

**Bachelor thesis**

**Are bank CEOs adequately compensated and penalized for their job?**

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## **1. Introduction**

As of today, the global economy is still in critical condition. In 2007 the United States housing market burst due to an ever increasing amount of defaults on subprime and adjustable rate mortgages. Due to the incorporation of these mortgages into globally traded derivatives the crisis affected financial institutions throughout the world. According to Taylor (2010), the factors that led to the crisis were a combination of low interest rates held by the Federal Reserve, systematically more relaxed regulation policies, and a significant increase of borrowing by the public.

The results and consequences of the crisis have been severe. The investment bank Lehman Brothers went bankrupt but the US government did an unprecedented intervention in an attempt to stem the ongoing deterioration of the financial sector. Bear Stearns, Fannie Mae/Freddie Mac, AIG, Auto Industry, TARP (Troubled Asset Relief Program), Citigroup, and Bank of America have all received government assistance on the presumption that they were too big fail. A failure of these companies would have resulted in the severe disabling of business's ability to get financing via bank loans and inevitably result in an even bigger crisis than the one we are currently living through. The US stock market went in a freefall, with the Dow Jones Industrial Average Index bottoming out at about 6600 in March 2009. The globally traded financial derivatives backed with subprime mortgages and the position of the USA as the leading economy in the world naturally spread the crisis throughout the world.

Euro member countries in particular have turned out to be ill prepared for the financial crisis. Rising government debts and trade imbalances together with the monetary inflexibility that a membership in the eurozone entails have led to the great stress some of them have undergone, most notably Greece, which in a state of controlled debt default. Private European banks were greatly hurt by the sovereign debt crisis and an intervention by both the European Central Bank and Federal Reserve were needed to save them. The ECB committed itself to lend \$639 billion to more than 500 private banks in Europe (news.yahoo.com) while the Federal Reserve provided loans worth \$3,300 billion to private European banks (ft.com). All this institutional intervention however is a controversial issue and it reached down to the very core of what capitalism is supposed to be, an economic system that has competitive markets and therefore the ones who cannot compete go out of business and their places are taken by the stronger competitors. The bail outs were necessitated because the banks were deemed too big to fail, which in turn stirred debate over having stricter government regulation and reducing the size of the banks that were bailed out.

In the immediate aftermath of the crisis, systematic deregulation of the American financial sector, arguably beginning in the late 1970s (Sherman 2009), has received heavy criticism for being allowed to go too far and effectively enable the conditions for the trigger of the crisis. Effectively, this

deregulation led to a significant change in the way mortgage loans were issued. Acquiring a mortgage loan became a lot easier for home owners and led to an increase of the amount of mortgages lent to clients by banks. On the other hand, due to lax rules mortgage loans changed from being a part of the business of commercial banks into something investment banks could trade. Commercial banks sold mortgage loans to investment banks, which in turn put different mortgage loans into Collateralized Debt Obligations (CDOs) and sold them freely on the financial markets without any regulatory supervision. Lowered standards for mortgage issuance led to the bursting of the housing prices bubble and the trading of CDOs between financial institutions guaranteed that the effects would be felt throughout the global financial world.

Furthermore, the situation escalated to an overall public outrage at bank executives and other top tier employees in the financial sector that spanned worldwide. Due to the extraordinary conditions, tax payers' money was given to these financial institutions. This spurred much debate in the process, none the least so because of the moral implications for the banks. A big issue was whether the bailout simply indicated to the bank CEOs that they will receive help from government during a different shakedown regardless of the egregiousness of their business activities because their survival was crucial to the health of the overall economic stability. However, in the midst of all this, even though they were seen as the primary reason for the hapless situation, CEOs and high ranking employees received big bonuses for their work. This was perceived as atrocious by the general public and while borrowers tend to dislike their lenders and often attack them on personal grievances, the current crisis provided the spark that arguably ultimately led to global movements in the vein of Occupy Wall Street. Events like the \$484 million bonus of Lehman Brother's former CEO ([abcnews.go.com](http://abcnews.go.com)) firmly turned the public's sights on the compensation bank CEOs receive, which despite the crisis have remained very high comparatively to the average income in the developed countries.

The frustrated public, perhaps now more than ever, perceives bankers as morally bankrupt and led by greed who even though should have foreseen the crisis and should have tried to avert it, still collect big bonuses atop of their salaries. The sheer magnitude of the crisis painted bank CEOs as grossly negligent when taking risks in order to earn more money for their shareholders and bigger bonuses for themselves. They were blamed of being greedy and irresponsible. Greed has always been a label used against the banking sector and now it is filled with the injustice perceived by others because of the big compensation packages in the industry.

This paper will attempt to analyze the role of CEOs in the situation. Of main concern is whether CEOs' compensation is adequate in light of the financial collapse. The focus will be on banks based in Europe. The goal is to see how the boards of directors decide the amount and type of financial remuneration for the CEOs and whether they take into account the performance of the banks deeply enough in the process. The remuneration packages will be dissected and their details observed. The

figures will be tested against several different indicators in order to ultimately look for any correlation between job performance and compensation.

## **2. Literature review**

The bank bailouts are linked to the sovereign debt crisis that unfolded in the Eurozone (Acharya, Drechsler, Schnabl, 2011). So far, three countries, Ireland, Greece and Portugal, have had to be bailed out in order to continue paying their sovereign debt. Bank bailouts helped keep the financial sector afloat and battle the financial crisis. However, this has come at a high price. In order to finance bank bailouts, governments had to either tax non-bank sectors of their economies and their private citizens more, make drastic budget cuts that hurt their citizens and dilute existing government bondholders. These actions contribute to the increased vulnerability of countries to a further sovereign crisis. It is noted that bail outs are partially financed by issuance of government bonds, which increase the credit risk of existing government bonds. This leaves the financial sector exposed to the threat of a collapse in the bond market because banks are holders of government bonds. The increased sovereign debt risk is a potential cost of the bank bail outs. Acharya, Drechsler and Schnabl (2011) conclude that governments are forced to tax other businesses and their private citizens more and ultimately lead to a lack of investment in other parts of the economy, and in retrospect make the bailouts a poor decision in the attempt to curtail the overall crisis.

According to Conyon et al (2011), there is a marked difference between the United States and Europe when it comes to CEO compensation. In the U.S., less than a third of CEO income related directly to their work comes in the form of a salary, whereas in Europe it comprises an average of 50%. The rest is either equity pay, bonuses or some other type of pay. Conyon et al (2011) also find that the average salary of CEOs in Europe in 2008 was close to EUR 2 000 000 . Even though American CEOs averaged over 3.7 million euro as compensation for the same period, public outcry about what was perceived as undeservedly high compensation for CEOs of bailed-out banks led to extra taxation of bonuses.

Another observation of Conyon et al (2011) is that in the banking sector in Europe there is a strong positive relation between CEO pay and shareholder returns. There is an ever challenging task of incentivizing CEOs to make risky decisions but not to go overboard. Too much risk taking can be incentivized by either not compensating enough for good performance or not penalizing underperformance. The paper concludes that due to the relatively high amount of stock that banking

industry CEOs in Europe hold, there is no reason to assume that inadequate compensation is not to be blamed for excessive risk taking. In light of the fact that there already is heavy regulation on executive pay in the form of disclosures, tax policies and accounting measures aimed at reducing abuse, Coyon et al (2011) suggest that a better option in dealing with the issue would be to let the boards of directors find fitting solutions to their particular situations. Namely, there could be reduced base salaries in exchange for bigger stock option bonuses that would have a specified exercise date. Also, bonuses should be held and not paid immediately in order to give the Boards of directors the ability of punishing too much risk taking. A policy that should be just as effective would be the existing possibility of demanding a return of rewards that have retroactively been proven to have been acquired at the expense of too much risk taking and therefore, hurting the shareholders.

Bhagat and Bolton (2010) suggest an intriguing policy change for CEO compensation. They acknowledge a multifaceted origin of the crisis. On one hand, it stems from both lack of government regulation and provision of incentives to risk taking, and on the other hand, poor risk monitoring by the Boards of directors and a lack of overall accountability for CEOs' actions. However, they conclude that the main reason for the financial crisis the compensation packages of bank CEOs create incentives for them to take risks and damage the positions of the shareholders. Bank stock ownership by CEOs shows that executives are 30 times more likely to sell rather than buy stock. More so, the dollar amount of their sales is 100 times higher than the one of their buys. This is contradictory to the hypothesis that stock ownership by CEOs aligns their personal interests with those of the long-term shareholders.

Konkell and Orn (2009) study four Swedish publicly traded banks and more specifically whether there is a correlation between the compensation their CEOs receive and the levels of their ROI and net profits. Their findings indicate that there is a strong correlation between CEO remuneration and bank performance as measured by ROI and net profits. Konkell and Orn (2009) also find that whenever a new CEO is elected to head one of the sampled banks, there are large deviations in payment due to the banks consistently offering significantly higher remuneration to the newly appointed CEOs. However, these big increases in compensation do not yield significantly better performance of the banks.

Vallascas and Hagendorff (2012) show that cash bonuses lead to a decrease in risk taking because they are contingent on bank solvency. However, the closer banks get to default, the lesser of a risk reduction factor cash bonuses become. Indeed CEOs that get themselves involved in the riskiest actions lead to the conclusion that in their particular case cash bonuses have transformed into a risk inducing factor because they are trying to maximise the value of the financial safety net. In regards to the level of government regulation of the banking sector the results Vallascas and Hagendorff (2012) of show that stricter regulatory measures lead to a lesser level of risk taking and vice versa.

Fahlenbrach and Stulz (2010) argue that stock option compensation for bank CEOs did not produce a negative effect for the banks' stock performance. In actuality, CEOs whose interests were closely in line with the interests of their shareholders wanted to increase the value of their stake in the banks and consequently made riskier decisions that backfired. Therefore, such CEOs performed poorer than CEOs with lesser incentives to maximize shareholder wealth. Fahlenbrach and Stulz (2010) see the efficiency of the stock market for bank shares. This consequently means that it is in the CEOs' best interest to increase the value of the stocks that they own, the same interest as the rest of the shareholders. While Fahlenbrach and Stulz (2010) find that in 2006 the median CEO held more than eight times the value of his total yearly compensation in the form of stocks and stock options. Consequently, CEOs suffered losses during the fall of stock prices in the subsequent two years. Moreover, the paper does not find that CEOs, in anticipation of the crisis, traded their stocks and options.

Beside the agency problem between shareholders and CEOs Ertimur, Ferri and Mabe r(2010) argue that there is also problem within the Boards of directors. In their research they use companies that were involved in the 2006-2007 option backdating scandal, when companies issued in-the-money stock options whereas normally stock options are issued at-the-money strike price. According to the authors the scandal provides a case for examination of the consequences for the Boards of directors for failing to monitor CEOs well enough.

Becher, Campbell and Frye (2005) conclude that the boards of directors of banks respond to changes in regulation. During the 1990s, the American banking industry was in a period of deregulation, which opened new and riskier opportunities for the CEOs to increase profit. Becher, Campbell and Frye (2005) also stress the rapid changes experienced throughout the period. Banking steadily became more digitized and financial derivatives become more popular, Deregulation combined with advancements in technology and finance led to unprecedented possibilities for banks to accrue profit. On this background, the paper argues that human resource has become increasingly more important and the attraction of talent would require equity based compensation. The paper also informs that increased equity based compensation results in higher performance and growth but at the possible expense of higher risk engagement on the part of CEOs. Deregulation also incentivizes the board of directors to monitor more closely the bank managers to further control the risks that are taken. However, board composition is found to remain largely the same leading to the conclusion that banks prefer changing CEO incentives instead of the membership of the Boards of Directors in order to apply control.

The Financial Stability Board is tasked with monitoring and providing policy recommendations for the global financial industry. In its 2009 analysis "FSF Principles for Sound Compensation Practices of the current financial crisis" the board demonstrated that bonus payments in financial institutions stimulated a business approach of aiming to receive high profits in the short-term

approach to profit making for the CEOs at the expense of the lack long-term analysis of the investments they were making. The FSB advocates for governmental reforms in regulation that would ensure that compensation systems are improved in light of combating overt risk taking. The Board also hold the position that Boards of directors neglect compensation systems as significant factors in CEOs' hazardous investment decisions. Despite recognising that internal change of compensation plans done by the Boards of directors would be preferable, the FSB insists that a tighter grip of financial regulators and stricter regulation would provide better ability of avoiding any furthering or repeating of the crisis in the future. Moreover, big banks whose size necessitated the bail-outs would be held much more accountable for their actions through international regulatory assistance between governing bodies.

### **3. Empirical research**

#### **3.1 Data sample**

The starting point for the data collection for this thesis was the list of banks that were included in the 2010 EU stress test conducted by the Committee of European Banking Supervisors. The data was collected either via the company data aggregating sites [www.insiders.businessweek.com](http://www.insiders.businessweek.com), [www.reuters.com/finance](http://www.reuters.com/finance) and [www.ft.com/marketsdata](http://www.ft.com/marketsdata) or directly from the annual reports of the banks that are a part of the sample. Apart from the CEO compensation packages the data also includes the total assets of the banks, the return on equity that they have generated, their net profit margin, and their net income. The data covers the years 2010 and 2011. Banks, which have changed their CEOs after the beginning of 2010, have been eliminated from the database. Therefore, the database consists of CEOs have have been working at the sampled throughout the aforementioned period. Many of the financial reports either didn't provide the compensation details that were needed, presented the remuneration of the executives together without breaking it up for each member of the executive board, or omit presenting their executive compensation altogether. As a result, only 17 of the 90 banks remained in the database after the collection of data was performed (see Table 1 for the list of sampled banks). There are multiple currencies in which the data was presented (EUR, GBP, SEK, DKK). In order to make it more easily comparable and relevant, the information was converted into euro. For each year, the exchange rates at the beginning of the following year have been used in the conversion, i.e., for 2010 the exchange rates are the ones as of January 1<sup>st</sup>, 2011, and for 2012 – January 1<sup>st</sup>, 2012. It should be noted that the Danish krone is pegged to the euro, the Swedish Krona had largely the same value (EUR/SEK@0,1112 on 01.01.2011 and EUR@SEK@0,1117 on 01.01.2012), but the British pound has gained approximately 2,7% compared to the euro when the exchange rates for the two dates are compared.

Table 2 provides summary statistics for the sample of banks. The sum of their total assets is 12 681 billion euro in 2011, which up from 11640 billion euro in 2010. The average size of the total assets of the sampled banks was close to 685 billion euro in 2010 and grew to nearly 746 billion euro by the end of 2011, meaning the nominal value of the total assets of the banks has increased by 8,9% during the period (see table 3). Return on equity is used to measure the performance of the sampled banks. For the year 2010, the average value of ROE of the banks is about 8,5%. This figure plummets by close to 25% for 2011 to 6,36% ROE. Net profit margin is 15,39% for 2010 and 11,71% for 2011, meaning that the year to year change is -31,45%. The weaker performance of the sampled banks is further evidenced by the net income figures. In 2010 the mean net income across the sample was 3120 billion euro and in 2011 it declined to 2613 billion euro, a decline of 19%.

### **3.2 CEO compensation**

The CEO compensation packages have been broken down into three main groups (Table 3). The total sum of the CEOs' annual remuneration is comprised of their salary, the cash bonus that they have received for the fiscal years and the long term compensation, which takes the form of stock options. After converting all the amounts into Euros, the data shows that the CEOs have received EUR 1 127 285 on average in 2010 in the form of salaries, the minimum being EUR 289 000 and the maximum – EUR 3 703 000. For 2011, the average is slightly increased up to EUR 1 175 874 with the minimum and maximum salaries retaining the same values as in 2010. Base salaries have risen by about 5% between 2010 and 2011. The bonuses and long term compensations vary greatly among different banks. Banco de Sabadell SA and Bank of Ireland, for example, have only paid salaries to their CEOs. The Boards of Directors of the rest of the banks use annual bonuses and long term compensation packages to award their CEOs' performance and seem to view the two as different sides of the same coin. To that end, they seem to prefer long term compensation. Out of 34 possible occasions for bonus awards in the years 2010 and 2011, CEOs have received annual bonuses only 16 times. On the other hand, for the same period they have received stock options as a form of compensation a total of 25 times. The average value of the long term compensations is EUR 461 525 (2010) and EUR 440 127 (2011) whereas short term bonuses are EUR 761 853 (2010) and EUR 706 339 (2011). The lowest long term compensation rewarded in 2010 was EUR 9 330 whereas the highest amount was worth EUR 3 768 850 for the same year. For 2011 the lowest long term compensation rewarded amounted to EUR 22411 and the highest one – EUR 3 955 075. As for issued bonuses, the



minimum in 2010 was EUR 40260 and the maximum – EUR 3 388 000. The figures for 2011 are respectively EUR 134460 and EUR 7 020 000. The data confirm the conclusion of Conyon et al (2011) that CEOs of European banks earn about 50% of the remuneration in bonuses and long-term compensation. In 2010 cash bonuses and stock options made up an average of just over 52% of CEOs' total annual compensations and in 2011 the figure was about 49%. However, CEOs have seen their salaries shrink from almost EUR 2 000 000 per year to EUR 1127285,824 in 2010 and EUR 1175874,41 in 2011.

### 3.3 Statistical models

For the data analysis, we perform a series of simple linear regressions and multiple linear regressions. The dependent variables comprise of different measures of CEO compensation and the independent variables are total assets, return on investment, net profit margin and net income. The inspiration for this approach is the research presented in the paper of Fahlenbrach and Stulz (2010). The data used the multiple linear regressions has been transformed because the interest is in the proportional change in every variable from the year 2010 to the year 2011 (see table 4). The goal is to analyse how CEO compensation is affected as bank performance changes from the year 2010 to the year 2011. The first simple linear regression has the following model equation:

$$Y_1 = b_0 + b_1 x_1 + e$$

The dependent variable is year to year change (from 2010 to 2011) of total CEO compensation, comprising of basic salaries, bonuses and long term compensations. The independent variable is the yearly change in total assets.

The regression equation of the second simple linear regression is:

$$Y_2 = b_0 + b_1 x_1 + e$$

The dependent variable is the yearly change of total CEO compensation and the independent variable is the yearly change in ROE.

The third simple linear regression has this regression equation:

$$Y_3 = b_0 + b_1 x_1 + e$$

Here, the dependent variable again is the yearly change of total CEO compensation and the independent variable is the yearly change in net profit margin.

The fourth simple linear regression has the following model equation:

$$Y_4 = b_0 + b_1 x_1 + e,$$

where  $Y_4$  the yearly change of total CEO compensation and  $x$  is the yearly change in net income.

There are three different multiple linear regressions in total. The equation for the first multiple linear regression is:

$$Y_5 = b_0 + b_1 x_1 + b_2 x_2 + b_3 x_3 + b_4 x_4 + e$$

The dependent variable ( $Y_5$ ) is the yearly change of total CEO compensation. The independent variables are the yearly changes (from 2010 to 2011) of the total assets ( $x_1$ ), the return on equity ( $x_2$ ), the net profit margin ( $x_3$ ) and the net income ( $x_4$ ). The total assets consist of all the assets of the sampled banks. The return of equity is the amount of net income expressed as a percentage of shareholders equity. It reflects the profitability of the banks demonstrating the profit they generate with the money their shareholders have invested in them. The net profit margin shows how much of the money earned by the banks translates into profits. To that extent it is a measure of how well banks manage their costs and how effective they are. The net income represents the banks' total earnings of profit and is used to analyze the banks' profitability over time.

The second multiple linear regression analysis focuses only on the CEOs' basic annual salaries. The equation is:

$$Y_6 = b_0 + b_1 x_1 + b_2 x_2 + b_3 x_3 + b_4 x_4 + e$$

The dependent variable ( $Y_6$ ) is percentage change in CEO salaries from 2010 to 2011. The independent variables are the same as in the first model: total assets ( $x_1$ ), return on equity ( $x_2$ ), net profit margin ( $x_3$ ) and net income ( $x_4$ ).

The third multiple linear regression analysis investigates the correlation between CEOs' bonuses and long term compensations. Yearly cash bonuses and stock options are forms of compensation aimed at rewarding good performance and, in contrast to salaries, CEOs are not guaranteed to receive any such compensation. Often, the Boards of directors elect to reward CEOs with only a bonus or only a long term compensation. Therefore here these two types of compensation are grouped together. The equation of the model is:

$$Y_7 = b_0 + b_1 x_1 + b_2 x_2 + b_3 x_3 + b_4 x_4 + e$$

The dependent variable ( $Y_7$ ) is percentage change of the sum of bonuses and long term compensation of each CEO from the year 2010 to the year 2011. Again, the independent variables

remain the same as in the previous two models: total assets ( $x_1$ ), return on equity ( $x_2$ ), net profit margin ( $x_3$ ) and net income ( $x_4$ ). It is noted that in the sample there two CEOs (Richie Boucher, CEO of Bank of Ireland and JoseOliu Creus, CEO of Banco de Sabadell SA) have received neither any bonuses nor any long term compensations in both 2010 and 2011. Therefore, they are omitted from the model and there 15 banks that remain.

### 3.4 Results

We start with a simple regression analysis between the yearly change in CEOs' total annual compensation and the yearly change in the sampled banks' total assets (see model summary 1). After putting in the values of the coefficients, the regression equation becomes:

$$Y_1 = 0,046 + 0,854x_1 + e$$

The P value is 0,367. This means that the model is not statistically significant and the dependent variable (total assets) does not explain the value of the independent variable (total annual compensation). The coefficient of determination is 0,055. Consequently, only 5% of the variability is explained by the model. This is interesting because one would expect that a change in total assets would correspond directly to a change in the responsibility that CEOs carry on their shoulders. The model however fails to support this.

Next, we examine the simple linear analysis between the yearly change in CEOs' total annual compensation and the yearly change in ROE (model summary 2). After putting in the values of the coefficients, the regression equation becomes:

$$Y_2 = 0,081 - 0,043 x_2 + e$$

The P value is 0,889, therefore the independent variable ROE does explain statistically significantly the value of the independent variable (total annual compensation). The coefficient of determination is 0,001, so almost none of the variability is explained by the model. ROE measures the rate of return for shareholders. It should be of prime concern for the CEOs and Boards of directors to increase ROE. Instead, despite the very big decrease of nearly 25% in one year, CEO compensation packages have actually increased.

The regression equation of the third regression model (model summary 3) can be rewritten as:

$$Y_3 = 0,129 + 0,871 x_3 + e$$

The P value is 0,153, so the yearly change in total annual compensation is not explained statistically significantly by the yearly change in the net profit margin. The value of the coefficient of determination is 0,131, therefore 13,1% of the variability is accounted for by the model. Similar to ROE, net income defines the net increase in stockholder's equity. However, the model suggests that it is not taken into account when determining CEOs compensations.

The fourth regression model (model summary 4) has a regression equation of:

$$Y_4 = 0,033 + 0,139 x_4 + e$$

The P value is 0,04. Therefore, this model is statistically significant. The coefficient of determination is 0,253, meaning 25,3% of the variability is explained by the model. Net income is a bank's income minus expenses over a certain accounting period, in this case yearly. Its coefficient in the model is 0,139. So, relative net income change from 2010 to 2011 and relative total annual CEO compensation change from 2010 to 2011 are positively correlated. For every one percent increase in relative net income relative total annual CEO compensation increases by 0,139 percent.

We continue with the assessment of the models which are based on multiple linear regression. The output of the first multiple linear regression (model summary 5) is gives the following equation:

$$Y_5 = -0,53 + 0,832 x_1 - 0,192 x_2 + 0,074 x_3 + 0,123 x_4 + e$$

The P value of the regression model is 0,246, which means that the independent variable (total CEO compensation) is not explained by the dependent variables in a statistically significant manner (total assets ( $x_1$ ), return on equity ( $x_2$ ), net profit margin ( $x_3$ ) and net income ( $x_4$ )). The coefficient of determination is 0,343, which means that 34,3% of the variability is accounted for by the model. The variance inflation factors (VIF) of the independent variables are all lower than 5, meaning there is no correlation between the independent variables. Therefore there is no collinearity between the independent variables and they do not offset each other.

The output of the second model (model summary 6) means that the model equation has the following coefficients:

$$Y_6 = 0,18 + 0,273 x_1 + 0,003 x_2 - 0,047 x_3 + 0,02 x_4 + e$$

The P value of the regression model is 0,55, again meaning that the dependent variable (yearly salary change in %) is not explained statistically significantly by the independent variables (total assets ( $x_1$ ), return on equity ( $x_2$ ), net profit margin ( $x_3$ ) and net income ( $x_4$ )). There is no collinearity between the independent variables, as VIF of all four of them is less than 5.

The output of the third multiple linear regression model (model summary 7) yields the following model equation:

$$Y_7 = 0,885 + 3,548 x_1 - 2,458 x_2 + 0,978 x_3 + 0,318 x_4 + e$$

The P value of the regression model is 0,658, indicating that this model following the trend set by the previous ones and the dependent variable (yearly change of the sum of bonuses and long term compensation) is not explained statistically significantly by the independent variables (total assets ( $x_1$ ), return on equity ( $x_2$ ), net profit margin ( $x_3$ ) and net income ( $x_4$ )). Again, there is no collinearity between the independent variables (VIF of the independent variables are all lower than 5).

In comparison, the Fahlenbrach and Stulz (2010) find that more than 40% of CEO additional compensation in 2006 (besides basic salaries) was paid in equity instead of cash. This leads to the conclusions that extra compensation is not counterproductive to the goal of achieving better performance since CEOs have a significant vested interest in the good performance of the banks. However, when CEOs receive high cash bonuses the banks that they manage have lower returns. Although the models didn't use shareholder returns as a test parameter, nevertheless three different profitability indicators were used and the results do not confirm Conyon et al (2011) conclusion that in the banking sector in Europe there is a strong positive relation between CEO pay and shareholder returns. The results of this paper confirm the findings of Konkell and Orn (2009), which indicate that there is a statistically significant correlation between CEO remuneration and bank performance as measured by net profits.

#### **4. Conclusion**

The statistical analysis covered different variables with the goal to find some connection between bank performance and CEO compensation. The goal was to shed some light whether total annual amounts of CEO compensation, basic salary, and bonus compensation in the form of cash bonuses and equity were determined by various indicators. These indicators were total assets, ROE, net income, and net profit margin. It was established that there is a positive correlation between relative net income change from 2010 to 2011 and relative total annual CEO compensation change from 2010 to 2011. This should indicate that the Boards of directors pay special attention to net

income when determining what the compensation for the CEOs will be. However, this is contrasted by the rest of the linear regressions performed in the statistical analysis. They yielded no correlation between any form of CEO compensation and any of the independent variables. In particular, the simple linear regressions of the other two profitability parameters, ROE and net profit margin, did not have statistically significant results. The likely reasons for this are possibly due to the relatively small sample size of 17 banks. The size of the sample was affected by the methods used to filter the initial amount of banks. Namely, reluctance of banks to disclose the details of their CEOs' remuneration and replacements of CEOs in some banks within the two years for which data was gathered (2010 and 2011). Furthermore, the length of the observed period is possibly too short for any significant correlations to occur. The data analysis of this sample of banks leaves the impression that the Boards of directors do not seem to have the interest of the shareholders in mind when they decide what the compensation packages should be and how much should they amount to. On the other hand, the turbulent nature of the current crisis possibly forces the boards of directors to compensate their CEOs better than the results of the empirical analysis would suggest they deserve in order to keep their talent aboard. The crisis likely renders each fiscal year to an extent as a battle for survival and the banks in the sample size choose to compensate their CEOs on factors that are different than the ones that were tested. It should be pointed out that the list of banks stress tested by the ECB suggests that this is not the only tactic that is adopted throughout European banks. Some banks were acquired, others merged together. This strategy allows for concentrating assets into one bank which is a source of financial strength. Still other banks opted to change their CEOs. The financial assistance by the ECB and the Federal Reserve should be able to provide some stability in the financial sector. However, the moral hazard still exists and it is still possible for banks to engage in risky investments. Some CEOs, for example ING Groep's Jan H. M. Hommen, have opted to respond to the public discontent with high CEO bonus. He decided not to accept a portion of his bonus for 2010 (ING annual report 2010). In contrast, Robert Diamand Jr. Has just recently stepped down from his post as a CEO of Barclays Plc. After the bank admitted to rigging the London Interbank Offered Rate (Libor), the intrabank borrowing rate ([www.bloomberg.com](http://www.bloomberg.com)).

Overall, the empirical analysis does not substantiate any of the findings of the reviewed papers. Taking into account the findings of Conyon et al. (2011), the CEO salaries have lost great amount of their value. In 2008 the average CEO salary was almost EUR 2 000 000, whereas the average CEO salary of the sampled banks was received EUR 1 127 285 (2010) and EUR 1 175 874 (2011). This leads to the conclusion that CEO compensation has indeed been limited in the last years. The Boards of directors seem to have responded to the worsened state of the banks by cutting basic salaries and hiring new CEOs. CEOs received on average higher remunerations in 2011 compared to 2010 even though the regression models did not yield any statistically significant correlations between compensation and various profitability indicators as well as increased total assets. A possible

explanation is that 2011 may have been a comparatively tougher year for the banking industry as whole. This would mean that CEOs, whilst on average recording poorer performances comparative to 2010, may have actually performed well considering the conditions that they have had to manoeuvre in.

In light of the crisis itself it seems logical and necessary to increase regulation on the banking sector, as suggested by the FSB (2009), Bhagat and Bolton (2010) and Conyon et al. A push for more transparency and mandatory declaring of CEO remunerations as well increase in restricted stocks as a form of compensation (recommended by Conyon et al (2011)) seem to be in order. As Ertimur, Ferri and Maber (2010) have concluded the Boards of directors should also be monitored more strictly for their actions.

Finally, for future analysis there are several recommendations. First, an increased sample size should provide better results. An increase to 30 banks should be considered if there is available data. Further, a longer time frame is also suggested. For example, the last five fiscal years encompass the current financial crisis and would yield more important information about the period. Also, due to seemingly frequent changes of CEOs of banks it is recommended that this is not used as a filter when gathering data as it was in this paper. Otherwise the sample size would be even smaller. In addition to the variables already used in the statistical analysis, a parameter that measures the financial strength of banks, such as the tier 1 capital ratio could be implemented in future analysis.

## Appendix

Table 1: List of sampled banks.

<b>BANK NAME</b>	<b>CEO</b>
Banco Santander	Alfredo Sáenz Abad
Bank Of Ireland	Richie Boucher
Commerzbank	Martin Blessing
Deutsche Bank	Josef Ackermann Dr. Oec.
Erste Group Bank	Andreas Treichl
Nordea Bank	Christian Clausen
RBS	Stephen A. M. Hester
Skandinaviska Enskilda	Annika Falkengren
Societe Generale	Frédéric Oudéa
Svenska Handelsbanken	Par Boman
kbc groep nv	Jan Oscar Cyriel Vanhevel
Sydbank	Karen Frøsig
Deutsche Postbank AG	Stefan Jütte
Landesbank Berlin	Johannes Evers
ING	Jan H. M. Hommen
Banco de Sabadell SA	JoseOliu Creus
BBVA	Francisco González



Table 2: Bank summary statistics. Total assets are in billions of euro, net income is in millions of euro, ROE and net profit margin are percentages.

	total assets 2010	total assets 2011	ROE 2010	ROE 2011
Mean	684,7130588	745,99559	0,084594	0,063694
Standard Error	142,7884301	162,71229	0,013753	0,010733
Median	552,7	587,688	0,105	0,06
Standard Deviation	588,7317794	670,87995	0,056705	0,044255
Sample Variance	346605,1081	450079,9	0,003215	0,001959
Range	1885,72	2143,42	0,245	0,1288
Minimum	20,28	20,58	-0,087	0,0125
Maximum	1906	2164	0,158	0,1413
Sum	11640,122	12681,925	1,4381	1,0828
Count	17	17	17	17

	net pr margin 2010	net pr margin 2011	net income 2010	net income 2011
Mean	15,39471	11,71118	3120,747	2613,871
Standard Error	2,376589	3,25164	826,3492	677,5795
Median	15,92	8,66	2039,4	1640,6
Standard Deviation	9,798929	13,40685	3407,125	2793,732
Sample Variance	96,019	179,7437	11608500	7804938
Range	35,85	49,83	12707,3	10896,3
Minimum	0,57	-11,44	108,9	73,9
Maximum	36,42	38,39	12816,2	10970,2
Sum	261,71	199,09	53052,7	44435,8
Count	17	17	17	17

Table 3. CEO compensation summary statistics. Numbers are in euros.

	<i>salary 2010</i>	<i>salary 2011</i>	<i>bonus 2010</i>	<i>bonus 2011</i>
Mean	1127285,824	1175874,41	761853,8824	706339
Standard Error	191557,7157	190914,716	284404,576	432569,8554
Median	860564	1000000	40260	0
Standard Deviation	789812,695	787161,54	1172630,107	1783531,204
Range	3413200	3413200	3388000	7020000
Minimum	289800	289800	0	0
Maximum	3703000	3703000	3388000	7020000
Sum	19163859	19989865	12951516	12007763
Count	17	17	17	17

	<i>long-term comp. 2010</i>	<i>long-term comp. 2011</i>	Total Comp. 2010	Total Comp. 2011
Mean	461525,5294	440127,7647	2340718,059	2322379,412
Standard Error	232830,1335	235768,308	582087,8284	669752,7786
Median	56000	45000	1246659	1353000
Standard Deviation	959983,2333	972097,6372	2400009,6	2761461,449
Range	3768850	3955075	8538200	10887200
Minimum	0	0	289800	289800
Maximum	3768850	3955075	8828000	11177000
Sum	7845934	7482172	39792207	39480450
Count	17	17	17	17

Table 4. Changes in total CEO annual compensation, salary, bonus + long term compensation, total assets, ROE, net profit margin, and net income between 2010 and 2011. The general formula is  $X_{2011}/X_{2010}-1=val$ , where  $X_{2011}$  is the value of the considered variable in 2011,  $X_{2010}$  is the value of the considered variable in 2010, and val is the yearly change displayed in the table below. Note that bonus+long-term compensation has two unavailable figures because the corresponding CEOs didn't receive any bonuses or long-term compensations in 2010 and 2011. Note: the values of the last row (marked in yellow) contain the mean change of the respective column.

Total compensation change	Salary change	bonus+long-term compensation change	Total assets change	ROE change	Net profit margin change	Net income change
0,27	0	0,39	0,43	-0,37	-0,18	-0,14
-0,05	-0,05	NA	0,08	-1,14	0,42	-0,67
0,58	0	4,8	-0,12	-0,62	-0,17	-0,71
0	0	-0,03	0,14	0,48	0,22	-0,57
-0,39	0,18	-0,73	0,02	-0,67	-1,69	0,05
0,84	0,35	9,73	0,23	-0,08	0,03	0,07
-0,67	0,03	-0,99	0,03	0,24	-1,1	-0,64
1,32	0	8,53	0,08	-0,24	1,67	5,44
0,13	0,18	0	0,04	-0,39	-0,1	4,41
0,09	0,04	0,18	0,14	0,1	0,05	0,15
-0,33	-0,05	-0,8	-0,11	-0,5	-0,76	-0,29
0,21	0	2,34	0,01	-0,67	-0,8	-0,51
0,21	0	0,73	-0,11	-0,24	-1,6	0,7
-0,03	0,15	3,66	0	-0,87	-0,68	-0,03
-0,48	0	-1	0,03	-0,01	1,78	0,83
0	0	NA	0,03	-0,54	-0,15	-0,39
-0,06	0,02	-0,11	0,06	-0,49	0,07	0,02
0,096471	0,05	-0,11	0,057647	-0,35353	0,17588	0,454118

Model summary 1.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,234 <sup>a</sup>	,055	-,008	,48592

a. Predictors: (Constant), Total assets

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,205	1	,205	,866	,367 <sup>a</sup>
	Residual	3,542	15	,236		
	Total	3,746	16			

a. Predictors: (Constant), Total assets

b. Dependent Variable: Total compensation

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,046	,129		,356	,727
	Total assets	,854	,918	,234	,931	,367

Model summary 2.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,036 <sup>a</sup>	,001	-,065	,49942

a. Predictors: (Constant), ROE

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,005	1	,005	,020	,889 <sup>a</sup>
	Residual	3,741	15	,249		
	Total	3,746	16			

a. Predictors: (Constant), ROE

b. Dependent Variable: Total compensation

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,081	,162		,498	,626
	ROE	-,043	,304	-,036	-,141	,889

Model summary 3.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,362 <sup>a</sup>	,131	,073	,46583

a. Predictors: (Constant), Net profit margin

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,491	1	,491	2,264	,153 <sup>a</sup>
	Residual	3,255	15	,217		
	Total	3,746	16			

a. Predictors: (Constant), Net profit margin

b. Dependent Variable: Total compensation

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,129	,115		1,118	,281
	net pr. margin	,187	,124	,362	1,505	,153

Model summary 4

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,503 <sup>a</sup>	,253	,203	,43200

a. Predictors: (Constant), Net income

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,947	1	,947	5,074	,040 <sup>a</sup>
	Residual	2,799	15	,187		
	Total	3,746	16			

a. Predictors: (Constant), Net income

b. Dependent Variable: Total compensation

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,033	,108		,302	,767
	Net income	,139	,062	,503	2,253	,040

Model summary 5.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,582 <sup>a</sup>	,338	,098	,47301

a. Predictors: (Constant), total assets, ROE, net profit margin, net income

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,258	4	,315	1,406	,295 <sup>a</sup>
	Residual	2,461	11	,224		
	Total	3,719	15			

a. Predictors: (Constant), total assets, ROE, net profit margin, net income  
 b. Dependent Variable: Total compensation

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-,057	,185		-,308	,764		
	total assets	,838	,958	,230	,875	,400	,870	1,150
	ROE	-,199	,301	-,169	-,661	,522	,917	1,090
	net pr margin	,074	,148	,143	,497	,629	,726	1,377
	net income	,124	,076	,447	1,625	,132	,794	1,259

a. Dependent Variable: Total compensation



Model summary 6.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,458 <sup>a</sup>	,210	-,054	,10739

a. Predictors: (Constant), total assets, ROE, net profit margin, net income

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,037	4	,009	,797	,550 <sup>a</sup>
	Residual	,138	12	,012		
	Total	,175	16			

a. Predictors: (Constant), total assets, ROE, net profit margin, net income

b. Dependent Variable: salary

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,018	,042		,438	,669		
	total assets	,273	,217	,345	1,256	,233	,870	1,150
	ROE	,003	,068	,013	,047	,963	,920	1,087
	net pr margin	-,047	,033	-,420	-1,402	,186	,733	1,364
	net income	,020	,017	,329	1,147	,274	,800	1,251

a. Dependent Variable: salary

Model summary 7.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,446 <sup>a</sup>	,199	-,122	3,64301

a. Predictors: (Constant), total assets, ROE, net profit margin, net income

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32,920	4	8,230	,620	,658 <sup>a</sup>
	Residual	132,715	10	13,271		
	Total	165,635	14			

a. Predictors: (Constant), total assets, ROE, net profit margin, net income

b. Dependent Variable: bonus+long-term compensation

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,885	1,435		,617	,551		
	Total assets	3,548	7,416	,146	,478	,643	,864	1,158
	ROE	-2,458	2,863	-,269	-,859	,411	,817	1,224
	net pr margin	,978	1,238	,282	,790	,448	,631	1,585
	net income	,318	,624	,169	,510	,621	,731	1,368

a. Dependent Variable: bonus+long-term compensation

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