Examining the Effects of a Global Crisis on CEO Compensation: Fortune 100 Evidence

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CEO compensation is a hot topic in the popular press, as the earned amounts are extremely large and the pay gap between executives and employees is larger than ever before. Moreover, the excessive amounts of executive compensation are in conflict with the recessionary business climate and the governmental bailouts that some firms received. This paper aims at uncovering changes in executive compensation as a result of the global crisis. It does so by assessing the CEO compensation practices of Fortune 100 companies pre-, during-, and post-crisis (2006 – 2012). Firstly, important determinants of the components of executive compensation are identified by means of a literature study, after which the determinants are tested according to Fortune 100 practices. Weak relationships were found between total CEO compensation and the determinants firm size, firm performance, and CEO seniority. This provides no evidence for the optimal contracting view. A significant increase in the 'pay not at risk' component was found during the crisis as compared to the pre- and post-crisis periods, which suggests that the optimal contracting view holds or that the determinants of the 'pay at risk' component decreased in relative value. Combining these findings leads this paper to conclude that there is no unified approach adopted by Fortune 100 firms when it comes to compensation practices.

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Keywords
CEO pay; Pay for performance; Executive compensation; Compensation structure; Corporate governance

1. INTRODUCTION

CEO compensation – not only 'how much' but also 'how' – attracts a great deal of attention from management scholars and the popular press. Recent years have transformed executive compensation from a business issue into a political one; politicians claim overpaid CEOs are the root of the US competitiveness problem. The makings of a populist rebellion is completed by adding a recessionary business climate to the fact that some CEOs earn 130 times more than their lowest paid employees; the pay gap between executives and employees is ever-increasing (Brownstein and Panner, 1992). In fact, Walmart's CEO earns more in one hour than his workers earn in one year; Michael Duke grossed $35 million, when converted to an hourly wage this works out to $16,827. By comparison, Walmart employees gross $13,650 a year (Gomstyn, 2010). The same companies that benefited from governmental bailouts because they were said to be 'too big to fail' paid out $9 million (Goldman Sachs Group Inc.) and $17 million (JPMorgan Chase & Co) in bonuses to their CEOs right after receiving these bailouts. Although US President Barack Obama proposed tighter regulations on executive compensation, he also said he didn't begrudge the bonuses as 'they are very savvy businessmen and some athletes earn more' (Heneghan, 2010). According to The Economist (2006), CEO pay levels in the US have risen ten times faster than average worker wages since the 1970s. One much-discussed potential cause for this increase is known as the *Lake Wobegon Effect*; in radio host Garrison Keillor's hometown of Lake Wobegon, all the children are said to be above average. And so it is claimed with CEOs; no firm wants to admit having a CEO who is below average, so each firm wants its CEO's pay package to put him at or above the median pay level for comparable firms (Hayes and Schaefer, 2009). This type of peer benchmarking contributed to the pay inflation.

Executive compensation is part of the broader topic of corporate governance, which is concerned with the direction and control of companies via internal and external mechanisms, rules, practices and institutions (Cadbury, 1992). One of the internal governance mechanisms to ensure proper management is the executive compensation structure. Executive compensation includes fixed cash payments in terms of salary, cash bonuses over past achievements, stock awards and stock options to stimulate future achievements, non-equity incentive plans (i.e. long-term cash incentives that are based on a performance measure (e.g. return on assets)), change in pension value (i.e. increase in the present value of an executive's pension benefits) and non-qualified deferred compensation (the portion of annual earnings that is saved under the corporation's savings plan), and other compensation (e.g. life insurance, personal security, aircraft use, car use).

Compensation packages are designed and implemented to solve the so-called *agency problem*, which is one of the main deviations from the market model and can be termed as the difficulty in motivating one party (*agent*) to act in the best interest of another party (*principal*) rather than in his own interest. Agency problems are a result of the separation of ownership (risk taking; investors) and control (decision making; managers) (Berle and Means, 1932). The separation of ownership and control takes place because owners lack the expertise to professionally run a firm and because the number of owners can be rather extensive, which would lead to a harsh collective decision-making process. There are two contrasting views on executive compensation from an agency theory's perspective (Bebchuk and Fried, 2004): the *optimal contracting view* assumes that pay arrangements are set to align interests of

principal and agent, whereas the *managerial power view* argues that powerful CEOs can set pay in their own interest by exercising power over their board of directors. Governance of executive compensation takes multiple forms. First and foremost, it is common practice that non-executive directors form a so-called compensation committee. Additionally, external compensation experts can be consulted. Moreover, 'say on pay', where shareholders vote on the abstracts of a compensation contract, is gaining ground in corporate America (Thomsen and Conyon, 2012).

This paper illuminates whether and to what extent executive compensation depends on certain internal and/or external measures (which would mean that the optimal contracting view holds) or whether executive compensation is independent from any size or performance measures (which would mean that the managerial power view holds). Today's literature presents a multitude of views on the determinants of executive compensation. It is therefore of interest to assess the presented literature and examine whether and to what extent the proposed determinants hold in practice by studying the practices of the 100 largest US firms pre-, during- and post-crisis. Moreover, the effect of a crisis on the overall compensation structure will be assessed. This paper therefore answers the following research question; *how did the global financial crisis change CEO compensation structures of the 100 largest US firms when compared to the pre-crisis situation?*

This paper's sample contains the 100 largest (in terms of revenues) firms of the US, the so-called Fortune 100. The to-be-assessed period will cover pre-, during- and post-crisis years. The crisis year is defined as 2009. By choosing this approach, the paper looks at three pre-crisis years (2006, 2007, 2008), the crisis year (2009), and three post-crisis years (2010, 2011, 2012). The online database ORBIS is used to download and assess financial data. Companies' annual reports, proxy statements, and the online database ExecuComp were used to identify executive compensation structures and amounts. The crisis is a major help in this research as one has seen a dip in overall economic performance, which, in case compensation depends on performance, should result in a change in the structure of executive compensation. Kirkpatrick (2009) argues that performance should determine an executive's remuneration in terms of equity compensation. It could therefore well be that a global crisis results in a larger share of fixed pay and a lower share of performance-dependent (i.e. market-based) pay, as firm performance is worse during a crisis.

Results of regression analyses indicate weak relationships between independent and dependent variables, which suggests that there are no compensation determinants in the form of size and performance measures. This indicates that the optimal contracting view does not hold. Moreover, a significant increase in 'pay not at risk' was found during the crisis, as compared to the pre-crisis period. This could mean two distinct things; the optimal contracting view does hold, and/or the determinants of the 'pay at risk' component of total compensation have decreased in market value, which automatically means a relative increase in the value of the 'pay not at risk' component. As the determinants of CEO compensation were all found to be weakly correlated to total compensation, which suggests that there is no such thing as an optimal contract, one may conclude that the increase of the 'pay not at risk' component during the crisis was a result of mere randomness.

This paper's findings are of scientific relevance as this paper connects existing literature to a research of its own. Moreover, this paper is of practical importance for remuneration committees, who can implement this research's findings in

practice. Additionally, this paper is relevant for people that lost wealth (i.e. unemployed, decrease in purchasing power, or lower wages) as a result of the crisis. They would want to see whether 'pay for performance' holds, since it would partially justify executive compensation.

The structure of the paper is as follows. The first section provides an introduction to the underlying corporate governance theories. Additionally, the first section reviews empirical studies. The second section elaborates on the methodology of this paper's research. After that, the paper continues by discussing the results. The final section concludes the paper, after which the references and appendices will be included.

2. LITERATURE REVIEW

This extract examines the underlying corporate governance theories and reviews existing empirical evidence on compensation determinants.

2.1 Underlying Theory

There is a growing body of literature on CEO pay. Executive compensation is part of the broader topic of corporate governance, which is concerned with the direction and control of managers. To ensure proper management, several internal, external and informal governance mechanisms can be implemented. Internal, firm-specific, mechanisms include the firm's ownership structure (dispersed versus concentrated), board structure (one-tier versus two-tier), and compensation structure. External governance mechanisms include the debt market, the capital market, the takeover market, analysts, auditors, competition, and regulation. Lastly, informal mechanisms include trust and reputation, social norms, business ethics, and codes of conduct (Thomsen and Conyon, 2012).

Overall, there is a consensus that the economics of executive compensation contracts are normally understood in the context of a principal-agent relationship, which is the so-called *agency problem*. An agency problem exists because the interests of the shareholder (principal) and manager (agent) are not perfectly aligned (Bebchuk and Fried, 2004). Agency problems arise due to the separation of ownership and control, which often leads to conflicting interests, or even selfishness, since principal and agent each have their own utility functions. This could lead to self-interested decisions by managers, such as excess spending, embezzling shareholders' funds, self-dealing, empire building, overinvestment, and entrenchment (Thomsen and Conyon, 2012). Furthermore, the principal-agent relationship suffers from information asymmetry, as the agent is better informed about his own abilities, his own activities and what is going on in the firm than the principal. This leads to two important types of problems; *moral hazard* (occurs when the activities of the agent are not perfectly observable to the principal) and *adverse selection* (i.e. hidden knowledge; occurs when there is some element in the situation that is known to the agent but not known to the principal). According to Murphy (1999), moral hazard can come in many forms; picking easy-to-manage tasks, self-interested empire building via mergers and acquisitions, excessive use of company perks, and fraud or theft. To solve the moral hazard problem, the firm's owners need to design a contract that makes management rewards contingent upon firm performance. The economic objective of executive compensation therefore is to align the interests of the CEO and the firm's owners. This will, however, not completely eliminate agency costs; the contract is optimal but not perfect (Murphy, 1999). Bebchuk and Fried (2004) identified two contrasting views on executive compensation contracts:

- *Optimal contracting view;* assumes that pay arrangements are set by a board of directors that aim to maximize shareholder value by designing an optimal principal-agent contract. The optimal contract is therefore the one that minimizes agency costs (i.e. the sum of contracting, monitoring, other expenditures made in achieving a certain level of compliance with the principal's interest, and the costs of the residual divergence).

- *Managerial power view;* assumes that CEOs can set pay in their own rather than shareholder's interests by exercising power and influence over their boards and use this to lobby for high pay levels. The excess pay constitutes an *economic rent*, which is defined as an amount greater than required for the CEO to provide labour services to the firm. In this theory, corporate boards are viewed as relatively weak, which means that they are too large, directors serve on too many boards, conflicts of interest, and/or too friendly. There are, however, limits on how high CEO pay can be; too much compensation can severely damage an executive's reputation or cause embarrassment, which can be termed *outrage costs*.

The former view regards executive compensation as an instrument to combat the agency problem between managers and dispersed shareholders, whereas the latter view regards compensation as a product of the agency problem. Whatever the appearances, Bebchuk and Fried (2004) found that the pay-setting process in US public companies has strayed far from the economist's model of arm's-length contracting between executives and boards. In place, they argue that managerial power and influence play a major role in shaping executive pay, and in ways that end up imposing significant costs on investors and the economy. Others, such as Murphy and Zábojník (2004), argue that the level of CEO pay is determined by competition among firms for executives and depends upon the portion of the CEO's skills that is transferable across firms and industries.

Moreover, Thomsen and Conyon (2012) identified several ways in which executive compensation can be governed. First and foremost, several non-executive directors can form a so-called compensation committee. Additionally, external compensation experts can be consulted. Moreover, 'say on pay', where shareholders vote on the abstracts of a compensation contract, is gaining ground in corporate America.

According to Murphy (1999), executive compensation typically contains four broad elements; an annual fixed salary, an annual cash bonus, equity compensation in the form of stock options (which is a contract that gives the holder the right to purchase the underlying stock at some predetermined price in the future) and restricted stock, and other benefits in the forms of retirement pay and perks. Core and Guay (2010) also define executive compensation as the sum of salary, bonus, the value of stock and options granted, and other pay throughout the year. Moreover, Chalmers, Koh and Stapledon (2006) enforce the above-stressed components of executive compensation. The Conference Board (2009) conducts an annual review of US executive compensation and found slightly different measures. Total compensation is defined as the sum of annualized salary, cash bonuses, non-equity incentive compensation, the reported grant date present value of options, the value of stock awards, the change in pension value and earnings on non-qualified deferred compensation, and all other compensation. Furthermore, Murphy (1999) distinguishes *CEO pay* and *CEO incentives*. The latter relates to wealth that the CEO has in his or

her company, whereas CEO pay is the amount of remuneration received in a given period of time.

In a classical study, Jensen and Murphy (1990) show that US CEOs were paid like bureaucrats; executives received most of their compensation in the form of salaries and cash pay, and hardly any in the form of corporate equity such as stock options and restricted stock. The executives therefore had few financial incentives to focus on wealth creation and instead could enjoy the quiet life. Today, the US uses the market-model for executive compensation contracts as a means to resolve agency problems (Thomsen and Conyon, 2012). The market-model stresses the use of equity compensation to motivate executives. From an agency perspective, this provides significant incentives to promote the principal's (shareholder) value, as the value of the option increases as the price of the underlying asset increases. Murphy (2009) enforces the idea that stock options and ordinary equity are automatically directly related to firm performance, as the stock price increases, so does the value of the CEO's holdings of options and shares. This approach can be titled *'pay for performance'*, as it enforces the idea that changes in compensation should be the result of changes in measures of performance (Jensen and Murphy, 1990). Larcker and Tayan (2011) defended severe critics that pay for performance does not exist in the US by showing that, on average, CEOs hold a personal equity stake in the companies they manage with a median value of $4.6 million. A one percent change in the company's share price translates into a $54,000 change in the underlying value of these holdings. If the CEO doubles the stock price, he or she realizes $5.2 million in appreciated value. These are significant sums of money that provide incentives to create, and not destroy, shareholder wealth over the long-term.

Fernandes, Ferreira, Matos and Murphy (2011) studied CEO compensation of 1.648 US firms and 1.251 non-US firms and found that the median and mean US CEO compensation is twice as high as CEO compensation in non-US countries ($3.3 million versus $1.6 million and $5.5 million versus $2.8 million). This implies that US CEOs receive a pay premium. In addition, findings show that US CEOs have more *pay-at-risk* compared with non-US CEOs; US CEOs have 28% of pay comprised of fixed salary (versus 46% for non-US CEOs), implying that 72% is *at risk* (versus 54% for non-US CEOs). This enforces earlier-stressed views of Thomsen and Conyon (2012), who argue that the US uses the market-model for executive compensation contracts. The Conference Board (2009) defines *pay-at-risk* as the portion of pay-outs from the contract that are not guaranteed. Conyon, Core and Guay (2011) argue that the difference between US - and European CEOs can be explained by risk factors. After computing risk-adjusted CEO pay, which helps answering the question as to whether CEOs are overpaid or not, they find that risk-adjusted US CEO pay does not appear to be large compared with that of UK CEOs; US and UK pay are therefore very similar on a risk-adjusted basis. On the other hand, Conyon et al. (2011) found that risk-adjusted pay of US CEOs only explains about half of the apparent higher pay for US CEOs as compared to non-UK European CEOs; the residual gap is unclear and may be attributable to tax or cultural differences.

2.2 Empirical Evidence
2.2.1 Firm Size
As far as determinants of executive compensation are concerned, firm size seems to be of vital importance. The rational for a positive size-pay-relationship is, according to Gabaix and Landier's (2008) economic model, reflected by the growth in complexity and difficulties of managing large organizations. It therefore contradicts the managerial power

view since there appears to be a legitimate reason for changes in pay (i.e. increased rewards for managing increased organizational complexity). Murphy (1999) found that a CEO's fixed salary is positively correlated with firm size in terms of total assets and revenues. Additionally, Murphy uncovered that the performance measure triggering bonuses is usually an internal company accounting variable, such as earnings. External or market-based performance measures (such as share price returns) were rarely found to be used in driving bonus pay. This means that executives may be able to strategically alter the performance measure in order to receive better private pay outcomes. Bebchuk and Grinstein (2005) also found a positive relationship between firm size and CEO pay, which follows the rational of increased complexity that accompanies larger firms. This requires better and therefore more expensive CEOs. A paper examining CEO pay in the banking industry, by using panel data on 147 banks over the 1980s, enforces the relationship between size of the firm in terms of assets and the total level of compensation (Hubbard and Palia, 1995). Correspondingly, Sridharan (1996) found that CEO compensation is a function of the asset size of the firm. In a study of the top 200 Australian Stock Exchange listed firms based on market capitalization for each of the years 1999-2002, Chalmers et al. (2006) found that firm size in terms of total assets is positively related to total CEO compensation. Firth, Tam and Tang (1999) examined executive remuneration and bonus payments in Hong Kong companies. They found that corporate size, which they defined as total assets, is a major explanatory factor of total remuneration levels and of changes in executive pay. Finally, Zhou (2000) examined executive compensation of 755 Canadian firms – a country that is also said to be Anglo-Saxon – and found evidence consistent with previous studies; CEO pay rises with firm size.

Furthermore, Gabaix and Landier's (2008) research showed that total CEO pay is positively correlated with a firm's market capitalization. Moreover, they argue that the six fold increase of US CEO pay between 1980 and 2003 can be fully attributed to the six fold increase in market capitalization of large companies during that period. Core and Guay (2010) provided time-series evidence from 1993 to 2008 on executive compensation in the US and found that the growth in total CEO pay is positively correlated with growth in firm market values and that CEO pay as a fraction of firm market value has remained approximately constant over time, meaning that there is a positive relationship between CEO pay and a firm's market value. This positive association supports previous research and suggests that larger firms pay out higher remuneration to their CEOs, which could reflect the demand for higher quality CEOs, as a result of increased complexity.

2.2.2 Firm Performance
Another explanatory determinant of CEO compensation is firm performance. Chalmers et al. (2006) define firm performance as the return on assets (measured as EBIT / total assets) and found a positive and significant association with most compensation components. Firm performance was found to be positively related to base salary, bonuses, and options granted. Deckop (1988) defined firm performance as profits and revenues and found a positive relationship with total executive compensation. Firth et al. (1999) also found a positive association between a firm's profitability and total executive compensation. Cadman, Klasa and Matsunaga (2009) enforce this relationship by uncovering that large firms place greater weight on earnings (i.e. revenues and profits) in CEO compensation contracts. The Conference Board (2009) found that CEO cash compensation (i.e. fixed salary and bonuses) and total compensation varies positively with revenues. Mishra, McConaughy and Gobeli

(2000) also state that firm performance has a generally positive, but diminishing, relationship with the level of CEO pay. Hall and Liebman (1998) overturned the above-stressed hypothesis of Jensen and Murphy (1990), who argued that CEOs were paid like bureaucrats, by showing that there is a strong positive correlation between CEO compensation and firm performance, arising almost entirely from changes in the value of CEO holdings of stock options. Additionally, Hall and Liebman demonstrated that both the level of CEO compensation and the sensitivity of compensation to firm performance increased dramatically since 1980, largely because of increases in stock option grants.

A study by Buchholtz, Young and Powell (1998) examined the link between CEO pay and firm performance from two competing perspectives, namely the managerial power view and board vigilance view. As said before, from the managerial power perspective, a powerful CEO dominates the board and thereby decouples the pay-performance link. The board vigilance view is closely related to the optimal contracting view, as it states that boards represent shareholder interests by tying CEO pay to firm performance. The authors found no support for the managerial power view and indicate that the optimal contracting view is often adopted. This means that firm performance and CEO pay are closely related. Sigler and Haley (1995) also found a positive and significant connection between CEO pay and the performance of their firms. Moreover, they argue that it appears that CEO pay is used to align the interests of shareholders with the interests of the CEO, which reduces agency costs. Zhou (2000) enforces these findings by having found – after studying 755 Canadian companies over the period 1991 to 1995 – that compensation is tied to company performance.

Overall, there seems to be consensus that the relationship between firm performance and CEO compensation is merely positive.

2.2.3 Seniority
Bryan, Hwang and Lilien (2000) document a positive relation between CEO compensation and CEO age, which is attributed to the firms' efforts to retain experienced CEOs and to solve the horizon problem, which is defined as a CEO's tendency to manage investment expenditures discretionary in their final years to improve short-term earnings. Kalyta (2008) enforces this by finding that in the pre-retirement period, CEOs conduct income-increasing management. Moreover, higher CEO compensation is attributed to the experience older CEOs often have, which makes them superior.

Concluding, the literature presents us with several determinants that are positively related to total CEO pay or certain pay components, namely firm size, firm performance, and CEO seniority.

3. METHODOLOGY
An extensive body of literature addresses the determinants and structure of CEO compensation, as can be read above. This paper's sample contains the Fortune 100 companies for the years 2006 - 2012. The Fortune 100 is a gross revenue list of the top one hundred US firms, including privately held as well as publicly listed corporations. Moreover, in contrast to common corporate finance literature, the Fortune 100 and this paper include financial firms and utility providers. This paper does exclude Fortune 100-ranked subsidiaries of which the holding company is Fortune 100-ranked as well, as they are ultimately managed by the same CEO (e.g. Wells Fargo Bank (business unit of Wells Fargo Co.) and GE Capital Services

(business unit of GE)). The top 100 of every year is examined, rather than using the top 100 from a base year in subsequent years (i.e. using the 2006 Fortune 100 firms as sample for later years). This is done to get a general idea on how the largest firms operate rather than showing how a specific group of firms conduct governance practices. In total, 144 different firms comprised the Fortune 100 over the seven-year period. This research uses financial data from the online databases ORBIS and ExecuComp. Furthermore, hand-collected data from proxy statements and annual reports is being used. The ORBIS data set contains firm-specific financial data, whereas the ExecuComp database contains a panel of compensation data for executives and directors.

This research answers the following research question: *how did the global financial crisis change CEO compensation structures of the 100 largest US firms when compared to the pre-crisis situation?* This implies that the research needs to measure and assess the pre-crisis situation and compare this to the post-crisis situation. The crisis year is defined as 2009, which exhibited a severe dip in the volume of world merchandise trade according to figures of the Netherlands Bureau for Economic Policy Analysis, after which volumes recovered rather quick. By choosing this approach, the research looks at three pre-crisis years (2006, 2007, 2008), the crisis year (2009), and three post-crisis years (2010, 2011, 2012). Doing so, the research will grant me with approximately 700 observations per variable (100 firms per year multiplied by seven years).

Based on prior empirical research and managerial theories, I develop hypotheses related to the determinants of executive compensation in Fortune 100 companies. In particular, this paper examines the pay of the chief executive officer (i.e. CEO). Among others, Murphy (1985) and Conyon (1997) stress that there are many company-specific factors that affect the compensation decision. These factors are impossible to identify and quantify and can therefore not be modelled in this paper's research. To solve this problem, this research focuses on changes in pay between the pre- and post-crisis situation.

The paper's dependent variables are the level of *total CEO compensation*, and the several components that are commonly used by Fortune 100 corporations, being *salary, bonuses, stock awards, options granted, restricted stock, long-term incentive plan pay-outs (LTIP), non-equity incentive plan compensation, change in pension value and non-qualified deferred compensation*, and *all other compensation*. These compensation components that shape total CEO compensation will be translated to relative amounts of total CEO compensation. This follows the logic that absolute amounts of a component are not easily comparable, as they say little about the fraction of total compensation.

The independent variables are *firm size, firm performance,* and *seniority.* All are defined according to several sub-variables. Firm size includes the number of employees, the firm's total assets, and the corporation's market capitalization. Firm performance consists of revenues, net income, and the return on assets. Seniority is defined as the age of the CEO. The control variable that monitors whether firm-specific characteristics explain CEO compensation is the age of the firm. For comparability purposes, these variables are transformed to scaled amounts. For some (revenues, net income, and market capitalization) this is done by scaling them to total assets, whereas for others (number of employees, total assets, ROA, CEO age, firm age, and total compensation) this is done by using their natural logarithm.

The first hypothesis states that there is a positive relationship between firm size and total CEO compensation. This follows Gabaix and Landier's (2008) economic model that predicts that the growth in CEO pay reflects the growth in complexity and difficulties of managing large organizations, which requires better and therefore more expensive CEOs. The hypothesis is:

H₁: an increase in firm size leads to an increase in total CEO compensation.

The second hypothesis uses firm performance as a determinant of total CEO compensation, which follows the logic of pay-for-performance and the optimal contracting view; better-performing CEOs 'deserve' higher pay. However, this could pose an endogeneity problem; does firm performance lead to compensation, or does compensation lead to firm performance? Including a certain time lag in the to-be-conducted tests solves this. Thus:

H₂: an increase in firm performance leads to an increase in total CEO compensation.

The third hypothesis predicts that increased CEO age leads to higher compensation levels. This reflects the effect of seniority in terms of experience; more experienced CEOs are more profound in the decision-making process, which makes them better than inexperienced managers and therefore higher-paid. Furthermore, Bryan et al. (2000) found that older CEOs are paid more to solve the horizon problem. Therefore:

H₃: increased CEO seniority leads to increased total CEO compensation.

The fourth hypothesis is related to the control variable firm age. It predicts that increased firm age leads to increased CEO compensation, as these mature firms are often larger and more diversified, which requires a better (and therefore higher-paid) CEO to manage the complex portfolio. Thus:

H₄: increased firm age leads to increased total CEO compensation.

The hypothesis concerning the research question states that a crisis results in a larger share of fixed pay in the overall CEO compensation structure. This follows the logic that firm performance is worse during and right after a crisis, which means that there is no reason to pay out performance-related remuneration; pay for performance is absent because performance is absent. Kirkpatrick (2009) also found that performance should determine an executive's remuneration. As performance is worse during a crisis, Kirkpatrick's logic results in a larger share of fixed pay and a lower share of performance-dependent pay. This implies that I need to distinguish between 'pay at risk' and 'pay not at risk'. 'Pay at risk' is defined as that part of total compensation that directly depends on the company's performance. Based on this definition, the following compensation components are said to belong to 'pay at risk'; *bonuses, stock awards, option awards, restricted stock awards, LTIP*, and *non-equity incentives*. The components that belong to 'pay not at risk' are; *salary*, which is fixed and represents responsibility, *change in pension value and non-qualified deferred compensation*, which is a savings and investment program outside the company, and *all other compensation*, which represents covering operational expenses. Thus, the hypothesis is:

H5: a crisis (i.e. dip in performance) results in a larger share of 'pay not at risk' (i.e. salary, change in pension value and non-qualified deferred compensation, and *all other compensation) in the overall CEO compensation structure.*

Both the dependent variables and the independent variables are continuous variables, meaning that they can take different values between points (in contrast to discrete variables, which have a fixed value that cannot be specified in decimals). Regression analyses will be used to assess the relationship between the dependent and independent variables. A bivariate regression will be used to show the strength of the relationships between dependent and independent variables. Furthermore, linear regression analyses and independent samples t-tests will be conducted.

A univariate analysis (see Table 1 in Appendix A) was conducted to assess the total data set. In total, eighteen variables are being used in this paper, of which the data set grants the research with an average of 552 valid observations per variable, meaning that I miss an average of 148 observations per variable. This works out to 79 valid observations per year per variable and 21 missing observations per year per variable. This can be attributed to numerous reasons; some Fortune 100 corporations are large business units of its higher-ranked holding company and therefore do not report on aggregate results as a separate entity, and some privately-held firms are not required to disclose as much information as publicly-listed corporations.

4. RESULTS

This section reports on the results of this paper's analyses. First, this section will shortly elaborate on the descriptive statistics in absolute form. The mean total CEO compensation for the firms in this sample was found to be $16,117,241. Average total CEO compensation experienced a rapid decrease from roughly $20 million in 2006 to around $12 million in 2012. This decrease can be attributed to decreasing bonuses, decreasing option awards, diminished restricted stock awards and LTIP pay-outs, and decreasing other compensation. On the contrary, the compensation component salary has seen an increase from $1,338,113 in 2006 to $2,069,586 in 2012. The average age of a CEO in this dataset's firms is 57, whereas the average firm age is 74 years. Average revenues have seen a rather steady growth from $56 billion in 2006 to $72 billion in 2012, whereas net income fluctuated heavily between $1.4 billion in 2008 and $6.3 billion in 2011.

As far as the scaled variables are concerned, on average, salary accounts for 14.47% of total compensation with a maximum of 100% in some cases. Bonuses are rather scarce; its median is 0% whereas its mean is 4.96%. The stock awards component is the largest compensation component with a mean value of 29.13%. Options granted accounts for the second largest group with a mean contribution of 20.97%. To cover operational expenses, all other compensation accounts for 3.90% of total compensation.

4.1 Compensation Determinants

In analysing the relationships between variables, bivariate and linear regression analyses were conducted. Results of the regression models are shown in Table 2 and Table 3 in Appendix B. The total dataset was controlled for multicollinearity – meaning that one or more independent variables are highly correlated and could therefore impair the analysis in an unfair manner – before conducting the regression analyses. Results, in the form of tolerance- and VIF-values, indicated no multicollinearity problems.

In conducting regression analyses, I did not simply assume that a CEO's pay is related to performance and size measures from the same year, as certain compensation targets have to be set in advance. This paper therefore reasons, like Firth et al. (1999)

and other executive compensation research, that a CEO's pay is related to measures from a previous year. Therefore, this paper builds in a lag in its analyses, meaning that the independent variables (i.e. size and performance measures, CEO seniority and firm age) of year T-1 will be used to explain the dependent variable (i.e. total compensation) in year T. Moreover, the independent variables were pooled to increase robustness of the correlation and regression results. This was done to correct for the effect that a single variable might have in a one-on-one analysis with another variable, whereas the effect disappears in a multi-variable analysis.

4.1.1 Firm Size

Recall that the first hypothesis tests the relationship between total CEO compensation and firm size, which is defined as the number of employees, total assets, and market capitalization. Results indicate the following. Pearson correlations examine the strength of a relationship between variables; a positive relationship is defined as an increase in one variable, which leads to an increase in value of a second variable. In the pre-crisis period, the Pearson correlation between firm size and total CEO compensation was 0.098, whereas this decreased to -0.107 and -0.063 during the crisis and the post-crisis. The Pearson correlation for the total period was found to be 0.003, which indicates a very weak relation. Moreover, these results were not found to be significant as all P values exceed the 0.05 threshold. T-values represent the likelihood that the actual value of the parameter could be zero. A negative t-value therefore indicates a reversal of the effect. T-values were found to be 0.960 during the pre-crisis period (p = 0.284), -0.516 during the crisis (p = 0.309), and -0.515 during the post-crisis period (p = 0.282). Again, these findings were not statistically significant. The t-value for the total period was found to be 0.619 with a p-value of 0.022, which is statistically significant within a 95% confidence interval (p < 0.05).

Concluding, these results indicate that firm size and total CEO compensation have a rather indifferent relationship. Therefore firm size - at least in the way it is defined in this paper - does not seem to be a proper predictor of total CEO compensation. H_1 should therefore be rejected.

4.1.2 Firm performance

The second hypothesis examines the effect of firm performance on total CEO compensation. This paper defined firm performance as revenues, net income, and the return on assets. Pearson correlations were all found to be very weak and/or negative and insignificant; 0.028 during the pre-crisis period, -0.046 during the crisis, -0.181 during the post-crisis period, and -0.056 for the total period. This suggests that when one variable (firm performance or total compensation) increases in value, the second variable (total compensation or firm performance) decreases in value. Positive, however statistically insignificant, unstandardized coefficients are reported (apart from the -0.005 during the pre-crisis period); 0.319 during the crisis (p = 0.533), 0.301 during the post-crisis period (p = 0.520), and 0.021 for the total period (p = 0.393). This shows that an increase in firm performance results in an increase in total CEO compensation. Nevertheless, these relationships are rather weak and insignificant.

These results suggest that firm performance and total CEO compensation have a rather neutral relation. It may therefore be concluded that firm performance - at least in the way it is defined in this paper - does not seem to correlate with total CEO compensation in a by optimal-contracting-view-advocates desired manner. H_2 should therefore be rejected.

4.1.3 CEO Seniority

Recall that the third hypothesis tests the relationship between CEO seniority, which is defined as the age of the CEO, and total CEO compensation. Results indicate that CEO seniority is positively, however insignificantly, correlated with total CEO compensation in terms of the Pearson correlation; 0.077 pre-crisis, 0.105 during the crisis, 0.082 during the post-crisis, and 0.084 over the total period. The insignificant unstandardized coefficients of CEO age are the following; 1.712 during the pre-crisis (p = 0.213), 2.719 during the crisis (p = 0.356), 0.059 during the post-crisis (p = 0.985), and 1.892 over the total period (p = 0.116). These show that an increase in CEO age results in a slight increase in total compensation. However, these findings are statistically insignificant. Moreover, t-values are 1.250 during the pre-crisis, 0.933 during the crisis, 0.019 during the post-crisis, and 1.574 over the total period.

Although these findings are statistically insignificant, they do provide some evidence to conclude that CEO age and total CEO compensation are positively related, meaning that an increase in age generally leads to an increase in total compensation. H_3 is therefore (partially) accepted.

4.1.4 Firm Age

The control variable firm age, which is defined as the years since incorporation, was found to have statistically significant and positive t-values during the pre-crisis period (2.392, p = 0.018) and over the total period (3.121, p = 0.002). Additionally, Pearson correlations were found to be positive (however statistically insignificant) during these periods.

As the effect of firm age is rather indifferent and statistically insignificant during the crisis and during the post-crisis period, one can conclude that the effect of firm age on total CEO compensation is rather indifferent. H_4 should therefore be rejected.

4.1.5 Adjusted R square

The adjusted R square is a statistical term that shows how good one variable is at predicting another. In the regression analyses, the independent variables firm size, firm performance, CEO age, and firm age were pooled, which led to one adjusted R square value per period. The combined adjusted R squared values were found to be positive (0.054 during the pre-crisis period, 0.223 during the crisis, 0.258 during the post-crisis, and 0.106 for the total period), which indicates a rather weak but nevertheless positive correlation between total CEO compensation and these independent variables. This means that, as these independent variables increase in value, total CEO compensation increases too.

4.2 Pre- versus Post-Crisis

With regard to the comparison between pre-crisis, crisis, and post-crisis compensation structures, the dataset needed to be divided in several groups. The pre-crisis years are 2006, 2007 and 2008, the crisis year is 2009, whereas the post-crisis years are 2010, 2011 and 2012. Moreover, a distinction between *'pay at risk'* and *'pay not at risk'* was made. 'Pay at risk' is defined as that part of total compensation that directly depends on the company's performance. Based on this definition, the following compensation components are said to belong to 'pay at risk'; *bonuses, stock awards, option awards, restricted stock awards, LTIP*, and *non-equity incentives*. The components that belong to 'pay not at risk' are; *salary*, which is fixed and represents responsibility, *change in pension value and non-qualified deferred compensation*, which is a savings and investment program outside the company, and *all other compensation*, which represents the covering of operational expenses.

Pre-crisis, salary accounted for 13.11% of the total compensation structure, whereas this increased to 18.53% during the crisis, and deteriorated to 13.52% in the post-crisis period. Bonus payments accounted for 8.41% pre-crisis and deteriorated to 3.25% during the crisis and 4.56% post-crisis. The only substantial increase was found in the stock awards component, which accounted for 23.39% during the pre-crisis period, 28% during the crisis, and 33.02% post-crisis. To get an overall understanding of the fluctuations of individual compensation components in the average CEO compensation structure, see Figure 1 in Appendix C. Overall, 'pay at risk' fluctuated from 73.08% in the pre-crisis years to 65.09% during the crisis, and 72.09% in the post-crisis period. For the 'pay not at risk' part this obviously means 26.92% in the pre-crisis period, 34.91% during the crisis, and 27.91% in the post-crisis years.

Recall that the fourth hypothesis states that a crisis results in a larger share of fixed pay ('pay not at risk') in the overall CEO compensation structure. This follows the logic that firm performance is worse during a crisis, which means that there is no reason to pay out performance-related remuneration. Moreover, this paper's research question assesses how the global financial crisis changed CEO compensation structures.

An independent samples t-test was conducted to examine whether the means of the two groups ('pay at risk' and 'pay not at risk') differ significantly during the three periods (pre-crisis, crisis, and post-crisis). In the pre-crisis versus crisis and the crisis versus post-crisis comparison, equal variances were not assumed on the basis of Levene's Test for Equality of Variances, as the significance level was found to be less than the 0.05 threshold. In the pre- versus post-crisis comparison, equal variances were assumed, as the significance in Levene's Test for Equality of Variances was greater than the 0.05 threshold, namely 0.435. It was found that during the crisis, the average 'pay not at risk' component, which was 34.91%, was significantly higher ($p = 0.022$) than during the pre-crisis period, in which it was 26.92%. Meaning that, when compared to the pre-crisis period, compensation structure included significantly more 'not at risk' components during the crisis. The crisis versus post-crisis analysis yielded the following result. Although the means of 'pay not at risk' differ (34.91% during the crisis versus 27.91% during the post-crisis period), the difference was found to be insignificant ($p = 0.054$). Also, an insignificant difference ($p = 0.638$) was found between the means of the 'not at risk' component during the pre-crisis and post-crisis period, which were 26.92% and 27.91%.

From this, one can conclude that the crisis merely had a short-term effect on the overall CEO compensation structure, as only during the crisis the 'not at risk' component was found to be significantly higher and the means of the pre- and post-crisis periods do not differ significantly. H_5 can therefore be accepted. This may, however, not be attributable to the optimal contracting view, as it could very well be that the 'pay at risk' determinants decreased in value, causing a relative decrease of the 'pay at risk' (and a relative increase of the 'pay not at risk') component in the overall CEO compensation.

Additionally, independent samples t-tests were conducted to compare the means of the variables firm size, firm performance, CEO seniority, firm age and total compensation. The output can be found in Table 4 in Appendix B. No significant differences in the means for the different periods were found, apart from a significantly lower market capitalization mean during the crisis in comparison to the pre-crisis period; 106.67% versus 83.67% ($p = 0.046$). Moreover, a significantly lower ROA was found during the crisis in comparison to the pre-crisis period; 0.67 versus 0.54 ($p = 0.041$). Furthermore, revenues were found to be significantly higher during the post-crisis period in comparison to the pre-crisis period; 129.28% versus 183.11% ($p = 0.047$). These findings complement earlier findings (a significantly higher amount of 'pay not at risk' during the crisis). This could possibly mean that CEO 'pay at risk' is related to market capitalization and ROA, as both variables, and the 'pay at risk' component, decreased in relative value, whereas the 'pay not at risk' component increased in relative value.

5. DISCUSSION

Empirical results of the regression analyses yielded rather low adjusted R square values, which suggest a weak level of correlation between variables. However, although these low values may be worrying, it is rather common to find low R square values in corporate governance analyses; Cadman et al. (2009), Chalmers et al. (2006), and Firth et al. (1999), who also examined executive compensation practices, encountered alike results. Adjusted R square values of 0.008, 0.017, 0.011, and 0.013 are rather common and should therefore not be interpreted as worrying, as regression output does not solely depend on R square values.

As this paper is being written in the period that corporations are in the process of preparing and filing their annual reports and proxy statement regarding the previous year, the dataset contains a limited amount of filings for the year 2012. In fact, filings of only seven corporations are included in the dataset for the year 2012. This could have a severe impact on the distribution of 'pay not at risk' and 'pay at risk', depending on the included corporations. However, excluding 2012 from the post-crisis period leads to an average 'pay not at risk' of 27.94% and an average 'pay at risk' of 72.06%, as opposed to 27.91% and 72.09% when including 2012. It can therefore be concluded that including 2012 in the analysis does not impair the dataset in an unfair manner.

Like most researches, this research suffers from definition-subjectivity. I have chosen and defended to define 'pay not at risk' as the compensation components *salary, change in pension value and non-qualified deferred compensation,* and *all other compensation*. Moreover, I chose, on the basis of the world trade volumes of the Netherlands Bureau for Economic Policy Analysis, to define the crisis year as 2009, as that year showed a severe dip in overall trade volumes. Additionally, firm size is defined as the number of employees, total assets, and market capitalization, and firm performance is defined as revenues, net income, and the return on assets. Using other definitions might have impacted the outcomes in an antipodal manner.

Moreover, my empirical approach may have suffered from reverse causality and endogeneity; e.g. does firm performance lead to higher compensation or does higher compensation lead to better firm performance? However, conducting lagged regressions – in which the independent variables of T-1 explain the dependent variable of T – solved this problem.

6. CONCLUSION

This paper examined CEO compensation practices of Fortune 100 corporations during the pre-crisis, crisis, and post-crisis period (2006 – 2012). The research identified important determinants of the components of executive compensation through a literature study, after which the found variables were tested on the practices of Fortune 100 firms.

CEO compensation is of interest as the global financial crisis deteriorated the wealth of many citizens, whereas large firms

still reward their executives with excessive compensation. Moreover, the absolute amounts that are being earned by executives are extremely large, leading to the biggest pay gap between executives and employees in modern history.

Executive compensation belongs to the field of corporate governance, which is concerned with the direction and control of corporations via internal and external mechanisms, rules, practices and institutions. Compensation packages are designed and implemented to solve the *agency problem*, which is one of the main deviations from the market model and can be termed as the difficulty in motivating one party to act in the best interest of another party rather than in his own interest. Agency problems are a result of the separation of ownership (risk taking; investors) and control (decision making; managers). There are two contrasting views on executive compensation from an agency theory's perspective; the *optimal contracting view* assumes that pay arrangements are set to align interests of principal and agent and thereby to solve the agency problem, whereas the *managerial power view* argues that powerful CEOs can set pay in their own interest by exercising power over their board of directors and thereby worsen the agency problem.

Results indicate that firm size and firm performance – in the way they are defined in this research – do not correlate with total CEO compensation in a by optimal-contracting-view-advocates desired manner. They seem to have a rather indifferent relationship, which does not make firm size and firm performance proper predictors or determinants of total CEO compensation. Although the findings concerning CEO seniority (namely a positive influence of age on total compensation) were statistically insignificant, they do provide some evidence to conclude that CEO age and total CEO compensation are positively related, meaning that an increase in age leads to an increase in total compensation. The effect of firm age, which is defined as the years since incorporation, was found to be weakly positively related to total compensation. However, these findings were statistically insignificant during the crisis and during the post-crisis period. These weak and/or insignificant correlations between compensation determinants and total CEO compensation provide no evidence for the optimal contracting view. These findings are in line with Bebchuk and Fried's (2004) statements, who found that the pay-setting process strays far from the economist's model of arm's-length contracting between executives and boards. In place, they argue that managerial power and influence play a major role in shaping executive pay. Moreover, Murphy and Zábojník (2004) found that the level of CEO pay is determined by competition among firms for executives, rather than by firm performance.

The pre- versus post-crisis analysis yielded the following results. The crisis was found to have a short-term effect on the overall CEO compensation structure, as only during the crisis the 'pay not at risk' component of total compensation was found to be significantly higher than in the pre- or post-crisis period. The means of the pre- and post-crisis periods were not found to differ significantly, meaning that the compensation structures in both periods were rather identical. This is reflected by the figures: 'pay at risk' was 73.08% of total compensation during the pre-crisis period, whereas it was found to be 72.09% of total compensation during the post-crisis period. The significantly higher 'pay not at risk' component during the crisis may, however, not be attributable to the optimal contracting view, as it could very well be that the determinants of the 'pay at risk' component decreased in value, causing a relative decrease of the 'pay at risk' (and a relative increase of the 'pay not at risk') component in the overall CEO compensation. The t-tests on other variables complement the

hypothesis that the increase in 'pay not at risk' was merely a result of a decrease in determinants of the 'pay at risk' component, as both market capitalization and ROA were found to be significantly lower during the crisis when compared to the pre-crisis period.

On the other hand, one could argue that the optimal contracting view does hold, as the 'pay at risk' share of total compensation decreased in relative value during the crisis. However, since the determinants of CEO compensation were all found to be weakly related to total compensation, which suggests that there is no such thing as optimal contracting view, one may conclude that the increase of the 'pay not at risk' component during the crisis was a result of mere randomness. The combination of these mixed results imply that there is no standardized approach adopted by Fortune 100 firms when it comes to determining CEO compensation. Nevertheless, it was found that a crisis leads to a higher 'pay not at risk' portion in the overall CEO compensation, although the exact reasons remain unclear.

As the findings of this paper suggest randomness in terms of determining CEO compensation, more research is required. Future research could possibly elaborate on this research by having a broader focus and using a larger sample, which would make outcomes more generalizable. Moreover, cross-cultural differences, which are ignored in this research since it merely focuses on US firms, could be assessed. Additionally, this paper solely assesses large firms. Future research could therefore include SMEs to make a comparison.

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APPENDIX

A. UNIVARIATE ANALYSIS OF THE TOTAL DATASET

Table 1. Univariate analysis

	Mean	Median	Std. Deviation	Minimum	Maximum	N (missing)
Panel A (scaled)						
Salary	14.47 %	9.23 %	17.23 %	0.00 %	100 %	494 (206)
Bonus	4.96 %	0.00 %	11.32 %	0.00 %	68.86 %	494 (206)
Stock awards	29.13 %	27.42 %	23.97 %	-132.56 %	97.00 %	494 (206)
Options granted	20.97 %	18.79 %	19.92 %	0.00 %	94.31 %	494 (206)
Restricted stock	0.74 %	0.00 %	6.45 %	0.00 %	96.06 %	494 (206)
LTIP	0.28 %	0.00 %	2.89 %	0.00 %	40.65 %	494 (206)
Non-equity incentives	15.91 %	15.62 %	15.12 %	0.00 %	72.00 %	494 (206)
Change in pension value and non-qualified deferred compensation	9.63 %	4.00 %	12.44 %	0.00 %	99.26 %	494 (206)
All other compensation	3.90 %	1.76 %	10.20 %	0.00 %	100 %	494 (206)
Total compensation	6.99	7.16	0.95	0.00	7.74	494 (206)
Employees	4.93	5.01	0.53	2.15	6.32	610 (90)
Total assets	10.85	10.72	0.66	7.27	12.36	676 (24)
Market capitalization	97.22 %	76.29 %	82.60 %	0.00 %	526.55 %	542 (158)
Revenues	150.55 %	94.65 %	254.32 %	2.26 %	3,028.07 %	700 (0)
Net income	50.04 %	4.97 %	775.26 %	-45.80 %	16,070.22 %	677 (23)
Return on assets	0.63	0.74	0.46	-1.16	1.89	597 (103)
CEO age	1.75	1.76	0.05	1.56	1.91	578 (122)
Firm age	1.71	1.89	0.45	0.00	2.32	616 (84)
Panel B (absolute)						
Total compensation	16,117,241	14,581,900	9,990,064	1	54,343,529	494 (206)
Employees	148,100	103,150	217,817	140	2,200,000	610 (90)
Total assets (mill.)	237,805	54,082	453,563	18,49	2,359,141	676 (24)
Market capitalization (mill.)	73,448	42,771	79,879	150	625,348	542 (158)
Revenues (mill.)	65,599	46,832	61,596	22,636	477,359	700 (0)
Net income (mill.)	4,843	2,849	9,385	- 97,634	104,690	677 (23)
Return on assets	5.44 %	5.19 %	7.12 %	- 45.80 %	76.81 %	597 (103)
CEO age	57	57	6	36	82	578 (122)
Firm age	73.62	74	50.79	0	210	616 (84)

a. The variables salary, bonus, stock awards, options granted, restricted stock, LTIP, non-equity incentives, change in pension value and non-qualified deferred compensation, all other compensation, and total compensation are the dependent variables in this paper's research. These represent the commonly used compensation components of Fortune 100 firms. None of the above-given figures in Panel A embodies the absolute amount; all, except total compensation, are relative figures of total compensation. Total compensation is scaled by means of its natural logarithm. Panel B does represent the absolute amount.

b. The independent variables group 'firm size' is defined as the number of employees, total assets, and market capitalization. The number of employees is measured as the average number of workers in a given year. Total assets represent the balance sheet total. Market capitalization represents the average market value of a firm in a given year. Again, none of the above-given numbers in Panel A signifies the absolute amount. The number of employees and total assets are scaled by means of their natural logarithm, whereas market capitalization is expressed as a percentage of total assets. Panel B does represent the absolute amounts.

c. The independent variables group 'firm performance' is defined as revenues, net income, and the return on assets. Revenues are defined as the annual turnover. Net income is defined as the annual profit (or loss). The return on assets is calculated as net income divided by total assets. None of the above-stressed figures in Panel A represents the absolute amount. Revenues and net income are expressed as percentages of total assets, whereas the return on assets is

scaled by means of its natural logarithm. Panel B does represent the absolute amounts.

d.   The independent variable 'CEO seniority' is defined as CEO age, which is the age of the chief executive officer in a given year. This variable is scaled by means of its natural logarithm in Panel A. Panel B does represent the absolute amount.

e.   The variable 'firm age' is defined as the years since incorporation in a given year. Again, this variable is scaled by means of its natural logarithm in Panel A, whereas Panel B does represent the absolute amount.

B. EMPRICIAL ANALYSES OUTPUT

Table 2. Determinants of Total Compensation (Correlation)

		Expected relation	Pre-crisis	Crisis	Post-crisis	Total
Firm size	Pearson correlation		0.098	- 0.107	- 0.063	0.003
	Sig. (2-tailed)	+	0.164	0.397	0.181	0.168
	N		658	219	234	1,111
Firm performance	Pearson correlation		0.028	- 0.046	- 0.181	- 0.056
	Sig. (2-tailed)	+	0.248	0.524	0.348	0.290
	N		648	212	236	1,096
CEO age	Pearson correlation		0.077	0.105	0.082	0.084
	Sig. (2-tailed)	+	0.244	0.368	0.463	0.099
	N		231	75	82	388
Firm age	Pearson correlation		0.098	- 0.028	0.169	0.081
	Sig. (2-tailed)	+	0.141	0.809	0.131	0.114
	N		226	76	81	383

This table shows the Pearson correlations, 2-tailed significance, and the number of observations in relation to total compensation for the pre-crisis, crisis, post-crisis, and total period. The 'expected relation' column is based on the literature review. See Table 1 for the definitions of the variables.

Table 3. Determinants of Total Compensation (Regression)

	Expected relation	Pre-crisis	Crisis	Post-crisis	Total
Firm size	+	0.173^{xx}	0.090^{xx}	0.138^{xx}	0.219^{xx}
		(0.960)	(- 0.516)	(- 0.515)	(0.619)
Firm performance	+	$- 0.005^{xx}$	0.319^{xx}	0.301^{xx}	0.021^{xx}
		(0.489)	(0.353)	(0.118)	(1.274)
CEO age	+	1.712^{xx}	2.719^{xx}	0.059^{xx}	1.892^{xx}
		(1.250)	(0.933)	(0.019)	(1.574)
Firm age	+	0.315^{xx}	0.297^{xx}	0.435^{xx}	0.370^{xx}
		(2.392)	(1.080)	(1.299)	(3.121)
Adjusted R square	+	0.054	0.223	0.258	0.106
N		1,763	582	633	2,978

This table shows the unstandardized coefficients and t-values within a 95% confidence interval in relation to total compensation for the pre-crisis, crisis, post-crisis, and total period. The 'expected relation' column is based on the literature review. See Table 1 for the definitions of the variables.

Table 4. Mean Comparisons

	Pre-	Crisis	Δ	Crisis	Post-	Δ	Pre-	Post-	Δ
Pay at risk	73.08%	65.09%	-7.99%	65.09%	72.09%	7.00%	73.08%	72.09%	-0.99%
Pay not at risk	26.92%	34.91%	7.99%	34.91%	27.91%	-7.00%	26.92%	27.91%	0.99%
Total compensation	7.02	6.94	-0.08	6.94	6.97	0.03	7.02	6.97	-0.05
Firm size									
Employees	4.95	4.96	0.01	4.96	4.88	-0.08	4.95	4.88	-0.07
Total assets	10.84	10.90	0.06	10.90	10.84	-0.06	10.84	10.84	0.00
Market capitalization	106.67%	83.67%	-23.00%	83.67%	89.55%	5.88%	106.67%	89.55%	-17.12%
Firm performance									
Revenues	129.28%	151.01%	21.73%	151.01%	183.11%	32.10%	129.28%	183.11%	53.83%
Net income	5.39%	4.77%	-0.62%	4.77%	141.07%	136.30%	5.39%	141.07%	135.68%
ROA	0.67	0.54	-0.13	0.54	0.62	0.08	0.67	0.62	-0.05
CEO seniority	1.76	1.75	-0.01	1.75	1.75	0.00	1.76	1.75	-0.01
Firm age	1.71	1.72	0.01	1.72	1.70	-0.02	1.71	1.70	-0.01

This table shows the differences in means during the pre-crisis, crisis, post-crisis, and total period within a 95% confidence interval, which were used as input for the conducted independent samples t-tests. See Table 1 for the definitions of the scaled variables.

C. DEVELOPMENT OF INDIVIDUAL COMPENSATION COMPONENTS

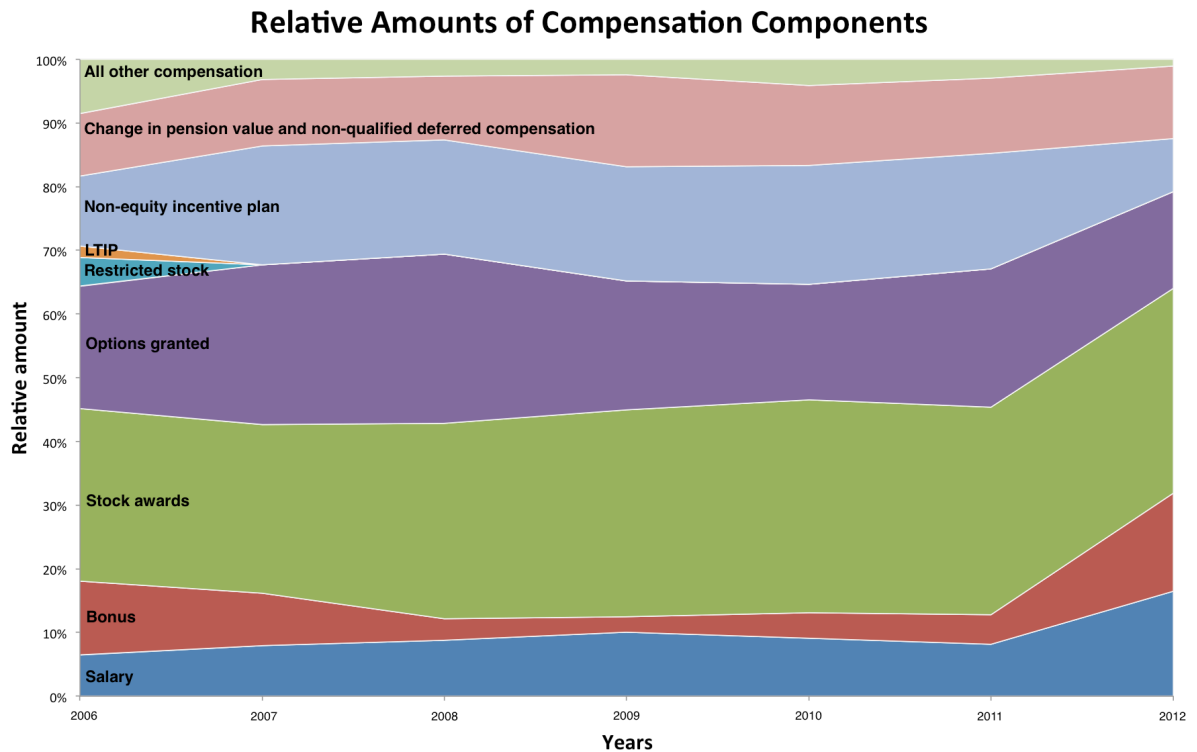
Relative Amounts of Compensation Components

Figure 1. Development of Individual Compensation Components