Master's thesis

CEO Compensation
&
Earnings Management:

A comparison between the pre- and post-crisis period

Executive summary:

This master's thesis has investigated the association between CEO compensation and its different components, the equity-based part and the cash-based part, with earnings management in the pre- and post-crisis period at U.S. banks. I expected to find a positive association between the two variables in both the pre- and post-crisis period. However, the results indicate that there is no significant association in place, indicating that there is no association between the two variables in the banking industry. Conform previous research, I have found that CEO compensation has decreased since the start of the financial crisis in 2007/2008. The financial crisis also shows to have an impact on earnings management, measured by the discretionary loan loss provision. The results indicate that earnings management has increased since the start of the financial crisis, compared to the period before the financial crisis. These results are in conformity with the earnings smoothing hypothesis: managers tend to use less earnings management during booming times, while more earnings management is used during economic downturn.

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Chapter 1: Introduction

Several theories in economics assume some kind of self-interest when people act. Examples of these theories are the agency theory and the transaction cost theory. This also seems to be applicable for CEO compensation. CEOs have incentives to maximize their bonus payment. One way to do this is by earnings management: managers present the financial statements more optimistic, than what they actually are. According to previous research (e.g. Healy, 1985) CEO compensation and earnings management are indeed related to each other. As expected by the agency theory, CEO compensation has a positive association with earnings management if the compensation is depending on the financial performance of the company. This positive association is called the bonus hypothesis: managers use accruals to strategically maximize their bonus income (Healy, 1985). In these studies financial institutions are often excluded, since these institutions have different measures for earnings and because financial institutions (in particular banks) have more intervention by regulators (Peasnell, Pope & Young, 2000). There is also some research on these financial institutions in particular, though this is very limited. In the few papers which had their focus on banks, it is found that the equity-based component of CEO compensation is positively related to earnings management (Cornett, McNutt & Tehranian, 2006; Cheng, Warfield & Ye, 2011).

Since the start of the financial crisis there is often referred to the CEO compensation contracts at banks as one of the causes of the financial crisis (Fahlenbrach & Stulz, 2011; Santoro & Strauss, 2010; Tung & Wang, 2011). CEO compensation contracts are often related to high risk taking behavior (Chang & Chen, 2011). Chang and Chen (2011) state that bank CEOs are willing to take larger risks to maximize their compensation and acting in their own interest. CEO incentive contracts create the opportunity for the CEOs to maximize their compensation, since these contracts include different short- and long-term goals which should be achieved to obtain a certain amount of bonus. Chen, Steiner and Whyte (2006) investigate how CEO compensation in stock options influences the risk-taking behavior of bank CEOs. Several conclusions can be drawn from their research: stock-option based compensation has become more widespread and the percentage of stock options in total compensation has increased as well. The authors show that CEO compensation by stock-options encourages risk-taking behavior to achieve a higher stock price at which these options can be exercised. At the banking industry the rise of the subprime mortgages has induced this excessive risk taking, since these mortgages have a larger risk of not being repaid. Since the CEO incentive contacts are often related to the performance of the bank, the CEOs have additional incentives to increase these mortgages.

CEO compensation contracts are recognized as one of the causes of the financial crisis, since the structure of these contracts was not aligned with the interests of the shareholders (Fahlenbrach & Stulz, 2011). Fahlenbrach and Stulz (2011) state that the compensation contracts were not linked to the long-term performance of the banks. Since the stock options and stocks are often part of these compensation contracts, this can again result in additional risk taking to pump up stock prices for the short-run.

The start of the financial crisis is often set at 2007/2008 (French, Leyshon & Thrift, 2009; Berndt & Offtenhammer, 2011; Erkens, Hung & Matos, 2012). Since then, there has been few research on the effect of this crisis on CEO compensation at the banking industry. One would expect that CEO compensation has changed as a result of the finger pointing to CEO compensation as one of the causes of the financial crisis. The little research which has been conducted (survey Financial Times 2008-2011; Fahlenbrach & Stulz, 2011; De Groot & Qin, 2011) indicate that the total level of CEO compensation has decreased. For the different components of CEO compensation in a U.S. sample is found that base salary has increased, while bonuses have decreased and stocks and stock options do not significantly differ since the start of the financial crisis (De Groot & Qin, 2011).

Prior literature states that earnings management is influenced by the financial crisis (Bikker & Metzemaker, 2005; Liu & Ryan, 2006; El Sood, 2012). Several papers state that in times of economic downturn, thus during the financial crisis, banks delay provisions, while during economically healthy periods banks increase their provisions. This indicates that earnings are managed more in booming periods, compared to periods of economic downturn. Income smoothing is often seen as an explanation for this: banks try to reduce the fluctuations in their earnings (Liu and Ryan, 2006; El Sood, 2012).

This master's thesis fills the gap in the literature concerning the influence of the financial crisis on the relation between CEO compensation and earnings management. This relation will be tested for banks in the United States. To make it more specific, the relation is observed in the pre- and post-financial crisis period and these two periods will be compared to each other. Therefore the research question will be:

'Has the financial crisis influenced the relation between CEO compensation and earnings management in the banking industry, when comparing the pre- and post-crisis period?'

The main motivation to do research on this topic is that one would expect that the banks have changed their compensation contracts for their CEOs, because of all the criticism. But before giving an opinion about this, it has to be empirically investigated. The financial crisis in combination with the relation between CEO compensation and earnings management at banks is a very interesting topic since the financial crisis is still very actual, and therefore it is good to know if it has changed this relation. For the stakeholders it would also give a reassuring feeling if the banks have done something with the criticism concerning the compensation contracts, since it gives a certain sign that the stakeholders are taken seriously.

As already stated, little research has been done regarding the relation between CEO compensation and earnings management in the banking sector. In the post-crisis period this relation has not been tested at all. Therefore this master's thesis contributes to the existing literature concerning this relation in both the period before the start of the financial crisis and the period since the financial crisis.

In this master's thesis CEO compensation is split into the cash-based part of CEO compensation and the equity-based part of CEO compensation. I investigate if both parts of the compensation and compensation in total are related to earnings management. I also determine whether the financial crisis has changed this relation. The results show that there is no significant association between bank CEO compensation (and its different components) and earnings management in both the pre- and post-crisis period. This is in contrast to the hypotheses. However, since the hypotheses are broadly based on literature conducted in the non-financial industries, this master's thesis can conclude that the results of the non-financial industries cannot be generalized to the financial industry. In accordance with previous literature (survey Financial Times 2008-2011; Fahlenbrach & Stulz, 2011; De Groot & Qin, 2011) CEO compensation in total has significantly decreased, when comparing the pre- and post-crisis period. The results indicate that the bonuses, options and stock holdings has decreased since the start of the financial crisis. The decrease of bonuses and options is significant. On the other hand, base salary has increased, however, this increase is not significant. With regard to earnings management, measured by the discretionary loan loss provision, the results show that earnings management has also increased since the start of the financial crisis. This is in conformity with the results of Liu and Ryan (2006) and El Sood (2012): earnings management is less used during booming times, while it increases during times of economic downturn.

This master's thesis also has some suggestions for improvement of this study. First of all, no association is found between CEO compensation and earnings management in both the

univariate and the multivariate analysis. On the one hand, this can indicate that earnings management is not measured in the right manner. Therefore I suggest for future research to use a different measure for earnings management. A good proxy would be to determine earnings management based on the "z-term", this is consistent with research of Cornett et al (2009) and Cheng et al. (2011). This type of measuring earnings management will be further discussed in chapter 3. On the other hand, it is also possible that the measure for CEO compensation was not complete: excluding the long-term incentive plans might have biased the results. Another improvement for future research would be to add more observations to the study by adding more years.

In the remainder of this master's thesis, the following topics will be discussed. The second chapter covers some background information regarding the concepts of interest: the financial crisis, CEO compensation and earnings management. The third chapter provides an overview of the existing literature regarding the relation between CEO compensation and earnings management in general and for the banking sector in particular. In chapter four the hypotheses are discussed for both the pre- and the post-crisis period and the differences between these two periods. In the fifth chapter the research design used for this study will be explained. The sixth chapter will present and analyze the results. In the last chapter, chapter seven, the limitations of this master's thesis and potential improvement for future research are discussed.

Chapter 2: Concepts of interest

For this research the main focus will be on CEO compensation and earnings management in the banking sector in the United States and the influence the financial crisis has had on this relation. This chapter will discuss these three components individually and some additional information will be discussed regarding the Sarbanes Oxley Act and its influence on CEO compensation and earnings management.

2.1   Financial crisis

In the banking industry there has been a massive growth in subprime mortgage contracts since around 2002 (Chang & Chen, 2011). These mortgages allow banks to provide a mortgage to purchase a house, even though the borrower has a low credit score, small down payment, and/or little documentation of his income. These loans also offer home owners the possibility to refinance loans and withdraw cash from houses that had appreciated in value. For the banks these loans increase the risk of not being fully repaid by the borrower (Kiff & Mills, 2007). This eventually went wrong: house prices decreased. As a result these subprime mortgages became a danger for the viability of the financial institutions that granted those mortgages. This was the result of the reduction in liquidity what eventually caused financial institutions to suffer huge losses and to be either downsized or to go bankrupt (Chang & Chen, 2011).

A famous example of the consequences of the subprime mortgages is the case of Fannie Mae and Freddie Mac. These two agencies are government-sponsored enterprises (GSE). They are created to buy mortgages from banks, repackage them in mortgage-backed securities and eventually sell these securities on the secondary market to Wall Street investors. When in 2006 the housing bubble burst and the housing prices dropped, the values of the loans which were owned by Fannie Mae and Freddie Mac also dropped. This caused that both enterprises became insolvent.[1] To overcome that it would become impossible for society to obtain a loan, the federal government placed the enterprises into conservatorship and pumped a lot of money into them.[2]

Another famous case of bankruptcy is Lehman Brothers. This bank was the fourth-largest investment bank in the United States, and their business is investment banking, equity and fixed-income sales and trading, research, investment management, private equity, and private banking. Swedberg (2010) argues that the banking industry demands a different and higher level of trust, resulting from liquidity and solvency concerns. When Lehman Brothers filed for bankruptcy

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[1] http://useconomy.about.com/od/criticalssues/a/Fannie-Bailout.htm
[2] http://www.sfgate.com/news/article/Feds-take-control-of-Fannie-Mae-Freddie-Mac-3270123.php

September 15, 2008, confidence in the banking industry dropped heavily. The well-known economist Alan Blinder even stated that no financial institution seemed safe after the collapse of Lehman Brothers. At Lehman Brothers the executives were granted with performance-based compensation. Bebchuk, Cohen and Spamann (2010) investigated the compensation for the top-five executive teams at Lehman Brothers, and they found that the executives cashed out large amounts of compensations, but these were not recovered after the bankruptcy in 2008. These compensations were based on the performance of the firm, which provided the executives with incentives to take additional risks to maximize their compensation. These executive compensation contracts in general are often considered as one of the causes of the financial crisis (Chang & Chen, 2011).

With this information regarding the changed environment, this master's thesis expects that CEO compensation in the banking business has changed: its total amount can have decreased or its structure can have changed. However, in the scientific empirical literature this has not been confirmed yet.

2.2   CEO compensation

CEO compensation is often used to reduce the agency problem, and thereby the costs associated with this problem. This problem refers to the misalignment of the interest of the principals and the agents. The principals are the owners of a company and the agents are a company's management. It should be the case that a company's management acts in the interest of the owners. However, sometimes this is not the case, and this is called the agency problem (Eaton & White, 1983). With regard to this problem, CEO compensation should encourage that the interests of the CEO are aligned with the interest of the shareholders, what is done by linking the CEO compensation contract to the performance of the firm (Murphy, 1999). Another explanation for the use of CEO compensation is the tournament theory by Lazear and Rosen (1981). This theory states that linking compensation to individual performance will result in a higher productivity.

CEO compensation contracts consist of different components: base salary, bonus, stock options, restricted stock, long-term incentive plans and retirement plans (Murphy, 1999; Gao & Shrieves, 2011; Frydman & Jenter, 2010). According to these authors, *base salary* is determined by benchmarking salary with competitors by a general industry salary survey. This component of the compensation is a fixed part. The *bonus* component of CEO compensation is based on a single year's performance, thus this is based on the pay-for-performance principle (De Groot & Qin, 2011). Frydman & Jenter (2010) state that performance can be assessed by performance measures (e.g. accounting profit or change in stock price), performance standards (e.g. peer

group standards: performance compared to that of other companies in the same industry) or pay-performance structures (e.g. 80/120 plan: the bonus is only paid when performance surpasses the performance standards by 80%, but bonuses are limited when 120% of the performance standards is surpassed). The third component of compensation are *stock options*. These options give the CEO the right to buy shares at a pre-determined exercise price within a pre-determined term. These options cannot be traded. This type of compensation directly relates the interest of the shareholders with those of the CEO, since they are both interested in the stock price and dividends (Murphy, 1999). *Restricted stocks* are concerned with a certain vesting period since these shares are forfeited under certain conditions. These stocks have a linear payoff with regard to stock price movements (Gao & Shrieves, 2011). *Long term incentive plans* are bonus plans which are based on the long-term performance of the company. Long-term is often defined as three or five years. The performance can again be assessed by performance measures, performance standards or pay-performance structures, just like at bonus plans. The last component of compensation is the *retirement plan*. This is a plan which is concerned with the income which the employee receives after his retirement. This income is generated by certain saving and investment plans. This part of CEO compensation is not performance-related (Frydman & Jenter, 2010). I will only take into account base salary, bonus, stock options and restricted stocks. Base salary and bonus are taken together as the cash-based component of CEO compensation and stock options and restricted stocks are taken together as the equity-based component of CEO compensation. I do not take into consideration the retirement plans, since this type of compensation is not performance related, and a relation with earnings management would therefore be unlikely. The long-term incentive plans are not taken into consideration, since realization of the goals, necessary to receive the long-term incentive, is uncertain. As a result the payment of these long-term incentives is also uncertain.

Since the early 1940s there has been an increase in the average amount of CEO compensation. This increase has become even bigger since the mid-1970s until 2005, with the most impressive increase in the 1990s: during this period the annual growth rates reached more than 10% by the end of the decade (Frydman & Jenter, 2010). These authors also found that the structure of compensation has changed. Until the 1950s almost the total compensation was based on salary and bonus, while since the 1970s this structure changed by a bigger amount of options and stocks. The data even shows that salary and bonus are only 40% of total compensation during the 2000s, while options are 37% and long-term incentive plans and restricted stocks are 23%. The retirement plans are not included, since it was not mandatory by the SEC to disclose the actuarial values of the pension plans. This is required since 2006.

Although the general intentions behind the implementation of CEO compensation are favorable, since the financial crisis of 2007/2008 there is often referred to these compensation contracts as

one of the causes of the financial crisis (Murphy, 2012). It is often stated that the idea of aligning the CEO compensation with maximizing shareholder value, resulted in taking excessive risks in the banking sector. The impact of the financial crisis on the CEO compensation at banks has (partly) been investigated by several researchers. First of all, the Financial Times has done an annual survey of bank CEO pay in 2009, 2010 and 2011. In 2009 the survey showed that the CEO pay at 17 leading U.S. banks in 2009 decreased on average 57 per cent compared to 2008. In 2010 the average compensation for bank CEOs increased 36 per cent on average, compared to 2009 and in 2011 the compensation has increased on average 11.9 per cent compared to 2010. However, they also find that the CEO pay is still significantly lower than the level of CEO pay before the financial crisis. Secondly, Fahlenbrach and Stulz (2011) state that CEOs at banks did not reduce their shareholdings as a result of the crisis. However, in this research nothing is stated about the total amount of CEO compensation. And lastly, the influence of the crisis on CEO compensation in total and the structure of it has also been investigated by De Groot and Qin (2011). They conducted their research in the U.S. financial sector. They compare the four different components of CEO compensation during the period before the financial crisis (2006) and the period of the financial crisis (2007, 2008, 2009). The four different components are base salary, annual bonus, stocks and stock options. When comparing the pre-crisis period with the crisis period, the results indicate that: (1) total compensation has decreased, (2) base salary has increased, (3) bonuses have decreased and (4) stocks and stock options do not significantly differ.

I expect that the cause of this decrease can be explained in two different ways. First of all, the decrease in CEO compensation can be the result of the massive criticism on CEO compensation of banks, resulting in a sense of responsibility to decrease the compensation contracts. On the other hand, the compensation contracts are often linked to the performance of the banks. Since the financial crisis, the performance of banks has decreased, so it is a logical consequence that this also reduces the compensation for CEOs. If the amount of the annual compensation is stated in the compensation contract, it can also be the case that these banks have adapted these contracts, since it becomes hard to pay these compensations as a result of the poorer financial performance.

On February, 17th the American Recovery and Reinvestment Act of 2009 was signed by President Obama. This act imposes restrictions on executive compensation for those financial institutions who receive Troubled Assets Relief Program (TARP) funds. The fundamental reason for this act is that the funds received by the TARP should be used for public interest only, and not for private gain (additional executive compensation). The restrictions deal with for example

the restrictions for paying incentives that create inducement for unnecessary and excessive risk taking[3].

2.3   Earnings Management

In this master's thesis earnings management is the dependent variable, therefore this section will provide some additional information on this concept. The focus of this master's thesis is on the banking sector specifically, and within this sector a single accrual model is used to measure earnings management. This section will first provide some information about earnings management in general and second on earnings management at the banking industry in particular.

2.3.1   Earnings management in general

In research of Healy and Wahlen (1999) the earnings management literature is reviewed, eventually this resulted in a definition:

"Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company, or to influence contractual outcomes that depend on reported accounting numbers"

Earnings management in non-financial institutions can be divided into two different parts: accrual-based earnings management and real earnings management. Accrual-based earnings management are activities which do not have consequences for the cash flows of the company, but use the accounting accruals to restate earnings. Accruals can be further divided in discretionary and non-discretionary accruals. The difference between these two is that the discretionary accruals are concerned with the decisions made by management to manage earnings, while the non-discretionary accruals are considered normal with regard to the activity level (Stolowy & Breton, 2004). Another type of earnings management has to do with real earnings management activities, these are manipulations which do affect cash flows; an example is to postpone a certain expense regarding for example R&D (Cohen, Dey & Lys, 2008).

2.3.1.1   The Jones Model

There are several models which can be used to measure earnings management at non-financial institutions. The first model which was the milestone in the accrual approach was the Jones model (1991). Before the Jones model was derived, there have been several other models, but

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[3] http//www.calbankers.com/compliance-bullitin/summary-executive-compensation-limits-tarp-recipients

since the current models for measuring earnings models are modifications of the Jones model, these other models will not be discussed.

The Jones model assumes that firms only manage earnings in the year of the event (discretionary accruals $\neq$ 0), and not in the estimation period (discretionary accruals = 0). To determine earnings management, the discretionary accruals should be estimated. In the Jones model this is done by first estimating the total accruals by the following formula:

$$\frac{TA_{it}}{A_{it-1}} = \propto_i \left[\frac{1}{A_{it-1}}\right] + \beta_{1i} \left[\frac{\Delta REV_{it}}{A_{it-1}}\right] + \beta_{2i} \left[\frac{PPE_{it}}{A_{it-1}}\right] + \varepsilon_{it}$$

In this equation TA are the total accruals, A are total assets, REV are the revenues, PPE is the gross property, plant and equipment and ε is the error term. Each term is measured for a certain firm (*i*) during a certain year (t). The coefficients in the above formula are determined by a regression analysis. This can be done time-series and cross-sectional. The original Jones model is a time-series model, but nowadays more often the cross-sectional model is used.

The second step is to fill in the calculated coefficients, and determine the non-discretionary accruals (NDA):

$$NDA_{it} = \propto_i \left[\frac{1}{A_{it-1}}\right] + \beta_{1i} \left[\frac{\Delta REV_{it}}{A_{it-1}}\right] + \beta_{2i} \left[\frac{PPE_{it}}{A_{it-1}}\right]$$

The last step is to determine the discretionary accruals (DA). This is calculated by distracting the non-discretionary accruals (step 2) from the total accruals (step 1):

$$DA_{it} = \frac{TA_{it}}{A_{it-1}} - NDA_{it}$$

2.3.1.2   Modifications of the Jones model

As stated before, a lot of models are derived from the Jones model, by adding or replacing some items. Ronen and Yaari (2008) discuss the modifications of the Jones models, including the (1) 'Modified Jones model' by Dechow, Sloan and Sweeney (1995), (2) the 'Forward-looking model' by Dechow, Richardson en Tuna (2003), (3) Performance-adjusted models and (4) the 'Synthesis model' by Ye (2006). A more recent modification of the Jones model is developed by Dechow , Hutton, Kim and Sloan (2011).

1) Dechow, Sloan and Sweeney (1995) have modified the original Jones model by adding the change in accounts receivables during the event period. $\hat{\beta}_{1i}$ is calculated differently by the change in revenues minus the change in accounts receivable, instead of only the change in

revenues. With this modification in the Jones model, this model is named the Modified Jones Model.

2) Dechow, Richardson and Tuna (2003) have designed the Forward-Looking Model. There are three additional features added in this model: (1) separation of non-discretionary accruals from the discretionary accruals in the credit sales during the event period, (2) addition of lagged accruals and (3) addition of changes in business decisions as abnormal accruals.

3) Prior research has shown that accruals are related to performance (Ronen & Yaari, 2008), and therefore there are some modified models with regard to this.

   • The first modification is the competing-component model, which has been developed by Kang and Sivaramakrishnan (1995). This model varies from the Jones model in the following aspects: (1) transactions and assets are matched with working-capital accruals (revenues determine the account receivable accruals, expenses determine the inventory accruals, other non-cash current assets accruals and current liability accruals and gross PPE determines the depreciation expense), (2) behavior of accruals over time is considered and (3) the ending balances of the variables are the used values instead of changes in balances.

   • The second performance-adjusted model is developed by Dechow en Dichev (2002). In this model the cash flows are added to control for performance. The focus of this model is on the quality of earnings. The developers of this model argue that the quality of accruals is concerned with the errors in estimating cash flows, since accruals split the timing of cash flows from their accounting recognition.

   • The last performance-adjusted model is the performance-matching model, developed by Kothari, Leone and Wasley (2005). This model concentrates on the non-linear relation between the normal accruals and the performance of a firm. The accruals of almost identical firms are compared within this model, and based on this, there is investigated whether there has been earnings management.

4) The last model which in evaluated in Ronen and Yaari (2008) is the sensitivity model expanded by Ye (2006). This model is a refinement of the previous discussed model of Kothari, Leone and Wasley. The additions made are concerned with abnormal past accruals, the intensity of working capital and the projected depreciation.

5) A more recent model developed by Dechow, Hutton, Kim and Sloan (2012) has adapted the Jones model by the assumption that accrual-based earnings management in one period has to turn around in a different period. This has been ignored in previous models. This new model requires an identification of periods in which the accruals are managed, and it has to be estimated in which period these accruals will reverse. By adding these prior accruals, the power and specifications of the detection of earnings management increases by approximately 40%.

According to Ronen and Yaari (2008), the modified Jones model by Dechow, Sloan and Sweeney (1995) and the performance-matching model by Kothari, Leone and Wasley (2005) are the best performing models. In the research which is used in chapter 3 regarding the relation between CEO compensation and earnings management in the non-financial industries, one can also see that the modified Jones model is used most often to measure earnings management (Guidry, Leone & Rock, 1999; Bergstresser & Philippon, 2005; Gao & Shrieves, 2002).

2.3.2 Earnings Management in the banking industry

As stated before, the financial institutions are almost always excluded when research is done regarding the topic earnings management. The underlying reason for this is that there is one single accrual dominant at banks, resulting in the use of a single accruals model. This dominant accrual is the loan loss provision. Loan loss provisions are "an expense item listed on the income statement reflecting management's current period assessment of the level of future loan losses" (Cornett, McNutt & Tehranian, 2009). A loan loss provision is created at banks to protect for future losses which are the result of borrowers who are unable to repay their loan. El Sood (2012) states that regulation in SFAS No. 5 (Accounting for Contingencies) and SFAS No. 114 (Accounting by Creditors for Impairment of a Loan) all give a sophisticated view on the recognition and measurement of loan loss provisions, however, there is always some room for deciding whether the estimated loss should be concerned as "probable" or if it "can be reasonable estimated". The effect of an increase in the addition to the loan loss provisions results is a decrease in net income, and logically a decrease in the addition of this provision results in an increase of net income (Cornett, McNutt & Tehranian, 2006). Just like accruals, loan loss provisions can be separated in discretionary and nondiscretionary loan loss provisions. The discretionary loan loss provisions are most often used in previous research to operationalize earnings management at banks (Cornett, McNutt & Tehranian, 2006; Cheng, Warfield & Ye, 2011).

On the other hand, Wetmore and Brick (1994) tested the relation between loan loss provision and income smoothing, and the results indicate that loan loss provisions are not used to smooth income and thus manage earnings. They state that loan loss provisions are primarily based on past loan risk, loan quality deterioration and foreign risk. Ahmed, Takeda and Thomas (1999) also investigated whether loan loss provisions are related to earnings management. They also find that loan loss provision are not determined by earnings management motivations. However, both studies do not recommend a better measure for earnings management.

However, the majority of studies which investigate earnings management at banks use the discretionary loan loss provisions to determine earnings management, and therefore I will also use this measure.

2.3.3 Loan loss provision and the business cycle

Bikker and Metzemakers (2005) investigate whether loan loss provisions are associated with the business cycle, measured by the change in GDP. The data used for this research consists of 8000 bank-year observations from 29 OECD countries over the period 1991 to 2001. The authors expect that the additions to the provisions will decrease during an economic boom and increase during an economic downturn, since there is an increasing likelihood of not paying back loans during an economic downturn, as compared to during an economic boom. In this research the loan loss provision is the annual addition to the loan loss reserves. The results are in line with this hypothesis, provisioning is significantly associated with the business cycle: there is a negative relation between GDP growth and the amount of loan loss provisioning. This research has been published before the current financial crisis, so it is questionable whether these results are applicable for the period after the current financial crisis.

Liu and Ryan (2006) compare the pre-1990 period with the 1990s period with regard to loan loss provisions. The pre-90s, more specifically: 1974-1990, is seen as a period of poor economic health and crisis, while the 1990s are seen as a period of robust health. The results suggest that during a crisis period, banks delay provisions, while during the 1990s banks increase their provisions. The motivation behind this provisioning behavior is income smoothing: banks try to reduce the fluctuations in its earnings.

An alternative on the research of Liu and Ryan is done by El Sood (2012). In his research the more recent financial crisis of 2007/2008 is investigated. Again, the pre-crisis period is compared with the crisis period. The sample used is split in the pre-crisis period, consisting of year observations from 2002-2006, and the crisis period, consisting of year observations of 2007-2009. More specifically the following hypothesis is tested: "The association between earnings and subsequent year loan loss provisions is less pronounced during financial crisis period than during the pre-crisis boom". This hypothesis is confirmed: the bank holding companies accelerate loan loss provisioning during the pre-crisis period, compared to the crisis period, in which the bank holding companies seem to delay the subsequent year loan loss provisions. El Sood states that this is the result of income smoothing behavior of the bank holding companies.

In summary, these papers do not have consistent results. Bikker and Metzemaker (2005) state that during the crisis period, GDP is low, and thus would result in high level of loan loss provision, while opposite findings are found in the other papers. The focus of the research of El Sood (2012) is on the influence of the current financial crisis on the loan loss provisions, and therefore it seems to be likely that in my research we should also expect to find that the loan loss

provision has decreased since the start of the financial crisis. However, the literature regarding this topic is limited, so it is questionable if we can rely on this single research.

2.4 Effect of SOX on earnings management and CEO compensation

As a result of a large number of scandals in late 2001, the U.S. Securities and Exchange Commission (SEC) implemented the Sarbanes Oxley Act (SOX) in July 2002. This act was established to provide new corporate governance regulations and standards for those companies which are registered at the SEC to prevent misleading accounting and management misbehavior (Zhang, 2007). An example is the obligation for a company to report on the effectiveness of its internal controls (Arens, Elder & Beasley, 2012).

SOX also includes guidance for disclosures concerning executive compensation. Policies and practices for paying compensation to CEOs, CFOs and certain other high-ranking executive officers should be disclosed in the annual report which is filed with the SEC[4]. In 2006 some additions are made to the disclosure requirements for executive compensation. These changes have an influence on bank holding companies and banks that are obliged to file with the SEC or the Federal Deposit Insurance Act[5]. The 'Compensation Discussion & Analysis' is the additional disclosure. This disclosure can be separated in three different components: (1) disclosure of the compensation of the past three years, (2) disclosure on compensation which is received in the form of equity-related interest based on future gains and (3) disclosure on post-employment payments and benefits (e.g. retirements plans, deferred compensation).

As stated before in section 2.3.1, earnings management is concerned with a certain amount of discretion. This discretion can result in a different opinion about the amount of for example a certain provision: an optimist will create lower provisions, while a pessimist will create a higher provision. It is also possible that managers will create higher or lower provisions on purpose to influence net income, this can be seen as misleading accounting. SOX attempts to prevent for this misleading accounting and management misbehavior. This is pursued by for example increased legal liability. This increased legal liability consequently results in a higher cost of engaging in earnings management. Cohen, Dey and Lys (2008) found that firms have engaged less in accrual-based earnings management and more in real earnings management after the implementation of SOX. This might be the result of the lower detection risk for real earnings management, compared to accrual-based earnings management.

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[4] http://www.sec.gov/answers/execomp.htm
[5] www.sec.gov/rules/final/2006/33-8732a.pdf.

2.5   Summary and conclusion

This chapter has discussed the concepts of interest for this master's thesis. Since the start of the financial crisis there is sought for causes. One of the causes which has been identified are the subprime mortgages, which are concerned with a higher risk of not being repaid. When the housing bubble burst, the possibility of repayment decreases even more. This eventually resulted in losses at banks and these banks were forced to downsize or they went bankrupt. This collapse of the banking industry damaged the level of trust of society. A second cause which is often identified and correlated with the financial crisis is CEO compensation, since it increases the willingness of CEOs to take risks. CEO compensation can be divided in different components: base salary, bonus, stock options, restricted stock, long-term incentive plans and retirement plans. The total dollar amount of CEO compensation has increased since the 1940s, with its most impressive increase during the 1990s. The effect of the financial crisis on CEO compensation contracts has been tested several times, indicating that the total level of CEO compensation has decreased, base salary has increased, bonuses have decreased and stocks and stock options do not significantly differ (survey Financial Times 2009-2011; Fahlenbrach & Stulz, 2011; De Groot & Qin, 2011). The financial crisis has also resulted in an even stricter regulation of CEO pay: funds received by the TARP should be used for public interest only, and not for private gain.

Earnings management is concerned with judgment in financial reporting. In the non-financial industries, earnings management can be measured by a lot of different models. Most often it is measured by discretionary accruals. The banking industry does not use the same accruals as the non-financial industries do, therefore earnings management is measured by the most dominant accrual in this industry: loan loss provision. Earnings management will be measured by the discretionary loan loss provision.

Prior research has shown that loan loss provision is related with the business cycle: banks tend to smooth their income by loan loss provision, meaning that during booming periods there is an increase in loan loss provision, while during an economic turndown there is a decrease is loan loss provision.

SOX has to prevent misleading accounting and management misbehavior. This regulation has influenced both CEO compensation and earnings management: disclosures on executive compensation are mandatory and the penalties for misleading accounting, thus fraudulent earnings management, are higher.

Chapter 3: Literature review

This master's thesis investigates the relation between CEO compensation and earnings management in the banking sector in the U.S. Since there is a different measure for earnings management in the banking industry (section 2.3.2), the research regarding this topic is also split. Therefore this chapter will first describe previous research regarding this relation in a general context and in the second part previous research for the banking sector in particular will be discussed.

3.1 CEO compensation and earnings management in general

As stated before, the CEO compensation contracts are often related to the performance of the company. With common sense, it seems to be a likely consequence that CEO's will try to "manipulate" the outcome of their performance measure to increase their compensation. This can be done by earnings management.

A lot of research has been done concerning this topic. In the first papers concerning this relation, CEO compensation is often measured by the bounds in the compensation contracts. These bounds in the contracts are known by information from the Q-file, a SEC filings collection in which firms are allowed (and since new regulation in 2006 required) to disclose details about the bonus plan which are used in their firm.

One of the first papers concerning this topic was written by Healy (1985). Healy investigated the association between managers' accrual and accounting procedure decisions and managers' income reporting incentives under their bonus schemes. The firms which were investigated were industrial corporations in the United States. Earnings management is measured by total accruals, which includes both the discretionary components and non-discretionary components. The bonus contracts are divided in the LOW (observations for which the bonus plan lower bound is binding - earnings are less than the lower bound specified in the bonus plan), MID (observations where neither the upper nor lower bounds are binding) and UPP portfolios (observations for which the bonus contract upper limit is binding - earnings exceed the upper bound defined in the contract). The results show that a strong association is in place between earnings management and managers' income-reporting incentives under their bonus contracts. With regard to this result, it is suggested that managers engage in income-decreasing accruals when their bonus plan upper or lower bounds are binding, while they engage in income-increasing accruals when these bounds are not binding. These results are the effect of the use of bonuses according to Healy, also often announced as the bonus hypothesis. However, a limitation of this research is that a univariate

regression analysis is used as the research method. As a result there are no control variables added when observing the relation.

These results are often criticized in further research, especially because of the use of total accruals as a proxy for earnings management. Kaplan (1985) has criticized the paper of Healy in particular. By using total accruals, this measure includes both discretionary and non-discretionary accruals, while the discretionary accruals are the only component which influences earnings management. Therefore Kaplan states that Healy assumes that the expected level of nondiscretionary accruals is zero. Kaplan states that nondiscretionary accruals are likely to be nonzero and vary with economic conditions, and thus it cannot be the case that the expected level of nondiscretionary accruals is zero as assumed by Healy.

Taking into account this criticism of Kaplan (1985), Gaver, Gaver and Austin (1995) replicate the research of Healy, but instead of using total accruals as a measure for earnings management, they use discretionary accruals only. The data used for this research includes 102 firms located in the United States. With regard to the bonus hypothesis of Healy, it would be expected to find significantly more negative discretionary accruals in the LOW portfolio compared to the MID portfolio when taking earnings into account. The LOW portfolio consists of data for which accounting earnings fall below the lower bound determined in the contracts and the MID portfolio consists of data for which accounting earnings do not fall below the lower bound. The results of this research are based on a univariate regression analysis and show that in this research both the LOW and the MID portfolio are almost equal, which is not the same as the expectation from the bonus hypothesis. This result suggests that the results of Healy are more likely to be caused by the selection bias in portfolio formation than by earnings management. Secondly, the results also show that in the LOW portfolio, mean accruals are significantly higher than for the portfolio MID when taking into account earnings before discretionary accruals. This is also not in line with the results of Healy. These results could therefore also suggests more evidence for income smoothing behavior than for the idea that managers 'take a bath' strategy, as is stated by Healy. By which is meant that managers have incentives to reduce current earnings by deferring revenues or accelerating write-offs, when they will not meet the target earnings.

Another extension of Healy is done in the research of Holthausen, Larcker and Sloan (1995). In this research the authors have access to confidential information from databases of two HR consulting organizations located in the United States. Earnings management is in this research measured by different methods: discretionary accruals, expenditures and gains/losses. CEO compensation is again measured by the different bounds in the contracts and whether these are realized. CEO compensation is classified (1) 'below-the-lower-bound' if the realized bonus is less than or equal to their threshold bonus, (2) 'inside' if the realized bonus is greater than their

threshold bonus and less than 95% of their maximum bonus and (3) 'above-the-upper-bound' if the realized bonus is greater than or equal to 95% of their maximum bonus. The overall results obtained by the modified Jones model are consistent with CEOs using decreasing manipulating when the upper bound of their bonus contracts is reached in order to increase the present value of payments from those bonus plans. No support is found that managers manipulate earnings more when they are below the lower bound of their contract.

These previous papers all used the firm-level data, which could result in the aggregation problem. This problem is the result of using aggregated data (firm-level), and generalize it to a lower level (business-unit level), which may have different characteristics and thus it is not reasonable to generalize the results. To overcome this limitation, Guidry, Leone and Rock (1999) extend the literature by using business unit-level data of 117 different business units in 1994 and 1995 located in the United States. CEO compensation is again divided in different portfolio's: LOW (business-unit managers earn no bonus for the current year - all three performance targets are below the 80% target), MID (business-unit managers earn some, but less than the maximum available bonus is earned) and UPP (business-unit managers earned their maximum available bonus - all three performance targets are matched or surpassed in that year). For the MID portfolio is expected that those CEOs engage most in earnings management, because their bonus can still be increased. To measure earnings management, the authors also use the modified Jones model. The outcome of this research shows that the business-unit managers manipulate earnings to maximize their short-term bonus plans, suggesting that managers of business units in the MID portfolio use more income-increasing discretionary accruals in comparison with those in the UPP and LOW portfolios.

There has also done some research where CEO compensation is measured by the dollar amount. An example is research done by Gao and Shrieves (2002). They examine the relation between the different components of compensation and earnings management for U.S. firms during the 1990s, using a multivariate regression analysis. These different components consist of salary, bonus, stock options, restricted stock and long-term incentive plans. Earnings management is measured by the modified Jones model. The results of this research show that stock option grants and bonuses are positively related to earnings management and salaries are negatively related to earnings management. For restricted stocks and long-term incentive plans no reliable evidence is found for the direction of the association with earnings management. When taking all components together as one measure, the results show that there is strong evidence that the compensation contract design does influence earnings management.

Carter, Lynch and Zechman (2005) extend the literature by measuring CEO compensation by its dollar value instead of by the bounds in the incentive contracts. This paper investigates if the implementation of SOX has changed the relation between CEO compensation and earnings management. The sample period used in this research is from 1996 to 2003, where the period from 1996-2001 is the pre-SOX period and 2002 and 2003 are seen as the post-SOX period. For this research the financial services and utilities industries are excluded. To measure earnings management, a distinction is made between discretionary and non-discretionary accruals, which are measured by the modified Jones model. Bonuses paid to CEOs consist of both cash and non-cash bonuses for a certain CEO at a certain year. The results of this research indicate that there is a significant positive relation between bonuses and both discretionary and non-discretionary accruals. This relation has significantly increased for the non-discretionary accruals, while the relation has not changed for the discretionary accruals since the introduction of SOX.

In contrast to Gao and Shrieves (2002) and Carter, Lynch and Zechman (2005), Bergstresser and Philippon (2005) focus primarily on equity-based compensation. The main motivation for this paper is that the authors found that in the last two decades the amount of stock- and option-based compensation has faced a large increase and so has the use of accruals. This research wants to investigate whether these two aspects are related for publicly held corporations in the United States, since managers are motivated to increase the share price given that they also have shares themselves. The authors measure earnings management with the modified Jones model. CEO compensation is based on the dollar change in the value of a CEO's stock and options holdings that would come from a one percentage point increase in the company stock price. The authors find support that companies have higher levels of earnings management if their CEOs have an overall compensation which is highly sensitive to company share price.

On the other hand, Balsam (1998) focuses primarily on the cash component of CEO compensation. This cash compensation consists of the annual salary and bonus. He examines the association between earnings management and CEO cash compensation. Earnings management is measured by discretionary accruals by the Jones model and the modified Jones model. At both models the non-dictionary accruals are measured by a time-series regression. Balsam hypothesizes that the income increasing discretionary accruals increase CEO cash compensation. The underlying motivation for the hypothesis is that compensation contracts are based on accounting income, resulting in the incentive for managers to increase reported earnings, and thus increase their compensation. It is also possible that managers have the incentive to increase earnings even though there is no explicit compensation contract. The motivation for those managers to increase income is a possible salary increase as a consequence of the good financial results of the company. The results show that managers indeed increase their compensation by

positive discretionary accruals. However, the question remains why managers do not maximize income with all choices they make. Balsam states that managers do not do this, since this choice depends on a cost-benefit analysis. Logically, when the benefits overshadow the costs, the manager will select income increasing accounting choices. The costs are for example a conflict with the auditor or tax costs. The benefit is the increased compensation, which is only possible when this compensation is related with the accounting earnings. Based on this information, Balsam also hypothesizes that income-increasing discretionary accruals increase if the correlation between compensation and reported incomes becomes stronger. The results show that this hypothesis is confirmed.

3.2   CEO compensation and earnings management at the banking industry

For the banking industry the association between CEO compensation and earnings management, has not been investigated a lot. In the limited research which has been done, the focus was also only on the equity-based part of CEO compensation. These papers are discussed in this section. A summary table of these two researches is provided in appendix 1. In the papers a positive relation between CEO compensation (the equity-part) and earnings management is found. The underlying reason for this is again the increasing welfare for the CEO if he engages in earnings management. As discussed in previous sections, the discretionary loan loss provision is used to measure earnings management. Positive discretionary loan loss provisions increase the "normal" (non-discretionary) loan loss provision and as a result lower net income and thus a lower compensation for the CEO. To increase their compensation, CEOs tend to decrease the "normal" loan loss provision by a negative discretionary loan loss provision which increases net income and consequently increases the compensation for the CEO.

Cornett, McNutt and Tehranian (2009) investigate how corporate governance mechanisms affect earnings management at publicly traded U.S. commercial bank holding companies for the sample period 1994 through 2002. The corporate governance mechanisms which are investigated are (1) stock ownership, (2) pay-for-performance sensitivity, (3) board of director stock ownership, (4) percentage of independent outside directors on the board, (5) CEO/Chair duality, (6) board size, (7) number of board meetings per year, (8) CEO age and (9) CEO tenure. The investigated relation between stock ownership by the CEO and pay-for-performance sensitivity and earnings management are the only relations which are of interest for my research. Therefore the other variables and their relation with earnings management will not be discussed.

The variable pay-for-performance sensitivity deals with the coherence between the compensation contract and the performance of the bank or stock orientation of these contracts. Pay for performance sensitivity is measured as "the actual dollar change in top executive compensation relative to the previous year for every thousand dollar change in the market value of equity of the

bank during the year." The loan loss provision is measured by the annual change in the total provision. The authors expect that higher levels of CEO stock ownership and CEO pay-for-performance sensitivity lead to higher levels of earnings management, since higher stock ownership can induce CEOs to decrease the additions to the loan loss provisions to inflate earnings and thus the CEO's personal wealth. Earnings management is in this study measured by two different models. The first model discussed in the working paper of Cornett et al. (2006) measures earnings management by the discretionary loan loss provisions The model used to measure earnings management is in line with the modified Jones model by Dechow et al. (1995): the discretionary loan loss provision is derived from the difference between the actual and the "normal" loan loss provision. The non-discretionary ("normal") loan loss provision is calculated by a regression formula. First the coefficients are estimated by a time series regression analysis for each bank to determine the non-discretionary loan loss provision. This is done by the following formula:

$$\frac{LLP_i}{TA_i} = \beta_0 \frac{1}{TA_i} + \beta_1 \frac{90\ DAY_I}{TA_i} + \varepsilon$$

LLP is the loan loss provision of bank holding company i, TA are the total assets of bank holding company i, 90 day is the total amount of loans past due 90 days or more and still accruing interest of bank holding company i. β_0 and β_1 are coefficients which have to be estimated to fill them in to second formula to determine the estimated level of non-discretionary loan loss provision:

$$NDLLP_i = \beta_0 \frac{1}{TA_i} + \beta_1 \frac{90\ DAY_I}{TA_i}$$

The last step is to calculate the discretionary loan loss provisions, the part of loan loss provision which can be "manipulated" by management. This is calculated by the following formula:

$$DLLP_i = \frac{LLP_i}{TA_i} - NDLLP_i$$

If the bank holding company has a high amount of discretionary loan loss provision, this tends to signal that loan loss provision is overstated and income is manipulated downwards. On the other hand, a low amount of discretionary loan loss provision tends to signal that loan loss provision is understated and income is manipulated upwards.

In the published article, Cornett, McNutt and Tehranian (2009), a different model is used to measure earnings management: the authors define earnings management as the discretionary component of realized security gains and losses minus the discretionary component of loan loss provisions. This enhances that earnings management is defined such that a high level of earnings management result in higher earnings.

The discretionary loan loss provision is calculated by the error term in the following regression formula:

$$LOSS_{it} = \alpha_{tr} + \beta_1 LASSET_{it} + \beta_2 NPL_{it} + \beta_3 LLR_{it} + \beta_4 LOANR_{it} + \beta_5 LOANC_{it} + \beta_6 LOAND_{it} + \beta_7 LOANA_{it} + \beta_8 LOANI_{it} + \beta_9 LOANF_{it} + \varepsilon_{it}$$

In this model LOSS is the loan loss provision, LASSET is the natural log of total assets, NPL are the non-performing loans (loan 90 days or more past due and still accruing interest and loan in nonaccrual status). The difference between a loan which is 90 days past due and still accruing interest and a non-accrual status loan is that the latter does not generate the interest rate, since the borrower is not fulfilling its payments at all. The 90 days past due loans do generate interest. So one can say that loans which have a nonaccrual status are "worse" than 90 days past due loans. LOANR is the loan loss allowance, LOANR are the real estate loans, LOANC are the commercial and industrial loans, LOAND are loan to depository institutions, LOANA are agricultural loans, LOANI are loans to consumers and LOANF are loans to foreign governments for company i and year t. All these variables are deflated by total loans, expect for the natural log of total assets.

Since the discretionary loan loss provision, the error term, is scaled by total loans, the discretionary loan loss provision is multiplied with total loans to get the real value. Subsequently, the discretionary loan loss provision is scaled by total assets. This is done by the following formula:

$$DLLP_{it} = \frac{(\varepsilon_{it} \times LOANS_{it})}{TA_{it}}$$

The discretionary realized security gains and losses are calculated by the error term in the regression formula below:

$$RSGL_{it} = \alpha_t + \beta_1 LASSET_{it} + \beta_2 URSGL_{it} + \varepsilon_{it}$$

In this model RSGL are the realized gains and losses (both available-for-sale and held-to-maturity securities), LASSET is the natural log of total assets and URSGL is the unrealized and URSGL are the unrealized gains and losses (only available-for-sale securities). RSGL and URSGL are both a percentage of total assets.

As stated before, earnings management is determined by the discretionary component of realized security gains (DRSGL) and losses minus the discretionary component of loan loss provisions (DLLP). This results in the following formula to determine earnings management:

$$EM_{it} = DRSGL_{it} + DLLP_{it}$$

Before running the regression for both determining the discretionary realized security gains and losses and the discretionary loan loss provision, outliers are excluded by using the Cook distance criterion.

Cornett et al. (2009) use the following regression formula:

$$
\begin{aligned}
DLLP_{it} = {} & \beta_1 NDLLP_{it} + \beta_2 \ln(CEOW_{it}) + \beta_3 PPS_{it} + \beta_4 \ln(DOWN_{it}) + \beta_5 UNDI_{it} \\
& + \beta_6 DUAL_{it} + \beta_7 \ln(BRDSZE_{it}) + \beta_8 MEET_{it} + \beta_9 \ln(CEOAGE_{it}) \\
& + \beta_{10} \ln(CEOTEN_{it}) + \beta_{11} MKBK_{it} + \beta_{12} CAP_{it} + \beta_{13} CAR_{it} + \beta_4 \ln(SZE_{it}) \\
& + \sum_{t=1}^{N} b_{CUSIP}(i) CUSIP_i + \varepsilon_{it}
\end{aligned}
$$

As stated before, different corporate governance mechanisms are taken into account, but for this master's thesis only the relation between CEO stock ownership (CEOW) and pay-for-performance sensitivity (PPE) is of my interest.

The results of the analyses show that a high pay-for-performance sensitivity is significantly negatively related to earnings management, which indicates that managers will lower the level of loan loss provision and realized security gains and losses to increase earnings, and thus their personal welfare.

In the working paper of Cornett, McNutt and Tehranian (2006) the relation between the percentage of CEO stock and discretionary loan loss provision is also tested. The results indicate that higher CEO stock ownership results in lower discretionary loan loss provision: managers increase income to consequently increase their compensation. In this working paper the non-discretionary loan loss provision (NDLLP) is added as a control variable in the regression analysis. The results show that there is a negative relation between the discretionary and the non-

discretionary loan loss provision. As there is a high level of loans which will probably not be repaid, the level of non-discretionary loan loss provision increases. Since these high non-discretionary loan loss provision lowers earnings, managers will not raise the level of loan loss provision by their discretion, since this will only decrease earnings more.

Cheng, Warfield and Ye (2011) examined the relation between earnings management and CEO compensation at largest publicly traded bank holding companies in the U.S for the sample period 1994-2002. Their focus is on the equity-based part of CEO compensation. The authors also highlight that the banking industry is a highly regulated industry. The regulatory authorities have set up minimum requirements for capital, and when banks have a low capital ratio the authorities will monitor and sometimes intervene in the operations of the banks. The effect of regulation can be twofold: regulation can induce the relation between equity incentives and earnings management, since the banks are willing to meet the capital requirements set by the authorities and thus engage in income increasing earnings management to meet these criteria. On the other hand, regulation can also deter the relation between equity incentives and earnings management, since the likelihood that earnings management will be detected is higher because the regulations are able to intervene in the operations.

To operationalize equity incentives, four elements of equity-based incentives are taken into consideration: option grants, un-exercisable options, exercisable options and stock ownership. These equity incentives measures are deflated by the total outstanding shares of the firm, since the benefits are proportional to the ratio of equity incentive measures in shares to total outstanding shares. The elements are both taken separately and aggregated in the analysis.
The model which is used to measure earnings management is based on research of Beaver and Engel (1996). This model calculates earnings management (discretionary loan loss provision) by the residual from the following regression model:

$$\text{LLP}_{i,t} = \gamma_0 \left(\frac{1}{GBV_t} \right) + \gamma_1 CO_{i,t} + \gamma_2 \Delta LOAN_{i,t} + \gamma_3 \Delta NPL_{i,t} + \gamma_4 \Delta NPL_{i,t+1} + z_{i,t}$$

The current loan charge-offs ($CO_{i,t}$) can help to estimate the collectability of current loans, the change in total amount of loans ($\Delta LOAN_{i,t}$) can help to estimate the part which will be uncollectable, the default risk can be determined by the recent change in non-performing loans ($\Delta NPL_{i,t}$) and other information about default exposures of loans is reflected in the one-period-ahead change in non-performing loans ($\Delta NPL_{i,t+1}$). All these variables are deflated by the gross book value of common equity (GBV): the net book value of common equity plus total allowance for loan losses. These four variables are seen as the "normal" addition or distraction to the loan

loss provisions. The difference between this "normal" and the actual change in loan loss provision is the z-value. This z-value thus indicates the discretionary loan loss provision.

Cheng et al. (2011) use two regression formulas. The first formula is used to investigate whether earnings management is associated with equity incentives (EI). Total equity incentives consist of options grants, unexercisable options, exercisable options, restricted stock grants and ownership. All these different equity incentives are summed up The second formula is used to investigate if this relation varies with the level of regulatory scrutiny.

$$DLLP_{i,t} = \gamma_0 + \beta_0 EI_{i,t} + \gamma_1 EBTP_{i,t} + \gamma_2 CAP\_Tier1_{i,t} + \gamma_3 SIZE_{i,t} + \gamma_4 TAX_{i,t} + \varsigma_{it}$$

$$DLLP_{i,t} = \gamma_0 + \beta_0 EI_{i,t} + \beta_1 DCAP_{i,t} + \beta_2 EI_{i,t} \times DCAP_{i,t} + \gamma_1 EBTP_{i,t} + \gamma_2 CAP\_Tier1_{i,t} + \gamma_3 SIZE_{i,t} + \gamma_4 TAX_{i,t} + \varsigma_{it}$$

The control variables are income before tax and loan loss provision (EBTP), risk-adjusted Tier 1 capital ratio (CAP_Tier1), size of the bank (SIZE) and tax (TAX). EBTP is scaled by book value of equity plus allowance for loan losses, SIZE is measured by the natural logarithm of the market value at the end of the year and TAX is measured by the income tax expense divided by net income before tax. In the second regression a dummy variable is added which is used as proxy for potential regulatory invention (DCAP). This variable equals one if the capital ratio of the bank is in the bottom quartile of the sample. The results show that CEOs increase loan loss provisions when managers have high equity incentives and when the bank has a high potential of dealing with regulatory intervention. The positive relation between equity-based CEO compensation and earnings management is not significantly anymore when the low capital ratio variable is not added.

As a conclusion can be said that there are only strong incentives to engage in earnings management if the incentive contracts of CEOs are closely correlated with bank performance and if the capital ratio is close to the regulatory minimum.

3.3   Summary and conclusion

This chapter has elaborated on the research which has been done on the relation between CEO compensation and earnings management. The first section has discussed this relation in the non-financial industries. One of the first studies conducted in this field was done by Healy (1985). His results indicate that there is a positive relation between manipulating earnings and the presence of bonus plans which are tied to the accounting performance of firms. Research conducted after Healy (1985) often confirmed this hypothesis. Bergstresser and Philippon (2005) have tested the relation between only the equity-based component of CEO compensation and earnings management. This relation was also found to be positive: firms have higher levels of

earnings management if their CEOs have an overall compensation which is highly sensitive to company share price. On the other hand, Balsam focused on cash compensation only when investigating the relation between CEO compensation and earnings management. His results indicate that managers increase income by discretionary accruals to raise their compensation.

Research conducted in the banking industry is limited: the focus of the two papers is only on equity-based CEO compensation. These two papers use a different manner for measuring earnings management: in their working paper Cornet, McNutt and Tehranian (2006) determine the discretionary accruals by a model which is aligned with the modified Jones model by Dechow et al. (1995), while in their published paper Cornett et al. (2009) use the z-term to determine earnings management, consistent with Cheng et al, (2011). These researches show that CEOs decrease loan loss provisions when they are rewarded by equity-based compensation. However, Cheng at all, (2011) only found this when the bank has a low capital ratio.

Chapter 4: Hypotheses

In this chapter the hypotheses will be discussed. In section 4.1 the hypotheses for the pre- and post-crisis period will be discussed and in section 4.2 the hypotheses regarding the difference between these two periods are discussed. CEO compensation can be divided in an equity-based component and a cash-based component. In this master's thesis the hypotheses will be specified for the equity-based component and the cash-based component individually, and for total compensation (the sum of the equity- and cash-based component of CEO compensation).

4.1 The pre- and post-crisis period

In this section the hypotheses regarding the relation between CEO compensation (and its different components) and earnings management will be formulated for the pre- and post-crisis period.

4.1.1 Equity-based CEO compensation and earnings management

Having equity-based compensation goes hand in hand with striving for a high share price. This high share price can result in extra gains if these shares are sold. Logically, when CEOs are rewarded by such equity-based compensation they strive for high share prices too. Since CEOs have the possibility to use a certain amount of discretion when determining loan loss provisions, this discretionary loan loss provision is used as the measure for earnings management. If there is a pessimistic estimate of loan losses, the loan loss provision is higher, net income is lower and the stock price is also lower. On the other hand: if there is an optimistic estimate of loan losses, loan loss provision is lower, net income is higher and the stock price is also higher.

With regard to the equity-based component of CEO compensation, prior research state that there is a positive relation between the equity based component of CEO compensation and earnings management (Cornett, McNutt & Tehranian, 2009; Cheng, Warfield & Ye, 2012). For this research I also expect to find a positive relation between these two variables in both the pre- and the post-crisis period:

> $H1_a$:There is a positive association between the equity-based component of CEO compensation and earnings management in the pre- and post-crisis period

4.1.2 Cash-based CEO compensation and earnings management

The amount of the annual CEO compensation is often based on the performance the organization, also referred to as pay-for-performance. As already discussed in the prior section, CEOs have the possibility to use a certain amount of discretion when determining loan loss

provisions, this discretionary loan loss provision is used as the measure for earnings management. Again, a higher addition to the loan loss provision will lower net income, and thus the required performance measure maybe could not be reached. On the other hand, a lower addition to the loan loss provision than what should be will increase net income, and thus the required performance measure can be reached. Based on this, one would expect that there is a positive relation between the cash-component of CEO compensation and earnings management, since managers are willing to meet their performance requirements and thus decrease discretionary loan loss provision to also increase their compensation. This relation has not yet been investigated in the banking industry. Therefore I base my hypotheses on literature conducted in the non-financial industry. Gao and Shrieves (2002) have investigated the relation of the different components of CEO compensation with earnings management. They found that there is a positive relation between bonuses and earnings management and a negative relation between salary and earnings management. These two different components of the CEO compensation are in my research seen as the cash-based component of CEO compensation (more information in chapter 5). Balsam (1998) investigated the relation between CEO cash compensation, salary and bonus, and earnings management. His results indicate that managers increase income by discretionary accruals to raise their compensation. Even though Gao and Shrieves (2002) did not find a positive relation for salary and earnings management, I do expect to find that cash-based CEO compensation is positively related to earnings management since this is also aligned with the bonus hypothesis, which is often confirmed. I expect to find this positive relation in both the pre- and post-crisis period:

$H1_b$:There is a positive association between the cash-based part of CEO compensation and earnings management in the pre- and post-crisis period

4.1.3 Total CEO compensation and earnings management

As stated before, total CEO compensation exists of both the equity-based and the cash-based component of CEO compensation. As a result the hypotheses of total CEO compensation is a combination of the hypothesis for the equity-based and the cash-based component of CEO compensation. Since I expect that both the equity-based component and the cash-based component are individually positively related to earnings management, I also expect that CEO compensation in total will be positively associated with earnings management in both the pre- and post-crisis period:

$H1_c$: There is a positive association between the CEO compensation and earnings management in the pre- and post-crisis period

4.2 The difference between the pre- and post-crisis period

The aim of this study is to determine whether the relation between CEO compensation (and its different components) and earnings management has changed since the financial crisis. Therefore the pre- and post-crisis period will be compared. Since the start of the financial crisis the relation between CEO compensation and earnings management has not been investigated yet. Therefore I will base my hypotheses on literature which investigates the effect of the financial crisis on the different concepts of interest. To give an estimation about the relation between CEO compensation in total, the hypotheses for the equity-based component and the cash-based components are combined. Therefore the two hypotheses for the components will be discussed first, and then the hypotheses for total compensation will be discussed.

4.2.1 Equity-based CEO compensation and earnings management

Fahlenbrach and Stulz (2011) and De Groot and Qin (2011) both found that the amount of shareholdings of bank CEOs has not changed during the recent financial crisis. On the other hand, Liu and Ryan (2006) and El Sood (2012) investigated the effect of the financial crisis on earnings management in the banking sector. The results show that the financial crisis has resulted in a smaller amount of loan loss provisions at banks, consisting of both discretionary and non-discretionary loan loss provision. Since discretionary loan loss provision is seen as the measure for earnings management, I expect that earnings management has also decreased since the start of the financial crisis. Taken this together, this indicates that equity-based CEO compensation has not changed, while earnings management has decreased since the financial crisis (Liu & Ryan, 2006; El Sood, 2012). This indicates that the relation between CEO compensation and earnings management weakens, when comparing the pre- and post-crisis period.

> *$H2_a$:There is a weaker positive association between the equity-based part CEO compensation and earnings management, when comparing the pre- and post-crisis period*

4.2.2 Cash-based CEO compensation and earnings management

For the cash-based part of CEO compensation at bank is found that the components of cash compensation – base salary and bonus – are influenced differently by the financial crisis: base salary has increased, while bonuses have decreased (De Groot & Qin, 2011). The literature regarding the change in earnings management indicates that there has been a decrease in earnings management since the start of the financial crisis. Since the inconsistent results regarding the change of cash-based compensation the direction of the relation is uncertain. But I do expect that the relation has changed.

H2ₐ:The association between the cash-based part of CEO compensation and earnings management in the post- crisis period has changed compared to the pre-crisis period

4.2.3   Total CEO compensation and earnings management

In the existing literature is found that CEO compensation in total has decreased since the financial crisis (De Groot & Qin, 2011; Financial Times survey 2008-2011). Together with the literature regarding the decrease of earnings management since the start of the financial crisis (Liu & Ryan, 2006; El Sood, 2012), this would indicate that CEO compensation has decreased and so has earnings management. This indicates that there is a still a positive relation between CEO compensation in total and earnings management, therefore the direction of the relation does not change when comparing the pre- and post-crisis period, but it can become stronger or weaker when comparing the pre- and post-crisis period:

H2_c: The positive association between total CEO compensation and earnings management in the post- crisis period has changed compared to the pre-crisis period

4.3 Summary and conclusion

In this chapter I discussed the expectations about the relation between CEO compensation (and its different components) and earnings management at banks for the pre-crisis period and the difference between the pre- and post-crisis period. For the equity-based component of CEO compensation is expected that its relation with earnings management will weaken as a result of the financial crisis, while for the cash-based component of CEO compensation and its relation with earnings management can only be said that the relation will change, but the direction of this change is unknown. For the association between CEO compensation in total and earnings management it is also expected that the relation is still positive, but I do expect that this association becomes stronger or weaker, and thus a change is expected.

Chapter 5: Research design

In this chapter I discuss the sample of this research, where the data will be gathered from and what proxies are used for the variables of interest. In this chapter the control variables which are used are also discussed.

5.1   Sample

The sample in this research consists of bank holding companies in the United States. Consistent with Fahlenbrach and Stulz (2011), who also investigate banks in particular, the sample includes banks with a Standard Industry Classification (SIC) code between 6000 and 6300, which are for example commercial banks, loan brokers, and mortgage bankers and loan correspondents.

The sample period ranges from 2004 until 2011. To gather the data, first a sample of CEO compensation is derived from the ExecuComp database. Second, these data is linked to the financial data from the Bankscope database and Compustat database. An overview of the sample selection procedure can be found in appendix 2.

The initial sample consists of 1281 observations of bank CEO compensation data for the years 2004-2011. This dataset includes are all sort of financial organizations. Since I will measure earnings management by the discretionary loan loss provision, I only take into account those financial institutions which provide and keep these loans until their maturity is reached. As a result banks classified by the SIC description 'investment advice', 'security brokers & security dealers', 'security and commodity dealers', 'loan brokers', 'finance lessors', 'financial services' and 'mortgage bankers & loan correspondents' are excluded. The remaining sample consists of 973 observations. These observations are banks with SIC code 6020 (commercial banks), 6035 (savings institutions, federal chartered), 6036 (savings institutions, not federal chartered), 6099 (functions related to depository banking industry), 6111 (federal credit agencies), 6141 (personal credit institutions) and 6159 (miscellaneous business credit institutions). Since I compare the pre- and post-crisis period, the banks in these periods need to be the same and approximately the same amount of banks need to be compared. For these banks it is only allowed to have at maximum one year missing within the sample period. This results in an exclusion of 381 observations, resulting in a final sample of 581 observations of 76 banks. This data needs to be coupled to the necessary financial data for the calculation of earnings management and the control variables. All the financial data is derived from the Bankscope database, with exception of the market price and the book price, which are derived from the Compustat database. Again, there is some missing data, which results in the exclusion of these observations. The final database consists of 414 observations of 53 banks: 152 observations in the pre-crisis period, 106 observations in the crisis period and 156 observations in the post-crisis period. An overview of

the banks in the database is included in appendix 3. The amount of observations in this research is a bit lower than the amount of observations in prior research of Cornett et al. (2009) and Cheng et al. (2011). Cornett et al. (2009) used 593 year observations for a sample period of 8 years, thus on average 74 observations per year, and Cheng et al. (2011) used 712 observations for a sample period of 13 years, thus on average 55 observations per year.

This total sample will be split in two different samples: the pre-crisis sample, and the post-crisis sample. The pre-crisis sample consists of the years 2004 until 2006, while the post-crisis sample are observations from 2009 until 2011. In a lot of research the financial crisis, both the years 2007 and 2008 are concerned to be the years in which the financial crisis started (e.g. French, Leyshon & Thrift, 2009; Berndt & Offtenhammer, 2011; Erkens, Hung & Matos, 2012). To overcome that the results are biased by the crisis years itself, this master's thesis excludes these two years from the sample, resulting in a final sample of 308 year observations, with 152 observations in the pre-crisis period and 156 observations in the post-crisis period, thus on average 51 observations per year.

The multivariate regression analysis will be done for the different samples individually, to test for $H1_a$, $H1_b$, $H1_b$. The results of two samples will be compared to test the difference hypotheses $H2_a$, $H2_b$, $H2_c$.

5.2   CEO compensation

The independent variable in this research is CEO compensation. As stated in section 2.2 this variable can be divided in six different components: salary, bonus, stock options, restricted stock, long-term incentive plans and retirement plans. In this research the focus will be on salary, bonus, stock options and restricted stocks. The long-term incentive plans are not included, since the data is only available until 2006, while my sample period is from 2004 until 2011. The database does have a variable "Other annual" which includes also the long-term incentive plans. However, it is not possible to exclude this item. The retirement plans are not included since this part of the compensation contract is not influenced by the performance of the firm, and this would therefore not be related to earnings management.

In this master's thesis CEO compensation is divided into two different parts: the cash-based component and equity-based component. The sum of the cash-based and equity-based compensation is total compensation ("*TOT_COMP*"). Salary and bonus are taken together and defined as the cash-based component of CEO compensation (*"CB_COMP"*). These two can be found in the ExecuComp database by the "Salary - $" variable and the "Bonus - $" variable, which are measured by the dollar value.. The stock options and restricted stock are taken

together as the equity-based component of CEO compensation. The stock options are from 2004 until 2006 measured by the Black and Scholes measure, and from 2007 on measured by the fair value as a result of changed regulation. As a result, the initial database includes two different variables for stock options. These variables are taken together in one variable for the stock options ("Stock_Options"). The restricted stocks are during the total sample period measured by the fair value. Summing up the stock option variable and the restricted stocks variable, the equity-based part of compensation ("*EB_COMP*") is created.

This data is gathered from the WRDS database, more specifically the ExecuComp database. This database is exclusively about executive compensation for S&P 1500 index companies. At this database, there is also the ability to filter on a certain industry, in the case of this master's thesis there is filtered on the banking industry, consisting of SIC codes between 6000 and 6300 as stated before.

5.3   Earnings management

The dependent variable in this master's thesis is earnings management. As already described in section 2.3.2 earnings management at banks is measured by a single accrual model. This method uses discretionary loan loss provision to determine earnings management, since loan loss provision is the most important accrual at banks. Consistent with prior research the discretionary part of loan loss provision is considered as earnings management (Cornett, McNutt, &Tehranian, 2009; Cheng, Warfield & Ye, 2011). These discretionary accruals will be calculated in an almost consistent manner as in the working paper of Cornett, McNutt and Tehranian (2006) (see chapter 3.2). The model used in their research is based on the modified Jones model by Dechow et al. (1995): the discretionary loan loss provision is derived from the difference between the actual and the "normal" loan loss provision. With the formula below for the non-discretionary ("normal") loan loss provision, β_0, β_1 and β_2 are estimated. In this formula I assume that the loan loss provision ($\frac{LLP_i}{TA_i}$) is determined by the loans which are 90 days or more past due and still accruing interest ($\frac{90\ DAY_i}{TA_i}$) and the nonaccrual status loans ($\frac{NAL_i}{TA_i}$). Cornett et al. (2009) consider the nonaccrual loans and the 90 or more days past due loans together as non-performing loans. I do not follow the method used by Cornett et al. (2009), since in other research the discretionary security gains and losses are also not taken into consideration when measuring earnings management at banks (Cheng, Warfield & Ye, 2011; Cornett, McNutt, & Teheranian, 2006; El Sood, 2012); These non-performing loans are concerned as a good estimation to determine what the necessary loan loss provision should be. The coefficients are calculated by a time series regression analysis for each bank. This time series regression covers the total sample period, including the crisis years 2007 and 2008.

$$\frac{LLP_i}{TA_i} = \beta_0 \frac{1}{TA_i} + \beta_1 \frac{90\ DAY_i}{TA_i} + \beta_2 \frac{NAL_i}{TA_i} + \varepsilon$$

LLP   loan loss provision of bank i

TA   total assets of bank i

90 DAY   total amount of loans past due 90 days or more and still accruing interest of bank i

The second step is to fill in the calculated β_0, β_1 and β_2 into the formula below to determine the estimated level of non- discretionary loan loss provision:

$$NDLLP_i = \beta_0 \frac{1}{TA_i} + \beta_1 \frac{90\ DAY_i}{TA_i} + \beta_2 \frac{NAL_i}{TA_i}$$

To calculate the discretionary part of loan loss provision, the non-discretionary loan loss provisions are subtracted from the total loan loss provision. The formula used for this is:

$$DLLP_i = \frac{LLP_i}{TA_i} - NDLLP_i$$

To overcome that the size of the banks biases the result of the analyses, the loan loss provision will be scaled by total assets, consistent with El Sood (2012) and Cornett, McNutt and Tehranian (2009). This data is gathered from databases of the Wharton Research Data Service (WRDS). At WRDS there are five databases for regulated depository financial institutions. At these databases it is possible to get the loan loss provision data from the income statement, and the total assets from the balance sheet.

5.4   Control variables

When testing the relation between CEO compensation and earnings management, this relation should be controlled for certain variables. These control variables also have an influence on the dependent variable and therefore these variables are added to overcome that the results are biased.

Banks are part of a highly regulated industry. Therefore they also have to meet certain capital requirements, because else the banks will be monitored by the authorities or their operations banks will be interrupted by these authorities (Cheng, Warfield & Ye, 2011). This regulation can have two different implications for earnings management: it can increase earnings management,

since the banks are willing to meet the requirements by the authorities and thus engage in income increasing earnings management. On the other hand, regulation can also decrease earnings management, since the likelihood that earnings management will be detected is higher because the authorities are able to interrupt the operations of the bank (Cheng, Warfield & Ye, 2011). Taken this into account, the capital position of the bank are added as a control variable, since it can have an influence on earnings management. Cornett, McNutt and Tehranian (2009), El Sood (2012) and Cheng, Warfield and Ye (2011) all found that there is a negative relation between the capital ratio and earnings management: managers tend to manage earnings upwards when a low capital ratio is in place. In this master's thesis I also expect that the capital ratio has a negative relation with earnings management in both the pre- and post-crisis period.

Firm size is added as a control variable, since it can overcome that the results are biased for differences between smaller and larger banks. The difference between smaller and larger banks is that the larger banks have more abilities to manage earnings. This variable is also used in research of Cornett, McNutt and Tehranian (2009) and El Sood (2012). This variable will be used as a control variable in this research, consistent with their measurement, the natural log of total assets is used as a proxy. Controlling for the size overcomes that the data will not be homoscedastic: variables do not have the same finite variance. For this variable is expected that it has a positive relation with earnings management at banks in both the pre- and post-crisis period.

Earnings management at banks could also be influenced by the performance of the bank, therefore this variable is also used as a control variable. This proxy needs to be relative, because else it could be biased for the size of the bank. In this master's thesis two control variables for performance are added: ROE and market price. The ROE calculates the accounting earnings for a period per dollar of shareholders' equity invested. Based on the research of Liu and Ryan (2006) and El Sood (2012), during a year of poor economic health, thus low performance, more earnings management is used. This is also in line with the income smoothing hypothesis. While during booming years, good performance, firms tend to engage less in earnings management. Based on this, the expected direction is negative in both periods. The second control variable for performance is the market price of shareholdings. This variable also gives a good impression of the performance of the company. Consistent with the ROE, I also expect that the market price and earnings management are negatively related.

Growth perspectives can also have an influence on earnings management at banks. If the bank has a high growth perspective, their expected income will be higher. Keeping all other things unchanged, banks do not have to manage their earnings upwards, since income is also expected

to be higher. This signals a negative relation between growth and earnings management at banks. This is in accordance with the direction of this control variable in research of Cheng, Warfield and Ye (2011) and Cornett, McNutt and Tehranian (2009). Growth perspective will be measured by the market-to-book ratio in this master's thesis. A high market-to-book value indicates that the firm has a high growth potential, since the market value is higher than the book value of shares.

5.5   Regression model

In this master's thesis I want to investigate the association between CEO compensation (and its different components) and earnings management. Since total compensation is the sum of the equity-based component and the cash-based component, these variables are highly correlated. Therefore the total compensation variable is tested in a separate regression formula. This results in the following two regression formulas:

$$DLLP = \alpha + \beta_0\ CB\_COMP_{i,t} + \beta_1\ EB\_COMP_{i,t} + \beta_2\ CAP_{i,t} + \beta_3\ SIZE_{i,t} + \beta_4\ MTBV_{i,t} + \beta_5\ ROE_{i,t} + \beta_6\ MP_{i,t} + \varepsilon$$

$$DLLP = \alpha + \beta_0\ TOT\_COMP_{i,t} + \beta_1\ CAP_{i,t} + \beta_2\ SIZE_{i,t} + \beta_3\ MTBV_{i,t} + \beta_4\ ROE_{i,t} + \beta_5\ MP_{i,t} + \varepsilon$$

The main coefficients of interest in the first regression are β_0 and β_1, because these are the coefficients regarding the CEO compensation components: CB_COMP is the cash-based compensation and EB_COMP is the equity-based compensation. In the second formula β_0 is the main coefficient of interest, since this is total CEO compensation (TOT_COMP). These variables are scaled by total assets. For all these coefficients is expected that they are negative, since such a negative coefficient indicates that loan loss provision is reduced, indicating that earnings are managed. The control variables are CAP (the bank's capital position), SIZE (firm size), MTBV (growth perspectives), ROE (return on equity) and MP (market price). For the capital position a positive coefficient is expected, since the capital ratio is expected to be positively related to discretionary loan loss provisions. CEOs tend to increase earnings to achieve a higher capital ratio. For the size is also expected that there is a positive relation with earnings management. Since low discretionary loan loss provisions indicate that earnings are managed upwards, a negative coefficient is expected for size. For growth perspectives I expect that it has a negative relation with earnings management, and therefore a positive coefficient is predicted. The proxies used for the performance of the bank are ROE and the market price (MP). I expect that a poor performance will increase earnings management, therefore I expect a positive coefficient for both control variables.

As already stated in section 5.1, this regression will be conducted for the two different samples: the pre-crisis period and the post-crisis period.

5.6   Summary and conclusion

In this chapter the sample selection procedure, the measurements for the concepts of interest, the control variables and the regression formula which is used for testing the hypotheses are discussed. In chapter 6 these components are all combined and the relations are tested.

Chapter 6: Results and analysis

In this section both the descriptive statistics and the empirical results of this master's thesis are presented and analyses. The descriptive statistics provide more information about how the sample looks like, and at the empirical results section, the hypotheses are tested and these results are shown.

6.1   Descriptive statistics

In this section the descriptive results regarding the different components of the sample will be discussed: the pre- and post-crisis period. Within the period, the averages of the concepts of interest will be discussed.

6.1.1   Pre- and post-crisis period

As already discussed in chapter 5, the sample consists of 308 observations for 53 banks. The pre-crisis period (2004-2006) consists of 152 observations for these banks, while the post-crisis period (2009-2011) consists of 156 observations for these banks.

6.1.2   CEO compensation

In appendix 4 an overview of the average CEO compensation deflated by total assets per component per period can be found. As this table shows, the total compensation paid to bank CEO is reduced significantly by on average 39% (t = 3.310, p = 0.001). The two components of total compensation, the cash- and the equity component, have decreased too. This table shows that the cash based part of CEO compensation has significantly decreased by on average 26% when comparing the pre- and post-crisis period (t = 2.116, p = 0.036). Bonus and salary are both part of cash-based compensation: bonuses have significantly decreased by 86% on average (t = 5.586, p = 0.000), while the salary has (not significantly) increased by 18% on average (t = -1.194, p = 0.234). For the equity-based part of CEO compensation, this table shows that the overall equity compensation has significantly decreased by 47% on average (t = 2.953, p = 0.004). The different components of the equity-based compensation decreased too: compensation by options significantly decreased by 80% on average (t = 3.828, p = 0.000), while restricted stock compensation (not significantly) decreased by 27% on average. An overview of these results can be found in appendix 4.

With regard to the hypotheses, I expect that CEO compensation has decreased since the start of the financial crisis. The descriptive statistics of CEO compensation confirm that this is the case.

Only the salary component of CEO compensation has increased, but the other three components have decreased.

6.1.3 Earnings management

As already discussed in previous sections the measurement for earnings management at the banking industry is based on the discretionary loan loss provision. The discretionary loan loss provision (DLLP) is the amount of provision which is above or below the "normal" (non-discretionary) loan loss provision, which is based on the amount of loans which are 90 days or more past due and non-accrual status loans. A negative discretionary loan loss provision indicates that the bank has engaged in income increasing earnings management, since the necessary (non-discretionary) loan loss provision has decreased as a result of the negative discretionary loan loss provision. With regard to the hypothesis, I expect that CEO compensation is associated with this income increasing earnings management, since this would indicate that managers have managed earnings upwards to increase their compensation. On the other hand, it is also possible that discretionary loan loss provision is positive, this indicates that the bank has engaged in income decreasing earnings management, since the necessary (non-discretionary) loan loss provision has increased as a result of the positive discretionary loan loss provision. With regard to the hypothesis, it would not be likely that CEO compensation would be associated with this income decreasing earnings management, since this would decrease the compensation for CEOs. Therefore this master's thesis will only focus on the real DLLP (including both the negative and the positive values of DLLP) and the negative DLLP. The positive DLLP values are only taken into account when discussing the descriptive statistics, but these values are not taken into account when the hypotheses are tested.

When taken together both the positive and negative discretionary loan loss provisions, the real values of DLLP, the descriptive statistics on earnings management show that the total amount of discretionary loan loss provision has significantly increased by 918% (t = 2.926, p = 0.004), indicating that banks tend to manage their earnings more in the period after the start of the financial crisis, compared to the period before the start of the financial crisis. With regard to the positive and negative DLLP values, the descriptive statistics show that in the pre-crisis period 64% of the observations show income increasing earnings management and 36% of the observations show income decreasing earnings management. For the post-crisis period 60% of the observations show income increasing earnings management and 40% of the observations show income decreasing earnings management. These descriptive statistics indicate that income increasing earnings management has significantly increased (t = 6.400, p = 0.000). Income decreasing earnings management has also significantly increased (t = -5.391, p = 0.000). An overview of these results can be found in appendix 4.

As the descriptive statistics for total discretionary loan loss provision showed, earnings management has significantly increased when comparing the pre- and post-crisis period. This is consistent with the results of Liu and Ryan (2006) and El Sood (2012). They also found that earnings management increases during a financial turndown, while less earnings management is used in booming period. The results in this master's thesis also show that more earnings management is used in a period of economic downturn (post-crisis period), compared to booming periods (pre-crisis period). These results are consistent with the income smoothing hypotheses.

6.2   Multicollinearity

It can be the case that two or more explanatory variables are depending on each other. If this multicollinearity between these different variables is higher than 0,8, the results can be harmed by this (Jugde et al., 1985). Multicollinearity can be identified by a Pearson correlation matrix. I have tested for multicollinearity in the four different samples (pre-crisis with real values of DLLP, pre-crisis period with negative values of DLLP, post-crisis with real values of DLLP, post-crisis period with negative values of DLLP). An overview of the results can be found in appendix 5. The tables in appendix 5a and 5b present the univariate results of respectively the pre- and post-crisis period, with both the real values of DLLP and the negative values of DLLP as measure for earnings management. The real values of DLLP can be found in the right upper corner, and the negative values of DLLP can be found in the left lower corner.

As already expected, the results of this correlation matrix for the pre-crisis period with negative and real values show that the dependent variable equity-based compensation is highly correlated with total CEO compensation (resp. 0.964; 0.927). In the samples for the post-crisis period the correlation matrix shows that again the dependent variable equity-based compensation and total compensation are highly correlated when DLLP are real or negative values (resp. 0.810 and 0.892). All the other explanatory are not higher correlated than 0.8. These results suggest that it is not possible to have a regression with both the equity-based component of CEO compensation and the total compensation in one regression, because the two variables are too highly correlated. I already expected this, and therefore two different regression are run: the first regression with the equity- and cash-based component of CEO compensation and the second regression with only total compensation.

6.3   Univariate analysis

This section presents the results of the univariate analysis of the correlation tests. This analysis only relates the dependent variable, CEO compensation and its different components, with the

independent variable, earnings management. Earnings management is measured by the discretionary loan loss provision. For testing the hypotheses, the discretionary loan loss provision will be tested with its real value and its signed negative value. Since my hypotheses are based on income increasing earnings management, I expect to find a negative association between CEO compensation and the real values of DLLP (discretionary loan loss provision) and a negative association between CEO compensation and the negative signed values of DLLP. This negative association indicates that the higher the compensation, the lower DLLP, and thus the more earnings are managed upwards. An overview of these results can be found in appendix 5.

6.3.1 Pre- and post-crisis period

According to hypothesis 1_a a positive association between the equity-based component of CEO compensation and earnings management is expected in both the pre- and post-crisis period. This indicates that a negative association between the equity-based component of CEO compensation and discretionary loan loss provision is expected. The results of the univariate analysis show that there is a negative association is in place in both the pre- and post-crisis period when DLLP is measured by its negative signed value and the real value. However, these associations are not significant (pre-crisis: $p = 0.796$, post-crisis $p = 0.068$). DLLP can also be measured by its real value. When this measure is used, I also expect to find that the association between the equity-based component and earnings management are positively associated. The results indicate that this positive association is indeed the case in the pre-crisis period, while the association between the two variables is negative in the post-crisis period, in contrast to the hypothesis. However, both associations are not significant (pre-crisis: $p = 0.417$; post-crisis: $p = 0.396$).

Since both measures for DLLP do not show a significant positive association between the equity-based component of CEO compensation and earnings management, I have to reject $H1_a$ based on the univariate analyses. Possible explanations for not finding a significant positive association can be the fewer observations which I used, compared to research of Cornett et al. (2009) and Cheng et al. (2011). Another explanation can be that the measure I have used to measure earnings management is not good enough. The models to measure earnings management used by Cornett et al. (2009) and Cheng et al. (2011) are more extensive, and they might therefore be better in measuring earnings management. There is very little research about this association, and therefore it is also possible that CEOs just do not manage their earnings to increase their compensation.

For the cash-based component of CEO compensation is expected that it also has a positive association with earnings management in both the pre- and post-crisis period. The results of the correlation, when DLLP is measured by its negative signed value, indicate that there is a negative association between the two variables in the pre-crisis period. This is in contrast to what

I expected. However, the association is not significant (p = 0.594). When the same measure is used in the post-crisis period, the results indicate that this positive association is indeed in place. Unfortunately, the association is not significant again (p = 0.157). DLLP can also be measured by its real value. This results again in a (not significant) negative association in the pre-crisis period (p = 0.956). The results of the post-crisis even show that there is no association at all between the two variables (t = 0.000, p = 0.999).

Again, both measures of DLLP do not show that the association between the cash-based CEO compensation and earnings management is significantly positive in the pre- and/or post-crisis period. This can be the consequence of a wrong assumption. My hypothesis regarding the cash-based component was based on literature which was conducted at non-financial firms and I assumed that the positive association would also be applicable at the financial firms. However, the results of the univariate analysis show that there is no association at all between the two variables. Another explanation can be that summing up the bonus and salary component of CEO compensation biased the results, since salary is only indirectly associated with performance, while the bonus is more directly associated with performance and therefore earnings management. The last probability for not finding the significant positive association can be that I have used too few observations in the regression analysis.

For the pre- and post-crisis period, hypothesis 1_c expects that there is positive association between total CEO compensation and earnings management. The results show that this positive association is only found in the pre-crisis period when DLLP is measured by its real values. However, the association is not significant again (p = 0.417). The association between the two variables is negative when DLLP is measured by its negative signed values in the pre-crisis period. In the post-crisis period, both measures of DLLP show that there is a negative association between CEO compensation and earnings management. However, none of these association are significant (pre-crisis: p = 0.709; post-crisis: real values DLLP: p = 0.525, negative signed values DLLP: p = 0.338). This again results in rejecting the hypothesis.

Since total compensation is the sum of the equity- and cash-based component of CEO compensation, it is not very surprising that I did not find a significant positive association for total compensation, since I also didn't find such positive associations between the different components of CEO compensation and earnings management. On the other hand, I based my hypothesis for total compensation also on literature which was based on non-financial firms, while I test this hypothesis in a sample with financial firms. The results of this univariate analysis indicate that this positive association between CEO compensation and earnings management is just not the case at financial firms.

6.4   Multivariate analysis

In this section the results of the multivariate analysis will be presented. In this analysis the control variables are also included. The results will be discussed for the pre-crisis period, the post-crisis period and the difference between the two periods.

The hypotheses are tested by two different regressions: the first regression uses the negative signed values of DLLP and the second regression uses the real values of DLLP. As already stated in chapter 5, and confirmed by the multicollinearity analysis, the equity-based and (sometimes) the cash-based component of CEO compensation are highly correlated with total compensation. Therefore the association between total compensation and earnings management is tested separately. These results will also be presented and discussed separately. Again, I expect to find a negative association between CEO compensation and the real values of DLLP and a negative association between CEO compensation and the negative signed values of DLLP. This negative association indicates that the higher the compensation, the lower DLLP, and thus the more earnings are managed upwards. An overview of all results can be found in appendix 6.

6.4.1   Equity-based CEO compensation

Regarding the first hypothesis I expect that the equity-based part of compensation and earnings management are positively associated in both the pre- and post-crisis period. The results of both regressions with the different measures for DLLP show that this positive association is in place in the pre-crisis period. However, these associations are not significant in both cases (real DLLP: $t = -0.195$, $p = 0.845$; negative DLLP: $t = -0.360$, $p = 0.720$). Unfortunately, the results of the post-crisis period only show this positive association when DLLP is measured by its negative signed values, but this association is not significant again ($t = -0.525$, $p = 0.601$). When DLLP is measured by its real values, the results indicate that there is a negative association between the equity-based component and earnings management. This is in contrast to the hypothesis. But again, this association is not significant ($t = 0.922$, $p = 0.358$).

These results indicate that the expected positive association is indeed in place in three out of four cases, however, since these associations are not significant, the associations are not strong enough to confirm the first hypothesis.

The second hypothesis predicted that the positive association between the equity-based component of CEO compensation and earnings management would have become weaker in the post-crisis period, compared to the pre-crisis period. As the above results have shown, the positive association is only found when DLLP is measured by its negative signed values. In both the pre-crisis period and the post-crisis period this association was not significant (resp. $p = 0.720$ and $p = 0.601$), but when comparing these two periods, the association has become

stronger in the post-crisis period. This is inconsistent with the hypothesis, and therefore I have to reject H2$_a$.

In previous research of Cheng et al. (2011) and Cornett et al. (2009) the association between the equity-based component of CEO compensation and earnings management was found to be significantly positive. Probably my results are not significant as a consequence of the lower amount of observations and the different measure for DLLP. Since there is very little research about this association, it is also possible that CEOs just do not manage their earnings to increase their compensation.

6.4.2 Cash-based CEO compensation

Hypothesis 1$_b$ expects a positive association between the cash based component of CEO compensation and earnings management in the pre- and post-crisis period. When running the regression with the negative signed values and the real values for DLLP in the pre-crisis period, the association between the cash-based compensation and earnings management is negative in both cases. The association is even significant when the real DLLP values are used to measure earnings management (t = 2.095, p = 0.028). This negative association is in contrast to the hypotheses. When running both regressions in the post-crisis period, the results indicate that again a negative association between cash-based CEO compensation and earnings management is found for both measures of DLLP. This negative association is even significant when DLLP is measured by its real values (t = 2.289, p = 0.024). As a consequence, I have to reject the hypothesis regarding the cash-based CEO compensation.

The hypothesis regarding the cash-based component of CEO compensation hypothesized that the positive association would change, when comparing the pre- and post-crisis period. For this hypothesis was also already assumed in the first hypothesis that a positive association was in place between cash-based CEO compensation and earnings management in both periods. The results of the regressions show the associations are negative instead of positive in both periods. The results show that this negative association has become stronger, when comparing the pre- and post-crisis period (real DLLP: pre-crisis: p = 0.028, post-crisis: p = 0.024; negative signed DLLP: pre-crisis: p = 0.410, post-crisis: p = 0.343). However, since the positive association was assumed when formulating the second hypothesis, I cannot confirm H2$_b$.

A possible explanation for this negative association which is found is that I have summed up salary and bonus to create the cash-based component of the compensation. Salary is only indirectly associated with the performance of the company, since a salary increase is more likely to happen when the firm is performing well, but it is not certain that this increase will also

happen when the bank performs well. On the other hand, a bonus is directly linked to the performance of the company: the higher the performance, the higher the bonus will be. The additional test presented in section 6.5 tests whether the results are biased by wrongly summing up these components. Another explanation is that I based my hypotheses on literature which is based on samples of non-financial firms. I assumed that these results would also be applicable for banks. But this master's thesis has shown this is not the case. Consistent with the explanation in the previous section regarding the equity-based component of CEO compensation, it can also be the case that I have used too less observations to test for the hypotheses. It can also be the case that earnings management is not measured well, as a result of a wrong measure.

6.4.3 Total CEO compensation

For total compensation I expect that there is also a positive association with earnings management in both the pre- and post-crisis period. The results of the regression show that total compensation is indeed positively associated with earnings management in the pre-crisis period, when DLLP is measured by its negative signed value. However, this association is not significant ($t = -0.052$, $p = 0.958$). When DLLP is measured by its real value, a (non-significant) negative association is in place between total CEO compensation and earnings management ($p = 0.674$, $t = 0.501$). The results of the post-crisis period show that total compensation and earnings management are negatively associated, both when using the real values and negative signed values. But both associations are not significant (resp. $t = 1.905$, $p = 0.059$; $t = 0.757$, $p = 0.451$). These results indicate that there is no association between total compensation and earnings management in the banking sector and as a consequence I have to reject $H1_c$ for both the pre- and post-crisis period.

For $H2_c$ I also expected that the association would change, when comparing the pre- and post-crisis period. Consistent with the first and second hypothesis regarding the differences, this hypothesis also assumes that the association between total CEO compensation and earnings management would have been positive in both the pre- and post-crisis period. However, the results of the analyses show that this (not significant) positive relation is only in place in the pre-crisis period when DLLP is measured by is negative signed values. This already indicated that $H2_c$ has to be rejected, since the results are only positive once. But when I compare the results of the pre- and post-crisis, they do show that the negative association becomes stronger in the post-crisis period when DLLP is measured by its real values (pre-crisis: $p = 0.501$, post-crisis: $p = 0.059$). If the negative signed values of DLLP are used to measure earnings management, the (not significant) positive association becomes (not significant) negative.

The negative associations which are found are not a real surprise, since these negative associations were also found when only the equity- and cash-based CEO compensation were

taken into account separately. The hypotheses for the association between CEO compensation in total and earnings management were, just like the cash-based compensation hypotheses, based on literature which used a sample of non-financial firms. I expected that this association would also be in place at the banking sector. However, the results of this master's thesis indicate that this positive association is not in place. In contrast, the results indicate that there is no association at all between the two variables, since none of the associations is significant. Again, it is also possible that the results do not show a positive association as the result of a wrong measure for earnings management.

6.4.3 Control variables – pre-crisis period

In the pre-crisis period, I expected that the control variable for size would have a positive influence on earnings management. When running the two regressions with the equity- and cash-based compensation (1) and the total compensation (2) the results show that a negative association is in place, instead of the presumed positive association. This negative association is even significant when DLLP is measured by its real values (regression 1: $p = 0.001$; regression 2: $p = 0.010$). A possible explanation for this can be that larger firms have a higher risk of being more sophisticated checked for fraudulent financial reporting. Earnings management can also be seen as fraudulent if it is used to increase compensation. Taken this together, I expect that the larger banks use less income increasing earnings management, since they have a larger detection risk as a result of supervision by regulators.

The second control variable is the capital position of the bank. For this variable I expected that it has a negative influence on earnings management, since a low capital ratio will increase earnings management according to previous research (Cornett et al., 2009; Cheng et al., 2011; El Sood, 2012). When measuring DLLP by its real value, the results show that this negative association is indeed in place both at the regression with the equity- and cash-based compensation and the regression with total compensation. However, these associations are not significant (resp. $t = 0.445$ and $t = 0.371$). When the negative signed values are used as measure for DLLP the results indicate that there is a (not significant) positive association between the capital position of the bank and earnings management. This indicated that the higher the capital ratio is, the less earnings are managed. This is in contrast to my predictions. However, since the association is not significant, or nearly significant, the result can also be interpreted as no association. This indicates that the relation may just not exist, in contrast to what was found in prior research (Cornett et al., 2009; El Sood, 2012; Cheng et al., 2011).

The third control variable is performance. Two different proxies are used for performance: ROE and market price. For both variables I expect that they are negatively associated with earnings management. The results of the analysis for the equity- and cash-based compensation and total

compensation indicate that this negative association is not the case for the ROE as performance measure both when DLLP is measured with its real value and its negative signed value. Instead, a not significant positive association is found. The other performance proxy which is more oriented to the perceived performance by the stakeholders, the market price, shows to be negatively associated with earnings management in both the first and the second regression; this is consistent with my prediction. This indicates that banks increase earnings management when they are having a good performance. This is also consistent with the findings of Liu and Ryan (2006) and El Sood (2012). However, these associations are not significant.

The last control variable is growth perspective. For this variable I expect that it would negatively influence earnings management, indicating that banks with higher growth perspectives are less likely to manage their earnings. The results of the multivariate analysis with equity- and cash-based CEO compensation and total CEO compensation all indicate that this association is the case, also for the different measures of DLLP. However, these associations are not significant in any case. This can be the result of too few observations in the regression or a wrong measure for earnings management.

6.4.3 Control variables – post-crisis period

Consistent with the pre-crisis period, I also expect that size positively influences earnings management in the post-crisis period. When analyzing the results of both measures of DLLP, the conclusion can be drawn that instead of a positive association, a negative association is in place for both the regression with equity- and cash compensation and the regression with total compensation. This association is even significant when DLLP is measured with its real values (equity- and cash regression: $p = 0.001$, total compensation regression: $p = 0.002$), but not when DLLP is measured by its negative signed values (equity- and cash regression: $p = 0.370$, total compensation regression: $p = 0.081$). These results are consistent with the pre-crisis period. Therefore the same explanation for these opposite findings can be given: larger firms have a higher risk of being more sophisticated checked for fraudulent financial reporting. Earnings management can also be seen as fraudulent if it is used to increase compensation. Taken this together, I expect that the larger banks use less earnings management, since they have a larger detection risk.

With regard to the second control variable, the capital position of the bank, I expect to find a negative association with earnings management. In contrast to this expectation, the results indicate there is a (not a significant) positive association between the capital position of the bank and earnings management, meaning that a high capital ratio results in income decreasing earnings management (when DLLP is measured by its real value) or earnings are not managed

(when DLLP is measured by its negative signed value). In the pre-crisis period, these positive results were only found when DLLP was measured by its negative signed values. So the association between the capital position and earnings management has changed as a result of the financial crisis. This can also be found in descriptive statistics of this control variable in appendix 4. These results suggest that capital ratio has significantly increased ($p = 0.000$), when comparing the pre- and post-crisis period. However, since the associations in the post-crisis period are not significant, or nearly significant, these results can also be interpreted as no association.

The performance of the bank is also a control variable which is added in the multivariate regression analysis. The two proxies used for performance, ROE and market price, are both expected to have a negative influence on earnings management. For the ROE is found in both regression and both measures of DLLP that it indeed negatively influences earnings management. However, these associations are not significant in any case. In the pre-crisis period, these results were found to be positive. A possible explanation for this is the significant decrease of the ROE in the post-crisis period, compared to the pre-crisis period ($p = 0.000$). For the market price the results indicate that a positive association is in place, indicating that better performing firms use more earnings management. In the pre-crisis period, this association was found to be negative. A possible explanation for this is that the average market price has significantly decreased when comparing the pre- and post-crisis period ($p = 0.000$).

The last control variable is growth perspective. This variable was expected to negatively influence earnings management. The results of both regressions with both measures of DLLP show that this negative association is in place. It is also found to be significant in all cases (pre-crisis: real value: $p = 0.046$, negative value: $p = 0.007$; post-crisis: real value: $p = 0.027$, negative value: $p = 0.009$). These results confirm my prediction that firms with higher growth perspectives use less income increasing earnings management. These results are also aligned with the descriptive statistics, since both the average market-to-book ratio and earnings management decrease, which indicates that the association itself would not change as a result of the financial crisis.

6.5   Additional tests

The multivariate regression discussed in previous sections have shown that the expected positive association between CEO compensation (or its different components) is never found to be significant. As already described, salary is the only component which is not directly linked to performance, while the bonus, options and stocks are more directly linked to the performance of the banks. Therefore an additional test will be performed. In this regression, a different variable

for compensation is created. This variable only includes the components which are directly related to performance: bonus, options and stocks. The results of this additional test can be found in appendix 7. When running the regression with the real values of DLLP, the results indicate that there is a (not significant) negative association between performance related CEO compensation and earnings management in both the pre- and post-crisis period (resp. t = 0.213, t = 0.832; t = 1.300, p = 0.196). When running the regression with the negative signed values of DLLP, a (not significant) positive association is found in the pre-crisis period (t = -0.185, p = 0.853). The results of the post-crisis period show that the association is negative (t = 1.138, p = 0.258).

Again these results are not confirming the hypotheses. This additional test therefore indicates that the reason for not finding a positive association is not the result of a wrongly summing up the different component of CEO compensation.

6.6   Summary and conclusion

This chapter presented and analyzed the results of the descriptive statistics, the univariate and multivariate analyses. When comparing the pre- and post-crisis period, the descriptive results showed that the compensation in bonuses and options has significantly decreased. The stock holdings paid as compensation to the bank CEOs has also decreased, however, this was not a significant decrease. The annual salary has (not significantly) increased. With regard to earnings management, the income smoothing hypothesis is confirmed: earnings management increases during a financial turndown, while less earnings management is used in booming period.

These results of the univariate and multivariate analysis showed that all hypotheses are rejected. Most of compensation related variables (equity-based, cash-based or total compensation) are not significantly associated with earnings management, only the cash-based component of CEO compensation is significantly negatively association with earnings management. This result is the opposite finding of what I expected to find, with regard to the hypothesis. These results indicate that at U.S. banks CEO compensation is not associated with earnings management. This could be the result of the regulation which is in place at banks. The presence of this regulation seems to have a preventive effect for engaging in earnings management: banks do not want to engage in earnings management, since they face a high risk of being detected by the regulators.

Since my hypotheses are broadly based on literature conducted in the non-financial industry, I can conclude from this master's thesis that these results cannot be generalized to financial organizations.

On the other hand, it is also very likely that the measure I used for earnings management, discretionary loan loss provision, is not able to measure earnings management well. In previous

research, both in non-financial and financial samples, a significant positive association was found between CEO compensation and earnings management. This main difference with their research and this master's thesis is that I have used a different and less extensive measure for earnings management. It seems to be likely that this has biased the results. On the other hand, the sample I used has a lower amount of observations than the samples used in other financial firm literature (Cornett et al., 2009; Cheng et al., 2011).

Another possible explanation for not finding the expected results was that I did not combine the different components of CEO compensation in the right manner, since I also added salary, which is less performance-related. However, when salary is excluded in the additional test, I still have to reject the hypotheses.

Chapter 7: Conclusion, limitations and suggestions for future research

Several conclusions can be drawn from this master's thesis. First of all, CEO compensation has significantly decreased when comparing the pre- and post-crisis period. This is consistent with prior research (survey Financial Times 2008-2011; Fahlenbrach & Stulz, 2011; De Groot & Qin, 2011). Secondly, the income smoothing hypothesis is confirmed: more income increasing earnings management, measured by the discretionary loan loss provision, is used in the post-crisis period (thus during economic turndown), compared to the pre-crisis period (thus during a booming period). Finally, there is no association between earnings management and CEO compensation at U.S. banks.

It is possible that I have not found an association between the two variables as a result of a wrong measure for earnings management and /or CEO compensation. These two points will be discussed in this chapter and some suggestions for future research to overcome the limitations of this master's thesis.

Firstly, this master's thesis uses a discretionary loan loss provision as a proxy for measuring earnings management. This measure is based on the working paper of Cornett et al. (2006) and partly on the published paper of Cornett et al. (2009). This measure determines the discretionary part of loan loss provision by first determining the "necessary" (non-discretionary) loan loss provision based on the amount of loan which are 90 days or more past due and still accruing interest and the loans which are qualified with the nonaccrual loan status. However, since I do not find a significant positive association in both the univariate and multivariate regression, it can be the case that the measure I used is not able to measure earnings management well. A suggesting for future research can be to add the discretionary realized gains and losses in the earnings management measure, consistent with Cornett et al. (2009).

On the other hand, I measured earnings management by a time-series regression to first determine the non-discretionary loan loss provision, and second the discretionary loan loss provision. A different way to run this regression is by a cross-sectional regression. This type of regression uses the different firms over one year, and then determined the non-discretionary loan loss provision. In the non-financial industry, this way of doing the regression when determining earnings management is also most often used, instead of the original time-series regression. For future research, a suggestion would be to run a cross-sectional regression.

A final limitation of the earnings management measure is that discretionary loan loss provision as proxy has also been considered to be a not such a good measure for earnings management at banks by some researchers (Wetmore & Brick, 1994; Ahmed, Takeda & Thomas; 1999). Both articles do not recommend a better measure for determining earnings management in their paper.

However, since this measurement is broadly concerned as the best measurement for earnings management at banks I also used this measure. Since the results are not in accordance with the hypotheses, it could also be the case that these researchers were right and a different measure for earnings management should be used. In future research there should be sought for a better measure.

It is also possible that earnings management is measured well, but the measurement method for CEO compensation is the limitation of this master's thesis. I have not included the long-term incentive plans and retirement plans in CEO compensation. I assume that the exclusion of retirement plans does not affect the results, since the plans are not influenced by the performance of the banks, and therefore it will not induce or reduce earnings management at banks. On the other hand, the exclusion of long-term incentive plans could bias the results. Fahlenbrach and Stulz (2011) state that CEO compensation was too much focused on the short run in the period before the financial crisis. This has allowed CEOs to take excessive risks. Therefore it would be wise to adapt the incentives contracts and focus more on the long-term by additional long-term incentive plans. This can also help to overcome that these excessive risks are taken. However, since I was not able to take into account these long-term incentive plans I cannot say anything about the actual increase or decrease of these incentives in the compensation contract of CEOs. Therefore future research should take these long-term compensation contracts in consideration, to determine whether this part of the compensation actually changed as a result of the financial crisis. It is also possible that adding this element of compensation would change the association between CEO compensation and earnings management.

A final improvement suggestion for future research would be to extend the sample period. Adding more years to the sample could improve this master's thesis. In this master's thesis I wanted to make a reliable comparison between the pre- and post-crisis period. Since the start of the financial crisis is only 5-6 years ago, this resulted in a post-crisis period of at maximum three years. Therefore I also had to limit my pre-crisis period to three years for a fair comparison. Adding more years to the sample might result in more reliable results, since the sample better reflects the total population as the amount of observations increases. If the financial crisis is longer ago, the observations in the post-crisis period can be extended and consequently the pre-crisis period too.

Appendices

Appendix 1: CEO compensation and earnings management at the banking industry

Author	Cornett, McNutt, Tehranian (2006)	Cornett, McNutt, Tehranian (2009)	Cheng, Warfield and Ye (2011)
Object of study	Examination whether corporate governance mechanisms affect earnings and earnings management	Examination whether corporate governance mechanisms affect earnings and earnings management	Examination of the relation between equity-based CEO compensation and earnings management
Sample	**Sample:** 593 year-observations of the largest publicly traded bank holding companies in the U.S. **Sample period:** 1994-2002	**Sample:** 593 year-observations of the largest publicly traded bank holding companies in the U.S. **Sample period:** 1994-2002	**Sample:** 712 firm-year observations from 88 distinct banks – 71 commercial banks and 17 savings institutions, located in the U.S. **Sample period:** 1994-2007
Research methodology	A multivariate regression analysis is used. **Measurements:** - Earnings management: discretionary loan loss provisions - CEO compensation: 1. Percentage of equity held by the CEO in the firm 2. Pay -for-performance sensitivity of the CEO(coherence between the compensation contract and the performance of the bank or stock orientation of these contracts) *Control variables:* Natural log of fraction of shares owned by all directors, fraction of board composed of independent	A multivariate regression analysis is used. **Measurements:** - Earnings management: discretionary loan loss provisions minus discretionary realized security gains and losses - CEO compensation: 1. Percentage of equity held by the CEO in the firm 2. Pay -for-performance sensitivity of the CEO(coherence between the compensation contract and the performance of the bank or stock orientation of these contracts) *Control variables:* Director stock ownership, percentage of directors who	A multivariate regression analysis is used. **Measurements:** - Earnings management: discretionary loan loss provision - CEO compensation: equity incentives are divided in four different parts: option grants in the current period, un-exercisable options, exercisable options, and stock ownership. These measures are also calculated together as total equity incentives. *Control variables:* Income before tax and loan loss provision, firm size, tax and regulatory intervention.

	outside directors, annual number of meetings of the board of director, board size, CEO age, number of year the CEO has the position of CEO, CEO is also the board chair, market to book ratio of equity, capital position, banks' cumulative abnormal stock returns	are unaffiliated, CEO is the chairman of the board, number of directors, number of board meetings per year, age of the CEO, number of years since CEO assumed the position of CEO, year-end market value of equity divided by the year-end book value of equity, tier 1 capital ratio, yearly cumulative abnormal common stock returns (based on past three years)	
Results	The results indicate that high CEO stock ownership and a high pay-for-performance sensitivity are negatively related to discretionary loan loss provision, which indicates that managers will lower the level of discretionary loan loss provision to increase earnings, and thus their personal welfare.	The results indicate that high CEO stock ownership and a high pay-for-performance sensitivity are positively related to earnings management, which indicates that managers tend to increase earnings to increase their compensation too.	The result show that CEOs engage in increasing loan loss provisions when managers have high equity incentives and when the bank has a high potential of dealing with regulatory intervention. The positive relation between equity-based CEO compensation and earnings management is not significantly when the low capital ratio variable is not added

Appendix 2: Sample selection

	Observations
Initial CEO compensation sample (SIC codes 6000-6300)	1281
Less:	
Banks with SIC code 6162 (mortgage bankers & loan correspondents)	8
Banks with SIC code 6163 (loan brokers)	10
Banks with SIC code 6172 (finance lessors)	8
Banks with SIC code 6200 (security & commodity brokers)	41
Banks with SIC code 6211 (security brokers & dealers)	147
Banks with SIC code 6282 (investment advice)	96
Residual CEO compensation sample (SIC codes 6020, 6035, 6036, 6099, 6111, 6141, 6159, 6199)	**973**
Less:	
Observations with one missing years	381
Final CEO compensation sample (SIC codes 6020, 6035, 6036, 6099, 6111, 6141, 6199)	**592**
Less:	
Observations with missing financial data	178
Final total sample (SIC codes 6020, 6035, 6036, 6099)	**414**
Pre-crisis period	152
Crisis period	106
Post-crisis period	156

Appendix 3: Overview of dataset

Company Name	Sic Code Description	Fiscal Year
Astoria Financial Corp	Savings Institution, Fed Chartered	2004-2011
Bank Of America Corp	Commercial Banks	2004-2011
Bank Of Hawaii Corp	Commercial Banks	2004-2011
BB&T Corp	Commercial Banks	2004-2011
BBCN Bancorp Inc	Commercial Banks	2004-2011
BBX Capital Corp	Savings Institution, Fed Chartered	2004-2011
Boston Private Finl Holdings	Commercial Banks	2004-2011
Cascade Bancorp	Commercial Banks	2005-2011
Cathay General Bancorp	Commercial Banks	2004-2011
Central Pacific Financial Corporation	Commercial Banks	2004-2011
Citigroup Inc	Finance Services	2004-2011
City National Corp	Commercial Banks	2004-2011
Comerica Inc	Commercial Banks	2004-2011
Community Bank System Inc	Commercial Banks	2004-2011
Cullen/Frost Bankers Inc	Commercial Banks	2004-2011
East West Bancorp Inc	Commercial Banks	2004-2011
Fifth Third Bancorp	Commercial Banks	2004-2011
First Bancorp P R	Commercial Banks	2004-2011
First Commonwealth Financial Corporation	Commercial Banks	2005-2011
First Horizon National Corp	Commercial Banks	2004-2011
First Midwest Bancorp Inc	Commercial Banks	2004-2011

First Niagara Financial Group	Savings Institution, Not Fed Chart	2005-2011
Firstmerit Corp	Commercial Banks	2004-2011
Glacier Bancorp Inc	Commercial Banks	2004-2011
Huntington Bancshares	Commercial Banks	2004-2011
JPMorgan Chase & Co	Commercial Banks	2004-2011
Keycorp	Commercial Banks	2004-2011
M & T Bank Corp	Commercial Banks	2004-2011
New York Cmnty Bancorp Inc	Savings Institution, Not Fed Chart	2004-2011
Northern Trust Corp	Commercial Banks	2004-2011
PNC Financial Svcs Group Inc	Commercial Banks	2004-2011
Popular Inc	Commercial Banks	2004-2011
Prosperity Bancshares Inc	Commercial Banks	2004-2011
Regions Financial Corp	Commercial Banks	2004-2011
State Street Corp	Commercial Banks	2005-2011
Sterling Bancshares Inc/Tx	Commercial Banks	2004-2011
Sterling Bancshares Inc/Tx	Commercial Banks	2005-2011
Suntrust Banks Inc	Commercial Banks	2004-2011
Susquehanna Bancshares Inc	Commercial Banks	2004-2011
SVB Financial Group	Commercial Banks	2004-2011
Synovus Financial Corp	Commercial Banks	2004-2011
TCF Financial Corp	Commercial Banks	2004-2011
Trustco Bank Corp/NY	Savings Institution, Fed Chartered	2004-2011
U S Bancorp	Commercial Banks	2004-2011

United Bankshares Inc	Commercial Banks	2004-2011
Webster Financial Corp	Commercial Banks	2004-2011
Wells Fargo & Co	Commercial Banks	2004-2011
Westamerica Bancorporation	Commercial Banks	2004-2011
Whitney Holding Corp	Commercial Banks	2004-2010
Wilmington Trust Corp	Commercial Banks	2004-2010
Wilshire Bancorp inc	Commercial Banks	2005-2011
Wintrust Financial Corp	Commercial Banks	2004-2011
Zions Bancorporation	Commercial Banks	2004-2011

Appendix 4: Descriptive statistics

Average CEO compensation deflated by total assets per component per period							
		N	Minimum	Maximum	Mean	Std. Deviation	Difference t-stat
Cash-based	Pre-crisis	152	0	0.000703	0.000087	0.000111	2.116 (0.036)
	Post-crisis	156	0	0.000449	0.000064	0.000076	
- Bonus	Pre-crisis	152	0	0.000493	0.000036	0.000070	5.586 (0.000)
	Post-crisis	156	0	0.000089	0.000004	0.000015	
- Salary	Pre-crisis	152	0	0.000396	0.000051	0.000060	-1.194 (0.234)
	Post-crisis	156	0	0.000449	0.000060	0.000072	
Equity-based	Pre-crisis	152	0	0.001563	0.000130	0.000236	2.953 (0.004)
	Post-crisis	156	0	0.000553	0.000069	0.000096	
- Options	Pre-crisis	152	0	0.001164	0.000049	0.000124	3.828 (0.000)
	Post-crisis	156	0	0.000152	0.000010	0.000024	
- Restricted Stocks	Pre-crisis	152	0	0.001563	0.000081	0.000204	1.219 (0.224)
	Post-crisis	156	0	0.000553	0.000059	0.000086	
Total	Pre-crisis	152	0	0.001733	0.000217	0.000286	3.310 (0.001)
	Post-crisis	156	0	0.000665	0.000133	0.000128	

Average discretionary loan loss provision deflated by total assets per period							
		N	Minimum	Maximum	Mean	Std. Deviation	Difference t-stat
DLLP	Pre-crisis	152	-0.016490	0.008007	-0.000431	0.002861	2.926 (0.004)
	Post-crisis	156	-0.088885	0.043990	-0.004388	0.016429	
Signed values DLLP:							
- Positive	Pre-crisis	55	0.000003	0.008007	0.001629	0.001926	-5.391 (0.000)
	Post-crisis	62	0.000027	0.043990	0.007398	0.007723	
- Negative	Pre-crisis	97	-0.016490	-1.20E-10	-0.001599	0.002641	6.400 (0.000)
	Post-crisis	94	-0.088885	-0.000030	-0.012162	0.016032	

Averages control variables per period							
		N	Minimum	Maximum	Mean	Std. Deviation	Difference t-stat
Natural log total assets	Pre-crisis	152	20.6939	28.2646	24.0847	1.7440	-0.298
	Post-crisis	156	20.9963	28.4489	24.1444	1.7756	(0.766)
Capital ratio	Pre-crisis	152	6.9400	17.0900	10.2455	1.9568	-9.901
	Post-crisis	156	0.5000	22.9400	12.9529	2.7569	(0.000)
ROE	Pre-crisis	152	0.9300	27.1380	11.6760	7.4705	6.166
	Post-crisis	156	-183.3700	27.4230	-0.8505	23.9355	(0.000)
Market price	Pre-crisis	152	11.1200	122.1600	39.7749	19.5232	8.826
	Post-crisis	156	0.4600	87.0500	20.8663	18.0620	(0.000)
MTBV	Pre-crisis	152	1.1436	5.1447	2.4069	0.8046	15.299
	Post-crisis	156	-3.1212	5.0400	1.0988	0.6932	(0.000)

Appendix 5a: Overview results univariate analysis pre-crisis period

	CB-COMP	EB-COMP	TOT-COMP	SIZE	CAP	ROE	MKBV	MP	NEG DLLP
	Pearson correlations - Pre-crisis period								
CB-COMP	1	0.327** (0.001)	0.566** (0.000)	-0.767** (0.000)	0.395** (0.000)	0.104 (0.323)	0.305** (0.003)	-0.375** (0.000)	0.056 (0.594)
EB-COMP	0.266** (0.001)	1	**0.964**** **(0.000)**	-0.236* (0.023)	-0.015 (0.887)	0.330** (0.001)	0.257* (0.013)	-0.021 (0.841)	0.027 (0.796)
TOT-COMP	0.607** (0.000)	**0.927**** **(0.000)**	1	-0.421** (0.000)	0.098 (0.350)	0.317** (0.002)	0.310** (0.003)	-0.124 (0.237)	0.039 (0.709)
SIZE	-0.698** (0.000)	-0.258** (0.001)	-0.483** (0.000)	1	-0.416** (0.000)	-0.059 (0.573)	-0.226* (0.029)	0.407** (0.000)	-0.055 (0.598)
CAP	0.386** (0.000)	-0.002 (0.984)	0.149 (0.068)	-0.497** (0.000)	1	-0.191 (0.067)	0.284** (0.006)	-0.425** (0.000)	0.035 (0.738)
ROE	0.069 (0.395)	0.231** (0.004)	0.218** (0.007)	0.083 (0.309)	-0.220** (0.007)	1	0.152 (0.146)	0.170 (0.104)	-0.124 (0.237)
MKBV	0.334** (0.000)	0.208* (0.010)	0.301** (0.000)	-0.239** (0.003)	0.230** (0.004)	0.194* (0.017)	1	-0.063 (0.552)	0.041 (0.697)
MP	-0.353** (0.000)	0.001 (0.987)	-0.136 (0.095)	0.382** (0.000)	-0.398** (0.000)	0.188* (0.020)	0.000 (0.999)	1	0.122 (0.243)
REAL DLLP	0.004 (0.956)	-0.066 (0.417)	-0.053 (0.417)	-0.175* (0.031)	0.005 (0.955)	-0.077 (0.343)	0.052 (0.521)	0.052 (0.528)	1
**: Correlation is significant at the 0.01 level (2-tailed)									
*: Correlation is significant at the 0.05 level (2-tailed)									

Appendix 5b: Overview results univariate analysis post-crisis period

	CB-COMP	EB-COMP	TOT-COMP	SIZE	CAP	ROE	MKBV	MP	NEG DLLP
Pearson correlations - Pre-crisis period									
CB-COMP	1	0.021 (0.844)	0.470** (0.000)	-0.726** (0.000)	0.044 (0.677)	-0.121 (0.246)	0.182 (0.079)	-0.310** (0.002)	-0.147 (0.157)
EB-COMP	0.097 (0.228)	1	**0.892** (0.000)**	-0.072 (0.490)	-0.119 (0.252)	0.147 (0.158)	0.147 (0.159)	0.184 (0.076)	0.189 (0.068)
TOT-COMP	0.663** (0.000)	**0.810** (0.000)**	1	0.392** (0.000)	-0.086 (0.410)	0.075 (0.470)	0.211* (0.041)	0.023 (0.828)	0.100 (0.338)
SIZE	-0.670** (0.000)	-0.195* (0.015)	-0.542** (0.000)	1	-0.118 (0.258)	0.228* (0.027)	-0.117 (0.261)	0.336** (0.001)	0.229* (0.026)
CAP	0.041 (0.614)	-0.080 (0.321)	-0.037 (0.650)	-0.150 (0.062)	1	0.296** (0.004)	-0.019 (0.853)	-0.089 (0.392)	-0.007 (0.944)
ROE	-0.132 (0.100)	0.127 (0.115)	0.018 (0.827)	0.224** (0.005)	0.296** (0.000)	1	-0.087 (0.405)	0.341** (0.001)	0.405** (0.000)
MKBV	0.180* (0.024)	0.157 (0.051)	0.224** (0.005)	-0.162* (0.043)	0.03 (0.634)	-0.029 (0.717)	1	0.322** (0.002)	0.222* (0.032)
MP	-0.208** (0.009)	0.249** (0.002)	0.065 (0.422)	0.214** (0.007)	0.003 (0.967)	0.371** (0.000)	0.381** (0.000)	1	0.269** (0.009)
REAL DLLP	0.000 (0.999)	0.068 (0.396)	0.051 (0.525)	0.234** (0.003)	-0.051 (0.524)	0.279** (0.000)	0.115 (0.153)	0.119 (0.137)	1
: Correlation is significant at the 0.01 level (2-tailed)									
*: Correlation is significant at the 0.05 level (2-tailed)									

Appendix 6a: Results multivariate analysis equity- and cash-based compensation

This table report the coefficient and the accompanying p-value of the following regression:

$$DLLP = \alpha + \beta_0\ CB\_COMP_{i,t} + \beta_1\ EB\_COMP_{i,t} + \beta_2\ CAP_{i,t} + \beta_3\ SIZE_{i,t} + \beta_4\ MTBV_{i,t} + \beta_5\ ROE_{i,t} + \beta_6\ MP_{i,t} + \varepsilon$$

Two different regressions are run. The first regression uses the real values of DLLP (1), and the second regression is only run with the negative values of DLLP (2).

	Expected sign	*1. Real DLLP value*	*2. Negative DLLP value*
Pre-crisis			
Intercept		-3.296	-1.162
		(0.001)**	(0.248)
Equity-based compensation	-	-0.195	-0.360
		(0.845)	(0.720)
Cash-based compensation	-	2.219	0.829
		(0.028)*	(0.410)
Natural log total assets	-	3.311	0.889
		(0.001)**	(0.376)
Capital position	+	0.765	-0.254
		(0.445)	(0.800)
ROE	+	-1.501	-1.488
		(0.136)	(0.140)
Market price	+	0.490	1.064
		(0.625	(0.290)
MTBV	+	0.824	1.525
		(0.411)	(0.131)
R^2 value		0.090	0.071
Post-crisis			
Intercept		-3.188	-1.024
		(0.002)**	(0.309)
Equity-based compensation	-	0.922	-0.525
		(0.358)	(0.601)
Cash-based compensation	-	2.289	0.953
		(0.024)*	(0.343)
Natural log total assets	-	3.491	0.901
		(0.001)**	(0.370)
Capital position	+	-1.084	-1.041
		(0.280)	(0.301)
ROE	+	3.192	3.874
		(0.002)**	(0.000)**
Market price	+	-1.086	-0.552
		(0.279)	(0.583)
MTBV	+	2.016	2.773
		(0.046)*	(0.007)**
R^2 value		0.186	0.281

**: Correlation is significant at the 0,01 level (2-tailed)
*: Correlation is significant at the 0,05 level (2-tailed)

Appendix 6b: Results multivariate analysis total compensation

This table report the coefficient and the accompanying p-value of the following regression:

$$DLLP = \alpha + \beta_0\ TOT\_COMP_{i,t} + \beta_1\ CAP_{i,t} + \beta_2\ SIZE_{i,t} + \beta_3\ MTBV_{i,t} + \beta_4\ ROE_{i,t} + \beta_5\ MP_{i,t} + \varepsilon$$

Two different regressions are run. The first regression uses the real values of DLLP (1), and the second regression is only run with the negative values of DLLP (2).

	Expected sign	1. Real DLLP value	2. Negative DLLP value
Pre-crisis			
Intercept		-2.629	-0.818
		(0.009)**	(0.415)
Total compensation	-	0.674	-0.052
		(0.501)	(0.958)
Natural log total assets	-	2.596	0.448
		(0.010)**	(0.655)
Capital position	+	0.898	-0.074
		(0.371)	(0.941)
ROE	+	-1.331	-1.467
		(0.185)	(0.146)
Market price	+	0.117	0.989
		(0.907)	(0.325)
MTBV	+	1.153	1.644
		(0.251)	(0.104)
R^2 value		0.061	0.063
Post-crisis			
Intercept		-2.817	-1.936
		(0.006)**	(0.056)
Total compensation	-	1.905	0.757
		(0.059)	(0.451)
Natural log total assets	-	3.143	1.766
		(0.002)**	(0.081)
Capital position	+	-1.098	-0.985
		(0.274)	(0.327)
ROE	+	3.229	3.808
		(0.002)**	(0.000)**
Market price	+	-1.511	-0.360
		(0.133)	(0.719)
MTBV	+	2.229	2.668
		(0.027)*	(0.009)**
R^2 value		0.173	0.275

**: Correlation is significant at the 0,01 level (2-tailed)
*: Correlation is significant at the 0,05 level (2-tailed)

Appendix 7: Results additional test

This table report the coefficient and the accompanying p-value of the following regression:

$$DLLP = \alpha + \beta_0\ PB\_COMP_{i,t} + \beta_1\ CAP_{i,t} + \beta_2\ SIZE_{i,t} + \beta_3\ MTBV_{i,t} + \beta_4\ ROE_{i,t} + \beta_5\ MP_{i,t} + \varepsilon$$

Two different regressions are run. The first regression uses the real values of DLLP (1), and the second regression is only run with the negative values of DLLP (2).

	Expected sign	*1. Real DLLP value*	*2. Negative DLLP value*
Pre-crisis			
Intercept		-2.516	-0.828
		(0.013)*	(0.410)
Performance-based compensation	-	0.213	-0.185
		(0.832)	(0.853)
Natural log total assets	-	2.482	0.445
		(0.014)*	(0.657)
Capital position	+	0.852	-0.087
		(0.395)	(0.931)
ROE	+	-1.223	-1..423
		(0.223)	(0.158)
Market price	+	0.101	0.987
		(0.920)	(0.326)
MTBV	+	1.225	1.676
		(0.223)	(0.097)
R^2 value		0.059	0.063
Post-crisis			
Intercept		-2.396	-2.008
		(0.018)*	(0.048)**
Performance-based compensation	-	1.300	1.138
		(0.196)	(0.258)
Natural log total assets	-	2.765	1.769
		(0.006)**	(0.080)
Capital position	+	-1.307	-0.957
		(0.193)	(0.341)
ROE	+	3.466	3.886
		(0.001)**	(0.000)**
Market price	+	-1.606	-0.471
		(0.110)	(0.639)
MTBV	+	2.419	2.745
		(0.017)*	(0.007)*
R^2 value		0.163	0.281
**: Correlation is significant at the 0,01 level (2-tailed)			
*: Correlation is significant at the 0,05 level (2-tailed)			

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