theories and apprehensions concerning higher capital ratio, the adequate measures, i.e. sources of the additional capital, will be examined in order to determine which measure(s) was the preferred option when the capital increase was the desired outcome.

Data regarding the EU banking sector with the emphasis on the selected EU-SIFIs will be presented by using descriptive statistics, such as mean, mode and median, and, by employing simple indices, the constant of time will be introduced, thus further explaining trends occurring in the aftermath of the financial meltdown. In the second part, different hypotheses will be tested. For the purpose of testing, different statistical methods will be used varying from statistical dependence analysis (linear regression, multiple linear regression, second order term regression, et al.) to statistical assumptions testing of paired means or independent samples test (t-Test, F-Test, Leven's Test for Equality of Variances etc.). The hypotheses tested pertain to the EU-SIFIs and to their post-crisis role in the world requiring them to hold higher capital ratios and to be more risk-averse.

In the first chapter of this thesis, I will discuss what led us into the economic crisis, i.e. I will explain the reasons behind the collapse of the financial system, and the problems and the regulative standards before the said collapse, thus showing why regulators are in favor of stricter measures and why the TBTF banks are such an on-going concern.

In the second, chapter I will discuss reforms that ensued the aftermath of the financial meltdown. I will explain the Basel III Accord and its main advantages in comparison to the previous accord. Nevertheless, some disadvantages and shortcomings will also be presented. In this chapter, I will also discuss the EU's plans for preventing future crises. These are intentions to establish a single supervisory authority for all the EMU member states – the role intended for the European Central Bank (hereinafter: ECB). The role of the ESM and Capital Requirement Directives (hereinafter: CRD) will also be explained. I will also make a review of what has already been done on the subject of the SIFIs. I will explain scales and measurements devised by the aforementioned institutions to determine the SIFIs. I will present the G-SIFIs determined by the FSB.

In the third chapter, past and current studies will be presented in order to explain the rationale behind the capital ratio increases and concerns that are inherently a part of any stricter regulation. Determining which measures play the most important role is paramount, namely, as the critics of the higher capital ratio are quick to point out, ill-conceived and ad-hoc changes could lead to the credit crunch, lower returns on banking capital, and, possibly, the most worrisome – to the capital arbitrage practices.

In the fourth chapter, i.e. the empirical part, the transformation the financial sector supposedly underwent will be observed using various aforementioned statistical methods. In the conclusion part, the findings of this master's thesis will be presented and discussed.

1 EXCURSION INTO THE FINANCIAL CRISIS OF 2007/08

1.1 Banking basics

1.1.1 The purpose of FIs

The main role of all the FIs, i.e. also banks, is to simplify and assist transfer of wealth between economic subjects. These subjects are net savers (households) on one side and net borrowers (corporations) on the other side. In the world with no intermediary, the households would not be able to maximize their utility function, i.e. to maximize the return on their investments due to the high monitoring costs[5], liquidity costs[6], and the price risk[7] (Saunders & Cornett, 2006, pp. 3-4).

The FIs can act as brokers and thus reduce the costs of trading through the economies of scale (Charles Schwab, Merrill Lynch, etc.). "Brokers" can also serve as denomination intermediary, where small investors can (collectively) overcome the barrier of large minimum denomination size (Saunders & Cornett, 2006, pp. 3, 5). Besides acting as a broker, the FIs can act as an asset transformer (sometimes performing both functions at the same time). An asset transformer issues its own securities which can be more attractive to some investors, especially those risk-averse. In the process of transformation, the FIs buy primary securities[8] from different corporations and create the so-called secondary securities[9] (Saunders & Cornett, 2006, p. 5). The FIs thus reduce information costs, i.e. monitoring costs, by aggregation of funds of investors. They reduce transaction costs through the economies of scale due to a large number of investors. They can bear the risk of maturity mismatching between assets and liabilities better. They act as an intermediary of monetary

[5] Costs of monitoring the investment, i.e. the wealth of lender is not expropriated or misused.
[6] Liquidity: the ease of converting an asset into cash (Saunders & Cornett, 2006, p. 4).
[7] Price risk: the risk that the sale price of an asset will be lower than the purchase price of that asset (Saunders & Cornett, 2006, p. 4).
[8] Securities issued by corporation and backed by the real assets of those corporations – equity, bonds, and other debt claims (Saunders & Cornett, 2006, p. 5).
[9] Securities issued by the FIs and backed by primary securities – deposits, insurance policies, etc. (Saunders & Cornett, 2006, p. 5).

policies of the Central Bank. They support intergenerational wealth transfer (insurance companies), payment services (check clearing, etc.) and, most importantly, they support credit allocation – sometimes the FIs are specialized in crediting particular industry, such as farming, real estate developing, etc. (Saunders & Cornett, 2006, p. 3).

1.1.2 Types of banks

Ribnikar (1998, p. 12) defines a bank as an institution that acquires excess financial capabilities (collecting deposits) and subsequently transfers them to the economic subject which needs them by issuing loans. If a bank performs any other activities, such as factoring, leasing, writing and trading the financial derivatives, etc., then the bank is known as universal (Ribnikar, 1990, p. 251).

In general, universal banks are commercial or business banks which are deposit-taking institutions. A special kind of a bank which is also well-known to the general public is a central bank. Its roles vary from determining monetary policies of a country (buying/selling securities, determining interest rate at which commercial banks can borrow money, etc.) to regulatory function (oversight of banks, determining the minimum capital reserves, etc.) (Ribnikar, 2006, pp. 242-243). Banks that do not take on deposits are so-called investment banks. They are involved in raising debt and equity securities for corporations or governments. This includes the origination, underwriting, and placement of securities in money or capital markets for corporate or government issuers. Securities firms perform brokerage services (on the secondary market) and/or market making. The largest "players" in the field perform both functions (Saunders & Cornett, 2006, p. 92). More about the potential conflict of interest between the commercial and the investment banks is said in Chapter 1.2.

Hull (2012, p. 32) takes special notice to accounting in banks that perform such a vast array of activities. He makes a distinction between the so-called banking book and trading book. Banking book includes traditional activities, i.e. loans made to individuals and corporations. These loans are not marked to market. A performing loan is thus recorded in the bank's book as a principal amount plus accrued interests. If payments are more than 90 behind this loan is classified as nonperforming. When it becomes clear that a loan will not be repaid the loan is classified as a loan loss. Since this is an "accounting game", banks might be tempted to give even more loans to the borrower in crisis as Hull notices (2012, p. 33). This allows interests on the loans to be accrued and defers recognition of loan losses[10]. Since loan losses are a real possibility, banks have to have some capital reserves that can vary in size in time.

Opposite to a banking book is a trading book. This includes all of the bank's contracts in trading operations. These are marked to market on a daily basis, even though the bank is not

[10] This process is also known as debt rescheduling.

trading them at the particular point in time. Thus profits or losses are shown in the book without any transaction made (Hull, 2012, p. 32).

The risk regarding the banking book is known as a credit risk. This is a risk of loans given not to be repaid. The risk regarding the trading book is known as the market risk. The market risk can occur due to some unforeseen movements in the market which would have a loss in the value of the portfolio as a consequence. Then there are also risk from operations – the operational risk, risks of the models used – the model risk, liquidity risk, etc. These risks are important not just because they can harm banks' activities but because of the banking regulation which prescribes capital reserves. The level of capital reserves is based on the perceived riskiness of each FI (Hull, 2012; Saunders & Cornett, 2006).

1.2 Conflicts of interest in banking

Allowing banks to offer commercial and investment banking under the same roof is the subject of much debate since the regulation was loosened. In the US, the year 1999 marks a complete lift of the ban that prevented banks to have both investment and commercial banking interest. In 2007, one out of five large non-commercial investment banks in the US was the Lehman Brothers. In the aftermath of the financial collapse, the rest were taken over by other banks (Bear Stearns, Merrill Lynch) or transformed into holding companies (Goldman Sachs, Morgan Stanley) (Hull, 2012, p. 31).

Hull (2012, pp. 30-31) sees four major concerns or potential conflicts of interest among many:

1. Pushing securities on clients the investment part of the bank is trying to sell.
2. Misuse of sensitive information acquired by the commercial side of the bank in investment part of the bank, where this information can be passed to another client willing to engage in an acquisition or a merger.
3. Banks' too favorable estimation of company's securities in order to attract its business for the investment part of the bank.
4. A commercial bank may be tempted to instruct investment part of the bank to issue bonds for an old client who the commercial bank sees as increasingly riskier and arrange that the proceedings of the placement of the bond would go to the repayment of the old loan taken by the client. This would be harmful to less informed investors.

1.3 Securities trading

As aforementioned, some banks get involved in trading with securities. They offer investment research and advice. These types of banks are known as full-service brokers, whereas discount brokers only offer lower commissions but no advice. Some banks offer only online services and others only trading platforms but no brokers (Hull, 2012, pp. 29-30). Hull (2012, p. 30) acknowledges the role of exchanges in making use of market

makers[11]. Normally, an exchange will set a maximum level for market maker's bid-offer spread which is, in fact, its profit for being a market maker. In addition to exchanges, many instruments, such as swaps, options, forwards, etc. trade in the OTC market. Typically, large investment banks are market makers for these kinds of instruments.

Hull (2012, p. 30) sees trading as closely related to market making. In his opinion banks trade for the three main reasons:

1. To meet the needs of its counterparties.
2. To reduce its own risk.
3. To take a speculative position in order to make a profit (proprietary or "prop" trading).

Most of the trading done by the banks is in the OTC market where terms of contracts can be negotiated and are thus more desirable as the standardized contracts in the exchange. In most commonly traded instruments bank acts as a market maker (Hull, 2012, p. 84).

According to Hull (2012, p. 84), a credit risk in the OTC market is an especially big problem. Although instruments traded in the exchange have also a time component (payments in the future) much like the OTC instruments, exchanges are nonetheless organized in such a manner that they almost completely eliminate the credit risk. Steps are taken to minimize the credit risk in the OTC market but some still remain. This became a problem since the FIs are closely interconnected and a default of a market maker can lead to a default or severe problems of its counterparties. This was the case of Lehman Brothers. Such type of risk is known as the systemic risk, risk regulators are concerned about. Hull (2012, p. 84) defines systemic risk as a "risk that a default by one bank creates losses by other banks that have traded with it. This, in turn, may lead to more bankruptcies and severe problems for the financial system." In a nutshell, a default by one bank can create a domino effect because of the interconnectedness of the system. Hull (2012, p. 84) sees this as one of the main reasons why governments decided to bail out many FIs in 2008, rather than let them fail.

1.4 Off-balance sheet activities

An off-balance sheet activity does not appear on the current balance sheet. These activities may or may not affect the future balance sheet. Examples of such instrument are letter-of-credit[12] guarantees by banks to back the issuance of municipal bonds. If the letter of credit expires unused, nothing appears on the current or future balance sheet. The only fee that was paid by the client for the letter of credit appears on the income statement (Saunders & Cornett, 2006, pp. 164-165).

[11] A market maker is a trader who is willing to quote both bid and offer prices for an asset (Hull, 2012, p. 524).
[12] Letter of credit: a credit guaranty issued by an FI for a fee on which payment is contingent on some future event occurring (Saunders & Cornett, 2006, p. 165).

Saunders and Cornett (2006, p. 362) contribute the drive behind increasing importance of off-balance sheet activities of banks to declining spreads on their traditional activities. They can thus avoid taxes, since reserve requirements, deposit insurance premiums, and capital adequacy requirements were not levied on off-balance sheet activities.

The most important instruments in off-balance sheet activities in the US are (Saunders & Cornett, 2006, p. 364):

1. Loan commitments[13].
2. Standby letters of credit and letters of credit.
3. Futures, forward contracts, swaps, and options.
4. When-issued securities.
5. Loans sold.

It is estimated that 79% of all the commercial and industrial lending is made under commitment contracts. Indeed, the large increase in the off-balance sheet activities in the US in the period from 1992 to 2003 was recorded. Off-balance sheet activities rose by 637%, whereas on-balance sheet activities rose by mere 115% in the same time frame (Saunders & Cornett, 2006, p. 363).

1.5 The originate to distribute model

1.5.1 The pre-crisis real estate market in the USA

Before the credit crunch in 2007, lending standards were lowered. This was in part due to the government goal to increase house ownership and made it possible to underprivileged families (Hull, 2012, pp. 333-334). Among those giving loans to the so-called high-risk customers were subprime lender finance companies[14]. Complementary to loans, mortgages became a large component of such finance companies' portfolios (Saunders & Cornett, 2006, p. 149).

With the increase in lending, the demand for real estate rose and thus the prices rose in the real estate market. This meant high profits for the lenders – let us not forget they charged higher rates for riskier borrowers – and, at the same time, they were well protected by the underlying collateral, i.e. homes in this case. To put it simply, if the borrower defaulted, the lender would be repaid easily, since the underlying real estate worth was ever increasing. To attract newer and newer clients, adjustable rate mortgages were devised. Such a contract would offer a "tease" rate in the first period (2 years) which would be (much) lower than the rate borrowers would pay after the first period (Hull, 2012, p. 334). Taking on mortgages

[13] Loan commitment agreement: it is a contractual commitment to make a loan up to a stated amount at a given interest rate in the future (Saunders & Cornett, 2006, p. 364).
[14] The Federal Reserve defines a finance company as a firm (other than a depository institution) whose primary assets are loans to individuals and businesses, whereas a bank is defined as an institution that both accepts deposits and makes loans (Saunders & Cornett, 2008, p. 163).

was not attractive only to the new homeowners – since mortgage payments in the US are tax deductibles and other loans are not, home equity loans[15] rose (Saunders & Cornett, 2006, pp. 149-150).

As aforementioned, the government certainly had a stake in the whole housing market boom, at least when it came to the less than strict regulation. However, the role of the government did not end with just regulatory function. They took part in the creation of the so-called government-sponsored entities[16] (GSE) Federal National Mortgage Association, Fannie Mae and Federal Home Loan Mortgage Corporation, or Freddie Mac. By offering low interests on loans fueled by the high demand for securities in the secondary market, they could facilitate the increase in home ownership which was their goal all along. Since these companies were government-owned or at least the ownership was implied, they reaped benefits of the implied government backing and guarantees. This in return meant high profits for both companies (Levine, 2010, p. 207).

This type of constant increase in asset prices also known as leveraging cycle can lead to a liquidity black hole[17]. First, prices are propelled by the lending fueled demand. The demand pushes prices even higher. With high prices, relative lever decreases, thus making possible to give or to receive even more and more loans. Eventually, a bubble is created where market prices no longer correspond to the underlying asset's real value. Inevitably, the bubble bursts which leads to the opposite process to leveraging cycle – deleveraging cycle. The deleveraging cycle can have a decrease in prices to a level far lower than the real value of an underlying asset as a consequence (Hull, 2012, pp. 400-401).

At the end of 2006, 14% of loans were at least 60 days behind with payments, whereas in previous year this number was 6%. With defaults of borrowers, the finance companies reversed their policy on subprime loans. Less and less were given. At the same time, the bank regulators proposed tougher rules on subprime lending which led to decrease in value of finance companies. Shares of the New Century Financial, for instance, plummeted by 79% in early 2007. The company was eventually delisted from the New York Stock Exchange in the same year (Saunders & Cornett, 2008, p. 163). The US housing market bubble finally burst in 2007 when more and more mortgage holders default on their contract.

[15] Loans that let customers borrow on a line of credit secured with a second mortgage on their home (Saunders & Cornett, 2006, p. 150).

[16] Fannie Mae and Freddie Mac are congressionally chartered stockholder-owned corporations. These government-sponsored entities (GSEs) were designed to facilitate housing finance. They purchase mortgages from banks and mortgages companies that lend directly to homeowners, package the mortgages into MBSs (mortgage backed securities – more about them in Chapter 1.5.2), guarantee timely payment of interest and principal, and sell the MBSs to investors. Besides this core securitization activity, they also buy and hold mortgages and MBSs (Levine, 2010).

[17] In a normal market one would buy/sell when low/high. When liquidity black hole happens one buys when high and sells when low (Hull, 2012).

More houses on the market meant a reduction in prices which meant losses for the lenders (Hull, 2012, p. 335).

1.5.2 Securitization

Relaxation of lending standards and what that meant and to what that lead would be bad enough on its own. However, what really blew this financial crisis and subsequent economic crisis out of all proportion was the process called "originate-to-distribute" which is a form of securitization. The traditional way of lending is known as originate-to-hold where an FI gives loan to a client and then this loan is kept on the bank's balance sheet, thus under scrutiny of a regulator and exposed to capital adequacy requirements which are imposed to minimize the credit risk the bank might face (European Central Bank, 2008).

If the FI or, for that matter, the bank thinks that the capital requirements are too high, it can undertake a process known as securitization where, for instance, mortgages are transformed into marketable securities and sold to the highest bidder. Banks capital adequacy requirements are met. Moreover, it can make new loans since it got rid of the old ones, thus maximizing the profit. Saunders and Cornett (2006, pp. 149-150) simplistically define mortgage securitization as "pooling of a group of mortgages with similar characteristics, the removal of these mortgages from the balance sheet, and the subsequent sale of interests in the pool to secondary market investors. Securitization of mortgages results in the creation of mortgage-backed securities, which can be traded in secondary mortgage markets. While removed from its balance sheet, the finance company that originates the mortgage may still service the mortgage portfolio for a fee."

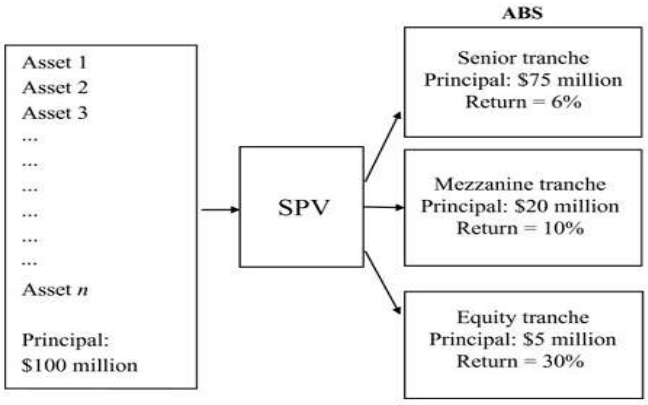
I will explain the workings, i.e. the process of securitization in even more detail in order to illuminate the possible problem areas that caused the credit crunch in 2007. I will start with the asset-backed securities (hereinafter: ABS) which are the easiest to understand. ABS is created from cash flows from vast array of financial assets – mortgages[18], loans, bonds, credit card receivables, auto loans, and credit card receivables. When pool (also known as a portfolio) of such assets is created, this pool of assets is sold to a special purpose vehicle (hereinafter: SPV) and the cash flows of assets are allocated to tranches as seen in Figure 1 devised by Hull (2012, p. 337).

Hull (2012, p. 337) assumed three tranches in his simplified model; the first is called senior tranche, the second mezzanine tranche, and the third equity tranche. The pool in his example has a principle of $100 million and it is divided among tranches. 75% is in the senior tranche, 20% in the mezzanine tranche and 5% in the equity tranche. The senior tranche is promised a return of 6%, the mezzanine of 10% and the equity of 30%. As always, higher returns come with higher riskiness — in the mezzanine and especially in equity tranche, the probability of

[18] Different names in different literature: Levine (2010) calls it MBS (mortgage backed security), whereas in Europe the ECB (2008) names it RMBS (residential mortgage security).

the return is substantially lower since cash flows to tranches are allocated by the so-called "waterfall" procedure. In this procedure, the first returns to the senior tranche are paid. If something is left the mezzanine tranche's returns are paid, and if there are still enough funds deriving from the underlying assets the equity tranche's returns can be paid. At the end of this process, the principal payment is made. This payment depends on how well the underlying assets perform. In the case of losses, the waterfall process is reversed: up to 5% of losses bear the equity tranche investors, up to additional 20% the mezzanine tranche investors and additional losses that are bigger than 25% are borne by the senior tranche investors.

Figure 1. An Asset-backed security (simplified)



Source: J. Hull, *Risk management and financial institutions,* 2012, p. 360.

In the securitization process, the senior tranche is devised to bear the least risk and is, therefore, AAA rated. The mezzanine tranche is most often BBB rated and the equity tranche is unrated. Up to now, the process of securitization is relatively straightforward. However, demand for riskier mezzanine tranches was scarce in the real world. The senior tranche that bore less risk was easy to sell and the equity tranche was kept by the originator, i.e. lender, or sold to the hedge fund. To be able to sell the mezzanine tranche process of securitization went a step further – the originators started securitizing securities, specifically the mezzanine tranches. Thus, collateralized debt obligation (hereinafter: CDO) was created. The security-based on ABSs is thus called ABS CDO[19]. The process is similar as in Figure 1: the senior tranche of ABS CDO would consist of 75% of 25% of the ABS mezzanine tranche. Three-quarters of the ABS mezzanine tranche would thus be re-rated as AAA in the making of the CDO ABS. This made the ABS CDO more desirable and easier to sell. However, it failed to make them less risky. On the contrary, the senior tranche bears the much higher risk of no returns or loss than the ABS senior tranche. Where defaults must be less than 25% in the underlying asset for the ABS senior tranche, not to report the loss, for the ABS CDO the

[19] A collateralized debt obligation with a pool of collateral that consists of ABS instruments. It is a multi-tranche product where each tranche has its own risk/reward level. Each tranche has different leverage ratios, amount of subordination, rating, etc. The performance of the tranches is dependent on the performance of the underlying ABS portfolio, as well as on the CDO manager (European Central Bank, 2008).

percentage is much lower at 10% of losses in the underlying assets for the senior tranche not to bear any loss. This is because junior tranches in ABSs bear higher risk and thus absorb loses. Since the ABS mezzanine tranche became the underlying asset of the ABS CDO, the risk was transferred and kept. Moreover, the riskiness became even bigger. When the housing market flourished this did not present a problem. The problem only became acute when housing bubble eventually burst (Hull, 2012, pp. 338-339).

This type of securities was then bought by FIs and other investors all over the world. Rightly two-thirds of mortgages were packaged into securities and sold. On one hand, this and other innovations made a credit cheaper and more available helping more people to afford a home. On the other hand, at the same time as the home prices fell, more borrowers were unable to make their mortgage payments. Consequently, as losses in the subprime mortgage market soared, major banks such as Merrill Lynch and J. P. Morgan Chase were trying to force mortgage originators to buy back many of the high-risk loans they had bought in 2005 and 2006 (Saunders & Cornett, 2008, p. 163).

In Europe, issuance of ABS and ABS CDOs was five times lower in 2007. The discrepancy between the two continents is most noticeable in mortgage-backed securities – in the US 50% of all mortgages were funded through securitization whereas in Europe only 13% were. The number for Eurozone is even lower. Nonetheless, the crisis went global because the foreign FIs bought the US securities as aforementioned. So, the lower level of securitization in the European FIs did not play any role when the crisis hit and they were left with toxic securities on their hands (European Central Bank, 2008, p. 8).

As Hull (2012, p. 336) noted, the behavior of lenders was influenced by knowing that the mortgages would be securitized. It was no longer important if the borrower was creditworthy. The only thing that mattered was making a profit by selling it on. The statement of Charles Prince (Nakamoto & Wighton, 2007), the CEO of the Citigroup in 2007, describes the sentiment of the day the best: "When the music stops, in terms of liquidity, things will be complicated. But as long as the music is playing, you've got to get up and dance. We're still dancing."

Originators' main goal was – as already mentioned – to make a profit by selling risky subprime loans by almost any means imaginable. They were the main reason for the credit crunch. On the other hand, however, someone was willing to rate these securities, someone was willing to act as a provider of the service and someone was willing to buy them without knowing what he is buying. The ECB (2008) sees this as a principal-agent problem, where goals of players in the whole process are far in-between. Of course, one can only blame originators of the risky securities but the reality was different. There were credit rating agencies that gave high ratings to very complex securities and thus created a false sense of security for the investors. And there were investors who blindly trusted everything they

heard and omitted due diligence. The returns promised were alluring and the risks to the naked eye minimal.

1.6 Capital adequacy regulation

1.6.1 Basel

1.6.1.1 Basel I

In the aftermath of the crisis of the Herstatt Bank in Cologne, the leaders of G10[20] countries decided that the equity levels of important banks around the world are unsatisfactory. Finally, in 1988, the negotiations under the leadership of the Basel Committee have resulted in numerous directives and recommendations concerning equity levels of the bank. The recommendations were accepted and implemented worldwide. Under the Basel I accord capital requirements became higher – FIs had to have at least 8% of equity reserves in relation to their risk-weighted assets (*Bundesanstalt für Finanzleistungsaufsicht-Basel III/CRD IV*).

Basel I was far from being perfect. First, the risk weights used to separate assets on perceived risks were devised too simplistically with not enough of them. Moreover, they allowed creative FIs to manipulate their assets to bear lower risk weights, thus defeating the purpose of the Basel Accord (Hull, 2012, p. 224). The second major shortcoming of the Basel I was that the market risk was neglected. It was so until the 1990s when in 1993 the VAR[21] model was recommended as the way to calculate risk and subsequently capital reserves to offset any losses caused by the market risk. In 1996 the Basel Accord finally amended the Basel I by suggesting two approaches when calculating the market risk. The standardized[22] and internal based on VAR calculations. The main drawback of the standardized approach is that it does not take global diversification effects into consideration. The VAR values should be computed for regulatory purposes with a 10-day time horizon at a 99 percent confidence level using at least one-year data multiplied by a multiplier of 3 (Khindanova & Rachev, 2000, p. 2).

For calculating VAR, two approaches are the most common. The first uses historical data and assumes a normal distribution of the events, which is also one of the critics of the model.

[20] Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom and the United States.

[21] Value-at-Risk: If we take one-day VAR with confidence level of 99%, where VAR of the assets is $1 million, then this would mean that the VAR will be higher than the 1 million mark once in the next hundred days. If we take the business year of 250 days that would mean that the mark of 1 million can be exceeded on up to 4 times. These occasions are called »exceptions« if there is any more of the exceptions the VAR was not calculated correctly and capital reserves have to be made higher.

[22] The standardized approach assigned capital to each of debt securities, equity securities, foreign exchange risk, commodities risk and options (Hull, 2012, p. 229).

The second approach uses simulations and does not assume a normal distribution (Jackson, Maude, & Perraudin, 1998, p. 11).

The Basel I amendment foresaw a possibility that the calculations might be wrong. That is why the so-called back-testing was made obligatory. In the back-testing exceptions, the previous 250 days are checked. If there were less than 5 exceptions multiplier 3 is used. If there were more exceptions higher multiplier is set by the regulator (Hull, 2012, p. 230; Jackson et al., 1998, p. 10).

VAR calculations can be easily manipulated which is one of the shortcomings of the model that even Basel Committee (2006, p. 195) acknowledges calling it "flexibility". In 2009, JPMorgan Chase & Co. (2009, pp. 126-130), for instance, calculated VAR on historical data of the last 12 months. In the same year, they recorded no exceptions. In the same year, the UBS recorded (2009, pp. 132-135) 4 exceptions by using the data of the past five years. The best method, in this case, was the first one which took into consideration only the last year, i.e. 2008, which was the most volatile year. The capital required was thus higher but the FI was, therefore, less risky. Back in 2012, the columnist Klein of the Economist Klein (2012) criticized the decision of Morgan Stanley to calculate VAR based on the past 12 months, thus not including the most volatile years. The required capital was thus lowered for the Morgan Stanley. These examples show how the regulatory capital required can be lowered just by selecting different time frame to calculate VAR.

1.6.1.2 Basel II

In June 1999 Basel Committee published proposals for new requirements concerning equity capital vis-à-vis different types of risk. After long negotiations in 2004, the new Basel II Accord was finally agreed upon (*Bundesanstalt für Finanzleistungsaufsicht-Basel III/CRD IV*).

Basel II is based on three pillars. The first pillar comprises the rules and directives on minimal capital requirements. Capital requirements are indeed the same as in Basel I – 8% of the risk-weighted assets; of that 8% must be Tier 1 capital and 4% can be Tier 2 capital. In addition to the credit risk and market risk already included in the Basel I, operational risk is added in Basel II. The capital requirements and calculations concerning the market risk remain the same. In calculating the credit risk, changes were made. There are still weights that can be used. However, there are more of them and more practical. This is known as the standardized approach. Then, there is the so-called foundation internal ratings-based (hereinafter: IRB) approach. The third possibility is the advanced IRB approach. In the IRB approach, the expected losses are seen to be covered by the way banks price their products. Thus, the capital required is calculated from VAR with the confidence level of 99.9% from which the expected losses are subtracted. In the foundation of the IRB, all the values that go into the calculation of capital requirements are set by the Basel Committee: Exposure at

default, loss given default, the maturity of exposure[23], the probability of default, and copula correlations[24] (R). In the advanced IRB, internal bank's own estimations of these values are allowed under the scrutiny of the regulator, of course. To transform the IRB results into the risk-weighted assets, a multiplier of 12.5 is used (Basel Committee on Banking Supervision, 2006). The formula is, thus, as follows, where R is given by a regulator:

$$\begin{aligned} Capital\ requirement \\ &= LGD \times N[(1 - R)\hat{}\ - 0.5 \times G(PD) \\ &+ (R / (1 - R))\hat{}0.5 \times G(0.999)] - PD\ x\ LGD \end{aligned} \tag{1}$$

$$Risk\ weighted\ assets = Capital\ requirement\ x\ 12.5\ x\ EAD \tag{2}$$

To calculate operational risk, three approaches are used in the basic indicator approach (annual gross income multiplied by 0.15), standardized approach (different multiplier for different activities of the bank), and advanced measurement approach where bank's internal models can be used (Basel Committee on Banking Supervision, 2006). One thing all the models have in common — the more complex they are, the lower is the level of the minimum capital required.

The second pillar is based on four principals (Basel Committee on Banking Supervision, 2006):

1. Banks should have a process for assessing their overall capital adequacy in relation to their risk profile and a strategy for maintaining their capital levels.
2. Supervisors should review and evaluate banks' internal capital adequacy assessments and strategies, as well as their ability to monitor and ensure their compliance with regulatory capital ratios. Supervisors should take the appropriate supervisory action if they are not satisfied with the result of this process.
3. Supervisors should expect banks to operate above the minimum regulatory capital ratios and should have the ability to require banks to hold capital in excess of the minimum.
4. Supervisors should seek to intervene at an early stage to prevent capital from falling below the minimum levels required to support the risk characteristics of a particular bank and should require rapid remedial action if capital is not maintained or restored.

The third pillar of Basel II concerns market discipline. It comprises the rules concerning what type of information banks need to disclose (Basel Committee on Banking Supervision, 2006).

[23] Maturity of exposure is only used in calculating non-retail exposure.
[24] All of the values are given and based on the types of exposures the bank is facing: the retail, the corporate, the sovereign, and the bank exposure.

1.6.2 Supervision

First, there was no or very little supervision from the regulators. The US Securities and Exchange Commission (hereinafter: SEC), the FED and the Treasury all failed in curbing ever growing ingenuity of the financial sector. The SEC chairman at the time even stated that he believed that the investment banks had sufficient capital cushion. That was in March 2008 (Llewellyn, 2008, p. 205). As already mentioned, out of five investment banks none remained unscathed. One failed, two were taken over and two went through a transformation. Moreover, the FED failed to see the risk the OTC market poses, especially credit default swaps. The regulator, as well as the rating agencies, misjudged the riskiness of the securities devised from pools of other securities (Llewellyn, 2008).

The situation was at best the same if not worse in Europe. There was legislation in Europe, at the Union level as well as at the member state level, which should prevent risky behavior of the banks. It did not. Moreover, the European Commission (2011, pp. 7-8) ascertained that the CRD III was indeed implemented in the legislation of the member states but was insufficiently or not at all exercised. The CRD makes propositions on sanctions as well but it remains in the jurisdiction of the member state to determine what kind of sanction to propose for the offenses. Commission's findings (2011, pp. 11-12) are even more alarming: some states did not start any legal proceedings against the regulation violators. Moreover, in some states, no sanctions at all were foreseen or the sanctions foreseen were too weak. Furthermore, the poor detection of FIs' misdoings is also of big concern in the Commission's opinion (2011, p. 20).

1.7 The great recession in a nutshell

What were then the major shortcomings of this "bullet-proof" system? It is hard to name only one "culprit" for the financial crisis of 2007/08. There were so many things that went terribly wrong. Not at first, of course. At first, nobody reacted despite knowing there is a major meltdown waiting to happen. There were many warning signs but at the same time no incentive to do anything about it. Everybody could get a loan or a mortgage, the building industry soared, the prices soared, the profits soared, the politicians who were in the forefront of demanding lower regulatory standards gained in popularity and so forth. So, everybody was better-off, not just the vilified bankers. In this kind of environment, "shady" activities of the banks could thrive.

This is the summary of the main shortcomings of the financial sector described in this chapter:

1. Little or no supervision and loosening of the regulatory standards.
2. Politics. In Europe, records concerning public debt were falsified (Greece) by the government, state ownership of the banks in Slovenia, "state-owned" subprime lenders in the US, etc.

3. Models devised to measure risk were deeply flawed and too much trust was laid in them.
4. Off-balance sheet activities and securitization.
5. Rating agencies and their risk measurement techniques.
6. Leveraging cycle.
7. The minimum capital requirements and the way they are calculated, especially internal based calculation methods came under fire.
8. Market making and implied interconnectedness.
9. Loss of liquidity. Sometimes, banks were solvent but they had a miss match in the maturity of the assets and the liabilities. With the loss of confidence in securitized assets, liquidity ran out. This was the case of the UK based Northern Rock bank (Llewellyn, 2008).

There is one other thing I did not put on the list but is great importance – the size of the FIs. Size does matter – the bigger the FIs became, the more interconnected they were. However, the FIs are not just a usual business. They have a specific role in the economy. Companies, i.e. private sector, as governments alike have depended on them more than ever in the history. Allowing the FIs to grow and become nationwide players, even allowing them to become global players, certainly has its upsides. On the other hand, it has one major downside – the FIs nowadays cannot just simply be resolved. The reason is that the impact on the economy of the FI's failure would be disproportional to the economic importance of the FI alone. Many of the FIs considered as TBTF were thus bailed out or nationalized; some had its toxic assets transferred to a "bad bank". All of that was more or less financed with the taxpayers' money.

2 REFORMS OF THE FINANCIAL SYSTEM TO ENSURE BETTER BANKS' SOLVENCY

2.1 Basel III

On December 16th, 2010, the new framework for the bank regulation was published by the Basel Committee on Banking Regulation. The revised capital and liquidity requirements were introduced in it. A part of the new package was the introduction of the leverage ratios and countercyclical buffer, intended to prevent the financial crisis of this kind. The framework is based on a research paper from 2009 (*Bundesanstalt für Finanzleistungsaufsicht-Basel III/CRD IV*).

The minimum capital requirement remains at 8%, whereas the structure of capital required underwent revision. The "bar" is thus set higher: the FIs are required to raise Tier 1 capital to no less than 6% of the risk-weighted assets at all times, of which 4.5% of risk-weighted assets must be common equity. As Tier 1 capital hybrid instruments are allowed (smaller quantities) but not advised and, therefore, better avoided altogether. This capital is considered of the highest quality. Tier 2 capital is thus defined in the amount of no less than

2% of the risk-weighted assets of all times. The Tier 3 capital, previously allowed, can no longer be an integral part of the 8% of the minimum capital required (Basel Committee on Banking Supervision, 2011a; *Bundesanstalt für Finanzleistungsaufsicht-Basel III/CRD IV*).

In addition to the minimum capital requirement of 4.5% of Tier 1 capital, the capital conservation buffer of 2.5% is to be introduced. Thus, bringing the total Tier 1 capital of the FI to 7%. Conservation buffer is devised to prevent the Tier 1 capital ever falling under 4.5%. The FIs should acquire additional buffer in times of economic growth. If an FI does not provide sufficient minimum capital conservation buffer in time, the capital distribution would be prevented.

Since all the FIs are interconnected and some act as market makers as explained in Chapter 1.3, the FIs encounter a systemic risk. Additional changes are demanded in the calculation of the risk-based capital requirement. Stressed VAR should be used and the worse twelve months of the crisis must be considered when using historical data, model validation, and back testing; more robust stress tests are also mandatory. Additional capital charges will have to be made concerning counterparty risk. These measures will complement measures already foreseen in Basel II accord more specifically than measures concerning the market risk. The Basel II did, in fact, take into consideration a default scenario of the counterparty. However, it fell short of addressing deteriorating creditworthiness of the counterparty. This was a major cause of losses in the financial industry during the crisis. Thus, credit-valuation-adjustment (CVA) risk is introduced to complement the default risk. Subsequently, additional capital charges have to be made by using the adjusted calculation of risk-weighted assets. Longer margining periods are also to be used when calculating the capital charges for the margin period risk. Moreover, to combat counterparty risk, incentives are made in the Basel III accord to make the Central counterparties (CCPs) deemed safer and more appealing (Basel Committee on Banking Supervision, 2011a, pp. 3-4, 29-49).

The BCBS devised a countercyclical buffer to ease the adverse effects of cyclicality in the economy. In times of prosperity, excessive growth can be caused by excessive crediting. When the bubble eventually bursts the economic downturn can be exacerbated by the ailing banks' hindered role of an intermediary in the economy. The countercyclical capital buffer is set in the range of 0-2.5% of the risk-weighted assets. The rate required will depend on the state of the economy in the respective country. The rate can be higher if the need occurs. The rate's determination will be left to the discretion of the respective country's regulator (Basel Committee on Banking Supervision, 2011a, pp. 57-59; *Bundesanstalt für Finanzleistungsaufsicht-Basel III/CRD IV*).

Lack of liquidity in the wake of financial crisis forced the BCBS to envisage a global liquidity standard much like minimal capital requirements. Even the FIs that complied with the minimum capital requirements were confronted with the lack of liquidity. Especially hard hit were the larger and internationally active banks. Two new tools to measure the

required liquidity were thus devised: Liquidity coverage ratio or LCR and Net stable funding ratio or NSFR. The LCR is meant to provide efficient high-quality liquid assets in the 30-day time horizon in which an FI could face exposure to hypothetical economic and financial disruptions. The amount of liquid assets needed is thus determined by stress-tests, of which parameters are defined in Basel III accord. The ratio between high liquid assets and the liquidity outflow experienced over the period of 30 days under the stress-test scenario must be greater than 100%. In contrast the NSFR is devised to encounter liquidity disruptions in the one-year-time horizon, thus forcing the FI to take into account maturity structure of its on- and off-balance assets and liabilities. (Basel Committee on Banking Supervision, 2011a, pp. 8-10).

The risk-based capital requirements were proven insufficient and inadequate because of the FI's exposure to off-balance instruments and/or derivatives. Thus, the total exposure measurement or leverage ratio was devised where all of the FI's Tier 1 capital is divided by the FI's total exposure. The acquired ratio must be higher than 3%. This measurement is also meant to mitigate the model risk associated with the risk-based approach (Basel Committee on Banking Supervision, 2011a, pp. 61-63).

Pillars 2 and 3 have undergone some minor changes. The standards in the Pillar 2 were set higher and the disclosures in the Pillar were made greater.

2.1.1 The European Union

2.1.1.1 Capital requirement directive

Basel III is to be implemented on the European level with the two legislative acts: one being CRD also known as the Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49[25] (CRD, 2013), and the other being Capital requirement regulation (hereinafter: CRR) also known as Regulation (EU) No 575/2013 of the European parliament and of the council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012[26] (CRR, 2013). Both legislative acts serve as a mean to apply the Basel III recommendation to all of around 8,200 FIs in the EU. The acts came into full power on January 1st, 2014.

[25] In full: The directive is commonly known as the Capital Requirement Directive IV or CRD IV.
[26] In full: The regulation is commonly known as Capital Requirement Regulation or CRR.

The CRD and the CRR are commonly seen as a single legislative act and thus referred to as the CRD IV package[27], i.e. Capital requirement directive IV (*Bundesfinanzministeriums - Monatsberichte - Basel III - ein Meilenstein im Bankenaufsichtsrecht*).

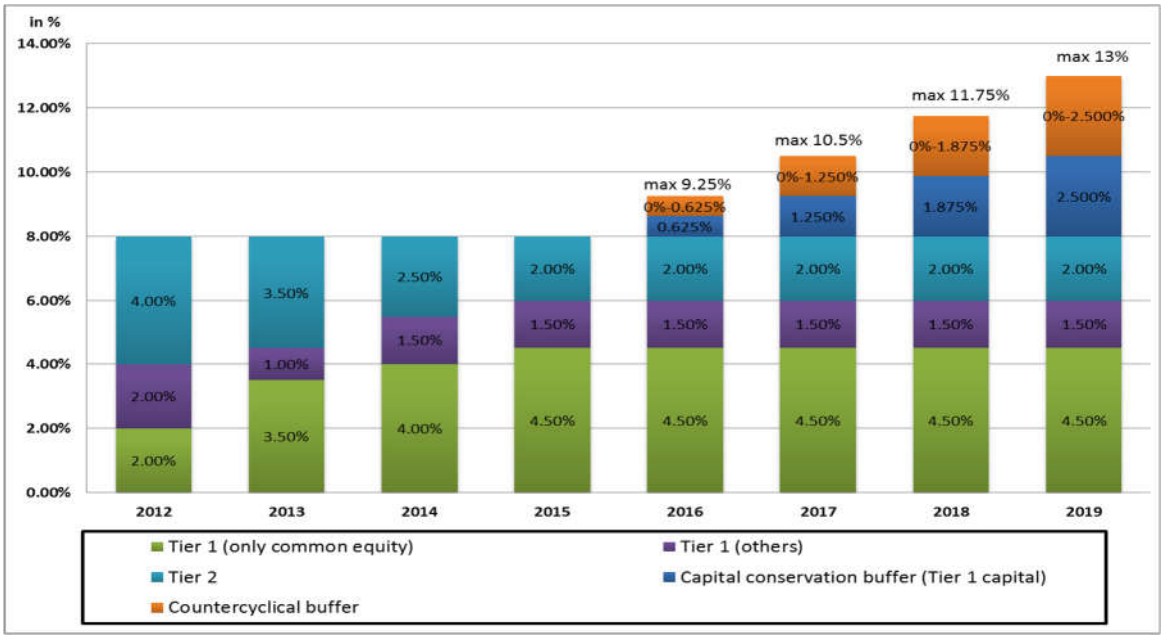
The CRR regulates foremost the (minimum) quantity and the (minimum) quality of the capital required to be held by an FI in Article 25 (CRR, 2013), the general principles and approaches on credit risk in Article 107 (CRR, 2013), treatment of an FI's large exposure in Article 387 (CRR, 2013), the liquidity, and the liquidity coverage requirement in Article 411 (CRR, 2013), and the disclosure requirements in Article 431 (CRR, 2013). Furthermore, it contains standards for the envisaged liquidity ratio implementation in Articles 429, 430, 499 and 511 (CRR, 2013). The CRR (2013) also allows (if needed) in Articles 458, 459 and 513 for stricter measures to be applied at a member state level when or if macroprudential or systemic risks should be identified. Moreover, the CRR is seen as a basis or prerequisite for the establishment of a single rulebook to which all the EU FIs would have to adhere; the single rulebook will thus enable the single supervisory mechanism of all the EU FIs.

Figure 2 represents the incremental implementation of the minimum capital requirements over the next years in the EU as foreseen in the CRR. Regardless of already gradual implementation of stricter capital requirements as foreseen in the CRR, the EU lawmakers made additional transitional provisions for those member states encountering problems thus prolonging the implementation for additional two years. Furthermore, the CRR defines the criteria of possible inclusions in the Tier 1 Capital as well as the exclusions. This framework will also serve as a basis for (possible) future changes proposed by the European Banking Authority[28] (hereinafter: EBA) to the list of the Tier 1 instruments (Common equity). Additional 1.5% of the Tier 1 capital (non-common equity) must consist of capital instruments in a form that would allow it to be changed into the common equity on a moment's notice if needed. The minimum Tier 1 capital requirement was devised with the going-concern of an FI in mind, whereas the Tier 2 capital would be taped in the case of an insolvency and a subsequent bankruptcy of the FI (gone-concern), thus protecting the creditors (*Bundesfinanzministeriums - Monatsberichte - Basel III - ein Meilenstein im Bankenaufsichtsrecht*).

[27] This "label" follows the "naming" of previous legislation acts: CRD I (the directives 2006/48/EG and 2006/49/EG) with which Basel II recommendations came into power on the European level, CRD II (the directives 2009/83/EG and 2009/111/EG) and CRD III (the directive 2010/76/EU). The last two directives from the years 2009 and 2010 respectively had already been devised to combat the financial crisis by raising capital requirements. Moreover, the CRD III tackled (among other) the remunerations schemes at the FIs that added to the origination of "toxic" loans (*Bundesfinanzministeriums - Monatsberichte - Basel III - ein Meilenstein im Bankenaufsichtsrecht*).

[28] The EBA as well as the ESRB are part of the European System of Financial Supervision (ESFS), the purpose of which is to ensure supervision of the Union's financial system. The EBA's mission (*EBA - About us - Mission*) is to contribute to a creation of a European single rulebook on banking. Moreover, it promotes convergence of supervisory practices to ensure harmonized application of said rules in all of the participating member states. Furthermore, the EBA (*EBA - About us - Mission*) can act as an intermediary in cross border disputes between the member states and can carry out Europe wide stress tests of the FIs.

Figure 2. Incremental implementation of the minimum capital requirements (CRD IV)



Source: *Bundesfinanzministerium-Monatsberichte-Basel III – ein Meilenstein im Bankenaufsichtsrecht; Regulation (EU) No 575/2013 of the European parliament and of the council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending regulation (EU) no 648/2012.*

The LCR is to be introduced stepwise by January 1st, 2018. The NSFR will go through a period of testing, after which more specific legislation determining the NSFR rate will be proposed by the EBA and confirmed by the EU Council and Parliament. This should have been completed by December 31st, 2016. The individually and in accordance with the CRR calculated leverage ratio of an FI has had to be disclosed since January 1st, 2015. Nonetheless, the EU commission reserves the right to make changes to the leverage ratio in 2018 (*Bundesfinanzministeriums - Monatsberichte - Basel III - ein Meilenstein im Bankenaufsichtsrecht*).

The CRD (2013) is set to tighten the rules on the FI's requirements to do business as well as the internal supervision. Moreover, a new path towards better corporate governance, i.e. the rulebook on the required structure and competences of supervising boards, is paved. The CRD defines inadequate penalties as a problem and imposes new harsher penalties for those FIs that will violate the rules envisioned in the CRD and the CRR. Furthermore, new rules on auditing processes and standards are to be implemented.

2.1.1.2 Supervision, Resolution, Insurance: Pillars of the European banking union

The Single Supervisory Mechanism (hereinafter: SSM) composed of the ECB and the

National Competent Authority[29] (hereinafter: NCA) was envisioned in the aftermath of the financial crisis in 2012 when the European Council proposed a motion to assign a supervisory role to the ECB. It is a move to a fully-fledged monetary union in which the NCA would act as a subsidiary of sorts to the ECB. In 2013[30], the SSM regulation enters into force granting the ECB the supervisory power (*FSB - Publications - Policy documents - Guiding Principles on the Internal Total Loss-Absorbing Capacity of G-SIBs*).

The ECB has the authority in the cooperation with the NCAs to (*FSB - Publications - Policy documents - Guiding Principles on the Internal Total Loss-Absorbing Capacity of G-SIBs*):

1. To conduct supervisory reviews, on-site inspections, and investigations
2. To grant or withdraw banking licenses
3. To assess banks' acquisition and disposal of qualifying holdings
4. To ensure compliance with EU prudential rules
5. To set higher capital requirements ("buffers") in order to counter any financial risks

The banks included in the SSM are divided into the two groups: the directly supervised banks and the indirectly supervised banks. The directly supervised banks are under direct supervision of the ECB whereas the remaining banks remain under the NCA supervision in close cooperation with the ECB (*FSB - Publications - Policy documents - Guiding Principles on the Internal Total Loss-Absorbing Capacity of G-SIBs*). The criteria for the FI to be deemed significant and thus directly supervised by the ECB are (*FSB - Publications - Policy documents - Guiding Principles on the Internal Total Loss-Absorbing Capacity of G-SIBs*):

1. **Size**: total value of its assets exceeds €30 billion
2. **Economic importance**: for the specific country or the EU economy as a whole
3. **Cross-border activities**: the total value of its assets exceeds €5 billion and the ratio of its cross-border assets/liabilities in more than one other participating member state to its total assets/liabilities is above 20%
4. **Direct public financial assistance**: it has requested or received funding from the European Stability Mechanism or the European Financial Stability Facility

The SSM is regarded as the first of the three pillars of the EU banking union. The second pillar is the Single Resolution Mechanism[31] (hereinafter: SRM) and the third pillar is the

[29] What constitutes a NCA depends on a member state's regulation and its potential separations of tasks of monetary policy implementation on one hand and the supervisory role in the financial sector on the other hand. In Slovenia, for instance, the central bank was entitled with both the supervisory tasks and the control of the monetary policy making and its implementation.

[30] In 2014, complementary SSM regulation framework comes into force that governs relations between the ECB and national supervisors and includes rules that apply directly to banks (*FSB - Publications - Policy documents - Guiding Principles on the Internal Total Loss-Absorbing Capacity of G-SIBs*).

[31] The SRM is not to be confused with the European (Single) Stability Mechanism (ESM) which was designed to combat the financial difficulties of the member states experiencing problems with the (re)financing of its sovereign debt (*European Stability Mechanism*).

European Deposit Insurance Scheme[32] (EDIS). The SRM was established with the regulation Nr. 806/2014 (2014). The SRM is applied only after the requirements in the Bank Recovery and Resolution Directive (hereinafter: BRRD) are fully met. The BRRD (2014) enacts the rules regarding the recovery and resolution of the FIs. It stipulates that in the case of potential troubles the owners and the creditors of the FI are the first to bear the losses. A part of the BRRD is the framework under which all the EU-SIFIs have to satisfy a minimum requirement for their own funds and eligible liabilities (hereinafter: MREL).

If the prerequisites, i.e. the requirements of the BRRD, are met and additional funds are required, only then the funds available in the Single Bank Resolution Fund (hereinafter: SBRF) can be accessed. The SBRF will "reach at least 1 % of the amount of the covered deposits of all the credit institutions authorized in all of the participating Member States" as stated in the Article 69 of the SRM directive (2014).

2.2 SIFIs: Criteria and special regulation

Many reforms targeting the SIFIs have already been proposed in Basel III reform package but others were made separately by the national authorities, the transnational authorities such as the European Commission and/or the other European agencies as well as the ECB, the Basel Committee and so forth. However, first the need to determine what constitutes a SIFI arose. In this chapter, the emphasis will thus be put on:

1. Scales and measurements to assist in determining a SIFI
2. Reforms envisaged especially for a SIFI

Scales and measurements in determining what constitutes a SIFI were quite a hot topic in the first years following the outbreak of the financial crisis. It was clear that the SIFIs would not be able to get away with bail-out money and, at the same time, not pay the price in the form of surcharges and increased levels of capital ratio. Many scholars thus tried to design different more or less complex approaches to the subject at hand.

Zhou (2010) proposed a combination of models in order to determine how vulnerable the financial system really is and how "exposed" the FIs in the said system really are. Zhou (2010, pp. 3-4) chose the model devised by Segoviano and Goodhart earlier that year called PAO, i.e. probability that at least one bank becomes distressed, with one major weakness – the model does not indicate how severe the crisis is going to be but rather if there is potential crisis in the making. That is why Zhou (2010, p. 4) decided to include the Systemic Importance Index (hereinafter: SI index), which "measures the expected number of bank failures in the banking system given one particular bank fails". This index is a derivative and

[32] Due to the lack of political agreement on matters of the single European deposit insurance scheme, the third pillar of the banking union remains on hold for the time being until reservations (moral hazard among others) of the largest contributor of the funds to the EDIS, that is Germany, would be set aside. When fully operational, the EDIS will safeguard the deposits in the European FIs.

application of an Extreme Value Theory (VET). Furthermore, Zhou (2010, p. 4) devised a robustness check of sorts in the form of the so-called Vulnerability Index (VI) that measures "the probability of a particular bank failure given that there exists at least one another failure in the system". He tested these models on 27 U.S.-FIs with less than perfect data. Zhou (2010, p. 24) acknowledged that because of this fact and some other presumptions the model is *"artificial"* although a steppingstone for further research. Nonetheless, there was a major contribution to his research. He determined that "a large bank is not necessarily more systemically important in terms of exhibiting high levels of the three proposed systemic importance measures. Only with diversified banking activities, a large bank may become systemically important". That, in turn, means that a large isolated bank is not predestined to be of systemic importance.

Moore and Zhou (2012, pp. 13-14) continued the work where Zhou left off in 2010 by again applying the SI index to a sample of American banks from 3 distinct periods in time: 1999-2002 period with the "dot-com bubble" burst and with the introduction of an act that would in some way repeal the Glass-Steagall Act which in turn led into consolidation of a banking sector: 2003-2006 period of growth and 2007-2010 period of big recession as the authors put it. They expanded the SI index by accounting for "social welfare", i.e. the implied government subsidies for the TBTF institutions (a public perception that the TBTF institutions will be bailed out, thus making them less risky). Moore and Zhou (2012, p. 18) ascertained that the size matters but that the function is convex and this, in turn, means that the small banks below $2B and large banks above $20B would "gain" less on systemic importance with an increase in size than medium-sized banks. To paraphrase: when a SIFI is systemically important it cannot become even "more" systemically important. Additional measure tested was the leverage of the FI. High levered institutions should, in theory, be less systemically significant because they would be deemed too risky and thus "ostracized" and isolated by other FIs (regardless of the size that would make FI systemically insignificant because of the lack of implied interconnectedness). The authors (Moore & Zhou, 2012, p. 19) determined that the leverage amidst economic downturn plays little or no role in relation to systemic importance: it is thus statistically insignificant. That is because amidst big recession all the FIs are equally and involuntarily affected which in turn leads to increase in the leverage ratio – the increase that is not contributed to the increase of leverage per se but rather to the decrease of assets' market value which in turn drives up the perceived leverage of an FI. Moreover, the hypothesis, that the FIs that do not dabble in less than traditional banking practices are less risky, was corroborated by the findings of the research (Moore & Zhou, 2012, pp. 19-20).

When it comes to SIFI, an attribute of a SIFI has to be addressed. This is the negatively correlated idiosyncratic and systemic riskiness of the SIFI (Moore & Zhou, 2012, pp. 10-12). With an increase in size and in more diversified activities of the FI, the idiosyncratic risk decreases (the FI is more robust and can take on shocks more easily) but the risk to the system increases at the same time – with size and diversified activities interconnectedness

increases. Just the opposite is true for the leverage – high leverage leads to increase in idiosyncratic risk but it leads to decrease in riskiness to the system at the same time. On the other hand, the higher maturity mismatch between funding and assets leads to an increase in both idiosyncratic and systemic risk.

Until 2010, the reforms regarding the SIFIs were left to the academic sphere and to the experts of various international monetary institutions entrusted with the supervisory and policy-making role. With limited power, they were left only to discuss them. That changed in 2010 when hit by public backlash, which was a result of a government funded bail-out of some FIs and some non-financial companies, the U.S. government proposed and enacted the Dodd-Frank Reform Act (Dodd-Frank Wall Street Reform and Consumer Protection Act, 2010). The Dodd-Frank reform act introduced new rules mitigating systemic riskiness and eliminating the TBTF problem altogether (Labonte, 2015, p. 1). One of the most important contributions of The Act was the introduction of a measurement that would allow fast identification of the TBTF FIs, i.e. SIFIs. The FIs with assets in excess of $50B were deemed TBTF or systemically important. In 2015 the U.S. Congress increased the threshold to $500B mark (Labonte, 2015, p. 2). Nonetheless, by doing this, the special treatment of FIs with more than $50B (and less than $500B) in assets was not abandoned.

Meanwhile, Switzerland chose a more complex approach in determining its SIFIs. Whereas the size was the most relevant factor for the Americans, for Swiss a combination of size, interconnectedness and non-substitutability played a crucial role (Swiss Expert Commission, 2010, p. 14). These factors were determined by the Commission of Experts (2010, p. 14) and include indicators such as "market share of the domestic lending and deposit business and payment transactions, the level of unsecured deposits, the relationship between the balance sheet total and GDP, and the risk profile of the financial institution." Since Switzerland is a relatively small economy with the disproportionally large banking sector, two largest FIs – Credit Suisse and the UBS – were deemed not only TBTF but also TBTBR, i.e. to-big-to-be-rescued. This means the Confederacy could not bail them out even if it wanted to (Swiss Expert Commission, 2010, p. 14).

2011 marks the first year when G-SIFIs were determined. The criteria employed by the FSB in determining the G-SIFIs were devised by the BCBS. The first "batch" of criteria is based on the so-called indicator based measurement[33] approach. These criteria are the following (Basel Committee on Banking Supervision, 2011b, pp. 5-10; 2013, pp. 7-8):

1. **Cross-jurisdictional activity:** with this measurement cross-jurisdictional claims and liabilities of an FI were considered. The BCBS calculated the score as the sum of an FI claims (liabilities) divided by the sum of total claims (liabilities) of the FIs in the sample.

[33] In addition to indicator based measurements, ancillary measurements were devised to help national authorities exercising their discretion when placing the FIs on the G-SIFI list that would otherwise, i.e. by using indicator based measurement, not make the cut (Basel Committee on Banking Supervision, 2011b, p. 12).

2. **Size:** total exposure of the bank is considered here. The score is calculated as an FI's total exposure divided by the sum total of all the exposures of the FIs in the sample.
3. **Interconnectedness:** with this measurement intra-financial system assets and intra-financial system liabilities of an FI were considered as well as the wholesale funding ratio. The score is calculated as the amounts of their intra-financial system assets (liabilities) divided by the sum of the total intra-financial system assets (liabilities) of all the FIs in the sample. The score derived from wholesale funding ratio of an FI is in accordance with the BCBS rulebook (Basel Committee on Banking Supervision, 2011b, p. 8) calculated "by dividing (total liabilities less retail funding) by total liabilities. Retail funding is defined as the sum of retail deposits (including certificates of deposit) and debt securities issued that are held by retail customers. The indicator for the bank is normalized by the average ratio across all banks in the sample."
4. **Substitutability/financial institution infrastructure:** Payments cleared and settled through payment systems, assets under custody and values of underwritten transactions in debt, and equity markets are considered here. Each measurement is the summation of the FIs own position divided by the sum total of all the positions of the FIs in the sample.

The weight assigned to a single measurement is seen in Appendix E. In 2011, the sample of 73[34] FIs was chosen. The cutoff level[35] was set at 27. The first list of the G-SIFIs comprises 27 FIs and two additional ones added by the discretionary power of the member states as seen in Appendix C. The G-SIFIs are then assigned on the basis of their score to buckets using cluster analysis. There are 5 buckets or intervals, each with incrementally higher minimum additional loss absorbency (common equity as a percentage of risk-weighted assets) surcharge as seen in Appendix D. In a nutshell, a G-SIFI in the first bucket must increase its capital ratio to 1% and a G-SIFI to 3.5% of common equity as a percentage of risk-weighted assets. This surcharge is devised as an additional surcharge for SIFIs and is not meant to substitute the capital requirements envisaged in Basel III reform. On the contrary, this additional surcharge is meant to complement the Basel III reform.

In the EU, the directive CRD IV (2013) in the Article 131 lays down the legal framework in order to determine what constitutes a G-SIFI[36](G & EU-SIFI). Under this legal framework, the FSB proposed measurements that have already been devised by the BCBS (with slight

[34] 73 FIs had been selected based on size and supervisory judgment of Basel Committee member authorities. These banks represented 65% of world's bank assets (Basel Committee on Banking Supervision, 2011b, p. 10). In 2013 (Basel Committee on Banking Supervision, 2013, p. 8), a new approach was implemented to determine the sample of G-SIFIs candidates: 75 largest FIs are to be included in the sample, all G-SIFIs from the previous year to be included, the FIs added on discretion by the national regulator (some conditions may overlap, the minimum sample size is thus 75).

[35] Cutoff level is set to change through time, depending on evolution of financial industry (Basel Committee on Banking Supervision, 2011b, p. 10).

[36] The term EU-SIFI is not used in European legal documents. The term G-SII (Global systemically important institutions) is used instead. Under the term G-SII, both G-SIFIs from the EU determined yearly by the FSB and the EU-SIFIs that did not make it on the list of the G-SIFIs but are perceived important for the EU are understood.

modifications) and discussed in the previous paragraph. The only considerable difference when compared to the BCBS approach is the €200B mark of leverage ratio exposure measure that broadened the scope of FIs eligible to be considered as the EU-SIFI. The FIs that did not meet the criteria to be regarded as the EU-SIFI but are deemed of (domestic) systemic importance by the NCA are the so-called other SIFI[37]. The same buckets discussed in the previous paragraph apply for the EU-SIFIs.

One could claim that reforms envisaged in the Basel III Accord targeted predominantly the SIFIs anyway. Nonetheless, the CRD took it one step further. In addition to a fixed capital conservation buffer, the upon the circumstances dependent countercyclical buffer, and for the G-SIFI designed capital buffer of 3.5%, two additional capital buffers are proposed in the CRD. The first deals with systemic risks on a member state level and it can make as much as 5% of risk-weighted assets. The member state's intention of imposing a capital buffer in the excess of 3% must be sanctioned by the EU Commission, the EBA and the European Systemic Risk Board[38] (hereinafter: ESRB), while a buffer under 3% requires only a notification to the aforementioned institutions made by a member state. The second proposed capital buffer of maximum 2% would apply to the other FI deemed systemically important. To prevent double or triple charge being imposed upon an FI seen as globally, domestically or otherwise systemically important, only the highest of the three "systemic" buffers will suffice (*Bundesfinanzministeriums - Monatsberichte - Basel III - ein Meilenstein im Bankenaufsichtsrecht*; CRD, 2013). This part of the CRD thus imposes additional capital buffer to the institutions exempt from the list of the G-SIFI that have systemic relevance on a domestic (member state) or regional (EU etc.) level.

In 2015, the FSB released the Total Loss-Absorbing Capacity (hereinafter: TLAC) standard for the G-SIFIs. After the public consultation in 2016 and early in 2017, some revisions were made. This standard addresses the minimum level of funds (individually determined) a G-SIFI should hold if its resolution is opted. The funds should be sufficient so that implementation of "an orderly resolution that minimizes impacts on financial stability that ensures the continuity of critical functions and avoids exposing public funds to loss" is possible. It is also required that "a certain amount of those loss-absorbing resources [is] committed to subsidiaries […] deemed material for the resolution of the G-SIB as a whole" (*FSB - Publications - Policy documents - Guiding Principles on the Internal Total Loss-Absorbing Capacity of G-SIBs*). In the EU similar standard already exists and is known as MREL part of the BRRD (see Chapters 2.1.1.1 & 2.1.1.2.). To fully implement/harmonize

[37] Term O-SIFI is not used in European legal documents but rather the term O-SII.

[38] The EBA as well as the ESRB are part of the European System of Financial Supervision (ESFS), the purpose of which is to ensure supervision of the Union's financial system. According to ESRB regulation (*ESRB - Mission, objectives and tasks*), "The ESRB shall be responsible for the macro-prudential oversight of the financial system within the Union in order to contribute to the prevention or mitigation of systemic risks to financial stability in the Union /…/". The ESRB (*ESRB - Mission, objectives and tasks*) can by carrying out different inspections of the European financial system determine the systemic risks and thus issue warnings and recommendations based on findings.

TLAC with the EU legislation changes to CRR and amendments to BRRD were proposed by the Commission in 2016 (*CliffordChance - Topic guides - Bank finance - TLAC and MREL*).

2.3 Criticism of Basel III with the emphasis on the SIFIs

Georg (2011) argues in his paper that although the well-intended Basel III Accord still has some shortcomings which could prove harmful to the entire financial sector in years to come. One of the shortcomings has to do with the risk-based approach: its dependency on risk-weighted assets is problematic. Georg (2011, pp. 16-17) claims that risk-weighted assets approach is the cause of the systemic risk in that that it fails to recognize the riskiness of poorly diversified assets. The FIs still have an incentive to hold more financial assets rather than the real assets. Moreover, assets from the same class have a much higher correlation as assets from different classes (interbank loans vs. corporate loans). The asset value correlation (AVC) factor proposed for large financial institutions "is a global factor and does not take into account the different magnitudes of correlation of different assets", as Georg (2011, p. 17) duly noted. The capital surcharges for SIFIs can, on one hand, lead to a more robust financial system, as Georg (2011, p. 17) acknowledged. On the other hand, the perceived systemic importance is a "volatile quantity" that can change over time and since the FIs cannot increase their capital overnight they would be forced to hold as much capital "as required at the time of their largest systemic importance for the capital requirement to be effective." With that in mind, the implied regulatory incentive that awards lower systemic riskiness with lower required capital surcharges would be ineffective. This combined with implied subsidies (bail-out guarantees) makes it really hard for the authorities to justify surcharges for the SIFIs. Nevertheless, higher capital surcharges could mitigate informational spillover and prevent liquidity hoarding and fire-sales in a future crisis (Georg, 2011, p. 17).

Slovik (2011, p. 10) asserted similar like Georg that risk-weighted assets approach was counter-productive, as the SIFIs risk-weighted assets expressed in total assets dropped from 70% in 1992 to 35% in 2008. The SIFIs especially find a way to circumvent the legislation and invest in assets that have proven to be much riskier. While the other smaller FIs remain risk-averse, the SIFIs tend to invest more in non-risk weighted assets. This is due to the fact that the implied subsidies by the government distort market discipline (Slovik, 2011, p. 9). Alternatively, a regulation based on a non-risk weighted asset approach, such as leverage ratio, would only marginally affect the GDP growth (-0.02 percentage point). This drop in economic activity is a consequence of the increase in lending spread caused by the increase of capital ratio (increase in the ratio of equity to total assets). The author (Slovik, 2011, p. 7) notes that his estimation is more on the conservative side because he did not take into consideration all the positive ramifications of a more stable financial sector. Slovik (2011, p. 9), thus, concludes that "it could be more suitable to base additional capital requirements for systemically important banks on a non-risk-weighted framework."

Blundell-Wignall and Atkinson (2010, pp. 13-15) argue that systemic risk is again not correctly addressed in Basel III Reform. They too are concerned that the risk-based approach would distort the market and lead to a rise in shadow banking and to other practices that have already contributed to the last financial crisis. The risk-based approach makes it possible for the banks to transfer "promises" (contractual commitments) to a sector(s) that lie(s) beyond the banking regulator. Moreover, by doing so, the FIs can substantially reduce the required level of capital simply by undertaking tax and regulatory arbitrage. Blundell-Wignall and Atkinson (2010, p. 13) believe that "the same promises should be treated in the same way, regardless of where they sit in the financial system." That means the same rules should apply to reinsurance companies and shadow-banking entities that partake in the process of "passing" promises.

Suttle et al. (2011, p. 4), firm opponents of any special surcharges for the SIFIs, argue that no measurement or criteria designed to determine a SIFI can be successful. The systemic risk is far too complex. Moreover, any special treatment of the SIFIs would lead to market distortions and to a false sense of security. Rather than looking at the problem in a binary way (SIFI vs. non-SIFI) the regulator should address the risk of failure of all the firms with the same measures and allow non-performing firms and FIs to be allowed to fail (orderly resolution). That means exiting the market without systemic disturbance and without a need for public funds.

3 INTRODUCTION TO STUDIES CONDUCTED ON THE SIFIS SUBJECT MATTER

In the literature review, the previous studies related to tightening the regulatory requirements will be discussed. The change in the regulatory requirements followed market-turmoil, thus making it reactionary in nature. Whereas the Basel I banking reform followed after a bank with inadequate capital ratio went bankrupt, the Basel III reform was an answer to a much bigger and more complex problem inherently caused by the financial industry itself, and to some extent by the regulatory policies. In this regard, the Basel II reform played only a minor role because it was, in fact, a reform of the Basel I reform. What is more, the financial crisis hit even before the Basel II was fully implemented in all of the jurisdictions thus rendering it obsolete or at least inadequate. No amendments of the Basel II reform were proposed and the impromptu tightening of the regulatory requirements following the 2007/08 financial meltdown was only a precursor of the new reform package that ensued and is now known as the Basel III reform. The circumstances leading to reforms of the financial sectors and reforms itself were discussed in the previous chapters.

In relation to the reforms and the studies examining different variables and correlation between them, there are certain similarities between the studies. On the other hand, there are also certain differences that make studies from different time periods harder to compare. Thus, the need appears to distinguish between the studies following the first Basel reform

and the studies following the third Basel reform. Although the assumptions and the key hypothesis tested are similar or even the same, the circumstances and the environment could not be more different. The Basel I came at the time of economic prosperity and was a consequence of a one-time event – the industry as a whole was unscathed by the dissolution of a single bank. The market showed little or no doubt in the banking system. This meant that the presumptions made before heading into testing and model designing were much more in tune with the actual facts and reality. One could presume ceteris paribus, rational behavior of the stakeholders, etc. without risking a too simplified model with no basis in reality. The financial industry and its behavior at that time were largely the consequences of the external regulatory changes. The models were thus simple and their results mirrored the expectations of the assumptions, i.e. hypotheses, with a great degree of certainty.

To name a few hypotheses tested:

1. Higher capital requirements will result in credit crunch since the portfolio of the riskier loans will be smaller and, at the same time, more equity is to be held as a risk-weighted capital ratio.
2. Banks will invest more in T-bills and government bonds since their perceived riskiness is lower. Thus, less capital needs to be held in accordance with Basel I. Moreover, some investments in the government issued debt securities can be included in the minimum capital required thus making this investment option even more alluring to the banks. At the same time, such response from the banking industry would furthermore intensify the credit crunch.
3. Banks will grant fewer loans since the main resource of the additional funds comprising the capital ratio will come from the retained earnings that would otherwise go for new lending. Bank profits will decline accordingly.

The financial crisis of 2008/09 with its inherent chaotic manifestation, in addition to the expected turmoil, unearthed unexpected political and other macroeconomic problems –, especially in the EU. Thus, it caused an unprecedented response from the EU member states and its institutions that led to uncoordinated actions of the FIs, EU "government", member states and markets alike. In turn that led to even more chaotic and volatile conditions hindering a prompt and orderly solution of the crisis.

This exceptional situation on the EU's financial markets translates to less than perfect studies that are conducted of the said markets. Even the simplest and commonly accepted truths (for instance the positive correlation between the higher capital ratio on one hand and higher lending rate on the other hand) were hard to prove. What is more, even the undeniable causality between the regulatory changes and subsequent capital ratio changes have proven

to be very difficult to test. The FIs increased their capital levels beforehand, i.e. before regulatory reforms had been negotiated let alone implemented. One can argue that the response from the FIs came as a preemptive measure to the expected regulatory reforms. On the other hand, one cannot just simply dismiss the psychological aspect of the recent financial crisis and seemingly irrational behavior of the parties involved. The FIs could increase their capital levels prompted by the ever-growing wariness of the investors and of the markets in general regarding the financial industry. Moreover, the EU-FIs were exposed to the (un)expected political uncertainty playing out on numerous levels: the failure of the EMU, the sovereign debt crisis in some member states and in particular the response of the EU institutions to the problems at hand, the Brexit, the rise in populist movements from both side of the political divide, the LIBOR scandal, the uncertainty related to numerous policies of the EU not being enforced, the different approaches to dealing with the problematic FIs between bigger member states and smaller member states, etc.

In the following examples, studies made in the aftermath of the financial crisis of 2008/09 will be presented. With the exception of a study conducted by the BIS that took a closer look at a sample of the G-SIFIs, all other studies were conducted on the European FIs. However, an excursion into the studies dating back to the period of the Basel I introduction will be made before the detailed presentation of the current studies. On one hand, the purpose of this is to show the stark contrast related to the macroeconomic circumstances between the current studies and the older ones. On the other hand, putting different period-related circumstances to side, there are certain occurrences the past studies could explain regarding the modern course of events in the financial sector.

3.1 Past studies

Many studies were conducted on this subject in the 1990s: all with similar conclusions. Tougher regulation meant a decline in value of the FIs and lower levels of lending which lead to the credit crunch. For instance, Furfine (2001, pp. 33-34) found out that the lending fell quite significantly after the implementation of the Basel I in 1990. The Basel I stipulated that more equity has to be raised for riskier assets, i.e. loans, than, for instance, for the Treasury bill and bonds. The level of commercial and industrial loans was at 22.5% in 1989, whereas the level was at 16% in 1994. In the same time, the level of treasury bonds in the banks' asset rose from 15% to 25%. This shift in banking activity is known as a credit crunch.

Laderman (1994) statistically determined that the value of the shares of the FIs drastically fell since the implementation of the Basel I which resulted in little or no new issuance of new equity by the FIs. Haubrich and Wachtel (1993) also came to the same conclusion when conducting their research. Ediz, Michael, and Perraudin (1998, pp. 15-21), who were researching the banking behavior in the UK, found out that the level of lending activities indeed fell. In contrast to the aforementioned authors, however, they did not see this as a

negative development. They were of the opinion that the higher capital requirements imposed by the regulator meant that the FIs were taking on much less risk.

3.2 The current studies

The following studies will be presented in more detail:

1. "How have banks adjusted to higher capital requirements?" by Cohen
2. "The Impact of Basel III on Lending Rates of EU Banks" by Sútorová & Teplý
3. "Estimating the impact of higher capital requirements on the cost of equity: An empirical study of European banks" by Toader
4. "Estimating the impact of changes in aggregate bank capital requirements on lending and growth during an upswing" by Noss & Toffano

The studies presented here were selected based on their relevance and time of their creation. These are their excerpts. For detailed presentation see the Appendix part of this thesis.

Cohen (2013), a representative of the BIS, tried to determine the way the FIs increased their capital ratio to meet the standards foreseen by the Basel III Accord. He named four possible approaches to be utilized by the FIs in order to meet higher capital requirements (Cohen, 2013, pp. 26-27):

1. The utilization of the FI's retained earnings;
2. The issuance of new equity;
3. Change of the assets side of the FI's balance sheet – selling assets outright or slowing down lending;
4. Shift in investment policies – from lending to less risky government securities, thus lowering the risk-weighted assets which in turn leads to lower capital ratio required;

Findings. Cohen (2013, p. 25) determined that the majority of capital adjustments was made by utilizing the retained earnings "rather than through sharp adjustments in lending or asset growth". Cohen (2013, p. 31) furthermore ascertained by analyzing data that "common equity capital increased by 34%, while risk-weighted assets rose by 5%. The overall increase in risk-weighted assets, in turn, resulted from an 8% decrease in the ratio of risk-weighted to total assets and a 14% increase in the level of total assets." The rise in equity actually fueled the rise in total assets. The capital rose by 2.9 percentage points of which 1.9 percentage points could be contributed to the retained earnings. Additional 1 percentage point in the overall capital comes from other sources (Cohen, 2013, p. 33). Since the FIs diverted more of the net income to capital, less income was available for dividend payouts. According to Cohen (2013, p. 34), the dividend payout fell from 40% of the total net income in 2009 to 27% of the total net income in 2012. Cohen (2013, p. 34) also determined that the lending rate increased only marginally, meaning that the net interest income rose only slightly, whereas an increase in non-interest income and reduction of operating expenses

were of no significance. The initial prediction that the majority of the additional capital derives from retained earnings was thus further corroborated. For details on methodology and shortcomings of Cohen's model see Appendix F.

Šutorova and Teply (2013) set off to determine practical consequences of the Basel III and the CRD IV implementation in the EU. The goal of the paper was to predict the impact the higher capital requirements would have on lending. As the starting point of their work, the findings of Roger and Vlček (2011, p. 12) were used. The authors predicted an increase of 120 basis points in a lending spread in the EMU, had the capital ratio increased by 2% over two years. Their prediction was made on the presumption of ceteris paribus (an increase in retained earnings would come solely from an increase in the lending spread).

Findings of the study. The authors (Sútorová & Teplý, 2013, p. 241) determined that lending spread would only increase by 18.8 basis points which in turn means a drop in loans provided by no more than 2 %. For details on methodology and shortcomings of their model see Appendix G.

Toader (2015) set off to determine what kind of impact do higher capital requirements have on the cost of equity. He acknowledges both the arguments of the proponents of the regulatory changes and the bankers (Toader, 2015, p. 413). The proponents claim that any costs associated with the increase in capital ratio would be offset by the expected beneficial impact of lower perceived riskiness that it would have on the cost of equity – lower risk would lead to lower expected returns on equity (lower dividends – lower costs). In contrast, the opponents of higher capital ratio believe that the increase in equity, which is associated with the higher cost since equity is considered the costliest form of capital, would be offset by higher lending rates. Toader (2015, p. 413) assumes that the proponents are correct since their argumentation follows the famous Modigliani-Miller theorem that states "that the value of the firm is independent of changes in the funding structure under a set of assumptions. It stays for the idea that a higher amount of loss-absorbing capital enhances bank's stability and improves its financial capacity. Thus, investors expect a lower return on equity as the amount of risk engaged will be lower. A higher cost of an increased amount of equity will be offset by a reduction in the return on bank capital".

The author (Toader, 2015, p. 419) will thus test three variables supposedly influenced by higher capital ratio. The first dependent variable is the systematic risk represented by the equity beta. According to Modigliani-Miller theorem, higher capital levels, i.e. higher levels of common equity (aka Tier 1 capital defined in the Basel III) should decrease riskiness of the equity. The second dependent variable is a return on equity and the third is the average funding cost of capital. Both equity β, as well as return on equity, are presumed to be negatively correlated to the increase in common equity. The last variable aka WACC should stay unchanged in theory since it reflects higher costs associated with equity funding and the offsetting effect of lower β reflected in the lower rate of returns on equity. Toader (2015, pp.

422-424) explains that this is not the case because of informational asymmetries, fiscal (tax shield), and cost advantages (implied guarantees from the state eager to bail-out FIs in difficulties). The last asymmetry, i.e. the implied guarantees, was estimated more precisely by the author.

Findings of the study. Toader (2015, pp. 425-426) confirmed the assumption that "a higher amount of stable capital reduces banks' balance-sheet vulnerability to market fluctuations and improves stability, thus investors should require lower rates of return on capital and banks funding cost will be lower". Moreover, the higher capital ratio reduces asymmetries and comparative advantages related to the SIFIs: higher capital levels would reduce the need for implied subsidies making the FIs much more risk-averse than previously. Furthermore, the higher capital ratio would mean that the shareholders would bear much more responsibilities in case of potential difficulties of an FI, which in turn means that risk of moral hazard associated with the implied subsidies will be greatly reduced. For details on methodology and shortcomings of Toader's model see Appendix H.

Noss and Toffano (2016, pp. 15-16) tried to estimate the effect the changes in capital requirements have on lending in the UK banking system. They did so by applying "sign restrictions that attempt to identify shocks in past data that match a set of assumed directional responses of other variables to future changes in capital requirements aimed at increasing the resilience of the banking system to losses during an upswing."

Authors (Noss & Toffano, 2016, p. 16) acknowledges there are two different possible outcomes of new tightened regulatory changes concerning higher capital ratio. It all depends on the broader economic circumstances. In times of financial turmoil with dwindling trust in the financial sector, reforms can translate to reinforced trust in the financial sector, which in turn means lending activities of the FIs, as well as the cost of capital of an FI, would, in fact, remain the same or it would be even more favorable. On the other hand, reforms could lead to the short-term credit crunch and higher lending rate in circumstances where there is little risk believed to be associated with the financial sector. All this could, in turn, lead to dampened economic growth.

Findings of the study. Authors (Noss & Toffano, 2016, p. 20) determined that an increase of 15 basis points in leverage-based capital ratio would translate into a median decrease of 1.4% in the level of lending after 16 quarters. The impact on economic activity, i.e. GDP, would not be statistically significant – negative effects of a decrease in lending would be countered by an increase in investments in other areas and by other means. Furthermore, the level of lending does not recover to its previous trend. It was also determined (Noss & Toffano, 2016, pp. 24-25) that commercial lending level would endure greater reduction than lending to households – the consequence attributed to different risk weights applicable to different sectors of lending. For details on methodology and shortcomings of their model see Appendix I.

3.3 Highlights

There are some common conclusions that are found in all of the studies, e.g. the fact that the increase in the level of capital ratio did actually occur. On the other hand, the cause is harder to determine as the experts (Jackson et al., 1999) at the BIS are quick to point out. Although there is a certain statistical correlation that corroborates the view that the tightened capital requirement regulation, in fact, leads to higher capital level, there are other internal as well as external factors that drive the increase of capital return. If the causality between two occurrences in the financial sector was hard to determine in the 1990s (Jackson et al., 1999, p. 10), this task is almost impossible in the current volatile situation.

What Jackson et al. (1999, p. 10) determined in their studies review is the myriad of circumstances that potentially play a role in the capital increase. Moreover, these circumstances or variables could not be totally excluded from the models, which in turn made models unreliable. A major hindrance in determining causality was the broader macroeconomic environment. It is much likelier that the FIs would increase their capital ratio amidst economic downturn due to "market discipline" (Jackson et al., 1999) rather than due to the regulatory requirements.

The same observation was made in the current studies review discussed in the previous chapter. Though negative impacts of higher capital requirements were in fact detected, they were minuscule and were more or less offset by the beneficial effects following the increase of the capital ratio during the economic downturn. What is more, the claim made by the BIS that there is no evidence or causality between minimal capital regulation enacted by the regulator and capital ratios plays in hand of those criticizing market intervention conducted by the authorities. Data collected during the last financial crisis seem to corroborate that.

The adverse and advantageous effects of higher capital ratio regardless of the cause or trigger, i.e. a regulator or the market, need to be studied in order to prepare adequate economic and monetary policies and to choose a proper time for reform implementation. The fact of the matter is that there are both negative and positive effects of reforms. Some effects are short-term and some are long-term. On the basis of the findings by the authors mentioned in the previous chapters, two alarming conclusions can be made. On one hand, tougher regulation means less risk taken on by the FIs, which in return means the FIs are much more impervious to the economic downturn. On the other hand, this initial enthusiasm can quickly be turned – in more prosperous times – to discontent with less profitable and costlier higher capital ratio. This conclusion is important for two reasons:

1. **Capital arbitrage practices** (for instance securitization). As already mentioned, the securitization and off-balance sheet activities of the early 2000s were propelled among other reasons by the FIs' belief that the capital requirements were too high. This had some much more creative banking activities as a consequence. This shows that the FIs

adapt to the regulation and that the tougher regulation does not always bring the results envisioned by the regulator (Jackson et al., 1999, pp. 21-26).

2. Almost instant **credit crunch**. When devising and implementing higher capital requirements, one has to be prepared for a credit crunch. The question is the following: when to implement the new regulation? Can it be implemented amidst the economic crisis?

Many countries and regulators were faced with these questions in the recent economic crisis. First, there is the public pressure that demands tougher stance on the financial sector. Moreover, the viability of an economic system, as a whole, needs to be ensured – this inevitably means healthier and risk-averse financial sector.

4 EMPIRICAL ANALYSIS

By assuming the EU level as a basis and vantage point for my hypotheses testing, only the EU-SIFIs will be regarded as systemically important. The O-SIFIS, despite the name, will be considered as the non-EU-SIFIs, which in fact means their perceived systemic importance is only limited to a particular member state and not to the EU as a whole. By assuming this, the group of O-SIFIs is, in fact, a group of non-SIFIs. Nonetheless, the naming of the group of non-SIFIs will remain as established and popularized by the EBA, i.e. O-SIFIs. The two groups of FIs will be tested against each other. These are the aforementioned EU-SIFIs and O-SIFIs. By testing two assumingly different groups of FIs assumptions and hypotheses, pertaining to the EU-SIFIs and its unique nature can be made and more importantly tested.

Since the groups have already been determined by the EBA, no cluster analysis of the financial, i.e. the EU banking sector, will be needed – the groups will be taken as it is. The lists of banks tested will be taken from the EBA's 2015 data regarding both the groups of FIs. There are 36 banks on the EBA's list of the EU-SIFIs and 173 banks on the O-SIFIs list for the year 2015. Regarding the O-SIFI population, the FIs of the non-EMU member states will be excluded. They adhere to and are subject to potentially different policies than those enacted by the regulator in the EMU. This criterion is only suitable for the O-SIFIs and not for the EU-SIFIs since the EU-SIFIs are trans-national and trans-regional EU-FIs by definition and are thus in one way or another an integral part of the EMU, which consists of 19-member states (the EU has 28-member states). Moreover, the EBA's list of the O-SIFIs consists also of the subsidiaries (branches) of the EU-SIFIs in a particular observed state. The subsidiaries of the FIs already included in the EU-SIFIs will be excluded because the consolidated (group level) data of the observed FIs will be tested. In addition, the FIs such as the holding companies and the development banks will also be excluded to preserve the relative comparability between the observed FIs.

After the screening process, it was determined that all the 36 FIs labeled as the EU-SIFIs by the EBA will be tested. Of the 173 O-SIFIs 43 qualified to be in the sample. The vast majority of the excluded entities was subsidiaries of one of the EU-SIFIs and thus, at least indirectly,

already included in the sample. For the list of the FIs that are to be tested in this master's thesis see Appendix J.

If not stated differently the variables and occurrences in the period 2007-2015 will be tested. This applies to the part where descriptive statistic will be presented and to the part where hypotheses are to be tested. The data are thus panel (individual FIs) and longitudinal (time period) in their nature.

The data-bearing importance for the devised testing process will be collected from the following sources:

1. The EBA data bank regarding the process of specifying and determining the EU- and O-SIFIs,
2. The EBA data regarding stress tests,
3. The Eurostat,
4. The Fitch Connect database,
5. The annual reports of the sampled FIs (when missing data in the Fitch Connect Database).

4.1 Variables tested: Hypotheses and the descriptive statistics

4.1.1 Introduction

Variables to be tested in this master's thesis were selected based on their assumed (hypothetical) role in safeguarding the adequate regulatory capital levels. These were then divided into three subclasses deemed the most all-inclusive and thus popular approaches in order to adhere to or to achieve higher regulatory capital ratio levels.

The first subclass is Asset-based. The independent variable Total assets were chosen for two reasons. Firstly, the size equals the systemic risk, and, secondly, the higher systemic risk means higher regulatory requirements regarding its capital levels. Since the EU-SIFIs are bigger and thus perceived to pose a higher risk to the system (interconnectedness, market makers, investment banking, etc.) the capital ratios (driven in addition by regulatory requirement and by higher capital ratios expected by the market) would increase more quickly with the quicker size increase. And vice versa: the SIFIs trying to be perceived less-risk-prone could potentially decrease in size in order not to be required to have a higher regulatory capital ratio.

The independent variable RWA/Total Assets was selected to address the possible changes an FI could make in its assets portfolio composition in order to decrease the needed capital but still adhere to the regulatory capital ratio, as discussed by Cohen (2013). Namely, smaller RWA would mean higher capital ratio of an FI at the constant level of regulatory capital.

The asset-based independent variables Gross loans[39] and Government securities were selected to test for the dreaded credit-crunch feared by many scholars and opponents of higher capital ratios. The FIs could decrease their lending in favor of less risky investments, such as government securities, in order to satisfy hike in regulatory capital ratio and keep their capital at the constant level. It has to be noted here that there is a possibility of multicollinearity between these two variables and the RWA/Total Assets variable, since loans and government securities are part of the RWA, albeit with different risk weights attached.

The second subclass is Income based. FIs could, namely, offset the increase in capital required by increasing prices of their services charged directly to their customers. This could be seen in the rise of non-interest revenues deriving from services charged to the customers (independent variable Net fees & Commissions/Average earning assets) and in their net interest margin (independent variable NIM). The skeptics of capital increases like Georg (2011), Slovik (2011), Suttle, Wright & Piscitelli (2011), Blundell-Wignall, and Atkinson (2010) as well as the recent study on lending rate conducted by Šutorova and Teply (2013) claim that an increase in capital ratio would have numerous negative developments as a consequence – among others, the increases in pricing of banking services and higher lending spread. The FIs could have offset the increase in the capital required by increasing prices of their services charged directly to their customers. Because FIs, or any given company for that matter, are prone to serve to the expectations of their shareholders that require certain return on their portfolio, the potential fall-out of the returns due to the higher capital requirement could be at least in the short run offset by increasing prices of FI's services – thus, avoiding lower profit margins.

The third subclass is Equity based variables. In contrast to previous Income based variables, the Equity based variables would have the biggest impact on the shareholders' bottom line. These variables are Retained earnings and ratio Reserves for Imp. Loans/Gross Loans. Higher retained earnings (accounted as Tier 1 Capital), as well as higher reserves for impairment loans (accounted as Tier 2 Capital), mean less free cash flow to the equity, i.e. less dividend paid out. In recent times, the authors, such as Toader (as discussed in detail in Subchapter 3.1.2), supported the notion that the negative consequences of a capital ratio increase would be offset by the increased robustness and stability of an observed FI. This means that the disproportional increase in the capital ratio at the FIs leads to a disproportionate decrease in dividend-payout. If the retained earnings and reserves for impaired loans are to be increased in order to improve the capital ratio, the return on equity, i.e. dividend payout, would decrease. As a consequence, cost of new equity would increase – new investors will try to offset the lower expected returns on equity by wanting higher future capital gains (-> lower present share prices). On the other hand, this increase should

[39] Total value of the loan portfolio (including nonperforming loans before the deduction of loan loss provisions).

be offset by the lower cost of debt and lower equity returns due to the decreased riskiness. All in all, the WACC should remain the same – as per Modigliani-Miller theory.

Due to the expected high multicollinearity between the retained earnings and the dividend payout variables, the latter was excluded in advance. Irrespective of multicollinearity, the dividend payout variable could not be included in this thesis due to the fact that during the last economic crisis many FIs stopped paying dividends altogether. To eliminate skewness (dividend payout variable cannot take a negative value), the retained earnings are a much more appropriate variable. Furthermore, the negative retained earnings, if recorded, carry additional information pertaining to the observed FIs – practically all the FIs in the sample that showed negative retained earnings obtained government assistance in the form of bail-out funds.

Much as the independent variable Retained Earnings the variable Reserves for Imp. Loans/Gross Loans also carries additional information. Namely, as ascertained by Ng and Roychowdhury (2013) loan-loss provisions and reserves for the impaired loans are positively associated with bank failure risk (in contrast to Tier 1 Capital). This means that higher loan-loss reserves could be indicative of the FI's deep-seeded troubles – of potential or already carried out bail-out.

All hitherto discussed variables are bank-level in their nature. Nonetheless, there are variables and broader economic circumstances (macroeconomic) that indirectly contribute to or assist in the optimization of regulatory capital levels. It was ascertained by the EBA (2016) that the FI's "[…] minimum required capital" tends to "decrease when economic conditions improve and vice versa". To test for cyclical nature of regulatory capital ratio, the independent variable Real per capita GDP was selected as the best representation of macroeconomic sentiment in the EU and its member states. Still, the introduction of a macroeconomic variable and its role in the model should be taken with caution. This type of variables is usually treated differently (with more complex dynamic econometric models) with longer observed time periods. This variable, in this context (limitations), should thus be understood as a point of reference – an additional factor to illuminate but not unequivocally explain the effect of a broader economic environment on the dependent variable.

Table 1 shows which variables are to be tested in the subsequent hypothesis analysis and scrutinized in the Descriptive statistics part of this master's thesis.

For raw and unprocessed (tested) data see Appendix L.

Table 1. List of variables tested in this paper

List of variables upon which hypotheses testing will be conducted				
Dependent variable			**Total Regulatory Capital (%)**	Ratio: total regulatory capital is expressed as a % of regulatory capital in risk-weighted assets
Independent variables	Bank level	Asset-based variables	**Total assets**	All on-balance-sheet assets of an FI in €
			RWA/Total assets (%)	Ratio: risk-weighted assets divided by total assets
			Gross Loans	All gross loans
			Government securities	Investment in government securities in €
		Income-based variables	**Net interest margin[40] (%)**	Ratio: NIM is expressed as a % and is calculated as a difference between investment returns and interest expenses divided by average earning assets
			Net fees & Commissions/Average earning assets (%)	Ratio: net fees and commissions income are all non-financial revenues of an FI divided by average earning assets
		Equity-based variable	**Reserves for Imp. Loans/Gross Loans (%)**	Ratio: reserves made for impaired loans divided by all gross loans
			Retained earnings	All non-distributed profits of an FI in €
	Broader economic environment		**Real per capita GDP**	GDP per capita is obtained by dividing a country's nominal economic output by the number of its residents

4.1.2 Hypotheses

Hypotheses will be analyzed utilizing the variables described in the previous chapter.

1. **Hypothesis: Assets**

The observed SIFIs have optimized their assets portfolio and the size of it to accommodate for higher regulatory capital requirements.

2. **Hypothesis: Income**

The observed SIFIs have increased their Interest spread (in NIM) and Fees and Commissions to accommodate higher regulatory requirements.

[40] NIM values were taken from the Fitch Connect database which is based on data provided by its rating agency. The preferred stock dividends as a part of total interest expense are included in the calculation by the Fitch rating agency.

3. **Hypothesis: Equity**

The observed SIFIs have increased their Retained earnings and Reserves for impaired loans to accommodate higher regulatory requirements.

4. **Hypothesis: Macroeconomic environment**

The observed SIFIs have increased their capital ratio more/less in the up/down-swing part of the economic cycle.

4.1.3 Descriptive statistics

To introduce data regarding the samples of the SIFIs index numbers will be used. Firstly, data for each of the two samples, i.e. the EU-SIFIs and the O-SIFIs, will be aggregated using average values for each group and for each year separately. Secondly, base, chain, and space indices will be calculated. The base index will give important data on changes (positive or negative) for the observed period for the respective samples. In addition to the base index, the average annual growth rate will be calculated (see Equation 1).

$$r = \sqrt[8]{\frac{I_{2015/2007}}{100}} - 1 \tag{3}$$

The chain index will be applied to further calculate the annual growth rate. This is to determine if there was any particular year(s) when changes were more substantial relative to the other observed years. Space index will be used to show relative differences between the two samples in the observed period.

In addition and irrespective of the observed time frame, minimum, maximum, and average value, as well as the standard deviation for each variable will be calculated.

4.1.3.1 Total regulatory capital – Capital ratio

The make-up of capital comprising the required capital levels did in fact change in time. To ensure comparability throughout the observed time period and to adjust to FIs preemptive capital ratio adjustments fully loaded, the Basel III capital ratio requirements were used. In other words, regardless of the incremental introduction of the Basel III reforms, the reforms were considered as if already fully implemented. Knowing the FIs have already adapted to the new requirements ahead of time, not yet fully implemented requirements were thus taken into account. This has in turn prevented the distortions that would arise when accounting "new" capital under the "old" (but nonetheless still legally binding) rules (e.g. transitional floors, adjusted Basel II requirements, etc.) and to prevent yearly adjustments to the

calculations in the transitional period (the Basel III reform package is rolled out gradually on a yearly basis).

The average of Capital ratios of EU-SIFIS for the entire period 2007-2015 amounted to 14.9%. The minimum value of the Capital ratio (reported by one of the FIs in the EU-SIFI sample) amounted to 8.9%, with the maximum value of 30.3%, and standard deviation of 3.7%. The average of Capital ratios of the O-SIFIS for the entire period 2007-2015 amounted to 15%. The minimum value of the Capital ratio (of one of the FIs in the O-SIFI sample) amounted to -5.1%, with the maximum value of 64.6%, and standard deviation of 5.9%.

The belated response of the O-SIFIs to the crisis in 2010 could be contributed to the lower interconnectedness of the O-SIFIs and to the fact that these FIs are not market leaders let alone market makers. Consequently, they adapted in 2010 latter. On the contrary, the increase in the capital ratio in 2013 is a whole different story. It follows a decrease of 8.8% from 2010 to 2011. 2012 marks the year of great turmoil in the Eurozone elicited by the sovereign debt crisis in Greece. Whereas many of the EU-SIFIs were able to weather out the adverse situation of 2012 with relative ease – they were now much more resilient and better prepared than at the beginning of the financial crisis in 2008 – the O-SIFIs fared much worse. Many O-SIFIs needed to be recapitalized in 2012 and 2013, i.e. bailed-out by the government or international institutions, thus contributing to the higher average capital ratio levels in 2012 and 2013.

Table 2 lists that average Capital ratios for the sampled EU-SIFIs amounted to 10.89% in 2007 and rose to 19.23% in 2015. Average Capital ratios for the sampled O-SIFIs amounted to 12.34% in 2007 and increased to 18.76% in 2015.

Base indices show, that the average Capital ratios for the sampled EU-SIFIs were 76.5% higher in 2015 than in 2007. In contrast, the average Capital ratios for the sampled O-SIFIs were 52% higher in 2015 than in 2007. Average capital ratios of sampled EU-SIFIs increased by 7.36% on average per annum from 2007-2015. At the O-SIFIs they increased by 5.37% on average per annum.

Space indices reveal that average Capital ratios of the sampled EU-SIFIs were almost 12% lower compared to the O-SIFIs in 2007. In 2015 they were 2.5% higher. The most substantial yearly increase in average Capital ratios regarding the sampled EU-SIFIs occurred in 2009, i.e. at the onset of the financial crisis, when they reported 16.6% increase in average Capital ratios from the previous year. The second highest increase occurred in 2012 during the Greek sovereign debt crisis, when they reported 11.4% increase in average Capital ratios from the previous year. In contrast, the O-SIFIs reported increases in average Capital ratios most notably in 2012 and 2013, when the ratios increased by 12.4% and 12% respectively in comparison to the previous year.

The belated response of the O-SIFIs to the crisis in 2010 could be contributed to the lower interconnectedness of the O-SIFIs and to the fact that these FIs are not market leaders let alone market makers. Consequently, they adapted in 2010 latter. On the contrary, the increase in the capital ratio in 2013 is a whole different story. It follows a decrease of 8.8% from 2010 to 2011. 2012 marks the year of great turmoil in the Eurozone elicited by the sovereign debt crisis in Greece. Whereas many of the EU-SIFIs were able to weather out the adverse situation of 2012 with relative ease – they were now much more resilient and better prepared than at the beginning of the financial crisis in 2008 – the O-SIFIs fared much worse. Many O-SIFIs needed to be recapitalized in 2012 and 2013, i.e. bailed-out by the government or international institutions, thus contributing to the higher average capital ratio levels in 2012 and 2013.

Table 2. Average capital ratio (%), 2007-2015*

Year	**Average Total Reg. Cap. (%)**		**Chain index**		**Base index 2007=100**		**Space index (comparison of two sets of samples of FIs)**	**Growth rate (%)**	
	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI/O-SIFI	EU-SIFI	O-SIFI
2007	10.89	12.34	/	/	100.0	100.0	88.3	/	/
2008	11.65	13.17	106.9	106.7	106.9	106.7	88.5	6.9	6.7
2009	13.58	13.96	116.6	106.0	124.7	113.1	97.3	16.6	6.0
2010	13.99	14.42	103.0	103.3	128.5	116.9	97.0	3.0	3.3
2011	14.00	13.15	100.0	91.2	128.5	106.5	106.5	0.0	-8.8
2012	15.59	14.78	111.4	112.4	143.1	119.7	105.5	11.4	12.4
2013	16.86	16.54	108.1	112.0	154.8	134.0	101.9	8.1	12.0
2014	17.50	16.71	103.8	101.0	160.7	135.4	104.7	3.8	1.0
2015	19.23	18.76	109.8	112.3	176.5	152.0	102.5	9.8	12.3

Note. * EU-SIFIs N=36 and O-SIFIs n=43.

Source: Fitch Solutions, (n.d.), *Fitch Connect database,* 2014*; Author's own calculations.*

4.1.3.2 Asset-based variables

The average of Total assets of the EU-SIFIS for the entire period 2007-2015 amounted to €741B. The minimum value of total assets (reported by one of the FIs in the EU-SIFI sample) amounted to €112B, with the maximum value of €2,587B, and standard deviation of €590B. The average of Total assets of O-SIFIS for the entire period 2007-2015 amounted to €64B. The minimum value of Total assets (of one of the FIs in the O-SIFI sample) amounted to €0.6B, with the maximum value of €265B, and standard deviation of €61B.

Table 3 lists that average Total assets for the sampled EU-SIFIs amounted to €720B in 2007 and increased to €727B in 2015. Average Total assets for the sampled O-SIFIs amounted to €62B in 2007 and decreased to €61B in 2015.

Base indices show that average Total assets for the sampled EU-SIFIs were 1.1% higher in 2015 than in 2007. In contrast, the average Total assets for the sampled O-SIFIs were 1.1% lower in 2015 than in 2007. The average Total assets of the sampled EU-SIFIs increased by 0.13% on average per annum from 2007-2015. At the O-SIFIs they decreased by 0.14% on average per annum.

Space indices reveal that average Total assets of the sampled EU-SIFIs were more than eleven times larger compared to the O-SIFIs in 2007. In 2015 they remained eleven times larger. The most substantial yearly drop in average Total assets levels regarding the sampled EU-SIFIs occurred in 2013, i.e. amidst the Greek sovereign debt crisis, when they reported 8.5% decrease in the average total assets from the previous year. The highest yearly growth was reported in 2008 when the average total assets of the EU-SIFIs grew by 9% from the previous year. Similarly, the O-SIFIs reported yearly gains in average Total assets most notably in 2008, when they grew by 7.8% in comparison to the previous year. Much like the EU-SIFIs, they too faced the most significant yearly drop in the average Total assets in 2013, when they reported a decrease of 6.1% from the previous year.

The EU-SIFIs fared worse with regard to the Greek sovereign debt crisis. Both sets of FIs reported a drop in average Total assets in 2013, but the EU-SIFIs bounce back more quickly with an impressive 6.5% growth in 2014 (O-SIFI 0.8%).

Table 3. The average total assets for the observed samples, 2007-2015*

Year	**Average Total Assets (€mil)**		**Chain index**		**Base index 2007=100**		**Space index (comparison of two sets of samples of FIs)**	**Growth rate (%)**	
	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI/O-SIFI	EU-SIFI	O-SIFI
2007	719,990.11	62,485.73	/	/	100.0	100.0	1,152.2	/	/
2008	785,038.20	67,351.76	109.0	107.8	109.0	107.8	1,165.6	9.0	7.8
2009	719,731.55	66,990.81	91.7	99.5	100.0	107.2	1,074.4	-8.3	-0.5
2010	737,101.72	67,036.85	102.4	100.1	102.4	107.3	1,099.5	2.4	0.1
2011	773,817.19	65,552.38	105.0	97.8	107.5	104.9	1,180.5	5.0	-2.2
2012	762,363.26	64,790.13	98.5	98.8	105.9	103.7	1,176.7	-1.5	-1.2
2013	697,235.56	60,862.73	91.5	93.9	96.8	97.4	1,145.6	-8.5	-6.1
2014	742,675.76	61,341.59	106.5	100.8	103.2	98.2	1,210.7	6.5	0.8
2015	727,713.95	61,808.51	98.0	100.8	101.1	98.9	1,177.4	-2.0	0.8

Note. * EU-SIFIs N=36 and O-SIFIs n=43.

Source*:* Fitch Solutions, (n.d.), *Fitch Connect database,* 2014*; Author's own calculations.*

The average of RWA/Total assets ratio of the EU-SIFIS for the entire period 2007-2015 amounted to 36.8%. The minimum value of RWA/Total assets ratio (reported by one of the FIs in the EU-SIFI sample) amounted to 3.8%, with the maximum value of 70.3%, and

standard deviation of 11.4%. The average of RWA/Total assets ratio of the O-SIFIS for the entire period 2007-2015 amounted to 50.2. The minimum value of RWA/Total assets ratio (of one of the FIs in the O-SIFI sample) amounted to 3.3%, with the maximum value of 91%, and standard deviation of 21.4%.

Table 4 lists that average RWA/Total assets ratio for the sampled EU-SIFIs amounted to 44.18% in 2007 and decreased to 33% in 2015. Average RWA/Total assets ratio for the sampled O-SIFIs amounted to 58% in 2007 and decreased to 48% in 2015.

Base indices show, that average RWA/Total assets ratio for the sampled EU-SIFIs was 25% lower in 2015 than in 2007. In contrast, the average RWA/Total assets ratio for the sampled O-SIFIs was 17.5% lower in 2015 than in 2007. Average RWA/Total assets ratio of sampled EU-SIFIs decreased by 3.58% on average per annum from 2007-2015. At the O-SIFIs they decreased by 2.38% on average per annum.

Space indices reveal that average RWA/Total assets ratio of the sampled EU-SIFIs was almost 14% smaller compared to the O-SIFIs in 2007. In 2015 it was more than 30% lower. The most substantial yearly drop in average RWA/Total assets ratio levels regarding the sampled EU-SIFIs occurred in 2008, at the onset of the financial crisis, and in 2013, amidst the Greek sovereign debt crisis, when a 10% decrease in average RWA/Total assets ratio was reported from the previous year. Similarly, the O-SIFIs too faced the most significant yearly drop in the average RWA/Total assets ratio at the beginning of the financial crisis in 2008-09, when they twice reported a decrease of 6% from the previous year.

Table 4. Average RWA/Total assets for the observed samples, 2007-2015*

Year	**Average RWA/Total assets (%)**		**Chain index**		**Base index 2007=100**		**Space index (comparison of two sets of samples of FIs)**	**Growth rate (%)**	
	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI/O-SIFI	EU-SIFI	O-SIFI
2007	44.18	57.97	/	/	100.0	100.0	76.2	/	/
2008	39.46	54.51	89.3	94.0	89.3	94.0	72.4	-10.7	-6.0
2009	39.74	51.22	100.7	94.0	89.9	88.3	77.6	0.7	-6.0
2010	38.60	49.01	97.1	95.7	87.4	84.5	78.8	-2.9	-4.3
2011	37.04	48.40	96.0	98.8	83.8	83.5	76.5	-4.0	-1.2
2012	33.20	49.13	89.6	101.5	75.2	84.8	67.6	-10.4	1.5
2013	34.32	47.77	103.4	97.2	77.7	82.4	71.8	3.4	-2.8
2014	33.16	47.79	96.6	100.0	75.1	82.4	69.4	-3.4	0.0
2015	32.99	47.81	99.5	100.0	74.7	82.5	69.0	-0.5	0.0

Note. * EU-SIFIs N=36 and O-SIFIs n=43.

Source: Fitch Solutions, (n.d.), *Fitch Connect database,* 2014*; Author's own calculations.*

The larger decrease in Average RWA/Total assets ratio at the EU-SIFIs could indicate active intent to adhere to higher regulatory requirements applying especially to them.

Average of Gross loans of the EU-SIFIS for the entire period 2007-2015 amounted to €330B. The minimum value of Gross loans (reported by one of the FIs in the EU-SIFI sample) amounted to €24B, with the maximum value of 1,137B, and standard deviation of €219B. Average of Gross loans of O-SIFIS for the entire period 2007-2015 amounted to €40B. The minimum value of Gross loans (of one of the FIs in the O-SIFI sample) amounted to €0.4B, with the maximum value of €165B and standard deviation of €40B.

Table 5 lists that average Gross loans for the sampled EU-SIFIs amounted to €303B in 2007 and rose to €343.6B in 2015. Average Gross loans for the sampled O-SIFIs amounted to €37.5B in 2007 and increased to €39B in 2015.

Base indices show that the average Gross loans for the sampled EU-SIFIs were 13.4% higher in 2015 than in 2007. Comparably, the average Gross loans for the sampled O-SIFIs were 4% higher in 2015 than in 2007.

Space indices reveal that average Gross loans of the sampled EU-SIFIs were 8 times bigger compared to the O-SIFIs in 2007. In 2015 they were almost 9 times bigger. The most substantial yearly increase in average Gross loans regarding the sampled EU-SIFIs and O-SIFIs alike occurred in 2008, i.e. at the onset of the financial crisis, when they reported 6.6% and 12.8% increase respectively in average Gross loans from the previous year.

Table 5. Average Gross Loans (€mil) for the observed samples, 2007-2015*

Year	**Average Gross Loans (€mil)**		**Chain index**		**Base index 2007=100**		**Space index (comparison of two sets of samples of FIs)**	**Growth rate (%)**	
	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI/O-SIFI	EU-SIFI	O-SIFI
2007	303,100.73	37,581.52	/	/	100.0	100.0	806.5	/	/
2008	323,038.57	42,404.50	106.6	112.8	106.6	112.8	761.8	6.6	12.8
2009	335,968.22	41,477.97	104.0	97.8	110.8	110.4	810.0	4.0	-2.2
2010	342,888.85	41,674.05	102.1	100.5	113.1	110.9	822.8	2.1	0.5
2011	339,351.70	40,744.61	99.0	97.8	112.0	108.4	832.9	-1.0	-2.2
2012	333,566.29	41,097.09	98.3	100.9	110.1	109.4	811.7	-1.7	0.9
2013	320,208.57	39,750.96	96.0	96.7	105.6	105.8	805.5	-4.0	-3.3
2014	327,766.59	39,069.46	102.4	98.3	108.1	104.0	838.9	2.4	-1.7
2015	343,640.55	39,120.03	104.8	100.1	113.4	104.1	878.4	4.8	0.1

Note. * EU-SIFIs N=36 and O-SIFIs n=43.

Source: Fitch Solutions, (n.d.), *Fitch Connect database,* 2014*; Author's own calculations.*

At both observed samples the size of average Gross loans declined, indicating the adverse macroeconomic situation. The EU-SIFIs recovered in 2014 and 2015, whereas it remains inconclusive if the O-SIFIs have overcome adversity as well.

The average of Government securities of the EU-SIFIS for the entire period 2007-2015 amounted to €61B. The minimum value of Government securities (reported by one of the FIs in the EU-SIFI sample) amounted to €0.334B, with the maximum value of €394B, and standard deviation of €64B. Average of Government securities of the O-SIFIS for the entire period 2007-2015 amounted to €5B. The minimum value of Government securities (of one of the FIs in the O-SIFI sample) amounted to €0.001B, with the maximum value of €31B, and standard deviation of €6B.

Table 6 lists that average Government securities for the sampled EU-SIFIs amounted to €45.5B in 2007 and increased to €71.1B in 2015. Average Government securities for the sampled O-SIFIs amounted to €3B in 2007 and increased to €6B in 2015.

Base indices show that average Government securities for the sampled EU-SIFIs were 56% higher in 2015 than in 2007. In contrast, the average Government securities for the sampled O-SIFIs were more than 120% higher in 2015 than in 2007. Average Government securities of the sampled EU-SIFIs increased by 5.73% on average per annum from 2007-2015. At the O-SIFIs they increased by 10.37% on average per annum.

Table 6. Average Government securities for the observed samples, 2007-2015*

Year	**Average Government securities (€mil)**		**Chain index**		**Base index 2007=100**		**Space index (comparison of two sets of samples of FIs)**	**Growth rate (%)**	
	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI/O-SIFI	EU-SIFI	O-SIFI
2007	45,528.69	3,059.68	/	/	100.0	100.0	1,488.0	/	/
2008	44,038.50	3,090.00	96.7	101.0	96.7	101.0	1,425.2	-3.3	1.0
2009	54,838.51	4,726.38	124.5	153.0	120.4	154.5	1,160.3	24.5	53.0
2010	66,002.36	5,004.06	120.4	105.9	145.0	163.5	1,319.0	20.4	5.9
2011	62,907.62	5,184.05	95.3	103.6	138.2	169.4	1,213.5	-4.7	3.6
2012	64,508.78	6,205.94	102.5	119.7	141.7	202.8	1,039.5	2.5	19.7
2013	64,432.19	6,850.27	99.9	110.4	141.5	223.9	940.6	-0.1	10.4
2014	69,439.09	6,864.25	107.8	100.2	152.5	224.3	1,011.6	7.8	0.2
2015	71,120.73	6,735.71	102.4	98.1	156.2	220.1	1,055.9	2.4	-1.9

Note. * EU-SIFIs N=36 and O-SIFIs n=43.

Source*:* Fitch Solutions, (n.d.), *Fitch Connect database,* 2014*; Author's own calculations.*

Space indices reveal that average Government securities of the sampled EU-SIFIs were more than 14 times bigger compared to the O-SIFIs in 2007. In 2015 average Government

securities of the EU-SIFIs were more than tenfold that of the O-SIFIs. The most substantial yearly increase in average Government securities levels regarding the sampled EU-SIFIs occurred in 2009-10, amidst introduction of stricter regulatory reforms, when they reported 24.5% and 20.4% increase respectively in average Government securities from the previous year. Much like the EU-SIFIs, the O-SIFIs reported yearly gains in average Government securities most notably in 2009, when they grew by 53% in comparison to the previous year.

The variable Government securities show that, in terms of diversification and riskiness of the investments, both the EU- and the O-SIFIs acted in a similar fashion – albeit, the O-SIFIs more radically.

4.1.3.3 Income-based variables

The average of Net interest margin of the EU-SIFIS for the entire period 2007-2015 amounted to 1.3%. The minimum value of Net interest margin (reported by one of the FIs in the EU-SIFI sample) amounted to 0.3%, with the maximum value of 2.9%, and standard deviation of 0.6%. The average of Net interest margin of the O-SIFIS for the entire period 2007-2015 amounted to 1.9%. The minimum value of Net interest margin (of one of the FIs in the O-SIFI sample) amounted to 0.2%, with the maximum value of 7.2%, and standard deviation of 1.1%.

Table 7 lists that the average Net interest margin for the sampled EU-SIFIs amounted to 1.22% in 2007 and increased to 1.34% in 2015. The average Net interest margin for the sampled O-SIFIs amounted to 2.09% in 2007 and decreased to 1.94% in 2015.

Base indices show that the average Net interest margin for the sampled EU-SIFIs was 9.8% higher in 2015 than in 2007. The average Net interest margin for the sampled O-SIFIs was 7.3% lower in 2015 than in 2007. The average Net interest margin of the sampled EU-SIFIs increased by 1.17% on average per annum from 2007-2015. At the O-SIFIs it decreased by 0.94% on average per annum.

Space indices reveal that the average Net interest margin of the sampled EU-SIFIs represented just 58% of the average Net interest margin at the O-SIFIs in 2007. In 2015 the values increased by 10 p.p. – average Net interest margin of the EU-SIFIs represented 60% of that of the O-SIFIs. It is believed that better performance of the smaller FIs in relation to Net interest margins derives from their specialization as noted by Klein (2017).

The most substantial yearly increase in the average Net interest margin levels regarding the sampled EU-SIFIs occurred in 2008 when they reported an 8.4% increase in the average Net interest margin from the previous year. This coincides with the first stage of the last financial crisis. The movement of the Average Net interest margin at the O-SIFIs was much more volatile. The largest decrease of 12.6% of average Net interest margin occurred at the beginning of the observed period (2009) and the largest increase of 9.8% at the end (2014),

which is rather counterintuitive – an FI would need more resources, i.e. additional cash flow, at the beginning of the crisis, not towards the end. Again, this could be contributed to the belated impact of the financial crisis at the O-SIFIs and the fact that the last economic crisis took a W-shape in the EU with the second depression being much worse for some O-SIFIs.

Net interest margin relies heavily on the market interest rate that in turn depends on the benchmark interest rates determined by the central banks (FED, ECB, etc.). These have reached the historic lows during the financial crisis. Although the net interest rates tend to lag behind the market movements, they too adapt in time to market expectations (Wheelock, 2016). On the other hand, *"loans made in the past at relatively high-interest rates have been replaced by new loans with lower interest rates as well as by low-yielding reserves and securities"*, as Wheelock (2016) noted. That means that structural shift concerning the make-up of the assets has occurred, which in turn means the FIs have invested more in low-risk low-yield assets, once again reaffirming the intent to be more risk-averse and to meet higher capital requirements.

Table 7. Average Net interest margin for each sample, 2007-2015*

Year	**Average NIM (%)**		**Chain index**		**Base index 2007=100**		**Space index (comparison of two sets of samples of FIs)**	**Growth rate (%)**	
	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI/O-SIFI	EU-SIFI	O-SIFI
2007	1.22	2.09	/	/	100.0	100.0	58.1	/	/
2008	1.32	2.23	108.4	106.6	108.4	106.6	59.1	8.4	6.6
2009	1.37	1.95	104.0	87.4	112.7	93.1	70.4	4.0	-12.6
2010	1.36	1.82	98.9	93.6	111.5	87.2	74.4	-1.1	-6.4
2011	1.36	1.86	100.4	101.9	112.0	88.8	73.3	0.4	1.9
2012	1.30	1.75	95.7	94.0	107.2	83.5	74.6	-4.3	-6.0
2013	1.29	1.80	99.2	102.9	106.3	85.9	71.9	-0.8	2.9
2014	1.36	1.97	105.4	109.8	112.0	94.3	69.0	5.4	9.8
2015	1.34	1.94	98.0	98.4	109.8	92.7	68.8	-2.0	-1.6

Note. * EU-SIFIs N=36 and O-SIFIs n=43.

Source: Fitch Solutions, (n.d.), *Fitch Connect database,* 2014*; Author's own calculations.*

Average of Net fees & Commissions/Average earning assets ratio of the EU-SIFIS for the entire period 2007-2015 amounted to 0.5%. The minimum value of Net fees & Commissions/Average earning assets ratio (reported by one of the FIs in the EU-SIFI sample) amounted to 0.1%, with the maximum value of 1.6%, and standard deviation of 0.3%. Average of Net fees & Commissions/Average earning assets ratio of the O-SIFIs for the entire period 2007-2015 amounted to 0.6%. The minimum value of Net fees & Commissions/Average earning assets ratio (of one of the FIs in the O-SIFI sample) amounted to -0.6%, with the maximum value of 2.2%, and standard deviation of 0.5%.

Table 8 lists that average Net fees & Commissions/Average earning assets ratio for the sampled EU-SIFIs amounted to 0.65% in 2007 and dropped to 0.54 in 2015. Average Net fees & Commissions/Average earning assets ratio for the sampled O-SIFIs amounted to 0.69 in 2007 and slightly decreased to 0.62 in 2015.

Base indices show that average Net fees & Commissions/Average earning assets ratio for sampled EU-SIFIs was 16% lower in 2015 than in 2007. In contrast, the average Net fees & Commissions/Average earning assets ratio for the sampled O-SIFIs was 10% lower in 2015 than in 2007. Average Net fees & Commissions/Average earning assets ratio of the sampled EU-SIFIs decreased by 2.18% on average per annum from 2007-2015. With the O-SIFIs, it decreased by 1.35% on average per annum.

Space indices reveal that average Net fees & Commissions/Average earning assets ratio of the sampled EU-SIFIs was almost 6% lower compared to the O-SIFIs in 2007. In 2015, it was already 12% lower. The most substantial yearly decrease in average Net fees & Commissions/Average earning assets ratio levels at both EU-SIFIs and O-SIFIS occurred in 2008, i.e. at the onset of the financial crisis when they reported a 13.2% and 12.6% decrease respectively in average Net fees & Commissions/Average earning assets ratio from the previous year.

Table 8. Average Net fees & Commissions/Average earning assets for each sample, 2007-2015*

Year	**Average Net fees & Commissions /Average earning assets (%)**		**Chain index**		**Base index 2007=100**		**Space index (comparison of two sets of samples of FIs)**	**Growth rate (%)**	
	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI/O-SIFI	EU-SIFI	O-SIFI
2007	0.65	0.69	/	/	100.0	100.0	93.8	/	/
2008	0.56	0.60	86.8	87.4	86.8	87.4	93.3	-13.2	-12.6
2009	0.54	0.56	94.9	92.7	82.4	81.1	95.4	-5.1	-7.3
2010	0.55	0.58	103.0	103.7	84.9	84.0	94.8	3.0	3.7
2011	0.53	0.57	96.0	97.2	81.5	81.7	93.6	-4.0	-2.8
2012	0.50	0.55	94.5	97.2	77.0	79.4	91.0	-5.5	-2.8
2013	0.52	0.59	103.7	107.9	79.8	85.7	87.4	3.7	7.9
2014	0.54	0.59	104.6	100.0	83.5	85.7	91.5	4.6	0.0
2015	0.54	0.62	100.4	104.7	83.8	89.7	87.7	0.4	4.7

Note. * EU-SIFIs N=36 and O-SIFIs n=43.

Source: Fitch Solutions, (n.d.), *Fitch Connect database,* 2014*; Author's own calculations.*

Size of Net fees & Commissions/Average earning assets ratio is influenced by at least two factors: the quality and the quantity of the (revenue earning) assets. With the reference to the base index of the EU-SIFIs in 2008, it becomes clear that after the initial contraction, the

Net fees & Commissions/Average earning assets ratio remained constant in the subsequent years at around 80-84% in comparison to the base year 2007. Meanwhile, the Net fees & Commissions/Average earning assets ratio at the O-SIFIs grew and increased in size after 2012, albeit never reaching the volume of 2007. The Average Net fees & Commissions/Average earning assets ratio decreased at both sets of the SIFIs. This has two possible reasons: the volume of the banking transactions where fees and commissions apply decreased or prices for the said transactions dropped. Anyhow, it seems that the Average Net fees & Commissions/Average earning assets did not play a significant role in safeguarding regulatory levels of regulatory capital ratio, at least not based on the here presented data from the descriptive statistics.

4.1.3.4 Equity-based variables

Average of Reserves for Imp. Loans/Gross Loans of EU-SIFIS for the entire period 2007-2015 amounted to 2.4%. The minimum value of Reserves for Imp. Loans/Gross Loans (reported by one of the FIs in the EU-SIFI sample) amounted to 0.1%, with the maximum value of 9.6%, and standard deviation of 1.8%. Average of Reserves for Imp. Loans/Gross Loans of O-SIFIS for the entire period 2007-2015 amounted to 5.7%. The minimum value of Reserves for Imp. Loans/Gross Loans (of one of the FIs in the O-SIFI sample) amounted to 0.0%, with the maximum value of 29.6%, and standard deviation of 5.9%.

Table 9 lists that the average Reserves for Imp. Loans/Gross Loans for sampled EU-SIFIs amounted to 1.36% in 2007 and increased to 2.47% in 2015. The average Reserves for Imp. Loans/Gross Loans for sampled O-SIFIs amounted to 2.11% in 2007 and increased to 9.26% in 2015.

Base indices show that the average Reserves for Imp. Loans/Gross Loans for the sampled EU-SIFIs was 81.6% higher in 2015 than in 2007. The average Reserves for Imp. Loans/Gross Loans for the sampled O-SIFIs experienced more than a threefold increase in the observed time period. The average Reserves for Imp. Loans/Gross Loans of the sampled EU-SIFIs increased by 7.74% on average per annum from 2007-2015. At O-SIFIs it increased by 20.33% on average per annum.

Space indices reveal that the average Reserves for Imp. Loans/Gross Loans of the sampled EU-SIFIs represented just 64.6% of the average Reserves for Imp. Loans/Gross Loans at the O-SIFIs in 2007. In 2015 the values decreased by almost 40 p.p. in comparison – average Reserves for Imp. Loans/Gross Loans of the EU-SIFIs represented only 26.7% of that of the O-SIFIs. It is believed that the higher reserves for impaired loans indicate poor quality of the underlying assets.

The most substantial yearly increase in the average Reserves for Imp. Loans/Gross Loans levels regarding the sampled EU-SIFIs occurred in 2008 and 2009 when they reported a 12.9% and 42.2% increase in the average Reserves for Imp. Loans/Gross Loans from the

previous year respectively. This coincides with the first stage of the last financial crisis. The ratio started to decline at the end of the observed time period, indicating improvement in an economic climate as well as better quality of assets at the FI's level. The movement of the Average Reserves for Imp. Loans/Gross Loans at the O-SIFIs was much more one-directional. The average Reserves for Imp. Loans/Gross Loans increased in each observed year, indicating poor quality of underlying assets at the O-SIFIs. In comparison to the EU-SIFIs, this becomes even more evident.

Table 9. Average Reserves for Imp. Loans/Gross Loans (%) for each sample, 2007-2015*

Year	**Average Reserves for Imp. Loans/Gross Loans (%)**		**Chain index**		**Base index 2007=100**		**Space index (comparison of two sets of samples of FIs)**	**Growth rate (%)**	
	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI/O-SIFI	EU-SIFI	O-SIFI
2007	1.36	2.11	/	/	100.0	100.0	64.6	/	/
2008	1.54	2.39	112.9	113.5	112.9	113.5	64.3	12.9	13.5
2009	2.19	3.21	142.2	134.2	160.6	152.4	68.1	42.2	34.2
2010	2.38	4.06	109.0	126.5	175.0	192.7	58.7	9.0	26.5
2011	2.50	5.39	104.9	132.9	183.6	256.0	46.4	4.9	32.9
2012	2.73	6.83	109.1	126.5	200.3	323.9	40.0	9.1	26.5
2013	3.02	8.11	110.6	118.9	221.6	385.0	37.2	10.6	18.9
2014	2.81	8.58	93.0	105.8	206.0	407.3	32.7	-7.0	5.8
2015	2.47	9.26	88.1	107.9	181.6	439.5	26.7	-11.9	7.9

Note. * EU-SIFIs N=36 and O-SIFIs n=43.

Source: Fitch Solutions, (n.d.), *Fitch Connect database,* 2014*; Author's own calculations.*

Average of Retained earnings of the EU-SIFIS for the entire period 2007-2015 amounted to €17.3B. The minimum value of Retained earnings (reported by one of the FIs in the EU-SIFI sample) amounted to -€11.8B, with the maximum value of €132.2B, and standard deviation of €18.6B. Average of Retained earnings of O-SIFIS for the entire period 2007-2015 amounted to €0.866B. The minimum value of Retained earnings (of one of the FIs in the O-SIFI sample) amounted to €11B, with the maximum value of €7.7B, and standard deviation of €2.4B.

Table 10 lists that average Retained earnings for the sampled EU-SIFIs amounted to €15,9B in 2007 and rose to €20,1B in 2015. Average Retained earnings for sampled O-SIFIs amounted to €1.4B in 2007 and decreased to €0.461B in 2015.

Base indices show that average Retained earnings for the sampled EU-SIFIs were 26% higher in 2015 than in 2007. In contrast, the average Retained earnings for the sampled O-SIFIs were 67% lower in 2015 than in 2007. Average Retained earnings of sampled EU-

SIFIs increased by 2.97% on average per annum from 2007-2015. With the O-SIFIs they decreased by 13.02% on average per annum.

Space indices reveal that average Retained earnings of the sampled EU-SIFIs were 11 times higher compared to the O-SIFIs in 2007. In 2015, they were 43 times higher. The most substantial yearly increase in average Retained earnings levels regarding the sampled EU-SIFIs occurred in 2010 and 2015 when they reported an 18.8% and 9% increase in average Retained earnings from the previous year respectively.

Both the EU-SIFIs and the O-SIFIs were trying to boost their Retained earnings in order to strengthen their capital levels. But whereas the EU-SIFIs were bulking up their Retained earnings levels almost unimpeded on a yearly basis, the O-SIFIs performed much worse. They used their Retained earnings to cover for provisions needed to be made in the light of a high number of impaired loans and asset value adjustments. In period 2011-2013 the O-SIFIs annihilated their accumulated average Retained earnings. Many O-SIFIs needed to be recapitalized in 2012 and 2013, i.e. bailed-out by the government or international institutions, thus explaining the increasingly lower levels of average Retained earnings of the O-SIFI sample.

Table 10. Average retained earnings for each sample, 2007-2015*

Year	**Average Retained earnings**		**Chain index**		**Base index 2007=100**		**Space index (comparison of two sets of samples of FIs)**	**Growth rate (%)**	
	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI/O-SIFI	EU-SIFI	O-SIFI
2007	15,911.59	1,408.38	/	/	100.0	100.0	1,129.8	/	/
2008	15,243.24	1,413.44	95.8	100.4	95.8	100.4	1,078.4	-4.2	0.4
2009	15,010.90	1,441.57	98.5	102.0	94.3	102.4	1,041.3	-1.5	2.0
2010	17,829.78	1,038.90	118.8	72.1	112.1	73.8	1,716.2	18.8	-27.9
2011	18,582.81	612.59	104.2	59.0	116.8	43.5	3,033.5	4.2	-41.0
2012	17,687.49	617.72	95.2	100.8	111.2	43.9	2,863.3	-4.8	0.8
2013	17,777.03	507.07	100.5	82.1	111.7	36.0	3,505.9	0.5	-17.9
2014	18,454.00	495.73	103.8	97.8	116.0	35.2	3,722.6	3.8	-2.2
2015	20,108.34	461.33	109.0	93.1	126.4	32.8	4,358.7	9.0	-6.9

Note. * EU-SIFIs N=36 and O-SIFIs n=43.

Source: Fitch Solutions, (n.d.), *Fitch Connect database,* 2014*; Author's own calculations.*

4.1.3.5 Macroeconomic conditions: Real per capita GDP growth

The Eurostat uses the GDP at current prices from which the GDP per capita is derived. "Per capita" was used in order to level out the playing field. Whereas the data for the EU-SIFIs are directly taken from the Eurostat (since the EU-SIFIs are transnational entities the EU28

data were taken and used as a substitute for the entire said sample), only the aggregated GDP per capita of the member states in which the O-SIFIs are present was utilized.

Average of Real per capita GDP of the EU-SIFIS for the entire period 2007-2015 amounted to €26.5K. The minimum value of Real per capita GDP (reported by one of the FIs in the EU-SIFI sample) amounted to €24.5K, with the maximum value of €29K, and standard deviation of €1.2K. Average of Real per capita GDP of O-SIFIS for the entire period 2007-2015 amounted to €27.9K. The minimum value of Real per capita GDP (of one of the FIs in the O-SIFI sample) amounted to €8.5K, with the maximum value of €91.5K, and standard deviation of €15.6K.

Table 11 lists that Average Real per capita GDP for the sampled EU-SIFIs amounted to €26.1K in 2007 and rose to €29K in 2015. Average Real per capita GDP for the sampled O-SIFIs amounted to €27.2K in 2007 and increased to €29.9K in 2015.

Base indices show that average Real per capita GDP for the sampled EU-SIFIs was 11.1% higher in 2015 than in 2007. Similarly, the Real per capita GDP for the sampled O-SIFIs were 10.1% higher in 2015 than in 2007. Average Real per capita GDP of the sampled EU-SIFIs increased by 1.33% on average per annum from 2007-2015. At the O-SIFIs it increased by 1.21% on average per annum.

Table 11. Real per capita GDP (€), 2007-2015*

Year	**Average Real per capita GDP**		**Chain index**		**Base index 2007=100**		**Space index (comparison of two sets of samples of FIs)**	**Growth rate (%)**	
	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI	O-SIFI	EU-SIFI/O-SIFI	EU-SIFI	O-SIFI
2007	26,100.00	27,225.58	/	/	100.0	100.0	95.9	/	/
2008	26,100.00	27,941.86	100.0	102.6	100.0	102.6	93.4	0.0	2.6
2009	24,500.00	26,634.88	93.9	95.3	93.9	97.8	92.0	-6.1	-4.7
2010	25,500.00	27,162.79	104.1	102.0	97.7	99.8	93.9	4.1	2.0
2011	26,200.00	27,774.42	102.7	102.3	100.4	102.0	94.3	2.7	2.3
2012	26,600.00	27,746.51	101.5	99.9	101.9	101.9	95.9	1.5	-0.1
2013	26,800.00	27,930.23	100.8	100.7	102.7	102.6	96.0	0.8	0.7
2014	27,600.00	28,634.88	103.0	102.5	105.7	105.2	96.4	3.0	2.5
2015	29,000.00	29,965.12	105.1	104.6	111.1	110.1	96.8	5.1	4.6

Note. * EU-SIFIs N=36 and O-SIFIs n=43.

Source*:* Eurostat (n.d.). *Eurostat - Real GDP per capita,* 2017*; Author's own calculations.*

Space indices reveal that Real per capita GDP of the sampled EU-SIFIs represented 95.9% of that of the O-SIFIs in 2007. In 2015 this number was 96.8%. The largest absolute drop in

both of the observed samples occurred in 2009 when the Real per capita GDP fell by 6.1% at the EU-SIFIs and 4.7% at the O-SIFIs.

4.1.3.6 Results of Europe wide stress test in 2014

Albeit not included in the hypothesis testing, the results of 2014 Europe wide stress tests are of additional assistance when interpreting the results and especially differences at both observed sets of the SIFIs.

The stress test was conducted at 123 European FIs and was based on the data from 2013. Their resilience was tested under the assumption of different adverse scenarios. The level of CET1 capital was judged and the hurdle of 5.5% for an adverse scenario was set. In other words, if the capital ratio was not set sufficiently high, the FIs that failed the test were obligated to increase their capital at the cutoff date. Without going into details of the technicalities behind the stress testing, one aspect will be addressed in detail and that are the results in relation to the EU- & O-SIFI divide. In other words, which group performed better?

All the data presented here are taken from or based on the data presented in the document published by the EBA (2014).

As listed in Appendix K. the CET1 levels at the O-SIFIs in 2014 were on average 1 percentage point higher than at the EU-SIFIs. Under the adverse scenario, both groups would be faced with lower CET1 levels. Nonetheless, the O-SIFIs performed worse – under the adverse scenario the CET1 levels at the O-SIFIs are now on average 1 percentage point lower than at the EU-SIFIs. What is more, 24 O-SIFIs or 26% of all the O-SIFIs in the sample (20% of all the FIs in the sample) failed to meet the required minimum hurdle of 5.5%. In contrast, all of the EU-SIFIs met the norm. When it comes to bail-out funds, the EU-SIFIs fared better, with seven of them (24% of all the EU-SIFIs in this sample) needing the outside assistance prior to 2013 and none after 2013. In contrast, 24 O-SIFIs needed the outside assistance prior to 2013 and 6 after 2013, i.e. 32% of the O-SIFIs in the sample.

4.2 Methodology and the Empirical model

For the purpose of hypothesis testing performed in this master's thesis, the SPSS and STATA analytic tools will be used. MS Excel will be used to collect and rearrange the data.

When studying the literature, especially the studies of the authors, such as Furfine (2001), Ediz et alii (1998), Haubrich & Wachtel (1993), Laderman (1994), etc., that followed the Basel I implementation and comparing the said studies to the recent studies conducted in the aftermath of the 2007/08 financial meltdown by the authors, such as Cohen (2013), Noss and Toffano (2016), Roger and Vlček (2011), Šútorová & Teplý (2013), Toader (2015), etc., all presented in detail in Chapter 3, it becomes clear that conducting research studies amidst an economic downturn poses quite a substantial challenge. To keep an applied model that

tests different hypotheses, relevant concessions, i.e. presumptions, have to be made that in turn make the model unrealistic. What is more, the economic turmoil in Europe escalated into political discord and crises that further weakened the already plagued EMU. This and other factors endogenous to the EU bloc make research even more difficult.

Rather than devising complex and unrealistic models, hypotheses in this master's thesis will be tested using rather rudimentary econometric methods. The subjects of this study are the EU-SIFIs and their adeptness to ever higher capital ratio through time. But rather than observing the development in the EU-SIFIs on a stand-alone basis, these will be tested to the backdrop of the O-SIFIs, thus giving the study an additional dimension and making the sample of the O-SIFIs a control group of sorts. This will be achieved partly by applying statistical assumptions testing – Multivariate analysis of variance (MANOVA).

For optimal treatment of the observed variables, linear regression for longitudinal and panel data was selected (STATA command: xtreg). To make the standard error of the model robust to the heteroskedastic and autocorrelated disturbances, the "clustered robust" treatment of the standard error was chosen. Because of that, a modified robust Hausman[41] test had to be performed in order to determine if regression with the presumption of fixed effects or random effects would be used. Relaying on the results of the test, the fixed effects model was selected at P=0.000.

Different occurrences and changes in time that potentially influence the levels of capital ratios will be tested. The independent variable capital ratio will be explained by testing correlations to these dependent variables in time: Total assets, RWA/Total assets, Gross loans, Government securities, NIM (Net-interest-margin), Net fees and commissions income/Average Earning Assets, Reserves for Imp. Loans/Gross Loans, Retained Earnings and Real GDP per capita. Time component (year) will be included as seen in Equation 2 where *i* represents each FI in the panel and *t* the time variable (year); ε is an error term and α is the unknown intercept for each entity (*n* entity-specific intercepts). This is the equation for the fixed effects model:

$$\begin{aligned} CR_{it} = \beta_0 + \beta_1 TotalAssets_{it} + \beta_2 \left(\frac{RWA}{TotalAssets}\right) + \beta_3 GrossLoans_{it} + \beta_4 GovernmentSecurities_{it} \\ + \beta_5 NIM_{it} + \beta_6 NetFees\&Commissions/Average\ earning\ assets_{it} \\ + \beta_7 Reserves\ for\ Imp.Loans\ /\ Gross\ Loans_{it} + \beta_8 RetainedEarnings_{it} \\ + \beta_9 GDPperCapita_{it} + \alpha_{it} + \varepsilon_{it} \end{aligned} \tag{4}$$

In addition to the discussed fixed effects model, three additional ones will be used. Each model (with the exception of one) will utilize different linear regression method devised for

[41] Ordinarily Hausman test cannot be performed where clusters are assumed. That is why a robust Hausman test was devised to tackle this problem (STATA command: xtoverid).

longitudinal panel data. Simultaneous application of different approaches is especially beneficial when trying to ensure robustness of the results. These are the selected models:

1. The main Fixed effects regression model with robust cluster option (STATA command: xtreg, fe): by employing the aforementioned option standard errors become thus robust to heteroscedastic and autocorrelated disturbances;
2. Generalized least square (GLS) model & random effects (STATA command: xtreg, re) with robust cluster option, and with standard errors being thus robust to heteroscedastic and autocorrelated disturbances;
3. Fixed effects regression with AR(1)[42] disturbances (STATA command: xtregar, fe): hereby, standard errors are robust to the disturbances autocorrelated with AR(1);
4. Generalized least square (GLS) model & random effects (STATA command: xtreg, re), introducing (time-invariant) dummy variable StausEU with robust cluster option – with standard errors being thus robust to heteroscedastic and autocorrelated disturbances.

By utilizing the STATA's robust cluster option with STATA command *vce*[43] *(cluster varlist)* the problem "of the correlation of disturbances within groups and not identically distributed disturbances" (Baum, 2006, p. 138) is addressed. *Cluster* option also deals with the problem of error structure which is a consequence of the assumed independently distributed errors in *Robust* option. Baum (2006, p. 138) noted that "like the Robust option (which it encompasses), application of the Cluster() option does not affect the point estimates but only modifies the estimated VCE of the estimated parameters."

In my case, every FI is set to represent an individual panel member (based on variable *Country*[44] clusters will be formed). For the time component, the variable *Year* was chosen with delta 1. This type of testing is especially suited for the (short) longitudinal (time series 2007-2015) and panel data (FIs) used by the author in the thesis.

Longitudinal data are especially prone to exhibit serial correlation or autocorrelation. To compute for autocorrelation, Durbin-Watson and Baltagi-Wu LBI test (as a part of Fixed effects regression with AR(1) disturbances model) was performed in order to test, if the autocorrelation between the observed occurrences in time manifests itself (null-hypothesis states that the there is no autocorrelation). Given the low number (<2) the modified Bhargava

[42] The first order auto regressive or AR(1) autocorrelation. "First order" suggests that ONE lag (one time unit) is used as a regressor (Baltagi & Wu, 1999).
[43] The VCE() option specifies how to estimate the variance–covariance matrix (VCE) corresponding to the parameter estimates. The standard errors reported in the table of parameter estimates are the square root of the variances (diagonal elements) of the VCE (*Stata - Manuals - xtvce*).
[44] The preferred variable to determine clusters would have been binary variable StatusEU-O. However, with only two clusters, STATA refuses to calculate statistical significance of the model, *"so as to not be misleading, not because there is something necessarily wrong with […] model."* Nonetheless, clustering based on variable Country mimics, the clustering based on StatusEU-O variable – all the EU-SIFIs are represented in one cluster – whereas the remaining O-SIFIs are included in the clusters based on their state of origin.

et al. test for serial correlation, the null hypothesis was rejected – the autocorrelation is indeed present.

In addition, the general approach to testing for autocorrelation was utilized. This test was designed by Baum and Schaffer (2013). All the tests of variables were statistically significant with $P<0.05$. Even more so, the general approach with its ability to test for autocorrelation at each lag order and ranges of lags showed that the autocorrelation is evident up to the 4th lag order or the 3rd range of lags for each variable. Autocorrelation is thus indeed present and can affect the results if not treated.

4.3 The hypotheses' testing

Before even proceeding to test, two problems had to be addressed – the normal distribution of variables and the missing values. To address the problem of normal distribution (especially problematic in my dataset with the two very distinct samples of the FIs and with negative values), one has to look past simple logarithm transformation. I wanted to preserve the negative values and the log transformation, even with its commonly proposed solutions, as the problem of negative values just did not meet my needs. Thus, I decided to apply a relatively new approach called the *Two-Step Approach*[45] devised by Templeton (2011). Apart from the numeric variables expressed with relative numbers, i.e. ratios, all other numeric variables are expressed in absolute values (total assets, retained earnings…) with large skewness and kurtosis levels (as per an analysis of frequencies in SPSS). The skewness problem for these variables was solved by applying the aforementioned two-step approach. Although only the variables with absolute values exhibited high levels of skewness and kurtosis, the two-step approach was applied to all of the variables in order to level out the playing field by standardizing[46] the values, thus making the subsequent results (coefficients) in the hypothesis testing more comparable, and thus more understandable. Moreover, by standardizing the variables one can later – (when regressing the variables) deduct, which of the variables, i.e. coefficients, bears a higher importance for the model.

The problem of missing values was addressed by applying trend-at-point option in SPSS to replace the missing values.

4.3.1 Multivariate analysis of variance (MANOVA)

Since the two samples (EU&O-SIFI) were pegged one against the other, the need arose to initially test if these two samples are indeed different, i.e. if the "difference" is statistically significant. Multivariate analysis of variance or MANOVA test was performed on the sample.

[45] Step one: transformation to uniformity (using percentile rank). Step two: transformation to normality.
[46] Mean: 0. Standard deviation: 1.

The Box's test of equality of covariance matrices, as well as the multivariate tests (Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root) all, rejected the null-hypothesis at significance level P<0.05. The variances of the samples are indeed different at high statistical significance.

In addition to aforementioned tests, the test of between-subject effects was performed. All variables tested with the exception of GDP per capita show statistically significant difference between the EU- and the O-SIFIs. When it comes to differences in variances of GDP per capita null-hypotheses could not be rejected at the significance level P>0.05. This was expected because the aggregated GDP per capita of the observed O-SIFI sample with the FIs from EU member states should correspond to the GDP per capita of the EU 27.

4.3.2 The results

Unless explicitly stated, the results discussed hereafter are that of the Fixed effects regression model – the central model of this thesis.

Moreover, all to be discussed variables are standardized (even if not explicitly stated) and thus non-metric. An increase of an underlying non-standardized independent variable by its own (innate) standard deviation translates into an increase of 1 standard deviation of the related standardized independent variable. This increase, in turn, translates into an increase or a decrease of the dependent variable. In fact, the change in the standardized dependent variable prompted by the change in the standardized independent variable of 1 (one standard deviation) tells by how much the standard deviation of the underlying non-standardized dependent variable increases or decreases. For example, if the standardized independent variable increases by 1 (1 standard deviation), the standardized dependent variable increases or decreases by x amount, where x amount represents the factor by which the standard deviation of a non-standardized dependent variable is multiplied and thus the change in the non-standardized underlying independent variable determined (*Universety of Notre Dame - Department of Sociology - Stats1*).

All the models are statistically significant at the significance level of P which is 0.0000. The within[47] coefficient of determination at the first model tells us that 41.9% of the variability of the dependent variable is explained by variability of independent variables (see Table 12). The overall coefficient of determination at the second model tells us that 43.5% of the variability of the dependent variable is explained by variability of the independent variables (see Table 12). The within coefficient of determination at the third model tells us that 21.7% of the variability of the dependent variable is explained by variability of the independent

[47] Fixed effects models: for within-estimator the r^2 – within will be presented and interpreted. Random effects models: overall r^2 is the only r^2 presented and interpreted since the random-effects estimator in GLS regression uses both the within and the between information (*Stata - Manuals - xtreg*).

variables (See Table 12). The overall coefficient of determination at the second model tells us that 43.6% of the variability of the dependent variable is explained by variability of the independent variables (See Table 12).

Table 12. Regression models

Variables	(1) Fixed Effects	(2) Random Effects	(3) Fixed Effects with AR(1)	(4) Random Effects w/ dummy
StatusEU/O (EU=1, O=0)				-0.0618
				(0.165)
STDTotalAssets	**-0.834*** **	**-0.761*** **	**-0.606*** **	**-0.771*** **
	(0.231)	(0.142)	(0.223)	(0.147)
STDRWAinTotalAssets	**-0.774*** **	**-0.752*** **	**-0.656*** **	**-0.749*** **
	(0.141)	(0.118)	(0.0670)	(0.120)
STDGrossLoans	**0.577*** **	0.237	**0.433** **	0.231
	(0.167)	(0.161)	(0.208)	(0.161)
STDGovernmentSecurities	**0.238*** **	**0.204*** **	**0.316*** **	**0.199*** **
	(0.0809)	(0.0591)	(0.0960)	(0.0628)
STDNetInterestMargin	0.183	0.193	0.0424	0.195
	(0.115)	(0.127)	(0.0826)	(0.128)
STDNetFeesCommissions/ AverageEarningAssets	**-0.229** **	-0.110	-0.128	-0.114
	(0.0882)	(0.0735)	(0.100)	(0.0723)
STDReservesImpLoansInGrossLoans	0.127	**0.154*** **	-0.0157	**0.157*** **
	(0.0842)	(0.0522)	(0.0677)	(0.0533)
STDRetainedEarnings	**0.104** **	**0.167*** **	**0.197*** **	**0.165*** **
	(0.0435)	(0.0462)	(0.0689)	(0.0441)
STDRealPerCapitaGDP	**0.834*** **	**0.344*** **	**0.429*** **	**0.349*** **
	(0.134)	(0.114)	(0.107)	(0.111)
Constant	0.0244***	0.0199	0.172***	0.115
	(0.00429)	(0.0486)	(0.0235)	(0.226)
Observations	711	711	632	711
R-squared	**0.419**	**0.435**	**0.217**	**0.436**
Number of Entities	79	79	79	79
Country Cluster	YES	YES		YES
Dummy EU vs. O				YES
Robust standard errors in parentheses	*** p<0.01, ** p<0.05, * p<0.1			

Four of the 9 coefficients, i.e. Total assets, RWA/Total assets, Government securities, Retained Earnings and GDP per capita, are statistically significant at the significance level of (at least) P<0.05 in all of the observed models. The most important variables throughout the models are the Assets based variables Total assets and RWA/Total assets. These are also negatively correlated to the dependent variable. If Total assets and RWA/Total assets increased by 1, the Capital ratio would decrease by 0.834 and 0.774 respectively. In the main observed model, i.e. regression with fixed effects, the coefficient GDP per capita bears much higher importance than in the other three models. If it increases by 1, the dependent variable increases by 0.834. The next comes to the coefficient Government securities. It is positively

correlated to the dependent variable – if it increases by 1, the dependent variable increases by 0.238. Similarly, by increasing coefficient Retained earnings by 1, it increases a dependent variable by 0.104.

The variable Gross loans is statistically significant at both Fixed effects models, but not at the Random effects models. When increasing the coefficient Gross loans by 1, it increases the dependent variable by 0.577, making it more important than variables Retained earnings and Government securities. Contra-intuitively, the variable is positively correlated to the dependent variable, which is in stark contrast to the variables Total assets and RWA/Total assets, which both in one way or the other consist (in part) of Gross loans.

Coefficient Net fees & Commissions/Average earning assets is negatively correlated to the dependent variable in all the models. However, they are statistically significant only in Fixed effects regression model. Increasing it by 1 decreases the dependent variable by 0.229.

The variable Reserves for Imp. Loans/Gross Loans is statistically significant, but only in Random effects models, whereas Net interest margin is not statistically significant in any model.

The time-invariant, binary variable StatusEU (EU-SIFI vs. O-SIFI), introduced in the last model, is statistically not significant. Moreover, it does not contribute much to the better quality of the model, when compared to the Random effects regression model without said dummy variable.

4.3.3 Interpretation of the results with possible implications

All the positively correlated coefficients, with the exception of Gross loans, are as expected: better overall economic situation meant that the desired Capital ratios were more effortlessly reached. Not surprisingly, an FI can raise additional capital more easily in times of prosperity. Unsurprisingly, it is also the fact that the Retained earnings are positively correlated – they represent, after all, one of the most important sources of the new capital, especially the Tier 1 capital.

The fact that the coefficient Net fees & Commissions/Average earning assets is negatively correlated to the dependable variable is significant to this thesis. The negative correlation between the coefficient Net fees & Commissions/Average earning assets and the dependable variable is counterintuitive. When observed simultaneously, the variable NIM, which is not statistically significant, although positively correlated variable, and the variable Net fees & Commissions/Average earning assets dismiss the notion that the capital ratio increase is inevitably funded by (both) higher interest margins and higher fees.

The reduction of RWA in Total assets was so drastic and violent that the FIs could not follow promptly enough by adjusting their investment policies (at least not all the FIs in the panel).

Relatively small importance of the Government securities for the models, although positively correlated to the dependent variable, seems to corroborate this notion. This resulted in the unexpected statistically significant negative correlation between the Total assets and the dependent variable. To paraphrase Zhou's assertion that an increase or a decrease in size after certain point does not really matter (at least when systemic-risk is in question): even if contemplated, the reduction in size is not really a feasible option for an average SIFI – a decrease in size would have to be quite substantial not to be considered systemically important. The observed decrease in size could thus be only contributed to the adverse macroeconomic situation and not to the active attempt of the FIs to decrease in total size in order to avoid higher capital surcharges. This seems to be corroborated by the fact that the panel of the EU and the O-SIFIs acted similarly in the observed time period.

On the other hand, the variable Gross loans negates the thesis that a size reduction and higher regulatory capital surcharges would decrease lending, i.e. Gross loans. They are, as seen in the models, positively correlated to the dependent variable. This means that the FI's ability to lend is not impeded by the need to increase capital ratio. On the contrary, the number of high-quality loans can increase with little to no adverse impact on the capital ratios. This seems to confirm the findings of Jackson et al. (1999).

These results all, at least partially, confirm three of the four hypotheses. Asset optimization and to some extent asset reduction, addressed in the first hypothesis, is a viable and effective way to "increase" Capital ratio. The third hypothesis, i.e. the Equity hypothesis, with its less ambiguous formulation than the first, was only partially confirmed. Whereas Retained earnings remain the preferred source of new Tier 1 equity the Reserves for impaired loans are more of a compulsion for the less than well-performing FIs. Only the former was thus statistically significant. The fourth hypothesis, i.e. the hypothesis pertaining to the macroeconomic environment, was confirmed, of course, in less than perfect (robust) model for this type of variable. The second hypothesis, i.e. the Income hypothesis, was the only hypothesis not confirmed by the testing. Whilst the NIM is not statistically significant, the Net fees & Commissions/Average earning assets variable is negatively correlated to the dependent variable.

When comparing the EU-SIFIs to the O-SIFIs, the GLS regression with random effects, i.e. the last model, did not confirm the expected difference between the observed sets of SIFIs. The MANOVA test, on the other hand, did confirm the initial presumption that the both observed samples are different. If observed statically, i.e. without the time component, one can claim that the size matters: the EU-SIFIs tend to have higher Capital ratios than the O-SIFIs, as seen in Chapter 4.1.3.1. The Capital ratios increased more at the EU-SIFIs in the observed period. However, it has to be noted: the pre-crisis Capital ratios were higher at the O-SIFIs.

With the introduction of time component to the regression, it seems that both observed sets of the FIs employed either Equity based approach – Retained earnings (as seen in hypotheses testing), sometimes with the assistance of the government funds (see Chapter 4.1.3.6), Asset-based approach, or both approaches simultaneously for that matter, to increase their capital ratio. Moreover, the Income variables did not play a significant role in capital ratio increase. Although one has to be careful when interpreting these data. The observed time period was heavily influenced by the economic and political instability. So, the findings may not apply to times of prosperity with higher demand for the FI's services.

The question is thus what is the thing that differentiates both groups? Irrespective of MANOVA results, both groups tend to behave in the same way or at least similarly. Are the FIs in both observed groups thus systemic? To answer this question, one has to know what systemic even means. To paraphrase Zhou, one has to reduce its idiosyncratic risk in order to become systemic – in other words, the reduction of the idiosyncratic risk is the byproduct of an increase of the systemic risk. The O-SIFIs act like they are of systemic importance – and sometimes their delusions receive validation by being bailed-out by their governments. The implied guarantees seem to apply to any EU FI regardless of size and for that matter systemic relevance. This is in stark contrast to the American FIs. The non-SIFIs tend to have higher capital ratios and are more risk-averse because implied guarantees are not taken for granted (Klein, 2017) or these do not even apply to them. The idiosyncratic risks of individual O-SIFIs, combined with implied guarantees make them even more risk-prone than the EU-SIFIs. When looking at the data presented in Chapter 4.1.3.6, the O-SIFIs performed worse than the EU-SIFIs in the Europe wide stress test. If implied guarantees are given indiscriminately, then all the FIs should face higher capital surcharges. This is precisely what happened in the EU – now even the systemically insignificant FIs face higher capital surcharges – up to 2% (*EBA - Risk analysis and data - O-SIIs*). Still, the question remains: are these adequate?

4.3.4 Shortcomings of the model

There are two major shortcomings of any model trying to make sense of in order to become systemic, European banks. First, the observed time period, the last economic and financial crisis was quite severe – on a scale and scope not seen since the great depression. Still, one could claim that results given by such models explain the correlations between the observed occurrences in times of distress. However, it is not that simple when it comes to the European FIs and this is the second major shortcoming. The EU and the EMU are still in its infancy stage, to put it mildly. The more accurate description would be that the said unions represent a socioeconomic experiment (in a way) on a scale not seen since the rise of the communism in Eastern Europe. It is thus very hard to incorporate different variables that influence the European economy and are not really measurable. To be perfectly honest, some problems of the Union were only exposed during and because of the economic crisis. Even though there were steps made to bring the EMU member states even closer, especially in the aftermath of

the economic crisis, there is still much more left to be done. To illustrate how confusing the situation is even now after the reforms were made: the NCAs of the EMU which are de jure subsidiaries of the ECB are still making decisions on the level of capital surcharges a domestic FI is potentially facing. Furthermore, the NCAs that undisputedly played a major role in contributing to the recent crisis were again left with de facto supervisory authority.

With different jurisdictions in mind, with different root causes to their problems (the global economic crisis was just a catalyst), it is very hard to treat the EU as a homogenous unit, even with much larger sample sizes – as seen in the literature review. Indicative of this is the problem of the regression model used in this thesis. Namely, it generalizes the findings to all the SIFIs, irrespective of their inherently different nature. More specifically, it fails to address heterogeneous nature of the O-SIFIs. The MANOVA, as well as some descriptive statistics, seem to hint at this. There are O-SIFIs that behave in accordance with their perceived high idiosyncratic risk. Their capital ratios are much higher than those at the EU-SIFIs' and their NIM is higher as well, as per theory. On the other hand, there are many O-SIFIs that behave as if they are of systemic importance – with relatively low capital ratios (lower than de jure EU-SIFIs'). Retained earnings at the latter group indicate to be negatively correlated to the dependent variable or not statistically significant (average Retained earnings at the O-SIFIs in Chapter 4.1.3.4 seem to corroborate this assertion). If viewed individually, at the panel level, the O-FIs indicate regional "sub-clustering" within the greater O-SIFI cluster. The most distinct divide appears to be a South-North divide. The need to separate and to treat systemically and pseudo systemically important financial institutions differently is paramount, especially with the recent country-specific economic turmoil in some EU member states in mind. Instead of harboring and enabling delusions of grandeur, the EBA and the ECB should take decisive steps in ending the practice of mislabeling the European FIs. One option would be to impose much higher regulatory capital surcharges on the O-SIFIs than those that are imposed on the EU-SIFIs.

Moreover, if there was a model constructed that yielded "usable" results these results would be applicable to the "real-world" situations. When seeing that the Retained Earnings levels increased during the crisis, can one simply claim that this leads to the dreaded credit-crunch? This causality was hard to prove in the 1990s when Basel I was being introduced, let alone in times of great socioeconomic turmoil the EU is facing. Even an interpolation of the results is hindered by the fact that the assumed leveled playing field is only assumed. For instance, what relevance would an EU-wide study of its banking sector bear for a member state like Sweden, with much higher self-imposed capital surcharges and better supervision?

Even though the emphasis of this master's thesis was put on the bank-level (microeconomic) variables and their hypotheses, one macroeconomic variable was included. Despite the fact that the variable GDP per capita shows a strong positive correlation between the dependent variable, one has to be wary of putting too much emphasis on this variable. For one, the models used here could do it an injustice – when macroeconomic variables are observed, the

causality is hard to prove. More often than not, the reversed causality must also be addressed. Moreover, the econometric models should be dynamic in nature with more emphasis put on autocorrelation problem and number of lags of the observed variables. Furthermore, to account for (pro)cyclicality of the observed macroeconomic variables, much longer time periods should be introduced. And for that matter, some other macroeconomic variables in addition to the one discussed as well. The treatment of macroeconomic variable in this thesis is thus suboptimal. Nevertheless, it is still invaluable and so rightly included for all the intents and purposes of this master's thesis. It at least indicates a (cor)relation between macroeconomic and microeconomic variables.

CONCLUSION

In the first part of my master's thesis, the factors that lead to the recent financial crisis were discussed. The belief that the FIs were the sole culprit for the great recession was rejected since many other factors contributed to the extent of the recession: from policymaking at the government level to lack of supervision and flawed regulation concerning the risk management at the FIs.

In the second part, the reforms following the public backlash after some FIs were bailed out were discussed. Even though all the aspects of banking regulation were revised, special consideration was given to capital surcharges demanded by some. The debate ensued to which extent these surcharges should be implemented, and what and at what FIs problems would arise by doing so. The proponents claimed that the higher capital surcharges lead to more resilient and risk-averse banking sector, while the opponents took the position that capital surcharges only imposed on a few FIs would lead to a disadvantageous position of the said banks. Moreover, the surcharges would inevitably lead to credit crunch since more resources would be left at the bank and used as a capital rather than given out in the form of new loans.

In this section, special emphasis was put on reforms in the EU that would apply to the SIFIs. What is more, the nature of a SIFI, i.e. what makes an FI SIFI, was discussed in detail concluding that the most important factor remains the size of the FI in question. The criticism of the Basel III reform package was also discussed.

In the third part, the studies already conducted on the matter at hand were listed and their findings discussed in the literature review. It has become apparent that the negative effects of the proposed reforms with the additional capital surcharges were hard to prove. For one thing, the FIs were quick to raise their capital levels preemptively, i.e. beforehand, when the reforms were not even agreed upon, let alone implemented. It can be assumed that the positive implications following the introduction of higher capital levels would outweigh the negative, especially in times of economic turmoil with low consumer confidence levels. Although it remains debatable if the negative effects had not been more expressed, would

have these reforms taken place in times of prosperity rather than in times of economic hardship. Older studies from the years when Basel I was just being implemented tend to speak in favor of this assumption.

After determining what to test – the correlation between nine independent variables – Total assets, RWA/Total assets, Gross loans, Government securities, NIM (Net-interest-margin), Net fees and commissions income/Average Earning Assets, Reserves for Imp. Loans/Gross Loans, Retained Earnings and Real GDP per capita, and dependent variable Capital ratio, proper model, and sample size needed to be defined. The sample consists of 79 FIs comprised in form of panel data (with time series). The 79 FIs were divided into two subgroups: the EU-SIFIs (systemically important FIs) and the O-SIFIs with FIs of lesser systemic relevance. The period tested was 2007-2015. First, the descriptive statistics pertaining to individual variables were analyzed in order to present the aggregated situation at the observed samples of the SIFIs separately.

The hypotheses were tested using the fixed effects regression for longitudinal panel data with the *clustered robust* option. To ensure robustness of the results, three additional models were included. All the models were statistically significant with the strong correlation between the dependent and the independent variables. The coefficients Total assets, RWA/Total assets, Gross loans, Government securities, Net fees and Commissions/Average earning assets, Retained earnings, and Real GDP per capita were all statistically significant; albeit not all positively correlated – Total assets, RWA/Total assets, and Net fees and Commissions/Average earning assets were negatively correlated to the dependent variable.

The Total assets is negatively correlated to the dependent variable, much like the ratio RWA/Total assets. The government securities, on the other hand, are positively correlated. The first hypothesis is thus confirmed – the adjustments made to the assets portfolio decreased the regulatory capital needed (making Capital ratio higher). On the other hand, the reduction in Total assets is more a byproduct of an extreme macroeconomic adversity than an active pursuit of an individual FI to escape higher capital surcharges by reducing its size. Interestingly, the variable Gross loans with its positive correlation to the dependent variable refuted the claim that the lending activities of an FI would diminish if higher Capital ratios were pursued. The NIM coefficient was statistically insignificant and the Net fees and Commissions/Average earning assets negatively correlated to the dependent variable, thus rejecting the hypothesis that the increase in capital ratio would inevitably be funded by an increase in prices of the banking services. The fact of the matter is that at least during this economic turmoil not all the theories regarding sources of capital funding were substantiated in praxis. The retained earnings seem to be the most important equity-based source of additional capital when trying to reach the desired Capital ratios.

Furthermore, the shortcomings of the study and the model were discussed, especially in the light of the inherently chaotic political and socioeconomic situation in the EU.

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APPENDIXES

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Appendix A: Povzetek (Summary in Slovene language)

V prvem delu svoje magistrske naloge sem se spoprijel s faktorji, ki so pripeljali oz. povzročili zadnjo finančno krizo. Zmotno prepričanje, da so bile za »veliko recesijo« krive le finančne institucije same, je bilo ovrženo, saj je recesiji botrovala cela vrsta dejavnikov: od slabega nadzora regulatorjev, slabih politik in slabega upravljanja s tveganji v finančnih institucijah.

V drugem delu sem se osredotočil na reforme, ki so sledile javnemu ogorčenju zaradi reševanja bank z davkoplačevalskim denarjem. Četudi so bili naslovljeni in do neke mere predrugačeni prav vsi aspekti bančne regulative, so bile največje pozornosti deležne dodatne regulatorne kapitalske zahteve. Te so spodbudile žolčne debate v različnih krogih, predvsem vprašanja kolikšna naj bi bila nova višina regulatornega kapitala, katere finančne institucije bi bile podvržene strožjim zahtevam ter kakšne (negativne) posledice bi odločitev za višanje kapitalskih zahtev povzročila širše v gospodarstvu. Pobudniki strožjih zahtev po kapitalu v bankah so trdili, da bodo banke zaradi teh bolj odporne in manj pripravljene tvegati. Medtem so nasprotniki predlaganih ukrepov trdili, da bo diskriminatorna aplikacija novih zahtev slabo vlivala predvsem na banke, ki jih bodo le-te zadevale, ter jih s tem potisnila v nekonkurenčen položaj na trgu. Še več, povišanje kapitalskih zahtev bi skoraj zagotovo vodilo v podaljšanje gospodarske krize oz. celo nov kreditni krč, saj bi banke več sredstev namenile izboljšanju kapitalske ustreznosti, namesto da bi jih plasirale na trg.

V tem delu sem posebno pozornost namenil reformam v EU, ki bi zadevale sistemsko pomembne finančne institucije. Poleg tega sem pod drobnogled vzel tudi samo določevanje oz. kriterije za določevanje sistemsko pomembnih finančnih institucij. Za najpomembnejši kriterij se je izkazala kar velikost same finančne institucije. V tem delu so bili naslovljeni tudi pomisleki glede reformnega paketa poznanega kot Basel III.

V pregledu literature, tj. v tretjem delu te magistrske naloge, so bile naštete študije in opisani njihovi rezultati, ki so se pred mojim delom posvečale preučevani tematiki. Hitro je postalo jasno, da so negativni učinki predlaganih reform težko dokazljivi. Vsaj delno je na to vplivalo dejstvo, da so banke dvignile svoje kapitalske količnike še predno so reforme sploh stopile v veljavo. Navezujoč se na to, lahko sklepamo, da pozitivne posledice povišanja kapitalskih zahtev odtehtajo negativne, vsaj ko govorimo o obdobju finančne in gospodarske krize, ko vlada strah na strani potrošnikov. Vendarle ni moč z gotovostjo trditi, da bi bile podobne reforme v času gospodarske rasti prav tako blagodejne. Starejše študije iz časov uvajanja Basla I nakazujejo to možnost.

V četrtem delu, v empirični analizi, je bil najprej določen vzorec; v le-tem je 79 evropskih finančnih institucij (v obliki panela), ki so naprej razdeljene na dve skupini – EU-Sistemsko pomembne finančne institucije in Ostale-Sistemsko pomembne finančne institucije. Opazovano je obdobje med letoma 2007 in 2015. Preučevalo se je korelacijo med 9 neodvisnimi spremenljivkami (Vsa sredstva, Tveganju prilagojena sredstva/Vsa sredstva,

Bruto posojila, Državne obveznice, Neto obrestna marža, Čisti prihodki iz opravnin/Povprečna dohodkovna sredstva, Rezervacije za slaba posojila/Bruto posojila, Zadržani prihodki in realni BDP per capita) in neodvisno spremenljivko kapitalski količnik.

Hipoteze so bile testirane z uporabo regresijske metode fiksnih učinkov za longitudinalne panelne podatke z opcijo robustnega grozdenja (clustered robust). Da bi zagotovil največjo robustnost modela, sem vključil še tri dodatne modele za primerjavo. Vsi modeli so bili statistično značilni z močno korelacijo med odvisno in neodvisno spremenljivko. Spremenljivke Vsa sredstva, Tveganju prilagojena sredstva/Vsa sredstva, Bruto posojila, Državne obveznice, Čisti prihodki iz opravnin/Povprečna dohodkovna sredstva, Zadržani prihodki in Realni BDP per capita so statistično značilne in z izjemo spremenljivk Vsa sredstva, Tveganju prilagojena sredstva/Vsa sredstva, Čisti prihodki iz opravnin/Povprečna dohodkovna sredstva izkazujejo pozitivno korelacijo do odvisne spremenljivke.

Spremenljivka Vsa sredstva izkazuje negativno korelacijo do odvisne spremenljivke, podobno tudi Tveganju prilagojena sredstva/Vsa sredstva. Po drugi strani je spremenljivka Državne obveznice pozitivno korelirana. Prva hipoteza je tako potrjena – prilagoditve na strani sredstev vplivajo na kapitalski količnik in s tem regulatornim zahtevam. Vendarle pa je zmanjšanje sredstev torej zmanjšanje velikosti bolj stranski produkt razmer na trgu, ki jih je povzročila kriza, kot pa posledica aktivne politike finančne institucije, da bi se izognila regulatornim zahtevam po dodatnih sredstvih uperjenim proti sistemskim finančnim institucijam. Zanimivo pa je spremenljivka Bruto posojila, navzlic trendu zmanjševanja velikosti finančnih institucij, rasla in tako izkazuje pozitivno korelacijo do odvisne spremenljivke. Upoštevajoč to lahko (vsaj delno) zavrnem tezo oz. trditev nekaterih, da višji kapitalski količnik neizbežno vodi v kreditni krč. Spremenljivka Neto obrestna marža ni bila statistično značilna, med tem ko je bila spremenljivka Čisti prihodki iz opravnin/Povprečna dohodkovna sredstva negativno korelirana. S tem ne morem potrditi teze, da bi višji kapitalski količnik neizbežno vodil v višanje cen bančnih storitev. Dejstvo je, da med kriznimi razmerami ni bilo moč potrditi čisto vseh tez in teorij, ki so zamišljene v bolj prizanesljivih časih. Med potencialnimi viri novega kapitala (lastniškega) so najbolj izraziti Zadržani prihodki. Tu velja omeniti, da je marsikatero finančno institucijo reševala domača vlada (takšne institucije so izkazovale negativne Zadržane prihodke).

V sklepnem delu empiričnega dela sem se dotaknil tudi pomenljivosti svojega magistrskega dela na splošno in samega modela.

Appendix B: List of abbreviations in alphabetical order

sl. Slovene

ABS (sl. S premoženjem zavarovani vrednostni papirji); Asset-backed securities

BCBS (sl. Baselski odbor za bančni nadzor); Basel Committee on Banking Supervision

BIS (sl. Banka za mednarodne poravnave); Bank for International Settlements

BRRD (sl. Direktiva 2014/59/EU Evropskega parlamenta in Sveta z dne 15. maja 2014 o vzpostavitvi okvira za sanacijo ter reševanje kreditnih institucij in investicijskih podjetij); Bank Recovery and Resolution Directive

CDO (sl. Z dolžniškimi instrumenti zavarovani vrednostni papirji); Collateralized debt obligation

CRD (sl. Direktiva o kapitalskih zahtevah); Capital Requirement Directive

EBA (sl. Evropski bančni organ); European Banking Authority

ECB (sl. Evropska centralna banka): European Central Bank

EMU (sl. Ekonomsko monetarna unija); Economic Monetary Union

ESM (sl. Evropski mehanizem za stabilnost); European Stability Mechanism

ESRB (sl. Evropski odbor za sistemska tveganja); European Systemic Risk Board

EU-SIFI (sl. Evropske sistemsko pomembne finančne institucije); Systemically important financial institution in the EU

FI (sl. Finančna institucija); Financial institution

FSB (sl. Odbor za finančno stabilnost); Financial Stability Board

GSE (sl. Vladno podprti subjekti); Government-sponsored entities

G-SIFIS (sl. Globalne sistemsko pomembne finančne institucije); Global systemically important financial institutions

IRB (sl. Na notranjih bonitetnih ocenah temelječ); Internal rating based

MREL (sl. Minimalne zahteve po lastnih sredstvih in primernih obveznostih); Minimum requirement for own funds and eligible liabilities

NCA (sl. Pristojni nacionalni organ); National Competent Authority

O-SIFI (sl. Ostale sistemsko pomembne finančne institucije); Other systemically important financial institution in the EU

SBRF (sl. Enotni sklad za reševanje bank); Single Bank Resolution Fund

SEC (sl. Komisija za vrednostne papirje in borzo); Securities and Exchange Commission

SIFI (sl. Sistemsko pomembne finančne institucije); Systemically important financial institutions

SPV (sl. Namenska družba); Special purpose vehicle

SRM (sl. Enotni evropski mehanizem za reševanje); Single Resolution Mechanism

SSM (sl. Enotni mehanizem nadzora); Single Supervisory Mechanism

TBTF (sl. “prevelik,da bi propadel”); Too-big-to-fail

TLAC (sl. Zmožnost pokritja izgub); Total Loss-Absorbing Capacity

Appendix C: List of the first 29 G-SIFI from 2011

Bank of America
Bank of China
Bank of New York Mellon
Banque Populaire CdE
Barclays
BNP Paribas
Citigroup
Commerzbank
Credit Suisse
Deutsche Bank
Dexia
Goldman Sachs
Group Crédit Agricole
HSBC
ING Bank
JP Morgan Chase
Lloyds Banking Group
Mitsubishi UFJ FG
Mizuho FG
Morgan Stanley
Nordea
Royal Bank of Scotland
Santander
Société Générale
State Street
Sumitomo Mitsui FG
UBS
Unicredit Group
Wells Fargo

Source: Financial Stability Board, *Policy Measures to Address Systemically Important Financial Institutions,* 2011, p. 4.

Appendix D: Buckets used in BCBS methodology with additional capital surcharges

Bucketing approach

Bucket	Score range*	Minimum additional loss absorbency (common equity as a percentage of risk-weighted assets)
5 (empty)	D -	3.5%
4	C - D	2.5%
3	B - C	2.0%
2	A - B	1.5%
1	Cut-off point - A	1.0%

* Scores equal to one of the boundaries are assigned to the higher bucket.

Source: Basel Committee on Banking Supervision*, Global Systemically Important Banks: Assessment Methodology and the Additional Loss Absorbency Requirement,* 2011, p. 15.

Appendix E: Indicator-based measurement approach with indicator weights (a novelty in 2013 revision)

Indicator-based measurement approach — Table 1

Category (and weighting)	Individual indicator	Indicator weighting
Cross-jurisdictional activity (20%)	Cross-jurisdictional claims	10%
	Cross-jurisdictional liabilities	10%
Size (20%)	Total exposures as defined for use in the Basel III leverage ratio	20%
Interconnectedness (20%)	Intra-financial system assets	6.67%
	Intra-financial system liabilities	6.67%
	Securities outstanding	6.67%
Substitutability/financial institution infrastructure (20%)	Assets under custody	6.67%
	Payments activity	6.67%
	Underwritten transactions in debt and equity markets	6.67%
Complexity (20%)	Notional amount of over-the-counter (OTC) derivatives	6.67%
	Level 3 assets	6.67%
	Trading and available-for-sale securities	6.67%

Source: Basel Committee on Banking Supervision, *Global Systemically Important Banks: Updated Assessment Methodology and the Higher Loss Absorbency Requirement,* 2013, p. 6.

Appendix F: More detailed insight into the study conducted by Cohen

Sample and methodology used. The study was carried out on a sample of 82 larger FIs of which 26 were deemed G-SIFIS by the FSB. The sample is representative as it comprises more than 55% of the assets of the FIs collected in the Bankscope database and from which the data were taken to conduct the study. The time period observed is 2009-2012. The author (Cohen, 2013, p. 30), nevertheless, noted that the emerging markets outside Asia were under-represented. The methodology used to test the assumptions is **descriptive statistics**.

Shortcomings of the study. Besides the fact that descriptive statistic was used as a sole determinant of the data tested, thus making robustness of the model questionable, the correlations between different variables were a priori assumed, i.e. author did not take any other potential influencing factors into account. Another area of contention is the sampling – European FIs showed some deviation from the general findings: the assets of the European FIs grew more due to investments in government securities, cash, etc., and less due to increased lending. They also reduced their cross-border assets (Cohen, 2013, p. 36). More detailed view into the European representatives in the sample could give clearer understanding as to what the other determinants influence the capital adjustment.

Appendix G: More detailed insight into the study conducted by Sútorová & Teplý

Sample and methodology used. The data used in the study comprises 594 banks in the EU during the 2006-2011 time period. Data used was from the Bankscope database. The authors (Sútorová & Teplý, 2013, p. 226) employed a **simultaneous equations** model where banks choose the optimal level of capital, which is seen as a call option. For their intents and purposes, DSGE modeling (dynamic stochastic general equilibrium) was employed.

Shortcomings of the study. The authors themselves (Sútorová & Teplý, 2013, p. 240) have noted that there are certain shortcomings of the model:

- Their model deals mainly with the critics' point of view and does not reflect beneficial effects of the new requirements, such as lower social costs of lower moral hazard, the higher trust of the depositors and of the investors alike, etc.
- The SIFIs and their special role should be investigated in more detail. In this model0 no distinction was made between the SIFIs and the non-SIFIs.

Furthermore, their model yielded results that are less than convincing. Authors (Sútorová & Teplý, 2013, p. 241) contributed this to the fact that "many European banks are already complying with the capital requirements even though they are not fully compulsory yet". Waiting until requirements come into full effect would be the optimal way to increase the capital ratio. However, that was not the case. So, there must be a certain incentive(s) that drove the FIs to adjust their capital levels ahead of time, incentives that offset negative effects discussed in detail in Chapter 2.3. That is why beneficial aspects of the introduction of the higher capital requirements should be thus studied in more detail.

Appendix H: More detailed insight into the study conducted by Toader

Sample and methodology used. The hypothesis testing was performed on 65 banks from 17 European countries for the period 1997-2012. The data used was found in the Bankscope database. The models used to prove or disprove initial theses are **pooled OLS**, **fixed effects**, and **random effects**. The second and the third model were used to ensure robustness of the pooled OLS model (Toader, 2015, p. 420).

Shortcomings of the study. One is time period which puts more emphasis on the pre-crisis data. Secondly, author pitted two theories against each other taking sides by pointing out only positive aspects of the proposed capital adjustment. The author (Toader, 2015, pp. 416-417) himself noted the application of the Modigliani-Miller theorem to FIs had its limitations and can only work under certain presumptions. Moreover, the drop-in lending that could follow increases in capital ratios was neglected. On the other hand, what speaks in favor of authors assumptions is the fact the FIs have increased the capital ratio preemptively even before the end of the phasing-in period of the Basel III. Then again, this does not correspond to the assumption of implied subsidies. It makes little sense to increase capital ratio on its

own accord and by doing so risking lower profit margins and at the same time "enjoying" the benefits of the implied guarantees. The fact of the matter is that the European FIs had a major incentive to increase their capital ratio and thus their perceived stability all on its own. Moreover, they lowered their "riskiness" by doing so: they increased their capital ratio due to the highly unstable political environment. This and other external factors, such as monetary policies of the Central Banks, were not taken into account by the author. The robustness of the model could be improved by pegging the chosen sample to the other samples from other jurisdictions and regions. By doing so, the author could avoid distorting external factors (political stability) associated with only one region. On the other hand, not all the distorting factors (expansionary monetary policies adopted by many) can be eliminated by applying this method in the globalized world.

Appendix I: More detailed insight into the study conducted by Noss & Toffano

Noss and Toffano used structural **vector autoregression** method. Since risk-weighted assets are only relevant since the introduction of Basel I, moreover, the rules applying to risk-weighted assets were amended in the subsequent Basel reforms. Total assets of the FIs in relation to its capital were used. Taking assets as a whole into account corresponds to the new leverage ratio proposed in Basel III. This also makes it possible to include much longer time periods into the study – even the period before the Basel I introduction, thus making the model much more robust (Noss & Toffano, 2016, p. 16). Testing was performed on the FIs operating in the UK. The data was gathered from the data collected by the Bank of England and various other UK institutions. The observed time period is 1986-2010.

Shortcomings of the study. Firstly, in the criticism of the sign restricting VAR method, Baumeister and Hamilton (2015, p. 2) noted that "an assumption about signs is not enough by itself to identify structural parameters. What the procedure actually delivers is a set of possible inferences, each of which is equally consistent with both the observed data and the underlying restrictions." This means that the structural parameters, which are identified in the process and are of importance in explaining the models' results, are subject to certain presumptions and too biased and arbitrary estimations. Secondly, as pointed out by the authors (Noss & Toffano, 2016, p. 22), the model matches the FI's behavior best in the time of upswing and "when banks' cost of debt is insensitive to improvements in banks' solvency." The directional response could be different in other circumstances, i.e. in times of economic downturn or during a financial "crash".

Appendix J: List of FIs with samples on which hypotheses pertaining to this master's thesis will be tested

Nr.	EU-SIFI	O-SIFI
1	ABN AMRO Group N.V.	Abanka d.d.

(table continues)

(continued)

2	Banco Bilbao Vizcaya Argentaria, S.A.	ABLV Bank AS
3	Banco Santander, S.A.	Allied Irish Banks, plc
4	Barclays plc	Alpha Bank AE
5	Bayerische Landesbank	Argenta Spaarbank N.V.
6	BFA, Tenedora de Acciones, S.A.U.	AS Citadele banka
7	BNP Paribas S.A.	AXA Bank Belgium
8	CaixaBank, S.A.	Banca Monte dei Paschi di Siena SpA
9	Commerzbank AG	Banco BPI S.A.
10	Cooperatieve Rabobank U.A.	Banco Comercial Portugues, S.A.
11	Credit Agricole	Banco de Sabadell
12	Credit Mutuel	Banco Popular Espanol S.A.
13	Danske Bank AS	Bank Nederlandse Gemeenten (BNG)
14	Deutsche Bank AG	Bank of Cyprus Public Company Limited
15	DNB ASA	Bank of Ireland
16	DZ BANK AG Deutsche Zentral-Genossenschaftsbank	Bank of Valletta
17	Erste Group Bank AG	Banque et Caisse d'Epargne de l'Etat
18	Groupe BPCE	Banque Internationale a Luxembourg
19	HSBC Holdings plc	BAWAG P.S.K.
20	ING Group	Belfius Bank SA/NV
21	Intesa Sanpaolo S.p.A.	Caixa Economica Montepio Geral, caixa economica bancaria, S.A. (CEMG)
22	KBC Group NV	Caixa Geral de Depositos, S.A.
23	La Banque Postale	Cooperative Central Bank Ltd.
24	Landesbank Baden-Wuerttemberg	de Volksbank N.V.
25	Lloyds Banking Group plc	Eurobank Ergasias S.A.
26	Nationwide Building Society	Hellenic Bank Public Company Limited
27	Norddeutsche Landesbank Girozentrale	HSH Nordbank AG
28	Nordea Bank AB	Landwirtschaftliche Rentenbank
29	Landesbank Hessen-Thueringen Girozentrale	Municipality Finance PLC

(table continues)

(continued)

30	Skandinaviska Enskilda Banken AB	National Bank of Greece S.A.
31	Societe Generale S.A.	Nova Kreditna Banka Maribor
32	Standard Chartered PLC	Nova Ljubljanska banka d.d.
33	Svenska Handelsbanken AB	Novo Banco S.A.
34	Swedbank AB	OP Financial Group
35	The Royal Bank of Scotland Group plc	Piraeus Bank S.A.
36	UniCredit S.p.A.	Postova Banka a.s.
37		Raiffeisen Bank International AG
38		Raiffeisenlandesbank Niederoesterreich-Wien AG
39		Raiffeisenlandesbank Oberoesterreich Aktiengesellschaft
40		RCB Bank Ltd
41		Rietumu Banka Group
42		Sberbank Europe AG
43		Siauliu Bankas

Appendix K: The results of 2014 Europe wide stress test

Status	Nr. Of FIs	Average CET1 2013 (%)	Average 2016 Adverse hurdle: 5.5% (%)	Nr. Of FI <5.5%	Share of EUO-SIFI (%)	Bailed-out prior and after 2013	Share of EUO-SIFI (%)
EU-SIFI	29	11.86	9.41	0	0	7	24
O-SIFI	94	12.85	8.56	24	26	30	32
Total	123	12.61	8.76	24	20	37	30

Source: EBA, (2014), *Results of 2014 EU-wide stress test. European Banking Authority.* Pp. 41-45*; Author's own calculations.*

Appendix L: The panel data used in the hypothesis testing

NR	Name	Country	Fitch_ID	Year	Status (EU/O)	Total Regulatory Capital (%)	TOTAL Assets (€mil)	RWA/ Total assets (%)	Gross Loans(€mil)	NIM (%)	Net fees & Commissions/Average earning assets (%)	Government securities (€mil)	Reserves for Imp. Loans / Gross Loans (%)	Retained earnings	Real per capita GDP
1	ABN AMRO Group N.V.	European Union (28 countries)	1312693	2007	EU-SIFI										26100.00
1	ABN AMRO Group N.V.	European Union (28 countries)	1312693	2008	EU-SIFI										26100.00
1	ABN AMRO Group N.V.	European Union (28 countries)	1312693	2009	EU-SIFI		386524.00		284850.00			15090.00	1.47		24500.00
1	ABN AMRO Group N.V.	European Union (28 countries)	1312693	2010	EU-SIFI	16.60	379599.00	30.64	280041.00	1.34	0.48	14233.00	1.63		25500.00
1	ABN AMRO Group N.V.	European Union (28 countries)	1312693	2011	EU-SIFI	16.80	404682.00	29.23	277528.00	1.33	0.48	12110.00	2.11		26200.00
1	ABN AMRO Group N.V.	European Union (28 countries)	1312693	2012	EU-SIFI	18.40	393758.00	30.86	267964.00	1.30	0.40	16185.00	2.17	2658.00	26600.00
1	ABN AMRO Group N.V.	European Union (28 countries)	1312693	2013	EU-SIFI	20.20	372022.00	29.30	262003.00	1.43	0.44	23931.00	1.90	3392.00	26800.00
1	ABN AMRO Group N.V.	European Union (28 countries)	1312693	2014	EU-SIFI	19.70	386867.00	28.34	266670.00	1.61	0.45	32662.00	1.78	635.00	27600.00
1	ABN AMRO Group N.V.	European Union (28 countries)	1312693	2015	EU-SIFI	21.70	407373.00	26.51	280730.00	1.56	0.47	32101.00	1.55	1140.00	29000.00
2	Banco Bilbao Vizcaya Argentaria, S.A.	European Union (28 countries)	112347	2007	EU-SIFI	10.70	502204.00	60.60	317999.00	2.35	1.14	49007.00	2.24	10204.00	26100.00
2	Banco Bilbao Vizcaya Argentaria, S.A.	European Union (28 countries)	112347	2008	EU-SIFI	12.20	539872.00	53.23	342691.00	2.58	0.96	41108.00	2.17	12699.00	26100.00
2	Banco Bilbao Vizcaya Argentaria, S.A.	European Union (28 countries)	112347	2009	EU-SIFI	13.55	535065.00	54.39	332162.00	2.89	0.89	67514.00	2.63	15072.00	24500.00
2	Banco Bilbao Vizcaya Argentaria, S.A.	European Union (28 countries)	112347	2010	EU-SIFI	13.70	552738.00	56.69	343493.00	2.74	0.90	63734.00	2.77	18966.00	25500.00
2	Banco Bilbao Vizcaya Argentaria, S.A.	European Union (28 countries)	112347	2011	EU-SIFI	10.89	597688.00	55.34	356483.00	2.63	0.88	63289.00	2.64	20944.00	26200.00
2	Banco Bilbao Vizcaya Argentaria, S.A.	European Union (28 countries)	112347	2012	EU-SIFI	10.80	637785.00	51.65	364541.00	2.81	0.79	77575.00	3.97	21348.00	26600.00
2	Banco Bilbao Vizcaya Argentaria, S.A.	European Union (28 countries)	112347	2013	EU-SIFI	14.90	582697.00	55.54	333262.00	2.61	0.79	76121.00	4.49	21851.00	26800.00
2	Banco Bilbao Vizcaya Argentaria, S.A.	European Union (28 countries)	112347	2014	EU-SIFI	15.10	631942.00	55.51	344696.00	2.74	0.77	92642.00	4.13	20936.00	27600.00
2	Banco Bilbao Vizcaya Argentaria, S.A.	European Union (28 countries)	112347	2015	EU-SIFI	15.00	749855.00	53.52	426621.00	2.65	0.74	109273.00	4.38	22588.00	29000.00
3	Banco Santander, S.A.	European Union (28 countries)	112153	2007	EU-SIFI	12.66	912915.00	56.42	574153.20	1.94	1.02	27175.90	1.51	23980.80	26100.00
3	Banco Santander, S.A.	European Union (28 countries)	112153	2008	EU-SIFI	13.30	1049631.60	48.97	634126.40	2.20	0.99	43631.60	1.97	27207.00	26100.00
3	Banco Santander, S.A.	European Union (28 countries)	112153	2009	EU-SIFI	14.20	1110529.50	50.58	686466.00	2.67	0.91	82319.40	2.60		24500.00

3	Banco Santander, S.A.	European Union (28 countries)	112153	2010	EU-SIFI	13.10	1217500.70	49.68	737684.90	2.82	0.93	99265.40	2.67		25500.00
3	Banco Santander, S.A.	European Union (28 countries)	112153	2011	EU-SIFI	13.56	1251526.00	45.22	750598.00	2.92	0.98	99756.00	2.52		26200.00
3	Banco Santander, S.A.	European Union (28 countries)	112153	2012	EU-SIFI	13.09	1269600.00	43.87	725151.00	2.76	0.93	98363.00	3.51	36898.00	26600.00
3	Banco Santander, S.A.	European Union (28 countries)	112153	2013	EU-SIFI	14.59	1115763.00	43.89	662261.00	2.52	0.93	92540.00	3.76	37793.00	26800.00
3	Banco Santander, S.A.	European Union (28 countries)	112153	2014	EU-SIFI	13.30	1266296.00	46.22	746043.00	2.91	0.94	132219.00	3.65	40973.00	27600.00
3	Banco Santander, S.A.	European Union (28 countries)	112153	2015	EU-SIFI	14.40	1340260.00	43.69	785022.00	2.87	0.86	134133.00	3.38	46429.00	29000.00
4	Barclays plc	European Union (28 countries)	107559	2007	EU-SIFI	12.10	1670499.55	28.80	475233.71	0.87	0.70	93388.44	1.08	29903.63	26100.00
4	Barclays plc	European Union (28 countries)	107559	2008	EU-SIFI	13.60	2150485.85	21.11	490581.61	0.77	0.43	86342.90	1.39	30242.22	26100.00
4	Barclays plc	European Union (28 countries)	107559	2009	EU-SIFI	16.60	1550167.38	27.75	484476.42	0.76	0.54	99021.34	2.49	38047.95	24500.00
4	Barclays plc	European Union (28 countries)	107559	2010	EU-SIFI	16.90	1745225.92	26.72	515873.48	0.92	0.65	126438.36	2.81	43072.83	25500.00
4	Barclays plc	European Union (28 countries)	107559	2011	EU-SIFI	16.40	1868351.91	25.01	526774.13	0.88	0.62	140394.63	2.02	47047.96	26200.00
4	Barclays plc	European Union (28 countries)	107559	2012	EU-SIFI	17.00	1780036.45	26.03	516315.64	0.81	0.59	149711.86	1.81	41218.66	26600.00
4	Barclays plc	European Union (28 countries)	107559	2013	EU-SIFI	15.00	1604520.20	32.93	527208.13	0.84	0.63	134479.06	1.64	39629.72	26800.00
4	Barclays plc	European Union (28 countries)	107559	2014	EU-SIFI	16.50	1745758.03	29.60	556961.08	0.95	0.64	136651.66	1.26	40769.74	27600.00
4	Barclays plc	European Union (28 countries)	107559	2015	EU-SIFI	18.60	1524497.66	32.00	550090.03	0.88	0.57	131400.76	1.22	42224.05	29000.00
5	Bayerische Landesbank	European Union (28 countries)	1033127	2007	EU-SIFI	11.50	415638.00	45.45	175567.00	0.60	0.10		1.31	6547.00	26100.00
5	Bayerische Landesbank	European Union (28 countries)	1033127	2008	EU-SIFI	12.30	421455.00	46.91	202567.00	0.66	0.15		1.44	10194.00	26100.00
5	Bayerische Landesbank	European Union (28 countries)	1033127	2009	EU-SIFI	17.00	338818.00	40.08	158962.00	0.67	0.13		1.28	6619.00	24500.00
5	Bayerische Landesbank	European Union (28 countries)	1033127	2010	EU-SIFI	15.50	316354.00	39.16	155414.00	0.59	0.10		1.42	2952.00	25500.00
5	Bayerische Landesbank	European Union (28 countries)	1033127	2011	EU-SIFI	15.20	309172.00	38.30	157589.00	0.65	0.09		1.46	2066.00	26200.00
5	Bayerische Landesbank	European Union (28 countries)	1033127	2012	EU-SIFI	17.30	286864.00	35.00	150612.00	0.65	0.09		1.52	2243.00	26600.00
5	Bayerische Landesbank	European Union (28 countries)	1033127	2013	EU-SIFI	19.40	255483.00	34.29	137972.00	0.64	0.08		1.54	2834.00	26800.00
5	Bayerische Landesbank	European Union (28 countries)	1033127	2014	EU-SIFI	15.30	232124.00	33.01	134017.00	0.69	0.10		1.87	2038.00	27600.00
5	Bayerische Landesbank	European Union (28 countries)	1033127	2015	EU-SIFI	17.60	215713.00	32.27	135812.00	0.72	0.13		1.87	2392.00	29000.00
6	BFA, Tenedora de Acciones, S.A.U.	European Union (28 countries)	1307091	2007	EU-SIFI										26100.00
6	BFA, Tenedora de Acciones, S.A.U.	European Union (28 countries)	1307091	2008	EU-SIFI	10.49	322775.60	70.26	233848.80	1.52	0.43	24201.70	2.42		26100.00

6	BFA, Tenedora de Acciones, S.A.U.	European Union (28 countries)	1307091	2009	EU-SIFI	11.23	339020.80	65.92	229747.30	1.51	0.38	25625.60	2.62		24500.00
6	BFA, Tenedora de Acciones, S.A.U.	European Union (28 countries)	1307091	2010	EU-SIFI	11.94	324346.00	61.36	223422.10	1.04	0.37	22212.90	4.75	8479.80	25500.00
6	BFA, Tenedora de Acciones, S.A.U.	European Union (28 countries)	1307091	2011	EU-SIFI	9.50	312342.80	52.53	198814.80	0.81	0.35	33665.10	6.42	-144.40	26200.00
6	BFA, Tenedora de Acciones, S.A.U.	European Union (28 countries)	1307091	2012	EU-SIFI	9.00	309187.20	36.16	146289.20	1.10	0.32	39334.10	8.10	287.00	26600.00
6	BFA, Tenedora de Acciones, S.A.U.	European Union (28 countries)	1307091	2013	EU-SIFI	10.90	269255.60	39.18	130086.10	0.98	0.33	40059.30	8.53	-11844.70	26800.00
6	BFA, Tenedora de Acciones, S.A.U.	European Union (28 countries)	1307091	2014	EU-SIFI	14.80	242471.90	37.81	121872.80	1.28	0.39	39571.10	7.57	-9670.40	27600.00
6	BFA, Tenedora de Acciones, S.A.U.	European Union (28 countries)	1307091	2015	EU-SIFI	15.54	213698.80	38.93	115930.40	1.32	0.41	36824.30	6.52	-1442.70	29000.00
7	BNP Paribas S.A.	European Union (28 countries)	105309	2007	EU-SIFI	10.00	1694454.00	31.89	457602.00	0.70	0.43	197850.00	2.73	37055.00	26100.00
7	BNP Paribas S.A.	European Union (28 countries)	105309	2008	EU-SIFI	11.10	2075551.00	25.78	508699.00	0.82	0.34	215320.00	2.81	40930.00	26100.00
7	BNP Paribas S.A.	European Union (28 countries)	105309	2009	EU-SIFI	14.19	2057698.00	30.17	678269.00	1.10	0.38	256178.00	3.74	43265.00	24500.00
7	BNP Paribas S.A.	European Union (28 countries)	105309	2010	EU-SIFI	14.70	1998158.00	30.05	694834.00	1.29	0.45	272205.00	3.84	48804.00	25500.00
7	BNP Paribas S.A.	European Union (28 countries)	105309	2011	EU-SIFI	14.00	1965283.00	31.22	692371.00	1.37	0.47	220617.00	4.04	43825.00	26200.00
7	BNP Paribas S.A.	European Union (28 countries)	105309	2012	EU-SIFI	15.50	1907200.00	28.93	654868.00	1.30	0.44	163098.00	4.05	48263.00	26600.00
7	BNP Paribas S.A.	European Union (28 countries)	105309	2013	EU-SIFI	12.50	1810522.00	34.35	636837.00	1.22	0.42	170854.00	3.98	52064.00	26800.00
7	BNP Paribas S.A.	European Union (28 countries)	105309	2014	EU-SIFI	12.60	2077758.00	29.57	681989.00	1.22	0.43	196181.00	3.87	49807.00	27600.00
7	BNP Paribas S.A.	European Union (28 countries)	105309	2015	EU-SIFI	13.60	1994193.00	31.57	703243.00	1.24	0.41	193846.00	3.72	54781.00	29000.00
8	CaixaBank, S.A.	European Union (28 countries)	1186810	2007	EU-SIFI										26100.00
8	CaixaBank, S.A.	European Union (28 countries)	1186810	2008	EU-SIFI										26100.00
8	CaixaBank, S.A.	European Union (28 countries)	1186810	2009	EU-SIFI										24500.00
8	CaixaBank, S.A.	European Union (28 countries)	1186810	2010	EU-SIFI	8.92	273017.30	55.10	190170.30	1.59	0.58	26019.80	2.60		25500.00
8	CaixaBank, S.A.	European Union (28 countries)	1186810	2011	EU-SIFI	12.80	270424.60	50.79	187078.70	1.40	0.61	29606.10	3.01		26200.00
8	CaixaBank, S.A.	European Union (28 countries)	1186810	2012	EU-SIFI	11.60	348174.10	46.30	223659.00	1.46	0.61	43891.40	5.62		26600.00
8	CaixaBank, S.A.	European Union (28 countries)	1186810	2013	EU-SIFI	14.60	340320.10	44.81	209502.50	1.28	0.55	54821.70	7.15		26800.00
8	CaixaBank, S.A.	European Union (28 countries)	1186810	2014	EU-SIFI	16.10	338623.40	41.26	198262.80	1.42	0.60	67317.20	5.34		27600.00
8	CaixaBank, S.A.	European Union (28 countries)	1186810	2015	EU-SIFI	15.90	344255.50	41.63	207508.00	1.47	0.68	57836.20	4.42		29000.00
9	Commerzbank AG	European Union (28 countries)	111464	2007	EU-SIFI	10.80	616474.00	38.51	289409.00	0.67	0.52		2.06	6815.00	26100.00

9	Commerzbank AG	European Union (28 countries)	111464	2008	EU-SIFI	13.90	625224.00	35.48	290148.00	0.80	0.48		1.84	5904.00	26100.00
9	Commerzbank AG	European Union (28 countries)	111464	2009	EU-SIFI	14.80	844103.00	33.19	339083.00	0.87	0.46	63127.00	2.74	7878.00	24500.00
9	Commerzbank AG	European Union (28 countries)	111464	2010	EU-SIFI	15.30	754299.00	35.46	306909.00	0.87	0.45	70158.00	2.97	9345.00	25500.00
9	Commerzbank AG	European Union (28 countries)	111464	2011	EU-SIFI	15.50	661763.00	35.75	278457.00	0.99	0.51	51916.00	2.84	8822.00	26200.00
9	Commerzbank AG	European Union (28 countries)	111464	2012	EU-SIFI	17.80	636023.00	32.72	252276.00	1.01	0.50	51038.00	3.03	8614.00	26600.00
9	Commerzbank AG	European Union (28 countries)	111464	2013	EU-SIFI	19.20	549654.00	34.67	224107.00	1.05	0.55	45399.00	2.97	10660.00	26800.00
9	Commerzbank AG	European Union (28 countries)	111464	2014	EU-SIFI	14.60	558317.00	38.54	216044.00	0.97	0.59	52423.00	2.62	10462.00	27600.00
9	Commerzbank AG	European Union (28 countries)	111464	2015	EU-SIFI	16.50	532701.00	37.21	207757.00	1.07	0.64	47214.00	1.86	11458.00	29000.00
10	Cooperatieve Rabobank U.A.	European Union (28 countries)	104050	2007	EU-SIFI	10.90	570503.00	46.73	375250.00	1.23	0.52	30310.00	0.61	19123.00	26100.00
10	Cooperatieve Rabobank U.A.	European Union (28 countries)	104050	2008	EU-SIFI	12.98	612120.00	38.89	429413.00	1.54	0.52	21926.00	0.73	21304.00	26100.00
10	Cooperatieve Rabobank U.A.	European Union (28 countries)	104050	2009	EU-SIFI	14.10	607483.00	38.42	437756.00	1.40	0.45	16773.00	1.00	22868.00	24500.00
10	Cooperatieve Rabobank U.A.	European Union (28 countries)	104050	2010	EU-SIFI	16.30	652536.00	33.65	458551.00	1.41	0.46	49576.00	0.57		25500.00
10	Cooperatieve Rabobank U.A.	European Union (28 countries)	104050	2011	EU-SIFI	17.50	731665.00	30.56	464148.00	1.49	0.38	45568.00	0.67	26367.00	26200.00
10	Cooperatieve Rabobank U.A.	European Union (28 countries)	104050	2012	EU-SIFI	19.00	750710.00	29.68	477731.00	1.42	0.34	42998.00	0.80	27457.00	26600.00
10	Cooperatieve Rabobank U.A.	European Union (28 countries)	104050	2013	EU-SIFI	19.80	669095.00	31.51	453793.00	1.45	0.32	38777.00	1.89	27197.00	26800.00
10	Cooperatieve Rabobank U.A.	European Union (28 countries)	104050	2014	EU-SIFI	21.30	681086.00	31.11	452840.00	1.50	0.31	34838.00	2.06	24528.00	27600.00
10	Cooperatieve Rabobank U.A.	European Union (28 countries)	104050	2015	EU-SIFI	23.20	678827.00	31.39	455457.00	1.51	0.31	32336.00	1.84	25399.00	29000.00
11	Credit Agricole	European Union (28 countries)	111458	2007	EU-SIFI	9.64	1540863.00	40.92	647767.00	1.12	0.70	81119.00	2.64	55092.00	26100.00
11	Credit Agricole	European Union (28 countries)	111458	2008	EU-SIFI	9.90	1783972.00	34.50	715513.00	1.29	0.63	96868.00	2.67	57934.00	26100.00
11	Credit Agricole	European Union (28 countries)	111458	2009	EU-SIFI	10.90	1693763.00	31.82	740077.00	1.41	0.69		3.14		24500.00
11	Credit Agricole	European Union (28 countries)	111458	2010	EU-SIFI	11.70	1730846.00	32.45	742054.00	1.44	0.67		3.34		25500.00
11	Credit Agricole	European Union (28 countries)	111458	2011	EU-SIFI	13.50	1879536.00	31.42	773128.00	1.52	0.66	106577.00	3.55		26200.00
11	Credit Agricole	European Union (28 countries)	111458	2012	EU-SIFI	14.00	1783220.00	26.91	741602.00	1.40	0.51	83890.00	3.16		26600.00
11	Credit Agricole	European Union (28 countries)	111458	2013	EU-SIFI	16.30	1688264.00	28.25	731396.00	1.31	0.52	110731.00	3.10		26800.00
11	Credit Agricole	European Union (28 countries)	111458	2014	EU-SIFI	18.40	1762714.00	28.08	729663.00	1.35	0.57	140090.00	3.04		27600.00
11	Credit Agricole	European Union (28 countries)	111458	2015	EU-SIFI	19.30	1698859.00	29.99	757524.00	1.33	0.56	117540.00	2.87		29000.00

12	Credit Mutuel	European Union (28 countries)	1002944	2007	EU-SIFI		553302.00		262889.00	0.55	0.55	24859.00	1.56	19179.00	26100.00
12	Credit Mutuel	European Union (28 countries)	1002944	2008	EU-SIFI		581709.00	3.78	302042.00	0.75	0.50	20372.00	2.05	18920.00	26100.00
12	Credit Mutuel	European Union (28 countries)	1002944	2009	EU-SIFI	11.00	579038.00	36.63	312759.00	1.39	0.63	21042.00	2.64	19047.00	24500.00
12	Credit Mutuel	European Union (28 countries)	1002944	2010	EU-SIFI	11.50	591309.00	34.73	332109.00	1.51	0.66	17892.00	2.72	20609.00	25500.00
12	Credit Mutuel	European Union (28 countries)	1002944	2011	EU-SIFI	11.20	605096.00	34.76	347358.00	1.40	0.60	18173.00	2.59	23193.00	26200.00
12	Credit Mutuel	European Union (28 countries)	1002944	2012	EU-SIFI	15.40	645216.00	29.96	353444.00	1.10	0.57	15499.00	2.89	25018.00	26600.00
12	Credit Mutuel	European Union (28 countries)	1002944	2013	EU-SIFI	16.90	659959.00	34.95	359527.00	1.28	0.59	25672.00	2.89	26882.00	26800.00
12	Credit Mutuel	European Union (28 countries)	1002944	2014	EU-SIFI	18.30	706720.00	32.94	374100.00	1.17	0.57	31611.00	2.75	29223.00	27600.00
12	Credit Mutuel	European Union (28 countries)	1002944	2015	EU-SIFI	18.50	739809.00	33.49	395436.00	1.08	0.58	42405.00	2.61	31989.00	29000.00
13	Danske Bank AS	European Union (28 countries)	102931	2007	EU-SIFI	9.28	448342.02	39.20	266736.55	0.89	0.32		0.23	13019.14	26100.00
13	Danske Bank AS	European Union (28 countries)	102931	2008	EU-SIFI	13.00	481848.76	27.09	276543.24	0.97	0.24		0.72	12707.63	26100.00
13	Danske Bank AS	European Union (28 countries)	102931	2009	EU-SIFI	17.80	414411.82	26.92	247199.12	1.28	0.25		1.77	12717.19	24500.00
13	Danske Bank AS	European Union (28 countries)	102931	2010	EU-SIFI	17.70	428495.23	26.27	252281.85	0.94	0.28		2.31	13226.63	25500.00
13	Danske Bank AS	European Union (28 countries)	102931	2011	EU-SIFI	17.90	460651.82	26.46	234957.11	1.05	0.24		2.78	15996.75	26200.00
13	Danske Bank AS	European Union (28 countries)	102931	2012	EU-SIFI	21.30	466724.89	23.51	230644.89	1.03	0.24		2.78	17361.08	26600.00
13	Danske Bank AS	European Union (28 countries)	102931	2013	EU-SIFI	21.40	432305.32	26.41	219176.54	1.03	0.27		3.53	18003.65	26800.00
13	Danske Bank AS	European Union (28 countries)	102931	2014	EU-SIFI	19.30	464640.19	25.07	220886.67	1.06	0.30	32503.01	2.94	17744.25	27600.00
13	Danske Bank AS	European Union (28 countries)	102931	2015	EU-SIFI	21.00	442827.00	25.32	224297.43	1.00	0.32	28066.83	2.08	17798.73	29000.00
14	Deutsche Bank AG	European Union (28 countries)	102798	2007	EU-SIFI	11.60	1925003.00	17.08	200597.00	0.58	0.78	7435.00	0.85	21564.00	26100.00
14	Deutsche Bank AG	European Union (28 countries)	102798	2008	EU-SIFI	12.20	2202423.00	13.97	271219.00	0.67	0.53	6675.00	0.71	20074.00	26100.00
14	Deutsche Bank AG	European Union (28 countries)	102798	2009	EU-SIFI	13.90	1500664.00	18.22	261448.00	0.76	0.54	7318.00	1.28	24056.00	24500.00
14	Deutsche Bank AG	European Union (28 countries)	102798	2010	EU-SIFI	14.10	1905630.00	18.17	411892.00	0.99	0.67	23937.00	1.01	25999.00	25500.00
14	Deutsche Bank AG	European Union (28 countries)	102798	2011	EU-SIFI	14.50	2164103.00	17.62	416676.00	0.98	0.65	17746.00	1.00	30119.00	26200.00
14	Deutsche Bank AG	European Union (28 countries)	102798	2012	EU-SIFI	17.10	2022275.00	16.50	402069.00	0.83	0.62	27297.00	1.17	29199.00	26600.00
14	Deutsche Bank AG	European Union (28 countries)	102798	2013	EU-SIFI	18.50	1611400.00	18.64	382086.00	0.89	0.74	33343.00	1.46	28375.00	26800.00
14	Deutsche Bank AG	European Union (28 countries)	102798	2014	EU-SIFI	17.20	1708703.00	23.21	410883.00	0.98	0.85	49187.00	1.27	29279.00	27600.00

14	Deutsche Bank AG	European Union (28 countries)	102798	2015	EU-SIFI	16.20	1629130.00	24.39	432777.00	1.05	0.84	58158.00	1.16	21182.00	29000.00
15	DNB ASA	European Union (28 countries)	1475575	2007	EU-SIFI	9.65	184771.98	67.27	121997.45	1.31	0.51		0.27	6088.16	26100.00
15	DNB ASA	European Union (28 countries)	1475575	2008	EU-SIFI	9.50	188023.90	65.55	122974.08	1.41	0.44		0.53	5326.61	26100.00
15	DNB ASA	European Union (28 countries)	1475575	2009	EU-SIFI	12.10	218991.03	57.72	135245.31	1.30	0.38		1.00		24500.00
15	DNB ASA	European Union (28 countries)	1475575	2010	EU-SIFI	12.40	236631.07	55.24	150254.28	1.29	0.38		0.99		25500.00
15	DNB ASA	European Union (28 countries)	1475575	2011	EU-SIFI	11.40	274334.08	52.28	166570.14	1.41	0.38		0.90		26200.00
15	DNB ASA	European Union (28 countries)	1475575	2012	EU-SIFI	12.60	315711.07	46.36	178280.53	1.43	0.36		0.94		26600.00
15	DNB ASA	European Union (28 countries)	1475575	2013	EU-SIFI	14.00	286880.45	45.28	161377.68	1.51	0.42		0.94		26800.00
15	DNB ASA	European Union (28 countries)	1475575	2014	EU-SIFI	15.20	293709.58	42.30	160893.55	1.48	0.40		0.86		27600.00
15	DNB ASA	European Union (28 countries)	1475575	2015	EU-SIFI	17.80	270944.47	43.46	162075.89	1.43	0.36		0.75		29000.00
16	DZ BANK AG Deutsche Zentral-Genossenschaftsbank	European Union (28 countries)	111466	2007	EU-SIFI	10.20	431337.00	26.99	106307.00	0.65	0.23	25506.00	1.71	3483.00	26100.00
16	DZ BANK AG Deutsche Zentral-Genossenschaftsbank	European Union (28 countries)	111466	2008	EU-SIFI	9.70	427127.00	27.63	117021.00	0.69	0.21	21456.00	1.82	2280.00	26100.00
16	DZ BANK AG Deutsche Zentral-Genossenschaftsbank	European Union (28 countries)	111466	2009	EU-SIFI	12.40	388525.00	24.48	112796.00	0.60	0.22	20003.00	2.18	1950.00	24500.00
16	DZ BANK AG Deutsche Zentral-Genossenschaftsbank	European Union (28 countries)	111466	2010	EU-SIFI	12.70	383464.00	22.65	116275.00	0.71	0.29	21205.00	1.91	2687.00	25500.00
16	DZ BANK AG Deutsche Zentral-Genossenschaftsbank	European Union (28 countries)	111466	2011	EU-SIFI	11.50	405926.00	24.53	120760.00	0.82	0.25	23407.00	1.89	3188.00	26200.00
16	DZ BANK AG Deutsche Zentral-Genossenschaftsbank	European Union (28 countries)	111466	2012	EU-SIFI	13.80	407236.00	22.00	123811.00	0.82	0.26	23954.00	2.03	3488.00	26600.00
16	DZ BANK AG Deutsche Zentral-Genossenschaftsbank	European Union (28 countries)	111466	2013	EU-SIFI	17.90	385398.00	22.13	120158.00	0.81	0.29	26907.00	1.98	4501.00	26800.00
16	DZ BANK AG Deutsche Zentral-Genossenschaftsbank	European Union (28 countries)	111466	2014	EU-SIFI	16.80	402543.00	24.31	122437.00	0.79	0.36	30134.00	1.86	5755.00	27600.00
16	DZ BANK AG Deutsche Zentral-Genossenschaftsbank	European Union (28 countries)	111466	2015	EU-SIFI	18.80	408341.00	24.02	126850.00	0.72	0.41	28735.00	1.59	7016.00	29000.00
17	Erste Group Bank AG	European Union (28 countries)	111522	2007	EU-SIFI	10.50	200518.80	47.42	113955.90	2.29	1.08		2.89	6855.30	26100.00
17	Erste Group Bank AG	European Union (28 countries)	111522	2008	EU-SIFI	10.10	201441.10	51.46	126184.90	2.67	1.07		3.00	7266.20	26100.00
17	Erste Group Bank AG	European Union (28 countries)	111522	2009	EU-SIFI	12.70	201710.20	61.42	129133.70	2.87	0.98		3.84	4020.50	24500.00
17	Erste Group Bank AG	European Union (28 countries)	111522	2010	EU-SIFI	13.50	205938.00	58.17	132729.30	2.91	1.04		4.55		25500.00
17	Erste Group Bank AG	European Union (28 countries)	111522	2011	EU-SIFI	14.40	210006.30	54.29	134749.50	2.87	0.92		5.15		26200.00
17	Erste Group Bank AG	European Union (28 countries)	111522	2012	EU-SIFI	15.50	213824.00	49.26	131927.50	2.65	0.87		5.74	4395.00	26600.00
17	Erste Group Bank AG	European Union (28 countries)	111522	2013	EU-SIFI	16.30	200117.80	48.92	127697.50	2.51	0.95	28093.00	6.07	4256.00	26800.00

17	Erste Group Bank AG	European Union (28 countries)	111522	2014	EU-SIFI	15.70	196287.30	51.25	128325.00	2.49	1.02	31220.00	5.84	8116.00	27600.00
17	Erste Group Bank AG	European Union (28 countries)	111522	2015	EU-SIFI	17.90	199743.40	49.21	131905.70	2.44	1.01	31616.00	4.56	9071.00	29000.00
18	Groupe BPCE	European Union (28 countries)	1237613	2007	EU-SIFI										26100.00
18	Groupe BPCE	European Union (28 countries)	1237613	2008	EU-SIFI	10.60	1143679.00		508680.00	0.90	0.73	25742.00	1.79		26100.00
18	Groupe BPCE	European Union (28 countries)	1237613	2009	EU-SIFI	10.90	1028802.00	39.96	514680.00	1.31	0.70	30332.00	2.11		24500.00
18	Groupe BPCE	European Union (28 countries)	1237613	2010	EU-SIFI	11.60	1048442.00	38.56	540393.00	1.28	0.76	26433.00	2.08		25500.00
18	Groupe BPCE	European Union (28 countries)	1237613	2011	EU-SIFI	11.60	1138395.00	36.16	560931.00	1.29	0.75	33590.00	1.99		26200.00
18	Groupe BPCE	European Union (28 countries)	1237613	2012	EU-SIFI	12.50	1147521.00	33.20	562840.00	1.07	0.69	59048.00	2.07	17331.00	26600.00
18	Groupe BPCE	European Union (28 countries)	1237613	2013	EU-SIFI	14.40	1123520.00	32.84	574320.00	1.15	0.75	68679.00	2.14	24888.00	26800.00
18	Groupe BPCE	European Union (28 countries)	1237613	2014	EU-SIFI	15.40	1223298.00	32.12	592737.00	1.14	0.78	77833.00	2.07	27650.00	27600.00
18	Groupe BPCE	European Union (28 countries)	1237613	2015	EU-SIFI	16.80	1166535.00	33.55	602119.00	1.07	0.87	65042.00	2.04	29777.00	29000.00
19	HSBC Holdings plc	European Union (28 countries)	108048	2007	EU-SIFI	13.60	1599252.89	47.73	679842.08	1.91	1.10	107821.21	1.92	53520.69	26100.00
19	HSBC Holdings plc	European Union (28 countries)	108048	2008	EU-SIFI	11.40	1816109.98	45.42	687492.11	1.84	0.86	143151.69	2.50	59511.75	26100.00
19	HSBC Holdings plc	European Union (28 countries)	108048	2009	EU-SIFI	13.70	1641308.00	47.93	639857.95	1.79	0.78	217952.36	2.77	60261.42	24500.00
19	HSBC Holdings plc	European Union (28 countries)	108048	2010	EU-SIFI	15.20	1837089.25	44.94	732271.23	1.76	0.77	264920.88	2.05	72130.04	25500.00
19	HSBC Holdings plc	European Union (28 countries)	108048	2011	EU-SIFI	14.10	1975207.01	47.33	675987.61	1.71	0.72	284597.24	2.00	84705.20	26200.00
19	HSBC Holdings plc	European Union (28 countries)	108048	2012	EU-SIFI	16.10	2040674.55	41.74	742047.76	1.59	0.69	310733.69	1.65	91210.99	26600.00
19	HSBC Holdings plc	European Union (28 countries)	108048	2013	EU-SIFI	17.80	1936972.68	40.90	730343.92	1.50	0.69	300791.78	1.50	93340.67	26800.00
19	HSBC Holdings plc	European Union (28 countries)	108048	2014	EU-SIFI	15.60	2169740.29	46.31	812989.43	1.52	0.66	350000.01	1.25	112965.51	27600.00
19	HSBC Holdings plc	European Union (28 countries)	108048	2015	EU-SIFI	17.20	2213269.04	45.77	857887.27	1.50	0.64	394396.55	1.02	132241.96	29000.00
20	ING Group	European Union (28 countries)	135894	2007	EU-SIFI		1312510.00		554982.00	0.71	0.40		0.36	27935.00	26100.00
20	ING Group	European Union (28 countries)	135894	2008	EU-SIFI		1331663.00		622376.00	0.86	0.39		0.42	17657.00	26100.00
20	ING Group	European Union (28 countries)	135894	2009	EU-SIFI		1163643.00		583410.00	1.04	0.40		0.77	21452.00	24500.00
20	ING Group	European Union (28 countries)	135894	2010	EU-SIFI		1247005.00		618495.00	1.10	0.36	99378.00	0.86	24289.00	25500.00
20	ING Group	European Union (28 countries)	135894	2011	EU-SIFI		1279228.00		607592.00	1.12	0.34	102869.00	0.83	28803.00	26200.00
20	ING Group	European Union (28 countries)	135894	2012	EU-SIFI		1166191.00		568672.00	1.07	0.24	97757.00	0.98	32014.00	26600.00

20	ING Group	European Union (28 countries)	135894	2013	EU-SIFI		1081317.00		537790.00	1.14	0.21	96463.00	1.14	27575.00	26800.00
20	ING Group	European Union (28 countries)	135894	2014	EU-SIFI	14.58	992856.00	30.28	523467.00	1.43	0.27	78068.00	1.14	22240.00	27600.00
20	ING Group	European Union (28 countries)	135894	2015	EU-SIFI	16.92	1005233.00	31.95	706579.00	1.49	0.27	73560.00	0.82	25091.00	29000.00
21	Intesa Sanpaolo S.p.A.	European Union (28 countries)	112066	2007	EU-SIFI	9.00	572902.00	64.85	346518.00	2.10	1.11	38995.00	3.25	7250.00	26100.00
21	Intesa Sanpaolo S.p.A.	European Union (28 countries)	112066	2008	EU-SIFI	10.20	636133.00	60.22	408752.00	2.40	0.98	37395.00	3.32		26100.00
21	Intesa Sanpaolo S.p.A.	European Union (28 countries)	112066	2009	EU-SIFI	11.80	624844.00	57.88	390453.00	2.09	0.87	55531.00	4.32		24500.00
21	Intesa Sanpaolo S.p.A.	European Union (28 countries)	112066	2010	EU-SIFI	13.20	658757.00	50.42	397777.00	1.93	0.88	77455.00	4.79		25500.00
21	Intesa Sanpaolo S.p.A.	European Union (28 countries)	112066	2011	EU-SIFI	14.30	639221.00	50.88	394183.00	2.07	0.85	74998.00	5.85		26200.00
21	Intesa Sanpaolo S.p.A.	European Union (28 countries)	112066	2012	EU-SIFI	13.60	673582.00	44.33	385505.00	2.00	0.85	111045.00	6.17		26600.00
21	Intesa Sanpaolo S.p.A.	European Union (28 countries)	112066	2013	EU-SIFI	14.80	626283.00	44.12	357875.00	1.76	0.97	123262.00	8.09		26800.00
21	Intesa Sanpaolo S.p.A.	European Union (28 countries)	112066	2014	EU-SIFI	17.20	646427.00	41.74	354157.00	1.82	1.11	110218.00	9.03		27600.00
21	Intesa Sanpaolo S.p.A.	European Union (28 countries)	112066	2015	EU-SIFI	16.60	676496.00	42.03	382132.00	1.65	1.11	117975.00	8.41		29000.00
22	KBC Group NV	European Union (28 countries)	116324	2007	EU-SIFI	12.70	355597.00	38.01	149170.00	1.31	0.61	41634.00	1.42	12126.00	26100.00
22	KBC Group NV	European Union (28 countries)	116324	2008	EU-SIFI	12.47	355317.00	43.70	160352.00	1.50	0.49	58236.00	1.91	8359.00	26100.00
22	KBC Group NV	European Union (28 countries)	116324	2009	EU-SIFI	14.24	324231.00	44.22	157442.00	1.93	0.46		2.68		24500.00
22	KBC Group NV	European Union (28 countries)	116324	2010	EU-SIFI	16.50	320823.00	41.15	155714.00	2.01	0.40	68114.00	3.24		25500.00
22	KBC Group NV	European Union (28 countries)	116324	2011	EU-SIFI	15.60	285382.00	44.27	144882.00	2.11	0.42	49467.00	3.62		26200.00
22	KBC Group NV	European Union (28 countries)	116324	2012	EU-SIFI	15.80	256928.00	39.76	132720.00	1.94	0.54	51476.00	3.66		26600.00
22	KBC Group NV	European Union (28 countries)	116324	2013	EU-SIFI	17.80	238686.00	38.22	125560.00	1.76	0.63	50123.00	4.62		26800.00
22	KBC Group NV	European Union (28 countries)	116324	2014	EU-SIFI	18.92	245174.00	37.21	129348.00	1.89	0.68	53265.00	4.58		27600.00
22	KBC Group NV	European Union (28 countries)	116324	2015	EU-SIFI	19.80	252356.00	34.61	135025.00	1.82	0.70	54773.00	4.26		29000.00
23	La Banque Postale	European Union (28 countries)	1071410	2007	EU-SIFI	14.20	122003.10	18.76	24494.80	2.36	1.56	41197.80	0.30	539.60	26100.00
23	La Banque Postale	European Union (28 countries)	1071410	2008	EU-SIFI	12.40	111945.20	19.26	28875.20	2.22	1.53	40026.90	0.27	302.60	26100.00
23	La Banque Postale	European Union (28 countries)	1071410	2009	EU-SIFI	13.40	171251.00	17.22	33174.20	2.21	1.29	35898.00	0.30	587.60	24500.00
23	La Banque Postale	European Union (28 countries)	1071410	2010	EU-SIFI	15.30	173015.80	18.42	39341.00	1.77	1.12	37448.60	0.32		25500.00
23	La Banque Postale	European Union (28 countries)	1071410	2011	EU-SIFI	15.20	185711.90	19.12	45239.50	1.71	1.09	33058.00	0.35		26200.00

23	La Banque Postale	European Union (28 countries)	1071410	2012	EU-SIFI	14.30	195786.80	19.99	50006.70	1.51	1.04	35411.00	0.43	919.90	26600.00
23	La Banque Postale	European Union (28 countries)	1071410	2013	EU-SIFI	15.30	201376.80	28.09	59172.70	1.73	1.02	31079.30	0.52	1402.80	26800.00
23	La Banque Postale	European Union (28 countries)	1071410	2014	EU-SIFI	17.00	212833.60	24.74	66490.50	1.61	1.05	28916.40	0.57	1584.30	27600.00
23	La Banque Postale	European Union (28 countries)	1071410	2015	EU-SIFI	18.70	218708.00	24.79	70943.50	1.50	1.09	25168.10	0.62	1967.20	29000.00
24	Landesbank Baden-Wuerttemberg	European Union (28 countries)	108162	2007	EU-SIFI	9.70	443399.00	43.17	146387.00	0.50	0.14		1.33	4856.00	26100.00
24	Landesbank Baden-Wuerttemberg	European Union (28 countries)	108162	2008	EU-SIFI	10.10	447738.00	39.63	149854.00	0.50	0.12		1.51	5064.00	26100.00
24	Landesbank Baden-Wuerttemberg	European Union (28 countries)	108162	2009	EU-SIFI	13.30	411694.00	37.39	149633.00	0.65	0.15		2.22	2922.00	24500.00
24	Landesbank Baden-Wuerttemberg	European Union (28 countries)	108162	2010	EU-SIFI	15.34	374413.00	32.24	132309.00	0.55	0.08		2.48	1393.00	25500.00
24	Landesbank Baden-Wuerttemberg	European Union (28 countries)	108162	2011	EU-SIFI	17.20	373069.00	28.86	118521.00	0.64	0.06		2.33	1067.00	26200.00
24	Landesbank Baden-Wuerttemberg	European Union (28 countries)	108162	2012	EU-SIFI	19.70	336337.00	28.48	112076.00	0.58	0.06		2.22	771.00	26600.00
24	Landesbank Baden-Wuerttemberg	European Union (28 countries)	108162	2013	EU-SIFI	22.50	274646.00	28.89	105282.00	0.59	0.08		2.08	1214.00	26800.00
24	Landesbank Baden-Wuerttemberg	European Union (28 countries)	108162	2014	EU-SIFI	19.90	266268.00	30.86	101682.00	0.70	0.12	5551.00	1.56	949.00	27600.00
24	Landesbank Baden-Wuerttemberg	European Union (28 countries)	108162	2015	EU-SIFI	21.90	234015.00	31.82	97468.00	0.66	0.16	5501.00	1.15	1062.00	29000.00
25	Lloyds Banking Group plc	European Union (28 countries)	110803	2007	EU-SIFI	11.00	480921.53	48.68	288844.73	1.83	0.79	2629.55	1.13	13357.34	26100.00
25	Lloyds Banking Group plc	European Union (28 countries)	110803	2008	EU-SIFI	11.20	456742.30	39.10	258002.16	2.09	0.69	3437.88	1.45	6058.71	26100.00
25	Lloyds Banking Group plc	European Union (28 countries)	110803	2009	EU-SIFI	12.40	1154821.74	48.02	741964.72	1.16	0.41	9780.38	5.01	20610.76	24500.00
25	Lloyds Banking Group plc	European Union (28 countries)	110803	2010	EU-SIFI	15.20	1161700.03	40.98	733846.74	1.44	0.35	23966.84	5.42	26893.43	25500.00
25	Lloyds Banking Group plc	European Union (28 countries)	110803	2011	EU-SIFI	15.60	1171356.96	35.94	711530.45	1.43	0.40	70176.40	5.15	10372.25	26200.00
25	Lloyds Banking Group plc	European Union (28 countries)	110803	2012	EU-SIFI	17.30	1117320.65	33.21	645920.48	0.92	0.38	56092.02	4.27	8590.81	26600.00
25	Lloyds Banking Group plc	European Union (28 countries)	110803	2013	EU-SIFI	18.80	1005944.89	32.30	607898.19	0.95	0.35	73054.54	3.19	4881.77	26800.00
25	Lloyds Banking Group plc	European Union (28 countries)	110803	2014	EU-SIFI	22.00	1099075.75	28.04	622203.98	1.42	0.30	98355.46	1.33	7317.78	27600.00
25	Lloyds Banking Group plc	European Union (28 countries)	110803	2015	EU-SIFI	21.50	1098018.57	27.62	617586.44	1.55	0.25	94418.48	0.67	6010.81	29000.00
26	Nationwide Building Society	European Union (28 countries)	108320	2007	EU-SIFI	11.00	201981.63	52.77	170758.83	1.19	0.26	334.92	0.18	7786.18	26100.00
26	Nationwide Building Society	European Union (28 countries)	108320	2008	EU-SIFI	12.40	225137.91	42.81	179851.82	1.20	0.21	4210.58	0.15	7926.94	26100.00
26	Nationwide Building Society	European Union (28 countries)	108320	2009	EU-SIFI	19.50	217460.02	24.62	167580.90	0.99	0.20	7727.86	0.30	6699.41	24500.00
26	Nationwide Building Society	European Union (28 countries)	108320	2010	EU-SIFI	19.40	216843.40	26.16	173544.28	0.90	0.20	13987.41	0.49	7565.70	25500.00

26	Nationwide Building Society	European Union (28 countries)	108320	2011	EU-SIFI	19.50	214039.29	25.07	170120.87	0.84	0.22	14230.92	0.51	7883.32	26200.00
26	Nationwide Building Society	European Union (28 countries)	108320	2012	EU-SIFI	18.90	239713.22	24.21	189459.11	0.89	0.23	20222.89	0.54	7988.52	26600.00
26	Nationwide Building Society	European Union (28 countries)	108320	2013	EU-SIFI	19.10	225210.47	23.30	189894.62	1.09	0.24	10608.81	0.76	8887.29	26800.00
26	Nationwide Building Society	European Union (28 countries)	108320	2014	EU-SIFI	22.10	229205.18	21.30	202573.43	1.32	0.20	8441.92	0.77	10998.00	27600.00
26	Nationwide Building Society	European Union (28 countries)	108320	2015	EU-SIFI	27.00	269041.90	18.82	235640.70	1.55	0.15	9252.36	0.38	11155.35	29000.00
27	Norddeutsche Landesbank Girozentrale	European Union (28 countries)	108343	2007	EU-SIFI	9.45	201584.00	48.69	88442.00	0.75	0.08	45828.00	1.23	2370.00	26100.00
27	Norddeutsche Landesbank Girozentrale	European Union (28 countries)	108343	2008	EU-SIFI	10.02	244329.00	36.76	112172.00	0.65	0.08		1.07	2239.00	26100.00
27	Norddeutsche Landesbank Girozentrale	European Union (28 countries)	108343	2009	EU-SIFI	9.70	238591.00	38.80	112083.00	0.57	0.07		1.60	2217.00	24500.00
27	Norddeutsche Landesbank Girozentrale	European Union (28 countries)	108343	2010	EU-SIFI	11.10	228586.00	37.99	113605.00	0.70	0.09		1.78	2173.00	25500.00
27	Norddeutsche Landesbank Girozentrale	European Union (28 countries)	108343	2011	EU-SIFI	12.65	227633.00	37.25	114652.00	0.77	0.07	19113.00	1.54	2480.00	26200.00
27	Norddeutsche Landesbank Girozentrale	European Union (28 countries)	108343	2012	EU-SIFI	13.84	225550.00	34.52	114577.00	0.88	0.08	20836.00	1.70	2011.00	26600.00
27	Norddeutsche Landesbank Girozentrale	European Union (28 countries)	108343	2013	EU-SIFI	14.32	200823.00	34.11	107604.00	0.93	0.08	20392.00	2.09	2052.00	26800.00
27	Norddeutsche Landesbank Girozentrale	European Union (28 countries)	108343	2014	EU-SIFI	13.18	197607.00	35.03	108255.00	1.01	0.09	19927.00	2.54	1957.00	27600.00
27	Norddeutsche Landesbank Girozentrale	European Union (28 countries)	108343	2015	EU-SIFI	16.72	180998.00	35.18	107878.00	1.04	0.12	17175.00	2.71	2493.00	29000.00
28	Nordea Bank AB	European Union (28 countries)	1008286	2007	EU-SIFI	9.10	389054.00	52.59	245629.00	1.21	0.60	8673.00	0.39	14645.00	26100.00
28	Nordea Bank AB	European Union (28 countries)	1008286	2008	EU-SIFI	9.50	474074.00	44.99	266247.00	1.24	0.46	6545.00	0.43	16013.00	26100.00
28	Nordea Bank AB	European Union (28 countries)	1008286	2009	EU-SIFI	11.90	507544.00	37.80	284531.00	1.14	0.37	12944.00	0.74	17756.00	24500.00
28	Nordea Bank AB	European Union (28 countries)	1008286	2010	EU-SIFI	11.50	580839.00	36.97	316709.00	0.98	0.41	29283.00	0.79	17756.00	25500.00
28	Nordea Bank AB	European Union (28 countries)	1008286	2011	EU-SIFI	11.10	716204.00	31.25	312863.00	0.91	0.40	21179.00	0.78	20954.00	26200.00
28	Nordea Bank AB	European Union (28 countries)	1008286	2012	EU-SIFI	12.70	668178.00	32.11	322893.00	0.85	0.38	22205.00	0.87	22530.00	26600.00
28	Nordea Bank AB	European Union (28 countries)	1008286	2013	EU-SIFI	13.40	630434.00	33.19	306084.00	0.95	0.45	23912.00	0.91	24236.00	26800.00
28	Nordea Bank AB	European Union (28 countries)	1008286	2014	EU-SIFI	20.70	669342.00	21.74	306324.00	0.96	0.48	28492.00	0.90	25906.00	27600.00
28	Nordea Bank AB	European Union (28 countries)	1008286	2015	EU-SIFI	21.60	646868.00	22.15	311308.00	0.80	0.52	25760.00	0.86	27089.00	29000.00
29	Landesbank Hessen-Thueringen Girozentrale	European Union (28 countries)	1033165	2007	EU-SIFI	11.39	173787.00	44.93	80351.00	0.57	0.13	2704.00	1.29	1891.00	26100.00
29	Landesbank Hessen-Thueringen Girozentrale	European Union (28 countries)	1033165	2008	EU-SIFI	14.10	184572.00	33.96	90957.00	0.60	0.12	3351.00	1.14	1842.00	26100.00
29	Landesbank Hessen-Thueringen Girozentrale	European Union (28 countries)	1033165	2009	EU-SIFI	13.50	169901.00	36.09	87468.00	0.59	0.13	4852.00	1.36	1726.00	24500.00

29	Landesbank Hessen-Thueringen Girozentrale	European Union (28 countries)	1033165	2010	EU-SIFI	14.40	166244.00	34.39	87698.00	0.60	0.15	6561.00	1.43	2263.00	25500.00
29	Landesbank Hessen-Thueringen Girozentrale	European Union (28 countries)	1033165	2011	EU-SIFI	15.30	163985.00	34.93	84041.00	0.67	0.16	8353.00	1.49	2554.00	26200.00
29	Landesbank Hessen-Thueringen Girozentrale	European Union (28 countries)	1033165	2012	EU-SIFI	16.30	199301.00	30.51	90897.00	0.68	0.15	18690.00	1.41	2642.00	26600.00
29	Landesbank Hessen-Thueringen Girozentrale	European Union (28 countries)	1033165	2013	EU-SIFI	17.40	178276.00	30.33	91402.00	0.68	0.17	16264.00	1.63	3047.00	26800.00
29	Landesbank Hessen-Thueringen Girozentrale	European Union (28 countries)	1033165	2014	EU-SIFI	18.50	179489.00	29.97	90650.00	0.74	0.18	15392.00	1.34	3030.00	27600.00
29	Landesbank Hessen-Thueringen Girozentrale	European Union (28 countries)	1033165	2015	EU-SIFI	19.80	172256.00	31.87	92435.00	0.76	0.19	14298.00	1.06	3398.00	29000.00
30	Skandinaviska Enskilda Banken AB	European Union (28 countries)	108514	2007	EU-SIFI	11.04	248314.99	35.91	113721.32	0.78	0.83	6644.61	0.59	4255.37	26100.00
30	Skandinaviska Enskilda Banken AB	European Union (28 countries)	108514	2008	EU-SIFI	10.62	230976.48	39.27	120133.07	0.83	0.67	4970.68	0.69	4149.33	26100.00
30	Skandinaviska Enskilda Banken AB	European Union (28 countries)	108514	2009	EU-SIFI	13.50	225149.84	34.45	117611.57	0.87	0.64		1.49	4259.09	24500.00
30	Skandinaviska Enskilda Banken AB	European Union (28 countries)	108514	2010	EU-SIFI	12.40	243137.25	36.69	121535.33	0.76	0.66		1.35	8986.89	25500.00
30	Skandinaviska Enskilda Banken AB	European Union (28 countries)	108514	2011	EU-SIFI	12.50	264756.82	35.08	126187.48	0.82	0.69		0.94	9232.11	26200.00
30	Skandinaviska Enskilda Banken AB	European Union (28 countries)	108514	2012	EU-SIFI	17.20	285875.06	23.88	136236.97	0.82	0.63		0.76	10490.59	26600.00
30	Skandinaviska Enskilda Banken AB	European Union (28 countries)	108514	2013	EU-SIFI	19.00	280480.89	22.68	137898.24	0.85	0.66		0.53	11028.55	26800.00
30	Skandinaviska Enskilda Banken AB	European Union (28 countries)	108514	2014	EU-SIFI	22.20	281208.07	23.34	136926.10	0.84	0.68		0.48	11544.85	27600.00
30	Skandinaviska Enskilda Banken AB	European Union (28 countries)	108514	2015	EU-SIFI	23.80	271602.57	22.87	141429.50	0.77	0.74		0.38	12456.36	29000.00
31	Societe Generale S.A.	European Union (28 countries)	100432	2007	EU-SIFI	8.87	1071762.00	30.46	326087.00	0.29	0.76	50209.00	2.25	23029.50	26100.00
31	Societe Generale S.A.	European Union (28 countries)	100432	2008	EU-SIFI	11.19	1130003.00	30.58	388383.00	0.83	0.73	46137.00	2.37	19785.00	26100.00
31	Societe Generale S.A.	European Union (28 countries)	100432	2009	EU-SIFI	12.96	1023701.00	31.66	379078.00	1.22	0.79	60105.00	3.33	19014.00	24500.00
31	Societe Generale S.A.	European Union (28 countries)	100432	2010	EU-SIFI	12.09	1132072.00	29.57	403393.00	1.21	0.73	72939.00	3.79		25500.00
31	Societe Generale S.A.	European Union (28 countries)	100432	2011	EU-SIFI	11.90	1181372.00	29.57	399287.00	1.19	0.68		4.20	20616.00	26200.00
31	Societe Generale S.A.	European Union (28 countries)	100432	2012	EU-SIFI	12.70	1250889.00	25.91	372255.00	1.07	0.64		4.26	21916.00	26600.00
31	Societe Generale S.A.	European Union (28 countries)	100432	2013	EU-SIFI	13.40	1214193.00	28.22	361959.00	0.96	0.57		4.62	21927.00	26800.00
31	Societe Generale S.A.	European Union (28 countries)	100432	2014	EU-SIFI	14.30	1308138.00	27.00	371855.00	0.92	0.57		4.31	22537.00	27600.00
31	Societe Generale S.A.	European Union (28 countries)	100432	2015	EU-SIFI	16.30	1334391.00	26.73	401487.00	0.85	0.56		3.83	23905.00	29000.00
32	Standard Chartered PLC	European Union (28 countries)	1095030	2007	EU-SIFI	15.20	224081.37	56.19	106019.71	2.46	1.00	7925.39	1.16	9269.05	26100.00
32	Standard Chartered PLC	European Union (28 countries)	1095030	2008	EU-SIFI	15.60	312618.11	43.40	126579.05	2.20	0.85	27085.74	1.12	9235.52	26100.00

32	Standard Chartered PLC	European Union (28 countries)	1095030	2009	EU-SIFI	16.50	303107.05	48.99	139539.35	2.04	0.89	28991.59	1.36	10731.71	24500.00
32	Standard Chartered PLC	European Union (28 countries)	1095030	2010	EU-SIFI	18.40	386580.03	47.45	181817.79	2.04	1.02	33889.05	1.06	14414.18	25500.00
32	Standard Chartered PLC	European Union (28 countries)	1095030	2011	EU-SIFI	17.60	458087.01	45.64	208250.18	2.14	0.85	36667.15	0.98	17905.77	26200.00
32	Standard Chartered PLC	European Union (28 countries)	1095030	2012	EU-SIFI	17.40	478392.54	47.82	214250.75	2.09	0.78	41056.20	1.08	20134.37	26600.00
32	Standard Chartered PLC	European Union (28 countries)	1095030	2013	EU-SIFI	18.00	488992.94	47.78	213290.34	2.04	0.74	42377.02	1.17	20843.00	26800.00
32	Standard Chartered PLC	European Union (28 countries)	1095030	2014	EU-SIFI	16.71	597935.36	47.06	237775.01	1.90	0.72	53551.21	1.38	24730.77	27600.00
32	Standard Chartered PLC	European Union (28 countries)	1095030	2015	EU-SIFI	19.50	588283.64	47.30	242517.07	1.68	0.64	72516.49	2.53	24738.88	29000.00
33	Svenska Handelsbanken AB	European Union (28 countries)	110706	2007	EU-SIFI	10.40	196937.48	57.51	137145.39	0.92	0.45	3569.57	0.14	7467.79	26100.00
33	Svenska Handelsbanken AB	European Union (28 countries)	110706	2008	EU-SIFI	10.60	198601.16	50.43	136543.08	1.04	0.36	7799.58	0.18	6845.39	26100.00
33	Svenska Handelsbanken AB	European Union (28 countries)	110706	2009	EU-SIFI	12.90	207066.96	44.30	144611.77	1.08	0.36	10257.16	0.37	7828.36	24500.00
33	Svenska Handelsbanken AB	European Union (28 countries)	110706	2010	EU-SIFI	11.60	240204.76	44.31	165890.11	1.05	0.39	5659.32	0.38	9628.80	25500.00
33	Svenska Handelsbanken AB	European Union (28 countries)	110706	2011	EU-SIFI	10.70	275415.52	40.26	177480.74	1.16	0.38	4932.73	0.26	10417.88	26200.00
33	Svenska Handelsbanken AB	European Union (28 countries)	110706	2012	EU-SIFI	20.70	277776.38	20.41	192351.05	1.23	0.35	5246.98	0.25	11212.42	26600.00
33	Svenska Handelsbanken AB	European Union (28 countries)	110706	2013	EU-SIFI	21.60	280468.13	18.74	190145.00	1.27	0.37	5625.46	0.23	11705.47	26800.00
33	Svenska Handelsbanken AB	European Union (28 countries)	110706	2014	EU-SIFI	25.60	299885.74	17.06	190374.18	1.24	0.39	8327.82	0.23	11545.92	27600.00
33	Svenska Handelsbanken AB	European Union (28 countries)	110706	2015	EU-SIFI	27.20	274450.19	18.76	202784.38	1.18	0.39	8136.99	0.26	12368.54	29000.00
34	Swedbank AB	European Union (28 countries)	111547	2007	EU-SIFI	9.30	170310.52	51.14	120634.11	1.35	0.68	3933.07	0.32	5616.38	26100.00
34	Swedbank AB	European Union (28 countries)	111547	2008	EU-SIFI	11.20	166669.63	50.57	119023.40	1.34	0.54	1898.63	0.49	4446.76	26100.00
34	Swedbank AB	European Union (28 countries)	111547	2009	EU-SIFI	13.50	175057.95	43.71	128414.38	1.20	0.45	7112.79	1.96	5776.16	24500.00
34	Swedbank AB	European Union (28 countries)	111547	2010	EU-SIFI	13.30	191367.07	43.74	134845.40	0.94	0.54		1.80	6210.99	25500.00
34	Swedbank AB	European Union (28 countries)	111547	2011	EU-SIFI	12.30	208389.67	40.75	132889.83	1.13	0.57	2887.17	1.28	6554.23	26200.00
34	Swedbank AB	European Union (28 countries)	111547	2012	EU-SIFI	18.50	215194.89	25.14	139761.56	1.26	0.57	2242.53	0.71	7427.18	26600.00
34	Swedbank AB	European Union (28 countries)	111547	2013	EU-SIFI	20.10	205899.48	24.78	137821.04	1.33	0.60	6265.36	0.33	7680.16	26800.00
34	Swedbank AB	European Union (28 countries)	111547	2014	EU-SIFI	25.50	225850.16	19.53	143216.65	1.28	0.61	4578.44	0.24	7917.60	27600.00
34	Swedbank AB	European Union (28 countries)	111547	2015	EU-SIFI	30.30	233831.31	18.11	150456.17	1.20	0.56	8118.49	0.24	8796.20	29000.00
35	The Royal Bank of Scotland Group plc	European Union (28 countries)	111382	2007	EU-SIFI	11.20	2586701.18	32.04	1137417.14	1.09	0.53	204041.79	0.77	43721.01	26100.00

35	The Royal Bank of Scotland Group plc	European Union (28 countries)	111382	2008	EU-SIFI	14.10	2515717.95	28.97	927672.91	1.18	0.49	110802.95	1.23	19476.07	26100.00
35	The Royal Bank of Scotland Group plc	European Union (28 countries)	111382	2009	EU-SIFI	16.10	1907159.30	31.89	838099.16	1.28	0.57	165094.02	2.30	13640.83	24500.00
35	The Royal Bank of Scotland Group plc	European Union (28 countries)	111382	2010	EU-SIFI	14.00	1702968.50	32.02	671679.63	1.47	0.62	145204.60	3.15	24883.01	25500.00
35	The Royal Bank of Scotland Group plc	European Union (28 countries)	111382	2011	EU-SIFI	13.80	1800645.49	29.13	566257.99	0.91	0.40	150018.84	4.17	22619.39	26200.00
35	The Royal Bank of Scotland Group plc	European Union (28 countries)	111382	2012	EU-SIFI	14.50	1569494.05	35.02	539660.20	0.91	0.39	113994.76	4.68	12672.73	26600.00
35	The Royal Bank of Scotland Group plc	European Union (28 countries)	111382	2013	EU-SIFI	16.50	1227461.03	37.50	496586.02	0.84	0.35	83868.94	6.05	1035.35	26800.00
35	The Royal Bank of Scotland Group plc	European Union (28 countries)	111382	2014	EU-SIFI	17.10	1351216.40	33.86	451836.80	1.01	0.39	82358.43	4.97	-5143.79	27600.00
35	The Royal Bank of Scotland Group plc	European Union (28 countries)	111382	2015	EU-SIFI	24.70	1109887.74	29.75	426182.37	1.08	0.36	91863.61	2.27	-5471.80	29000.00
36	UniCredit S.p.A.	European Union (28 countries)	112001	2007	EU-SIFI	10.11	1021758.40	54.67	597315.30	1.84	1.14	35426.00	3.87	10626.00	26100.00
36	UniCredit S.p.A.	European Union (28 countries)	112001	2008	EU-SIFI	10.78	1045612.10	49.02	627793.50	2.05	0.94	46309.30	3.99	10639.70	26100.00
36	UniCredit S.p.A.	European Union (28 countries)	112001	2009	EU-SIFI	12.02	928759.80	48.70	578825.90	1.97	0.85	50373.30	5.15	14271.20	24500.00
36	UniCredit S.p.A.	European Union (28 countries)	112001	2010	EU-SIFI	12.68	929487.60	48.94	579146.00	1.94	0.97	69947.70	5.71	15186.46	25500.00
36	UniCredit S.p.A.	European Union (28 countries)	112001	2011	EU-SIFI	12.37	926768.70	49.68	581724.00	1.88	0.95	55358.60	6.17	15564.53	26200.00
36	UniCredit S.p.A.	European Union (28 countries)	112001	2012	EU-SIFI	14.52	926827.50	46.08	555071.00	1.69	0.89	71863.30	7.23	10001.79	26600.00
36	UniCredit S.p.A.	European Union (28 countries)	112001	2013	EU-SIFI	13.61	845838.40	50.10	518131.90	1.66	0.93	78471.30	9.26	19750.18	26800.00
36	UniCredit S.p.A.	European Union (28 countries)	112001	2014	EU-SIFI	13.41	844217.40	48.47	490152.40	1.67	0.96	99525.10	9.63	13748.41	27600.00
36	UniCredit S.p.A.	European Union (28 countries)	112001	2015	EU-SIFI	14.23	860433.40	45.40	490164.80	1.57	0.96	116423.20	9.15	14254.88	29000.00
37	Abanka d.d.	SLOVENIA	111857	2007	O-SIFI	10.70	3517.10	87.17	2502.50	2.29	1.11	35.20	4.70	147.60	17400.00
37	Abanka d.d.	SLOVENIA	111857	2008	O-SIFI	12.31	3883.00	90.99	2902.20	2.36	0.91	15.30	4.40	-8.50	18800.00
37	Abanka d.d.	SLOVENIA	111857	2009	O-SIFI	12.31	4557.50	80.63	3056.90	2.05	0.80	98.40	4.96	-6.90	17700.00
37	Abanka d.d.	SLOVENIA	111857	2010	O-SIFI	11.80	4586.20	85.00	3431.40	2.01	0.72	56.40	5.66	-6.10	17700.00
37	Abanka d.d.	SLOVENIA	111857	2011	O-SIFI	9.89	4258.20	84.54	3333.30	1.93	0.75		10.03	111.40	18000.00
37	Abanka d.d.	SLOVENIA	111857	2012	O-SIFI	9.53	3614.00	80.86	2925.60	1.96	0.81	13.60	14.00	78.30	17500.00
37	Abanka d.d.	SLOVENIA	111857	2013	O-SIFI	9.47	3048.40	68.85	2538.00	1.81	0.96	31.60	28.70	-0.50	17600.00
37	Abanka d.d.	SLOVENIA	111857	2014	O-SIFI	19.04	4314.40	53.22	2258.30	3.41	1.48	136.00	13.26	-15.30	18200.00
37	Abanka d.d.	SLOVENIA	111857	2015	O-SIFI	23.03	3830.20	51.22	2155.50	2.76	1.48	73.40	14.15	43.30	18800.00
38	ABLV Bank AS	LATVIA	1000218	2007	O-SIFI	13.24	1569.10	64.72	982.30	3.32	1.10	14.80	0.52	100.20	10300.00

38	ABLV Bank AS	LATVIA	1000218	2008	O-SIFI	15.78	1397.40		983.00	3.43	1.24	28.50	3.04	91.10	11200.00
38	ABLV Bank AS	LATVIA	1000218	2009	O-SIFI	14.56	1391.10		849.40	1.99	1.38	89.20	7.77	106.70	8800.00
38	ABLV Bank AS	LATVIA	1000218	2010	O-SIFI	11.41	1945.80		845.60	1.68	1.88	337.10	11.01	64.50	8500.00
38	ABLV Bank AS	LATVIA	1000218	2011	O-SIFI	13.57	2530.30	3.33	751.50	1.66	1.69	237.20	11.11	90.90	9800.00
38	ABLV Bank AS	LATVIA	1000218	2012	O-SIFI	14.58	3029.60		778.50	1.30	1.61	613.00	8.66	84.50	10800.00
38	ABLV Bank AS	LATVIA	1000218	2013	O-SIFI	17.02	3316.10		800.20	1.55	1.85	715.70	6.26	110.70	11400.00
38	ABLV Bank AS	LATVIA	1000218	2014	O-SIFI	18.64	4270.10		821.50	1.57	1.55	1552.60	3.82	130.10	11900.00
38	ABLV Bank AS	LATVIA	1000218	2015	O-SIFI	16.89	4991.60		898.00	1.55	1.31	2139.40	2.67	71.20	12300.00
39	Allied Irish Banks, plc	IRELAND	111514	2007	O-SIFI	10.10	177862.00	78.37	128345.00	2.08	0.76	7653.00	0.58	7682.00	44800.00
39	Allied Irish Banks, plc	IRELAND	111514	2008	O-SIFI	10.50	182174.00	73.50	131781.00	2.22	0.59	9001.00	1.74	6882.00	41800.00
39	Allied Irish Banks, plc	IRELAND	111514	2009	O-SIFI	10.20	174314.00	63.32	106328.00	1.67	0.26	11475.00	2.81	5786.00	37500.00
39	Allied Irish Banks, plc	IRELAND	111514	2010	O-SIFI	9.20	145222.00	68.01	93637.00	1.34	0.36	11019.00	7.78	-4292.00	36800.00
39	Allied Irish Banks, plc	IRELAND	111514	2011	O-SIFI	20.50	136651.00	61.67	97472.00	1.11	0.36	9518.00	15.32	2063.00	37600.00
39	Allied Irish Banks, plc	IRELAND	111514	2012	O-SIFI	17.80	122501.00	58.30	89853.00	0.93	0.31	29123.00	18.39	1110.00	38200.00
39	Allied Irish Banks, plc	IRELAND	111514	2013	O-SIFI	16.60	117734.00	53.00	82750.00	1.24	0.32	31594.00	20.64	-2.00	39200.00
39	Allied Irish Banks, plc	IRELAND	111514	2014	O-SIFI	18.10	107455.00	55.01	75658.00	1.70	0.36	25195.00	16.40	5621.00	42200.00
39	Allied Irish Banks, plc	IRELAND	111514	2015	O-SIFI	18.90	103122.00	56.78	69773.00	2.05	0.39	19791.00	9.79	5540.00	56400.00
40	Alpha Bank AE	GREECE	111589	2007	O-SIFI										21100.00
40	Alpha Bank AE	GREECE	111589	2008	O-SIFI										21800.00
40	Alpha Bank AE	GREECE	111589	2009	O-SIFI										21400.00
40	Alpha Bank AE	GREECE	111589	2010	O-SIFI										20300.00
40	Alpha Bank AE	GREECE	111589	2011	O-SIFI	9.50	59148.00	75.07	49747.50	3.10	0.51	7356.20	9.79	-2659.60	18600.00
40	Alpha Bank AE	GREECE	111589	2012	O-SIFI		58253.40	71.41	45185.00	2.64	0.52	5462.50	10.19	-3538.20	17300.00
40	Alpha Bank AE	GREECE	111589	2013	O-SIFI	16.40	73697.30	69.08	62783.40	2.61	0.58	9171.90	17.69	-747.60	16500.00
40	Alpha Bank AE	GREECE	111589	2014	O-SIFI	14.60	72935.50		62337.40	2.96	0.51	4391.40	20.50	-1142.80	16400.00
40	Alpha Bank AE	GREECE	111589	2015	O-SIFI	16.80	69297.50		62014.90	3.04	0.49	4509.70	25.52	-2546.90	16300.00
41	Argenta Spaarbank N.V.	BELGIUM	1000660	2007	O-SIFI	12.60	28739.50	29.27	18609.70	1.12	-0.05		0.23	356.70	32400.00
41	Argenta Spaarbank N.V.	BELGIUM	1000660	2008	O-SIFI	15.43	30037.80	24.50	19442.60	0.91	-0.31	2583.50	0.25	345.81	33100.00

41	Argenta Spaarbank N.V.	BELGIUM	1000660	2009	O-SIFI	14.60	31471.50	22.01	18612.10	0.72	-0.19	4103.60	0.26	408.47	32300.00
41	Argenta Spaarbank N.V.	BELGIUM	1000660	2010	O-SIFI	18.61	33255.40	20.03	17669.40	0.84	-0.17	6849.90	0.26	475.59	33500.00
41	Argenta Spaarbank N.V.	BELGIUM	1000660	2011	O-SIFI	21.27	34021.70	19.33	18067.30	0.92	-0.19	7725.10	0.23	547.55	34500.00
41	Argenta Spaarbank N.V.	BELGIUM	1000660	2012	O-SIFI	21.27	34145.30	19.79	19869.60	1.05	-0.24	6102.60	0.23	545.80	35000.00
41	Argenta Spaarbank N.V.	BELGIUM	1000660	2013	O-SIFI	21.67	32147.00	22.49	21956.10	1.43	-0.25	4578.20	0.18	568.90	35300.00
41	Argenta Spaarbank N.V.	BELGIUM	1000660	2014	O-SIFI	24.42	33524.10	23.63	23218.00	1.66	-0.18	3640.20	0.18	673.40	35800.00
41	Argenta Spaarbank N.V.	BELGIUM	1000660	2015	O-SIFI	25.87	33862.00	24.74	24345.10	1.69	-0.17	3611.40	0.15	784.00	36500.00
42	AS Citadele banka	LATVIA	1318272	2007	O-SIFI										10300.00
42	AS Citadele banka	LATVIA	1318272	2008	O-SIFI										11200.00
42	AS Citadele banka	LATVIA	1318272	2009	O-SIFI										8800.00
42	AS Citadele banka	LATVIA	1318272	2010	O-SIFI	10.00	2294.40		1216.40			337.80	7.09	-26.70	8500.00
42	AS Citadele banka	LATVIA	1318272	2011	O-SIFI		2220.10		1107.20	2.46	1.52	267.20	7.84	-29.20	9800.00
42	AS Citadele banka	LATVIA	1318272	2012	O-SIFI	10.50	2278.60		1108.50	2.73	1.69	488.00	8.05	-16.60	10800.00
42	AS Citadele banka	LATVIA	1318272	2013	O-SIFI	12.30	2541.50	63.97	1148.90	2.91	1.69	472.50	8.09	-3.30	11400.00
42	AS Citadele banka	LATVIA	1318272	2014	O-SIFI	11.00	2854.60	63.83	1164.40	2.80	1.50	447.70	7.62	29.60	11900.00
42	AS Citadele banka	LATVIA	1318272	2015	O-SIFI	13.40	2960.50	59.54	1262.50	2.59	1.52	358.40	7.14	55.70	12300.00
43	AXA Bank Belgium	BELGIUM	1000470	2007	O-SIFI	17.79	21328.40	45.28	14395.40	0.95	-0.01	1966.50	0.63	461.40	32400.00
43	AXA Bank Belgium	BELGIUM	1000470	2008	O-SIFI	43.81	23391.10	12.67	14944.10	1.22	-0.04	1841.00	0.62	461.40	33100.00
43	AXA Bank Belgium	BELGIUM	1000470	2009	O-SIFI	26.22	26296.20	19.01	13981.90	0.93	-0.08	1866.00	0.91	475.30	32300.00
43	AXA Bank Belgium	BELGIUM	1000470	2010	O-SIFI	28.87	31377.40	14.13	14928.00	0.82	-0.01	3169.10	0.90	464.50	33500.00
43	AXA Bank Belgium	BELGIUM	1000470	2011	O-SIFI	25.57	41837.40	10.66	15780.90	0.70	-0.02	6166.00	1.58	475.30	34500.00
43	AXA Bank Belgium	BELGIUM	1000470	2012	O-SIFI	21.74	39220.10	12.54	17955.00	0.60	-0.04	6120.20	1.36	326.50	35000.00
43	AXA Bank Belgium	BELGIUM	1000470	2013	O-SIFI	20.49	36885.80	13.17	18082.60	0.67	-0.02	5287.90	1.48	297.50	35300.00
43	AXA Bank Belgium	BELGIUM	1000470	2014	O-SIFI	20.10	42641.70	12.48	19118.90	0.60	0.02	8397.20	1.52	289.30	35800.00
43	AXA Bank Belgium	BELGIUM	1000470	2015	O-SIFI	21.20	30909.70	15.82	17647.90	0.65	0.02	7082.40	0.62	239.90	36500.00
44	Banca Monte dei Paschi di Siena SpA	ITALY	105352	2007	O-SIFI	8.88	161983.60	70.00	109540.60	2.40	1.01	3017.40	2.94	3996.48	27400.00
44	Banca Monte dei Paschi di Siena SpA	ITALY	105352	2008	O-SIFI	9.32	213796.00	61.93	151977.10	2.51	0.83	4306.80	4.36	4909.00	27600.00
44	Banca Monte dei Paschi di Siena SpA	ITALY	105352	2009	O-SIFI	11.89	224815.00	53.78	160174.50	2.06	0.88	15903.90	5.02	5766.00	26400.00

44	Banca Monte dei Paschi di Siena SpA	ITALY	105352	2010	O-SIFI	12.95	244278.90	44.72	165251.50	1.90	0.89	24748.00	5.51	5900.40	26800.00
44	Banca Monte dei Paschi di Siena SpA	ITALY	105352	2011	O-SIFI	14.92	240793.90	43.69	156936.30	1.56	0.79	25256.90	6.58	6577.15	27300.00
44	Banca Monte dei Paschi di Siena SpA	ITALY	105352	2012	O-SIFI	13.71	218886.10	42.41	152654.00	1.52	0.77	29406.20	8.41	4055.00	26700.00
44	Banca Monte dei Paschi di Siena SpA	ITALY	105352	2013	O-SIFI	15.19	199105.90	42.44	144210.50	1.30	0.84	28260.70	10.91	1187.00	26500.00
44	Banca Monte dei Paschi di Siena SpA	ITALY	105352	2014	O-SIFI	12.99	183443.80	41.55	138623.30	1.49	0.95	27242.90	16.66	-1060.00	26700.00
44	Banca Monte dei Paschi di Siena SpA	ITALY	105352	2015	O-SIFI	15.95	169012.00	41.91	130103.10	1.79	1.11	23095.00	18.00	222.00	27200.00
45	Banco BPI S.A.	PORTUGAL	111727	2007	O-SIFI	9.91	40545.90	63.94	27603.20	1.80	0.80	2165.90	1.35		16600.00
45	Banco BPI S.A.	PORTUGAL	111727	2008	O-SIFI	11.32	43003.40	60.96	29723.80	1.72	0.65	2821.80	1.51	349.70	16900.00
45	Banco BPI S.A.	PORTUGAL	111727	2009	O-SIFI	11.00	47449.20	54.92	30486.00	1.48	0.61	7199.80	1.74	415.10	16600.00
45	Banco BPI S.A.	PORTUGAL	111727	2010	O-SIFI	11.10	45659.80	57.03	30608.90	1.49	0.59	7037.30	1.81	499.60	17000.00
45	Banco BPI S.A.	PORTUGAL	111727	2011	O-SIFI	9.30	42955.90	58.55	28994.50	1.34	0.61	5661.90	2.33	831.90	16700.00
45	Banco BPI S.A.	PORTUGAL	111727	2012	O-SIFI	15.00	44564.60	55.00	28128.70	1.33	0.69	9179.00	2.78	717.80	16000.00
45	Banco BPI S.A.	PORTUGAL	111727	2013	O-SIFI	16.20	42820.40	49.08	26815.20	1.11	0.66	9051.20	3.48	954.60	16300.00
45	Banco BPI S.A.	PORTUGAL	111727	2014	O-SIFI	11.80	42628.90	48.33	26305.70	1.25	0.70	8512.70	3.94	971.50	16600.00
45	Banco BPI S.A.	PORTUGAL	111727	2015	O-SIFI	10.90	40673.30	58.27	25260.30	1.65	0.71	7838.20	3.87	886.50	17400.00
46	Banco Comercial Portugues, S.A.	PORTUGAL	111600	2007	O-SIFI	9.56	88166.20	69.97	66872.80	2.05	0.87	2349.00	1.83	-1035.40	16600.00
46	Banco Comercial Portugues, S.A.	PORTUGAL	111600	2008	O-SIFI	10.50	94423.70	71.41	76645.50	2.09	0.88	2303.90	1.93	-73.40	16900.00
46	Banco Comercial Portugues, S.A.	PORTUGAL	111600	2009	O-SIFI	11.47	95550.40	68.83	77348.20	1.55	0.85	3671.20	2.79	-18.50	16600.00
46	Banco Comercial Portugues, S.A.	PORTUGAL	111600	2010	O-SIFI	10.30	98546.70	60.44	76411.30	1.71	0.89	5319.60	3.28	-190.10	17000.00
46	Banco Comercial Portugues, S.A.	PORTUGAL	111600	2011	O-SIFI	9.50	93482.10	59.32	71533.10	1.75	0.87	5487.40	4.88	2115.60	16700.00
46	Banco Comercial Portugues, S.A.	PORTUGAL	111600	2012	O-SIFI	12.70	89744.00	59.36	66861.00	1.22	0.82	8107.80	6.35	850.00	16000.00
46	Banco Comercial Portugues, S.A.	PORTUGAL	111600	2013	O-SIFI	14.60	82007.00	53.56	60222.30	1.08	0.84	8331.60	5.68	630.10	16300.00
46	Banco Comercial Portugues, S.A.	PORTUGAL	111600	2014	O-SIFI	13.70	76360.90	55.26	57168.30	1.55	0.94	7592.00	6.09	2391.60	16600.00
46	Banco Comercial Portugues, S.A.	PORTUGAL	111600	2015	O-SIFI	14.30	74884.90	57.84	55438.30	1.74	0.96	7167.40	6.26	2452.50	17400.00
47	Banco de Sabadell	SPAIN	106599	2007	O-SIFI	10.87	76776.00	79.91	63219.30	1.96	0.94	1454.50	1.93	2975.10	23900.00
47	Banco de Sabadell	SPAIN	106599	2008	O-SIFI	9.57	80378.10	70.28	64704.20	1.97	0.75	2506.00	2.62	4499.90	24300.00
47	Banco de Sabadell	SPAIN	106599	2009	O-SIFI	10.67	82822.90	69.58	65012.80	2.13	0.68	2668.20	2.74	5214.50	23300.00
47	Banco de Sabadell	SPAIN	106599	2010	O-SIFI	11.18	97099.20	57.82	76190.70	1.82	0.64	6421.10	3.02	3102.10	23200.00

47	Banco de Sabadell	SPAIN	106599	2011	O-SIFI	11.02	100437.40	54.22	73635.30	1.73	0.64	7939.60	3.08	3213.50	22900.00
47	Banco de Sabadell	SPAIN	106599	2012	O-SIFI	11.40	161547.10	46.62	119638.10	1.49	0.50	14721.10	10.18	3128.30	22200.00
47	Banco de Sabadell	SPAIN	106599	2013	O-SIFI	12.10	163522.50	49.04	124614.90	1.24	0.52	16327.10	9.93	2795.00	22000.00
47	Banco de Sabadell	SPAIN	106599	2014	O-SIFI	12.80	163345.70	45.56	117963.90	1.58	0.60	18247.40	6.54		22300.00
47	Banco de Sabadell	SPAIN	106599	2015	O-SIFI	12.90	208627.80	42.55	152696.90	1.91	0.60	21091.50	4.33		23300.00
48	Banco Popular Espanol S.A.	SPAIN	107477	2007	O-SIFI	9.67	107169.40	82.93	88306.80	2.50	0.95	292.20	1.88	4886.60	23900.00
48	Banco Popular Espanol S.A.	SPAIN	107477	2008	O-SIFI	9.10	110376.10	83.47	93716.60	2.50	0.84	1442.40	2.20	5220.70	24300.00
48	Banco Popular Espanol S.A.	SPAIN	107477	2009	O-SIFI	9.60	129290.10	71.60	97507.80	2.54	0.68	5867.90	2.79	5280.20	23300.00
48	Banco Popular Espanol S.A.	SPAIN	107477	2010	O-SIFI	9.66	130139.80	72.11	98388.70	2.06	0.62	9029.90	2.58	5561.20	23200.00
48	Banco Popular Espanol S.A.	SPAIN	107477	2011	O-SIFI	10.15	130925.70	67.55	99225.10	1.72	0.56	9662.70	2.64	5918.90	22900.00
48	Banco Popular Espanol S.A.	SPAIN	107477	2012	O-SIFI	11.03	157618.10	56.33	117865.00	1.95	0.57	13229.20	7.68	6222.80	22200.00
48	Banco Popular Espanol S.A.	SPAIN	107477	2013	O-SIFI	12.26	146709.50	54.94	101915.30	1.72	0.54	9130.60	7.75	3523.00	22000.00
48	Banco Popular Espanol S.A.	SPAIN	107477	2014	O-SIFI	11.96	161456.50	49.62	101792.90	1.68	0.47	20762.00	7.66	3630.30	22300.00
48	Banco Popular Espanol S.A.	SPAIN	107477	2015	O-SIFI	13.80	158649.90	47.13	100581.10	1.59	0.42	18141.20	7.40	3821.30	23300.00
49	Bank Nederlandse Gemeenten (BNG)	NETHERLANDS	107508	2007	O-SIFI	20.00	92602.00	10.85	66764.00	0.29	0.02	2737.00	0.04	1805.00	37400.00
49	Bank Nederlandse Gemeenten (BNG)	NETHERLANDS	107508	2008	O-SIFI	20.00	101365.00	10.26	75729.00	0.29	0.02	3830.00	0.04	1866.00	38900.00
49	Bank Nederlandse Gemeenten (BNG)	NETHERLANDS	107508	2009	O-SIFI	20.00	104496.00	10.55	79332.00	0.33	0.03	3772.00	0.03	2065.00	37400.00
49	Bank Nederlandse Gemeenten (BNG)	NETHERLANDS	107508	2010	O-SIFI	20.40	118533.00	9.43	86882.00	0.37	0.03	4478.00	0.04	2181.00	38000.00
49	Bank Nederlandse Gemeenten (BNG)	NETHERLANDS	107508	2011	O-SIFI	21.00	136460.00	8.55	90305.00	0.38	0.02	4182.00	0.04		38500.00
49	Bank Nederlandse Gemeenten (BNG)	NETHERLANDS	107508	2012	O-SIFI	22.00	142228.00	8.25	90263.00	0.35	0.02	6319.00	0.04		38500.00
49	Bank Nederlandse Gemeenten (BNG)	NETHERLANDS	107508	2013	O-SIFI	24.00	131183.00	8.79	91616.00	0.40	0.02	7314.00	0.05		38900.00
49	Bank Nederlandse Gemeenten (BNG)	NETHERLANDS	107508	2014	O-SIFI	24.00	153505.00	7.61	90284.00	0.32	0.02	9753.00	0.06		39300.00
49	Bank Nederlandse Gemeenten (BNG)	NETHERLANDS	107508	2015	O-SIFI	27.00	149511.00	8.56	88914.00	0.30	0.02	9508.00	0.06		40400.00
50	Bank of Cyprus Public Company Limited	CYPRUS	114911	2007	O-SIFI	12.70	31763.20	54.64	19499.90	2.87	0.75		2.97	607.70	22900.00
50	Bank of Cyprus Public Company Limited	CYPRUS	114911	2008	O-SIFI	11.23	36107.20	58.66	25137.20	2.58	0.70		2.74	877.20	24200.00
50	Bank of Cyprus Public Company Limited	CYPRUS	114911	2009	O-SIFI	11.70	39411.40	61.06	26508.00	2.41	0.69		3.29	1084.10	23100.00
50	Bank of Cyprus Public Company Limited	CYPRUS	114911	2010	O-SIFI	11.90	42637.70	61.63	28885.90	2.70	0.60	1490.00	4.02	868.50	23300.00

50	Bank of Cyprus Public Company Limited	CYPRUS	114911	2011	O-SIFI	7.80	37474.20	66.15	28872.40	3.09	0.62	1201.70	5.21	-585.30	23200.00
50	Bank of Cyprus Public Company Limited	CYPRUS	114911	2012	O-SIFI	0.90	31032.00	69.54	28050.60	2.14	0.53	1468.40	13.11	-2500.10	22600.00
50	Bank of Cyprus Public Company Limited	CYPRUS	114911	2013	O-SIFI	10.50	30349.40	73.94	24840.60	3.06	0.48	3258.50	12.38	-2151.80	21000.00
50	Bank of Cyprus Public Company Limited	CYPRUS	114911	2014	O-SIFI	14.20	26789.40	84.79	21656.10	3.74	0.59	2476.80	16.11	-79.00	20700.00
50	Bank of Cyprus Public Company Limited	CYPRUS	114911	2015	O-SIFI	14.10	23270.50	84.51	21385.00	3.76	0.68	880.20	19.61	-601.00	20900.00
51	Bank of Ireland	IRELAND	111516	2007	O-SIFI	11.80	188813.00	59.82	125476.00	1.63	0.44	6391.00	0.34	4810.00	44800.00
51	Bank of Ireland	IRELAND	111516	2008	O-SIFI	11.10	197434.00	59.24	136334.00	1.73	0.35	1765.00	0.44	5670.00	41800.00
51	Bank of Ireland	IRELAND	111516	2009	O-SIFI	13.40	181106.00	54.30	122436.00	1.22	0.12	2660.00	2.45	3263.00	37500.00
51	Bank of Ireland	IRELAND	111516	2010	O-SIFI	11.00	167473.00	47.20	119432.00	1.31	0.22	5512.00	4.17	3740.00	36800.00
51	Bank of Ireland	IRELAND	111516	2011	O-SIFI	14.70	154880.00	43.32	105658.00	1.02	0.28	6382.00	6.00	3507.00	37600.00
51	Bank of Ireland	IRELAND	111516	2012	O-SIFI	15.30	147964.00	38.18	100165.00	1.09	0.23	11873.00	7.53	4673.00	38200.00
51	Bank of Ireland	IRELAND	111516	2013	O-SIFI	14.10	132133.00	41.47	92755.00	1.75	0.26	12399.00	8.88	3805.00	39200.00
51	Bank of Ireland	IRELAND	111516	2014	O-SIFI	15.80	129800.00	39.75	89541.00	2.14	0.32	12831.00	8.29	4196.00	42200.00
51	Bank of Ireland	IRELAND	111516	2015	O-SIFI	18.00	130960.00	40.70	90575.00	2.26	0.29	11453.00	6.50	4950.00	56400.00
52	Bank of Valletta	MALTA	107534	2007	O-SIFI	14.08	5687.17	48.49	2677.92	2.57	0.68	689.63	2.12	315.33	14200.00
52	Bank of Valletta	MALTA	107534	2008	O-SIFI	11.50	6231.17	55.24	3093.55	2.33	0.60	799.34	1.76	271.68	15000.00
52	Bank of Valletta	MALTA	107534	2009	O-SIFI	12.50	6216.41	53.43	3303.61	2.01	0.65	1143.00	1.75	251.20	14900.00
52	Bank of Valletta	MALTA	107534	2010	O-SIFI	15.00	6335.19	53.38	3565.43	2.13	0.74	768.00	1.93	242.55	15900.00
52	Bank of Valletta	MALTA	107534	2011	O-SIFI	14.90	6622.87	52.03	3673.22	2.26	0.71	852.14	1.80	214.21	16400.00
52	Bank of Valletta	MALTA	107534	2012	O-SIFI	15.20	7049.23	51.31	3790.32	2.31	0.69	1039.49	2.32	236.20	17100.00
52	Bank of Valletta	MALTA	107534	2013	O-SIFI	16.50	7257.96	49.47	3845.28	1.95	0.77	1096.70	4.62	250.74	18000.00
52	Bank of Valletta	MALTA	107534	2014	O-SIFI	14.50	8296.79	47.92	4072.39	1.72	0.76	1183.21	5.18	253.25	19800.00
52	Bank of Valletta	MALTA	107534	2015	O-SIFI	13.40	9901.96	45.68	4240.15	1.68	0.72	1383.46	5.62	272.71	21500.00
53	Banque et Caisse d'Epargne de l'Etat	LUXEMBOURG	107553	2007	O-SIFI		39772.00		10319.20						77300.00
53	Banque et Caisse d'Epargne de l'Etat	LUXEMBOURG	107553	2008	O-SIFI		37522.50		12141.60	1.16	0.25				77900.00
53	Banque et Caisse d'Epargne de l'Etat	LUXEMBOURG	107553	2009	O-SIFI		37438.50		13700.10	1.26	0.28	3624.40	0.59		74200.00
53	Banque et Caisse d'Epargne de l'Etat	LUXEMBOURG	107553	2010	O-SIFI		37935.40		14156.00	1.08	0.27	3684.10	0.59		79200.00
53	Banque et Caisse d'Epargne de l'Etat	LUXEMBOURG	107553	2011	O-SIFI		39741.40		16653.70	1.21	0.28		0.36		83100.00

53	Banque et Caisse d'Epargne de l'Etat	LUXEMBOURG	107553	2012	O-SIFI	23.00	40493.40		16795.50	1.22	0.27	2447.20	0.47	2387.00	83000.00
53	Banque et Caisse d'Epargne de l'Etat	LUXEMBOURG	107553	2013	O-SIFI	24.80	40714.10		17110.30	1.12	0.29	2746.60	0.62	2554.10	85300.00
53	Banque et Caisse d'Epargne de l'Etat	LUXEMBOURG	107553	2014	O-SIFI	19.20	41211.00		18424.30	1.02	0.30	3419.00	0.61	2751.80	89500.00
53	Banque et Caisse d'Epargne de l'Etat	LUXEMBOURG	107553	2015	O-SIFI	18.50	42811.50		19319.80	1.02	0.32	3618.40	0.49	2942.10	91500.00
54	Banque Internationale a Luxembourg	LUXEMBOURG	111502	2007	O-SIFI	12.56	71820.60	31.87	10284.10	0.67	1.26	3021.60	0.78	1207.30	77300.00
54	Banque Internationale a Luxembourg	LUXEMBOURG	111502	2008	O-SIFI	15.98	66563.20	24.33	19965.10	1.04	1.07	2742.10	1.23	1361.50	77900.00
54	Banque Internationale a Luxembourg	LUXEMBOURG	111502	2009	O-SIFI	20.96	51296.60	25.67	16077.80	0.88	1.07	3073.10	1.59	1455.30	74200.00
54	Banque Internationale a Luxembourg	LUXEMBOURG	111502	2010	O-SIFI	26.37	43431.30	25.39	15241.30	0.78	1.48	3342.60	1.58	1680.10	79200.00
54	Banque Internationale a Luxembourg	LUXEMBOURG	111502	2011	O-SIFI	-1.71	24218.80	31.26	9724.00	0.96	1.85	432.10	2.34	1887.90	83100.00
54	Banque Internationale a Luxembourg	LUXEMBOURG	111502	2012	O-SIFI	19.49	21305.70	19.75	9777.20	1.22	0.76	3227.60	2.46	80.20	83000.00
54	Banque Internationale a Luxembourg	LUXEMBOURG	111502	2013	O-SIFI	20.77	19690.00	22.11	10298.30	1.42	0.95	3810.00	2.43	104.30	85300.00
54	Banque Internationale a Luxembourg	LUXEMBOURG	111502	2014	O-SIFI	19.56	20285.70	24.68	11121.00	1.48	0.93	3999.50	2.54	114.60	89500.00
54	Banque Internationale a Luxembourg	LUXEMBOURG	111502	2015	O-SIFI	16.07	21476.30	26.02	11675.20	1.49	0.90	4412.40	2.60	174.70	91500.00
55	BAWAG P.S.K.	AUSTRIA	1001169	2007	O-SIFI	11.80	44847.00		20768.00	1.35	0.33	3288.00	3.59	1466.00	34200.00
55	BAWAG P.S.K.	AUSTRIA	1001169	2008	O-SIFI	9.80	41578.00		21370.00	1.59	0.35	2742.00	3.15	423.00	35300.00
55	BAWAG P.S.K.	AUSTRIA	1001169	2009	O-SIFI	13.60	41225.00		21885.00	1.43	0.39	2833.00	3.74	-319.60	34500.00
55	BAWAG P.S.K.	AUSTRIA	1001169	2010	O-SIFI	11.80	38556.00		23018.00	1.65	0.41	1459.00	3.17	-77.90	35400.00
55	BAWAG P.S.K.	AUSTRIA	1001169	2011	O-SIFI	12.30	41077.00		23899.00	1.77	0.46	1383.00	2.83	-6.10	37000.00
55	BAWAG P.S.K.	AUSTRIA	1001169	2012	O-SIFI	13.80	41265.00	49.95	22924.00	1.48	0.48	1225.00	2.83	50.10	37800.00
55	BAWAG P.S.K.	AUSTRIA	1001169	2013	O-SIFI	18.70	36402.00	43.95	21334.00	1.56	0.51	1179.00	1.66	228.00	38200.00
55	BAWAG P.S.K.	AUSTRIA	1001169	2014	O-SIFI	16.10	34651.00	47.98	22057.00	2.01	0.59	1188.00	1.26	496.50	39000.00
55	BAWAG P.S.K.	AUSTRIA	1001169	2015	O-SIFI	16.70	35515.00	45.78	24948.00	2.18	0.56	1009.00	0.94	895.40	39900.00
56	Belfius Bank SA/NV	BELGIUM	107081	2007	O-SIFI	9.40	264697.50	23.56	80777.40	0.92	0.18	18548.90	0.71	4262.90	32400.00
56	Belfius Bank SA/NV	BELGIUM	107081	2008	O-SIFI	14.70	263092.90	19.69	104375.40	1.17	0.17	18588.30	0.82		33100.00
56	Belfius Bank SA/NV	BELGIUM	107081	2009	O-SIFI	15.50	253770.70	19.67	104001.20	0.99	0.13	19515.30	0.97	3602.70	32300.00
56	Belfius Bank SA/NV	BELGIUM	107081	2010	O-SIFI	15.70	247902.10	19.99	100455.30	0.89	0.15		0.99		33500.00
56	Belfius Bank SA/NV	BELGIUM	107081	2011	O-SIFI	15.10	232509.00	22.81	90251.50	0.96	0.14	16591.60	1.60	4290.30	34500.00
56	Belfius Bank SA/NV	BELGIUM	107081	2012	O-SIFI	13.80	212957.10	23.60	88197.90	1.01	0.15	16821.40	1.90	2812.10	35000.00

56	Belfius Bank SA/NV	BELGIUM	107081	2013	O-SIFI	16.50	182777.40	28.96	87444.50	1.03	0.20	16084.10	1.71	3230.90	35300.00
56	Belfius Bank SA/NV	BELGIUM	107081	2014	O-SIFI	16.10	194407.20	25.47	86829.80	1.16	0.24	17802.70	1.72	3675.50	35800.00
56	Belfius Bank SA/NV	BELGIUM	107081	2015	O-SIFI	17.70	176962.10	26.57	86926.10	1.17	0.28	16087.80	1.76	4135.20	36500.00
57	Caixa Economica Montepio Geral, caixa economica bancaria, S.A. (CEMG)	PORTUGAL	112137	2007	O-SIFI	8.95	16898.70	69.54	14903.40	2.07	0.43	45.50	2.00	208.70	16600.00
57	Caixa Economica Montepio Geral, caixa economica bancaria, S.A. (CEMG)	PORTUGAL	112137	2008	O-SIFI	11.44	16851.50	62.34	15393.80	2.05	0.43	41.00	2.49	177.90	16900.00
57	Caixa Economica Montepio Geral, caixa economica bancaria, S.A. (CEMG)	PORTUGAL	112137	2009	O-SIFI	13.25	17244.80	58.18	15176.30	1.94	0.45	41.60	3.25	196.20	16600.00
57	Caixa Economica Montepio Geral, caixa economica bancaria, S.A. (CEMG)	PORTUGAL	112137	2010	O-SIFI	12.74	18249.30	56.46	15075.90	1.58	0.43	1215.70	3.46	229.80	17000.00
57	Caixa Economica Montepio Geral, caixa economica bancaria, S.A. (CEMG)	PORTUGAL	112137	2011	O-SIFI	13.49	21495.30	62.83	17522.30	1.63	0.48	1277.70	4.40	307.70	16700.00
57	Caixa Economica Montepio Geral, caixa economica bancaria, S.A. (CEMG)	PORTUGAL	112137	2012	O-SIFI	13.58	20972.70	65.10	16625.80	1.43	0.53	1848.10	5.55	0.00	16000.00
57	Caixa Economica Montepio Geral, caixa economica bancaria, S.A. (CEMG)	PORTUGAL	112137	2013	O-SIFI	12.87	23039.20	61.59	16606.60	1.13	0.57	3110.90	6.33	-298.60	16300.00
57	Caixa Economica Montepio Geral, caixa economica bancaria, S.A. (CEMG)	PORTUGAL	112137	2014	O-SIFI	8.67	22473.50	67.21	16612.10	1.63	0.53	2046.00	8.34	-144.91	16600.00
57	Caixa Economica Montepio Geral, caixa economica bancaria, S.A. (CEMG)	PORTUGAL	112137	2015	O-SIFI	9.74	21145.20	66.03	15944.00	1.01	0.48	2427.80	8.04	-318.45	17400.00
58	Caixa Geral de Depositos, S.A.	PORTUGAL	111513	2007	O-SIFI	10.10	103553.80	58.92	68573.10	2.22	0.43	4731.90	2.52	1360.20	16600.00
58	Caixa Geral de Depositos, S.A.	PORTUGAL	111513	2008	O-SIFI	10.70	111060.10	60.19	77432.30	2.20	0.42	3226.30	2.74	1241.90	16900.00
58	Caixa Geral de Depositos, S.A.	PORTUGAL	111513	2009	O-SIFI	12.62	120984.80	58.72	79627.20	1.53	0.42	4109.10	3.02	1454.70	16600.00
58	Caixa Geral de Depositos, S.A.	PORTUGAL	111513	2010	O-SIFI	12.32	125757.00	61.22	84517.00	1.39	0.43	8561.20	3.09	1516.40	17000.00
58	Caixa Geral de Depositos, S.A.	PORTUGAL	111513	2011	O-SIFI	11.60	120565.30	57.25	81630.80	1.60	0.44	8874.10	4.14	-125.30	16700.00
58	Caixa Geral de Depositos, S.A.	PORTUGAL	111513	2012	O-SIFI	13.60	116856.50	58.52	78902.50	1.33	0.46	12080.30	5.31	-444.40	16000.00
58	Caixa Geral de Depositos, S.A.	PORTUGAL	111513	2013	O-SIFI	13.30	113494.60	54.94	74350.90	0.87	0.49	10277.10	6.07	-1082.10	16300.00
58	Caixa Geral de Depositos, S.A.	PORTUGAL	111513	2014	O-SIFI	12.70	100152.00	60.98	72093.90	1.06	0.53	10504.50	7.25	-2252.50	16600.00
58	Caixa Geral de Depositos, S.A.	PORTUGAL	111513	2015	O-SIFI	12.29	100901.50	59.74	70956.70	1.29	0.55	11164.60	7.33	-3391.30	17400.00
59	Cooperative Central Bank Ltd.	CYPRUS	1002728	2007	O-SIFI										22900.00
59	Cooperative Central Bank Ltd.	CYPRUS	1002728	2008	O-SIFI										24200.00
59	Cooperative Central Bank Ltd.	CYPRUS	1002728	2009	O-SIFI										23100.00
59	Cooperative Central Bank Ltd.	CYPRUS	1002728	2010	O-SIFI										23300.00
59	Cooperative Central Bank Ltd.	CYPRUS	1002728	2011	O-SIFI										23200.00
59	Cooperative Central Bank Ltd.	CYPRUS	1002728	2012	O-SIFI		17169.60	55.97	13920.40			1499.10	4.84		22600.00

59	Cooperative Central Bank Ltd.	CYPRUS	1002728	2013	O-SIFI		13708.60	63.22	13359.70	2.98	0.25	982.00	19.35		21000.00
59	Cooperative Central Bank Ltd.	CYPRUS	1002728	2014	O-SIFI	13.56	13936.90	64.64	13095.20	2.94	0.20	889.30	22.67		20700.00
59	Cooperative Central Bank Ltd.	CYPRUS	1002728	2015	O-SIFI	14.92	14253.10	56.20	12706.50	2.78	0.28		27.15		20900.00
60	de Volksbank N.V.	NETHERLANDS	112204	2007	O-SIFI	11.50	70584.00	43.56	60443.00	1.20	0.20	2386.00	0.34	142.00	37400.00
60	de Volksbank N.V.	NETHERLANDS	112204	2008	O-SIFI	12.40	76695.00	36.58	66039.00	1.11	0.17	2851.00	0.37	2134.00	38900.00
60	de Volksbank N.V.	NETHERLANDS	112204	2009	O-SIFI	13.90	80289.00	32.24	67914.00	0.90	0.13		0.64		37400.00
60	de Volksbank N.V.	NETHERLANDS	112204	2010	O-SIFI	16.70	78918.00	28.04	65983.00	1.15	0.12		1.47		38000.00
60	de Volksbank N.V.	NETHERLANDS	112204	2011	O-SIFI	14.40	81272.00	25.27	65682.00	1.09	0.12		1.38	38.00	38500.00
60	de Volksbank N.V.	NETHERLANDS	112204	2012	O-SIFI	9.30	81341.00	25.32	63341.00	0.96	0.07		2.48	-719.00	38500.00
60	de Volksbank N.V.	NETHERLANDS	112204	2013	O-SIFI	15.10	74537.00	35.81	53858.00	1.37	0.07		0.84	-1352.00	38900.00
60	de Volksbank N.V.	NETHERLANDS	112204	2014	O-SIFI	18.40	68159.00	20.20	53344.00	1.56	0.07		0.96	151.00	39300.00
60	de Volksbank N.V.	NETHERLANDS	112204	2015	O-SIFI	29.50	62690.00	18.36	49608.00	1.61	0.08		0.79	348.00	40400.00
61	Eurobank Ergasias S.A.	GREECE	107832	2007	O-SIFI	12.23	68389.00	67.76	46670.00	3.60	1.00	7903.00	2.21	335.00	21100.00
61	Eurobank Ergasias S.A.	GREECE	107832	2008	O-SIFI	10.40	82202.00	59.29	57288.00	3.44	0.78	7407.00	2.46	628.00	21800.00
61	Eurobank Ergasias S.A.	GREECE	107832	2009	O-SIFI	12.70	84269.00	56.76	57579.00	3.05	0.54	12080.00	3.03	699.00	21400.00
61	Eurobank Ergasias S.A.	GREECE	107832	2010	O-SIFI	11.70	87188.00	55.02	58597.00	2.84	0.51	13677.00	3.97	469.00	20300.00
61	Eurobank Ergasias S.A.	GREECE	107832	2011	O-SIFI	12.00	76822.00	56.82	51491.00	2.75	0.39	9624.00	6.60	-5039.00	18600.00
61	Eurobank Ergasias S.A.	GREECE	107832	2012	O-SIFI	11.60	67653.00	56.17	47841.00	2.30	0.31	8005.00	9.76	-6113.00	17300.00
61	Eurobank Ergasias S.A.	GREECE	107832	2013	O-SIFI	11.10	77586.00	49.15	53498.00	2.01	0.31	7222.00	14.74	-8753.00	16500.00
61	Eurobank Ergasias S.A.	GREECE	107832	2014	O-SIFI	16.60	75518.00	48.24	51881.00	2.20	0.31	6845.00	18.79	-9778.00	16400.00
61	Eurobank Ergasias S.A.	GREECE	107832	2015	O-SIFI	17.40	73553.00	52.87	51683.00	2.25	0.30	5592.00	22.81	-11027.00	16300.00
62	Hellenic Bank Public Company Limited	CYPRUS	114908	2007	O-SIFI	11.90	7357.40	68.14	4093.20	3.29	0.89	637.60	8.99	153.80	22900.00
62	Hellenic Bank Public Company Limited	CYPRUS	114908	2008	O-SIFI	10.80	7826.80	65.47	5012.90	2.84	0.84	1120.00	8.05	142.20	24200.00
62	Hellenic Bank Public Company Limited	CYPRUS	114908	2009	O-SIFI	14.00	8294.70	60.47	4888.20	2.62	0.80		6.68	164.70	23100.00
62	Hellenic Bank Public Company Limited	CYPRUS	114908	2010	O-SIFI	15.00	8236.70	65.30	5422.70	2.66	0.83	28.80	9.85	137.40	23300.00
62	Hellenic Bank Public Company Limited	CYPRUS	114908	2011	O-SIFI	12.90	8279.00	65.23	5631.70	2.91	0.87	565.00	11.45	35.40	23200.00
62	Hellenic Bank Public Company Limited	CYPRUS	114908	2012	O-SIFI	13.60	8755.70	60.70	5556.80	2.50	0.86	584.70	14.61	10.80	22600.00

62	Hellenic Bank Public Company Limited	CYPRUS	114908	2013	O-SIFI	14.30	6383.90	68.91	4394.10	3.11	0.94	394.60	18.89	-179.70	21000.00
62	Hellenic Bank Public Company Limited	CYPRUS	114908	2014	O-SIFI	18.20	7551.60	53.32	4405.10	4.02	1.15	546.40	26.88	-297.30	20700.00
62	Hellenic Bank Public Company Limited	CYPRUS	114908	2015	O-SIFI	18.13	7397.40	53.51	4395.90	2.84	1.13	561.40	29.64	-286.00	20900.00
63	HSH Nordbank AG	GERMANY	1033146	2007	O-SIFI	10.40	204863.00	63.12	105475.00	0.81	0.17	3490.00	1.47	1657.00	31000.00
63	HSH Nordbank AG	GERMANY	1033146	2008	O-SIFI	11.60	208370.00	53.27	117610.00	1.02	0.13		1.99	1354.00	31700.00
63	HSH Nordbank AG	GERMANY	1033146	2009	O-SIFI	14.50	174484.00	51.87	110557.00	1.11	-0.14		3.93	1607.00	30600.00
63	HSH Nordbank AG	GERMANY	1033146	2010	O-SIFI	22.70	150945.00	27.43	101208.00	0.92	-0.18		4.35	1668.00	32100.00
63	HSH Nordbank AG	GERMANY	1033146	2011	O-SIFI	21.00	135901.00	33.77	90607.00	1.00	-0.57	839.00	3.77	1904.00	33700.00
63	HSH Nordbank AG	GERMANY	1033146	2012	O-SIFI	19.10	130606.00	46.71	80570.00	1.16	-0.14	481.00	4.28	1876.00	34300.00
63	HSH Nordbank AG	GERMANY	1033146	2013	O-SIFI	19.70	109111.00	34.74	68469.00	0.84	0.09	1552.00	5.05	1775.00	35000.00
63	HSH Nordbank AG	GERMANY	1033146	2014	O-SIFI	18.70	110082.00	35.88	67336.00	0.58	0.13	1127.00	3.04	929.00	36200.00
63	HSH Nordbank AG	GERMANY	1033146	2015	O-SIFI	20.60	96973.00	38.57	56575.00	1.05	0.12	1264.00	1.86	1464.00	37300.00
64	Siauliu Bankas	LITHUANIA	113920	2007	O-SIFI	14.62	594.30	84.97	439.20	3.10	0.60	43.60	0.50	15.20	9000.00
64	Siauliu Bankas	LITHUANIA	113920	2008	O-SIFI	15.21	602.30	87.10	472.20	3.03	0.53	40.20	0.70	17.50	10200.00
64	Siauliu Bankas	LITHUANIA	113920	2009	O-SIFI	13.90	600.70		427.70	1.68	0.45	49.00	2.88	13.20	8500.00
64	Siauliu Bankas	LITHUANIA	113920	2010	O-SIFI	13.92	676.10		470.50	1.71	0.42	97.00	5.06	-5.70	9000.00
64	Siauliu Bankas	LITHUANIA	113920	2011	O-SIFI	12.94	793.30		592.80	2.47	0.39	96.70	4.71	2.60	10300.00
64	Siauliu Bankas	LITHUANIA	113920	2012	O-SIFI	12.64	852.30		587.70	2.36	0.33	91.90	5.58	6.10	11200.00
64	Siauliu Bankas	LITHUANIA	113920	2013	O-SIFI	11.14	1544.80	62.79	840.10	2.52	0.33	333.50	5.83	10.70	11800.00
64	Siauliu Bankas	LITHUANIA	113920	2014	O-SIFI	11.35	1640.00	59.59	832.80	2.92	0.48	367.20	5.96	22.00	12500.00
64	Siauliu Bankas	LITHUANIA	113920	2015	O-SIFI	14.24	1695.00	57.11	962.40	3.35	0.55	419.80	4.58	41.70	12900.00
65	Landwirtschaftliche Rentenbank	GERMANY	108166	2007	O-SIFI	16.50	88677.70	19.11	1297.60	0.21	0.00			1909.50	31000.00
65	Landwirtschaftliche Rentenbank	GERMANY	108166	2008	O-SIFI	19.30	90101.00	16.49	6473.70	0.36	0.00				31700.00
65	Landwirtschaftliche Rentenbank	GERMANY	108166	2009	O-SIFI	23.90	77847.80	15.62	612.80	0.42	0.00			2263.40	30600.00
65	Landwirtschaftliche Rentenbank	GERMANY	108166	2010	O-SIFI	25.20	83783.00	15.06	1517.40	0.39	0.00			2403.40	32100.00
65	Landwirtschaftliche Rentenbank	GERMANY	108166	2011	O-SIFI	26.40	88877.10	14.58	3141.30	0.41	0.00		9.15	2321.80	33700.00
65	Landwirtschaftliche Rentenbank	GERMANY	108166	2012	O-SIFI	28.20	88397.50	13.38	4960.60	0.41	0.00		6.21	2552.80	34300.00
65	Landwirtschaftliche Rentenbank	GERMANY	108166	2013	O-SIFI	29.30	81932.40	14.50	5570.70	0.40	0.00		0.00	2999.50	35000.00

65	Landwirtschaftliche Rentenbank	GERMANY	108166	2014	O-SIFI	19.30	88845.70		5530.30	0.39	0.00		0.00	3046.10	36200.00
65	Landwirtschaftliche Rentenbank	GERMANY	108166	2015	O-SIFI	23.20	93292.60		6380.90	0.38	0.00		0.00	3474.90	37300.00
66	Municipality Finance PLC	FINLAND	1006678	2007	O-SIFI	23.84	8913.20	4.78	5848.70	0.27	-0.03	270.20		22.80	35300.00
66	Municipality Finance PLC	FINLAND	1006678	2008	O-SIFI	13.60	12512.00	7.49	7567.40	0.29	-0.01	359.40		4.00	36500.00
66	Municipality Finance PLC	FINLAND	1006678	2009	O-SIFI	20.17	14557.50	6.66	9740.50	0.38	-0.01	479.60		36.40	33900.00
66	Municipality Finance PLC	FINLAND	1006678	2010	O-SIFI	19.28	20047.10	5.87	11706.40	0.44	0.00	752.10		94.50	34900.00
66	Municipality Finance PLC	FINLAND	1006678	2011	O-SIFI	24.13	23841.60	4.61	13654.90	0.45	0.00	519.80		135.40	36500.00
66	Municipality Finance PLC	FINLAND	1006678	2012	O-SIFI	33.87	25560.20	4.45	15766.20	0.57	-0.01	1391.30		239.90	36900.00
66	Municipality Finance PLC	FINLAND	1006678	2013	O-SIFI	32.52	26156.40	5.99	17882.30	0.59	-0.01	1578.40		364.60	37400.00
66	Municipality Finance PLC	FINLAND	1006678	2014	O-SIFI	33.53	30009.30	6.19	19337.70	0.58	0.00	2234.40		479.70	37600.00
66	Municipality Finance PLC	FINLAND	1006678	2015	O-SIFI	64.61	33888.80	4.88	20275.60	0.56	0.00	3027.90		601.10	38200.00
67	National Bank of Greece S.A.	GREECE	111590	2007	O-SIFI	10.20	90385.60	58.59	56251.60	4.33	1.09	7059.20	2.77	1214.60	21100.00
67	National Bank of Greece S.A.	GREECE	111590	2008	O-SIFI	10.30	101838.60	61.56	69296.80	4.39	0.94	7209.40	2.34	2076.70	21800.00
67	National Bank of Greece S.A.	GREECE	111590	2009	O-SIFI	11.30	113394.20	59.44	71591.80	4.07	0.71	16140.70	3.44	3053.00	21400.00
67	National Bank of Greece S.A.	GREECE	111590	2010	O-SIFI	13.70	120744.60	56.48	80823.50	3.90	0.57	17980.30	4.41	3216.80	20300.00
67	National Bank of Greece S.A.	GREECE	111590	2011	O-SIFI	-2.60	106870.00	60.12	78615.70	3.79	0.49	11253.20	9.06	-8073.40	18600.00
67	National Bank of Greece S.A.	GREECE	111590	2012	O-SIFI	9.20	104798.00	61.57	76905.00	3.67	0.54	11567.00	10.10		17300.00
67	National Bank of Greece S.A.	GREECE	111590	2013	O-SIFI	11.20	110930.00	50.12	76103.00	3.34	0.56	18437.00	11.63		16500.00
67	National Bank of Greece S.A.	GREECE	111590	2014	O-SIFI	13.60	115212.00	52.34	78683.00	2.07	0.14	17612.00	13.44		16400.00
67	National Bank of Greece S.A.	GREECE	111590	2015	O-SIFI	14.60	111175.00		58218.00	1.90	0.05	17518.00	22.06		16300.00
68	Nova Kreditna Banka Maribor	SLOVENIA	112189	2007	O-SIFI	9.98	5098.10	87.58	3397.50	2.75	1.17	550.50	7.10	224.90	17400.00
68	Nova Kreditna Banka Maribor	SLOVENIA	112189	2008	O-SIFI	11.69	5489.90	69.75	4018.00	2.97	1.16	450.60	5.45	-7.00	18800.00
68	Nova Kreditna Banka Maribor	SLOVENIA	112189	2009	O-SIFI	11.72	5785.60	81.16	4119.60	2.56	1.12	576.80	6.69	-3.70	17700.00
68	Nova Kreditna Banka Maribor	SLOVENIA	112189	2010	O-SIFI	10.89	5866.70	84.30	4362.70	2.74	1.16	465.80	7.51	-13.60	17700.00
68	Nova Kreditna Banka Maribor	SLOVENIA	112189	2011	O-SIFI	11.47	5813.10	84.48	4287.40	2.57	1.05	685.60	10.34	300.70	18000.00
68	Nova Kreditna Banka Maribor	SLOVENIA	112189	2012	O-SIFI	9.17	5321.80	81.25	4039.30	2.12	1.15	739.90	15.88	213.90	17500.00
68	Nova Kreditna Banka Maribor	SLOVENIA	112189	2013	O-SIFI	18.13	4810.80	59.80	2821.70	1.77	1.31	1541.10	20.91	681.30	17600.00
68	Nova Kreditna Banka Maribor	SLOVENIA	112189	2014	O-SIFI	23.30	4369.00	54.01	2560.00	2.77	1.39	1550.10	24.17	35.30	18200.00

68	Nova Kreditna Banka Maribor	SLOVENIA	112189	2015	O-SIFI	25.13	4246.20	53.37	2455.80	2.64	1.45	1436.20	25.27	25.70	18800.00
69	Nova Ljubljanska banka d.d.	SLOVENIA	108357	2007	O-SIFI	9.83	18308.10	81.50	12419.20	2.90	1.07	418.00	3.83	757.90	17400.00
69	Nova Ljubljanska banka d.d.	SLOVENIA	108357	2008	O-SIFI	11.78	18918.20	85.50	13515.00	2.75	0.95	1823.50	4.43		18800.00
69	Nova Ljubljanska banka d.d.	SLOVENIA	108357	2009	O-SIFI	10.68	19605.60	82.87	13212.40	2.43	0.90	2312.20	6.66	52.30	17700.00
69	Nova Ljubljanska banka d.d.	SLOVENIA	108357	2010	O-SIFI	10.20	17888.00	87.39	13054.40	2.54	0.91	2315.10	9.00	39.50	17700.00
69	Nova Ljubljanska banka d.d.	SLOVENIA	108357	2011	O-SIFI	11.10	16444.80	82.15	12313.80	2.69	0.98	2299.90	12.71	30.90	18000.00
69	Nova Ljubljanska banka d.d.	SLOVENIA	108357	2012	O-SIFI	10.57	14334.70	77.12	11373.30	2.47	1.04	1983.80	16.76	-239.60	17500.00
69	Nova Ljubljanska banka d.d.	SLOVENIA	108357	2013	O-SIFI	15.20	12490.10	64.09	9508.50	1.95	1.14	2903.90	18.55	159.40	17600.00
69	Nova Ljubljanska banka d.d.	SLOVENIA	108357	2014	O-SIFI	17.60	11909.50	59.10	8346.60	3.02	1.27	2624.40	19.63	221.70	18200.00
69	Nova Ljubljanska banka d.d.	SLOVENIA	108357	2015	O-SIFI	16.20	11821.60	67.06	7956.40	3.23	1.39	2076.30	15.87	314.30	18800.00
70	Novo Banco S.A.	PORTUGAL	1451184	2007	O-SIFI										16600.00
70	Novo Banco S.A.	PORTUGAL	1451184	2008	O-SIFI										16900.00
70	Novo Banco S.A.	PORTUGAL	1451184	2009	O-SIFI										16600.00
70	Novo Banco S.A.	PORTUGAL	1451184	2010	O-SIFI										17000.00
70	Novo Banco S.A.	PORTUGAL	1451184	2011	O-SIFI										16700.00
70	Novo Banco S.A.	PORTUGAL	1451184	2012	O-SIFI										16000.00
70	Novo Banco S.A.	PORTUGAL	1451184	2013	O-SIFI										16300.00
70	Novo Banco S.A.	PORTUGAL	1451184	2014	O-SIFI	9.50	65417.50	71.82	40060.20			4547.50	12.81		16600.00
70	Novo Banco S.A.	PORTUGAL	1451184	2015	O-SIFI	13.50	57517.10	66.36	37416.40	0.88	0.64	7374.30	15.59		17400.00
71	OP Financial Group	FINLAND	1042848	2007	O-SIFI	13.80	65715.00	58.20	44895.00	1.79	0.73	338.00	0.26	3051.00	35300.00
71	OP Financial Group	FINLAND	1042848	2008	O-SIFI	12.70	75745.00	51.15	51846.00	1.78	0.65	761.00	0.26		36500.00
71	OP Financial Group	FINLAND	1042848	2009	O-SIFI	12.60	80430.00	51.57	53123.00	1.48	0.69	324.00	0.25		33900.00
71	OP Financial Group	FINLAND	1042848	2010	O-SIFI	12.80	83969.00	50.89	57177.00	1.22	0.74	348.00	0.60		34900.00
71	OP Financial Group	FINLAND	1042848	2011	O-SIFI	14.00	91905.00	37.03	60700.00	1.30	0.70		0.61	3474.00	36500.00
71	OP Financial Group	FINLAND	1042848	2012	O-SIFI	14.10	99769.00	38.18	65574.00	1.18	0.67	12.00	0.63	3752.00	36900.00
71	OP Financial Group	FINLAND	1042848	2013	O-SIFI	14.30	100991.00	40.93	68591.00	1.01	0.75	14.00	0.65	4277.00	37400.00
71	OP Financial Group	FINLAND	1042848	2014	O-SIFI	17.30	110427.00	38.26	71166.00	1.09	0.71	6.00	0.68	3014.00	37600.00
71	OP Financial Group	FINLAND	1042848	2015	O-SIFI	22.90	124455.00	33.61	75686.00	0.99	0.79	560.00	0.65	4271.00	38200.00

72	Piraeus Bank S.A.	GREECE	112367	2007	O-SIFI	12.26	46427.30	66.55	30704.80	2.83	0.69	5303.60	1.35	561.10	21100.00
72	Piraeus Bank S.A.	GREECE	112367	2008	O-SIFI	9.90	54889.90	68.32	39015.60	2.66	0.54	5216.30	1.80	721.40	21800.00
72	Piraeus Bank S.A.	GREECE	112367	2009	O-SIFI	9.80	54279.80	68.89	38683.20	2.33	0.43	7236.60	2.57	782.60	21400.00
72	Piraeus Bank S.A.	GREECE	112367	2010	O-SIFI	9.60	57680.20	66.09	39071.20	2.39	0.39	9333.60	3.67	672.70	20300.00
72	Piraeus Bank S.A.	GREECE	112367	2011	O-SIFI	-5.10	49352.30	68.48	37058.00	2.41	0.39	7773.40	8.24	-5975.60	18600.00
72	Piraeus Bank S.A.	GREECE	112367	2012	O-SIFI	9.70	70408.50	61.32	50573.30	2.16	0.45	12331.50	11.79	-6503.80	17300.00
72	Piraeus Bank S.A.	GREECE	112367	2013	O-SIFI	14.00	92009.60	64.16	76113.60	2.19	0.37	16718.20	18.06	-3957.20	16500.00
72	Piraeus Bank S.A.	GREECE	112367	2014	O-SIFI	12.50	89289.70	62.40	72983.40	2.53	0.40	16932.80	21.70	-5921.30	16400.00
72	Piraeus Bank S.A.	GREECE	112367	2015	O-SIFI	17.40	87934.00	61.91	68071.00	2.56	0.41	19556.40	25.68	-7840.60	16300.00
73	Postova Banka a.s.	SLOVAKIA	115032	2007	O-SIFI	16.50	1029.73							30.43	10400.00
73	Postova Banka a.s.	SLOVAKIA	115032	2008	O-SIFI	11.26	1462.00		624.10	7.16			4.37	40.40	12200.00
73	Postova Banka a.s.	SLOVAKIA	115032	2009	O-SIFI	10.27	2076.50		848.00	6.92	1.59	598.00	4.89	62.80	11800.00
73	Postova Banka a.s.	SLOVAKIA	115032	2010	O-SIFI	11.94	2566.90		1156.90	6.33	1.22	983.60	3.49	116.00	12400.00
73	Postova Banka a.s.	SLOVAKIA	115032	2011	O-SIFI	11.27	3136.20		1421.60	6.35	0.75	882.10	3.56	-100.70	13100.00
73	Postova Banka a.s.	SLOVAKIA	115032	2012	O-SIFI	12.18	3415.10		1783.10	6.13	0.67	964.30	3.38	65.80	13400.00
73	Postova Banka a.s.	SLOVAKIA	115032	2013	O-SIFI	13.99	3843.00		1975.70	5.88	0.59	1015.60	5.07	128.40	13700.00
73	Postova Banka a.s.	SLOVAKIA	115032	2014	O-SIFI	14.30	4208.40		2420.80	5.89	0.50	1146.10	5.66	165.30	14000.00
73	Postova Banka a.s.	SLOVAKIA	115032	2015	O-SIFI	16.75	4180.60		2039.20	5.15	1.00	1037.40	6.61	182.20	14600.00
74	Raiffeisen Bank International AG	AUSTRIA	1047191	2007	O-SIFI	12.40	72742.80	74.10	48879.80	4.24	2.19	4144.30	2.26	841.30	34200.00
74	Raiffeisen Bank International AG	AUSTRIA	1047191	2008	O-SIFI	9.70	85397.00	84.40	57902.30	4.50	2.08	4645.10	2.83	1576.60	35300.00
74	Raiffeisen Bank International AG	AUSTRIA	1047191	2009	O-SIFI	13.00	76275.30	83.99	50515.00	4.15	1.73	8171.40	6.11	2152.60	34500.00
74	Raiffeisen Bank International AG	AUSTRIA	1047191	2010	O-SIFI	13.30	131173.10	72.27	75657.10	4.45	1.86	18130.70	5.95	2589.60	35400.00
74	Raiffeisen Bank International AG	AUSTRIA	1047191	2011	O-SIFI	13.50	146985.00	64.84	81576.20	2.83	1.15	12851.90	5.92	3161.00	37000.00
74	Raiffeisen Bank International AG	AUSTRIA	1047191	2012	O-SIFI	15.60	136116.00	60.85	83343.30	2.69	1.17	12193.00	6.58	3755.40	37800.00
74	Raiffeisen Bank International AG	AUSTRIA	1047191	2013	O-SIFI	15.90	130639.80	61.16	80634.60	3.06	1.34	12595.30	6.81	3652.00	38200.00
74	Raiffeisen Bank International AG	AUSTRIA	1047191	2014	O-SIFI	16.00	121499.80	56.56	77925.40	3.22	1.35	14925.00	7.69	2417.00	39000.00
74	Raiffeisen Bank International AG	AUSTRIA	1047191	2015	O-SIFI	17.40	114426.60	55.30	69921.40	3.12	1.43	14163.10	8.49	1701.80	39900.00
75	Raiffeisenlandesbank Niederoesterreich-Wien AG	AUSTRIA	1009535	2007	O-SIFI	11.68	19553.70	47.91	6883.10	0.82	0.40	3793.20	3.48	1709.40	34200.00

75	Raiffeisenlandesbank Niederoesterreich-Wien AG	AUSTRIA	1009535	2008	O-SIFI	12.69	27533.40	43.63	8514.30	0.65	0.26		2.84	1705.50	35300.00
75	Raiffeisenlandesbank Niederoesterreich-Wien AG	AUSTRIA	1009535	2009	O-SIFI	13.12	31698.60	39.64	8696.10	0.54	0.20		3.23		34500.00
75	Raiffeisenlandesbank Niederoesterreich-Wien AG	AUSTRIA	1009535	2010	O-SIFI	13.26	32682.80	42.14	9680.40	0.75	0.22	1113.70	3.09	1659.50	35400.00
75	Raiffeisenlandesbank Niederoesterreich-Wien AG	AUSTRIA	1009535	2011	O-SIFI	14.09	32101.00	44.94	10093.70	0.68	0.22	1245.60	2.88	1532.60	37000.00
75	Raiffeisenlandesbank Niederoesterreich-Wien AG	AUSTRIA	1009535	2012	O-SIFI	14.87	32310.30	44.04	10465.30	0.51	0.23	1821.90	3.05	1698.00	37800.00
75	Raiffeisenlandesbank Niederoesterreich-Wien AG	AUSTRIA	1009535	2013	O-SIFI	19.35	29067.00	43.74	11004.60	0.48	0.23	2441.00	2.69	1640.00	38200.00
75	Raiffeisenlandesbank Niederoesterreich-Wien AG	AUSTRIA	1009535	2014	O-SIFI	19.74	29513.80	54.35	12417.60	0.61	0.23	3051.60	2.70	1323.90	39000.00
75	Raiffeisenlandesbank Niederoesterreich-Wien AG	AUSTRIA	1009535	2015	O-SIFI	20.30	27742.60	51.39	11948.10	0.67	0.23	2643.50	2.51	961.40	39900.00
76	Raiffeisenlandesbank Oberoesterreich Aktiengesellschaft	AUSTRIA	1009523	2007	O-SIFI	7.56	25267.10		14243.30	1.07	0.40		3.50	1407.10	34200.00
76	Raiffeisenlandesbank Oberoesterreich Aktiengesellschaft	AUSTRIA	1009523	2008	O-SIFI	12.00	32875.50		17667.20	1.62	0.30		2.70		35300.00
76	Raiffeisenlandesbank Oberoesterreich Aktiengesellschaft	AUSTRIA	1009523	2009	O-SIFI	13.50	35371.20		18044.20	1.54	0.27		3.44		34500.00
76	Raiffeisenlandesbank Oberoesterreich Aktiengesellschaft	AUSTRIA	1009523	2010	O-SIFI	14.80	35530.00		18870.00	1.07	0.31	17.80	3.59		35400.00
76	Raiffeisenlandesbank Oberoesterreich Aktiengesellschaft	AUSTRIA	1009523	2011	O-SIFI	13.80	38325.70	72.80	20410.30	1.22	0.31	1113.50	3.42		37000.00
76	Raiffeisenlandesbank Oberoesterreich Aktiengesellschaft	AUSTRIA	1009523	2012	O-SIFI	13.30	39822.60	71.25	21437.60	1.09	0.30	1242.40	4.38	2087.70	37800.00
76	Raiffeisenlandesbank Oberoesterreich Aktiengesellschaft	AUSTRIA	1009523	2013	O-SIFI	14.50	37412.70	70.47	20671.80	1.11	0.33	1502.40	4.73	2140.00	38200.00
76	Raiffeisenlandesbank Oberoesterreich Aktiengesellschaft	AUSTRIA	1009523	2014	O-SIFI	14.71	38574.20	65.25	20096.70	1.14	0.34	1977.50	4.63	2164.90	39000.00
76	Raiffeisenlandesbank Oberoesterreich Aktiengesellschaft	AUSTRIA	1009523	2015	O-SIFI	16.79	37298.60	61.38	19521.10	1.13	0.35	1868.00	4.05	2345.40	39900.00
77	RCB Bank Ltd	CYPRUS	115459	2007	O-SIFI										22900.00
77	RCB Bank Ltd	CYPRUS	115459	2008	O-SIFI										24200.00
77	RCB Bank Ltd	CYPRUS	115459	2009	O-SIFI										23100.00
77	RCB Bank Ltd	CYPRUS	115459	2010	O-SIFI										23300.00
77	RCB Bank Ltd	CYPRUS	115459	2011	O-SIFI										23200.00
77	RCB Bank Ltd	CYPRUS	115459	2012	O-SIFI										22600.00
77	RCB Bank Ltd	CYPRUS	115459	2013	O-SIFI	21.20	8147.59	20.00	6331.65				0.24	239.57	21000.00
77	RCB Bank Ltd	CYPRUS	115459	2014	O-SIFI	24.60	8030.25	24.67	6939.34	1.44	0.15		0.28	305.92	20700.00
77	RCB Bank Ltd	CYPRUS	115459	2015	O-SIFI										20900.00
78	Rietumu Banka Group	LATVIA	1006827	2007	O-SIFI	14.42	1730.40		857.00	3.57	1.13	111.00	0.48	129.10	10300.00

78	Rietumu Banka Group	LATVIA	1006827	2008	O-SIFI	14.58	1568.90		828.30	3.74	1.29	232.20	3.45	116.80	11200.00
78	Rietumu Banka Group	LATVIA	1006827	2009	O-SIFI	17.38	1380.00		683.00	3.14	1.10	108.40	5.42	-2.70	8800.00
78	Rietumu Banka Group	LATVIA	1006827	2010	O-SIFI	16.38	1602.30		764.50	2.27	1.27	58.60	6.85	19.50	8500.00
78	Rietumu Banka Group	LATVIA	1006827	2011	O-SIFI	16.79	1986.60		870.00	2.14	1.28	53.40	6.99	33.40	9800.00
78	Rietumu Banka Group	LATVIA	1006827	2012	O-SIFI	18.79	2347.90		1019.50	2.52	1.41	1.30	7.34	61.50	10800.00
78	Rietumu Banka Group	LATVIA	1006827	2013	O-SIFI	17.80	2927.80	57.97	1206.60	3.17	1.79		6.74	117.80	11400.00
78	Rietumu Banka Group	LATVIA	1006827	2014	O-SIFI	18.96	3477.80	58.73	1131.70	2.77	1.64	2.60	7.98	146.40	11900.00
78	Rietumu Banka Group	LATVIA	1006827	2015	O-SIFI	19.20	3794.20	59.07	1197.50	2.83	1.50	15.00	8.00	198.40	12300.00
79	Sberbank Europe AG	AUSTRIA	1096310	2007	O-SIFI		10709.20		7297.70	3.49	1.23		1.45	925.60	34200.00
79	Sberbank Europe AG	AUSTRIA	1096310	2008	O-SIFI		14673.10		9888.20	3.35	1.04		1.63	153.10	35300.00
79	Sberbank Europe AG	AUSTRIA	1096310	2009	O-SIFI		13863.10		9522.70	3.60	0.71		3.25	211.70	34500.00
79	Sberbank Europe AG	AUSTRIA	1096310	2010	O-SIFI		13724.00		9957.50	1.98	0.60		5.43	322.40	35400.00
79	Sberbank Europe AG	AUSTRIA	1096310	2011	O-SIFI		9083.90		6863.00	2.42	0.75		5.47	137.80	37000.00
79	Sberbank Europe AG	AUSTRIA	1096310	2012	O-SIFI	10.54	9890.70	74.53	7609.50	2.78	0.81		7.56	-129.40	37800.00
79	Sberbank Europe AG	AUSTRIA	1096310	2013	O-SIFI	13.14	11429.30	70.76	8666.70	2.95	0.86		6.36	-121.70	38200.00
79	Sberbank Europe AG	AUSTRIA	1096310	2014	O-SIFI	16.84	13214.30	75.52	10371.60	2.59	0.75		5.30	-118.00	39000.00
79	Sberbank Europe AG	AUSTRIA	1096310	2015	O-SIFI	17.70	14346.70	70.70	8962.60	2.42	0.70		5.25	-335.80	39900.00

Source: Fitch Solutions, (n.d.), *Fitch Connect database,* 2014.