EMPIRICAL INVESTIGATION IN CEO COMPENSATION ACROSS CONTINENTAL EUROPE AND UNITED KINGDOM

Inga Baužytė*

Vytautas Magnus University, Lithuania

Abstract. *The article presents a detailed investigation of the top management / Chief Executive Officer (CEO) remuneration package and reveals why this is important to the economy. The goal of this paper is to examine the CEO pay (salary + bonus), wealth delta, cumulative value of options held and total compensation throughout Continental Europe and the United Kingdom across a number of various sectors during years 2005 and 2006. Attention is turned to the pre-crisis data analysis which might instigate the argument that CEO compensation was one of the main reasons which lead management to the excess risk taking and reckless decision making. Therefore, it might be concluded that the relationship between risk and executive remuneration can be more subtle and complex than it has been thought. The paper applies the multiple regression model supported by research hypothesis postulation tested by the correlation method and T-test approach.*

Key words: *CEO remuneration, salary & bonus, cumulative value of options held, total compensation, incentives*

Introduction

The CEO is the most important figure in a corporation – the leader whose decisions and vision have the greatest influence on the future direction of the firm (Bebchuk, Fried, 2004). Indeed, CEOs of many large and medium corporations and companies are among the highest paid people in many societies. Public concern with what is perceived to be unreasonably high pay has triggered many researchers' special attention already a decade ago, not to mention the intense discussions of the recent years. In fact, many believe that executive remuneration played a substantial role in the today's financial crisis by encouraging CEOs to take an excessive and immeasurable risk. As a result, public support has swelled for reforming and regulating the basic executive pay model.

The rise in the executive compensation has triggered a large amount of public controversy and academic research. An executive who earns ten million dollars in pay per year provokes a certain critical regard no matter how efficient his operations are. Few issues in the history of the modern corporation have attracted the international attention garnered by what the largest corporations pay their top executives. Fuelled by disclosure

* Faculty of Economics, Vytautas Magnus University, Daukanto g. 28, Kaunas, Lithuania,
e-mail: inga_bauzyte@hotmail.com

requirements, analyzing and criticizing executive remuneration has been, in particular, a popular issue among business proficient.

The aim of this study was to review the factors that might influence the size of CEO remuneration throughout a number of different sectors in Continental Europe and the United Kingdom. Due to new disclosure policies and data allowance in many countries it might be acknowledged that the main goal of this study, however, is to shed light on cross-country and cross-sector differences in CEO salary and bonus.

A number of research have found a relationship between executive pay and performance, firm size, etc. However, this article looks into the relationship between *CEO cash earnings* (basic salary plus bonus) and market value, CEO age and CEO time in role. In addition, the CEO Wealth Delta, CEO Cumulative Value of Options Held and Total Compensation are the other important components of the final remuneration package; however, they are not in the main focus of this particular research.

The purpose of the present research is, on the basis of the analysis, to illustrate that the pre-crisis CEO remuneration in certain sectors across Continental Europe and the United Kingdom were significantly excessive, which would lead the analysis to the conclusion that CEO were incentivised to make the reckless decisions based on the risky projects and strategies in order to meet the expectations of the shareholders or owners of the corporations or companies. It is important to test which major variables have the greatest influence on the size of the CEO's salary and bonus. Moreover, we set the purpose to test whether CEOs in the UK have a higher salary and bonus in comparison with their counterparties in Continental Europe.

The object of the research was the main component of CEO remuneration - *CEO cash earnings* (basic salary plus bonus). The research sample consisted of 1319 observations over a two-year period. The study sample comprised mainly large firms operating in a variety of different industries in Continental Europe and the United Kingdom.

The methods of the research: comparative, analysis and interpretation based on the multiple regression model, correlation and t-test results.

The structure of the article is as follows: first, it reviews the theoretical part of remuneration as a subject, and the topic is introduced through the prism of other authors. Secondly, the methodical part of the article follows, which includes the application of the methods chosen for the analysis. The article is briefly discussed and concluded in the final passage of the study.

An overview of the literature

The subject on managerial compensation has been studied from a variety of perspectives and from different angles. Murphy (1999) states that the "evolving literature has been truly interdisciplinary, spanning accounting, economics, finance, industrial relations, law, organizational behavior, and strategy". However, some might wonder: how important is

the subject of executive pay for our economy? Why should this subject be analyzed? This topic is known to have risen many debates, especially in the recent years. In fact, as it can be found from the recent literature, not only researchers and academics turned their attention to this topic rising a lot of questions, but also boards of organizations and politicians across the globe have already started paying more attention to how the chief executive's pay has been set and to being seen to do so in a way that serves the interests of shareholders ("Economist", 2007). Accordingly, some authors (e.g., Bebchuk, Fried, 2004) state that "the subject of executive compensation is of substantial practical importance for shareholders and policymakers". Moreover, the issue is particularly relevant today as the country leaders, politicians, organizations and many other bodies are re-evaluating the executive's pay which sets the platform for the excessive risk taking and which is considered as one of the inputs to the global financial crisis.

The executive compensation offers opportunities to analyze many concepts related to labour economics, including incentives, marginal productivity, contracts, promotions, etc. (Murphy, 1999). For example, financial economists, as Murphy (1999) says, have studied the "association between executive compensation and corporate performance, investment decisions[1], capital structure[2], dividend policies, mergers and diversifications". Nevertheless, research on CEO compensation has a long and controversial history. However, it was not so clear and transparent until certain requirements have been confirmed. They now have to reveal all Securities and Exchange Comission (SEC)[3] rules that have begun to take effect in the recent years ("Economist", 2007). Even though, according to Miller (1995), most of the studies of executive compensation rely upon secondary data from Forbes, Fortune, Business Week, etc., the overall contribution towards market transparency is undoubted. The latter point has been approached, however, only in the last decade due to enhanced data availability through the disclosure requirements in most of the countries which, as a result, lead academic interest, and not only, towards further analysis and research (Conyon, Murphy, 2000).

In fact, most of "criticism of executive compensation practices can come from a variety of methodological and ideological perspectives" (Bebchuk, Fried, 2004). Before turning to the introduction to the theory of the managerial compensation, it is worth to mention the insight of Randøy and Nielsen (2002) who believe that the literature on CEO compensation might have emphasized three main research perspectives: *agency theory*, *organizational theory on CEO power*, and *structural differences in the national political economies*.

---

[1] The relationship between common stock and option holdings of managers and the choice of investment and financing decisions by firms is tight. There is a positive relationship between the security holdings of managers and the changes in firm variance and in financial leverage (Agrawal, Mandelker, 1987).

[2] Refer to John and John (1993), "Top-Management Compensation and Capital Structure".

[3] The SEC requires firms to combine both the actual pay a CEO receives each year and an estimate of the value of future performance-related pay, such as share options, which is calculated using the Black–Sholes formula.

One would not possibly find any analysis or article based on managerial compensation, which would not include or discuss the ***agency theory.*** The focus on the role of agency theory allows a substantial approach to the initial understanding of the relationship between shareholders and executives. In fact, most studies on the relation between executive compensation and company performance have been rooted in agency theory. At the very outset it is important to differentiate between two essential groups in the corporations. They are *executives*, who have and perform the control, and the *shareholders*, who have ownership. The separation of these two factors creates an agent relationship.

There always remains uncertainty about the performance of managers; Bebchuk and Fried (2004) explain that it is difficult to distinguish whether the agents will always act in the principal's best interests. As a result, the managers – agents whose interests do not fully overlap those of shareholders – may deviate from the course of action best for shareholders; this is called an "agency problem". Furthermore, some discussions state that the role of the agency theory "predicts stock-based compensation which will align executive and shareholder interests by linking the executive's compensation directly to increases in the market value of the company" (Abowd, Kaplan, 1999).

However, there always remains the question whether the agency problem can be solved or reduced. Some analyses demonstrate that market forces can correct agency problems with respect to some but not all types of managerial decisions (Bebchuk, Fried, 2004). Core et al. (1999) find that firms with weaker governance structures have greater agency problems; as a result, companies with greater agency problems, however, receive greater compensation but perform worse. More importantly, Wright and Kroll (2002) provide evidence that managerial discretion can be linked to agency theory. They find that under active executive monitoring and the premise of agency theory, "discretion may not be desirable because managers may selfishly over-invest in projects that are non-value-maximizing;" however, they continue, greater discretion may be anticipated to enhance the marginal product of CEOs, benefiting the owners and eliciting a higher CEO compensation.

CEO remuneration is closely linked to the volume of juridical and legal documentation. The contract is always drawn up with regard to both legal and regulatory provisions on pay. However, there always remains the question how much the CEO should be awarded so as to reflect the outcome and increase the shareholders' wealth. The Combined Code[4] states that (Webster, 2005) *"levels of remuneration should be sufficient to attract, retain and motivate directors of the quality required to run the company successfully, but a company should avoid paying more than is necessary for this purpose. A significant proportion of executive directors' remuneration should be structured so as to link rewards to corporate and individual performance."*

---

[4] The Combined Code on Corporate Governance, which applies to all listed companies subject to the Listing Rules, imposes requirements regarding the source of instructions, the length of notice periods / fixed terms, the make-up of the remuneration package and the negotiation of termination packages (see more in Webster, 2005).

It is suggested that the empirical analysis of CEO compensation is based on three different measures of compensation (Core et al., 1999): *total compensation (*the sum of salary, annual bonus and valuations for stock options, performance plans, phantom stock, and restricted stock*), cash compensation (*the sum of salary and annual bonus), *salary*., Grossman and Hoskinson (1998), Murphy (1999) and Conyon (2006) confirm that the CEO's pay package contains four basic components: *a base salary*, *an annual bonus* (linked to accounting performance), *stock options*, *long-term incentive plans* (including restricted stock plans and multi-year accounting-based performance plans).

Base salaries for CEOs are typically determined through competitive "benchmarking" based primarily on general industry salary surveys. According to "Economist" (2007), base salary has stabilized, though it was never the fastest-growing part of pay. Payouts from bonus plans, however, are determined in a variety of different ways. Under every single contract, the annual bonus plan should be part of a CEOs pay package which is calculated at the end of a financial year and is based on that year's corporate performance (Fox, 1980). As Murphy (1999) confirms, "virtually every for-profit company offers an annual bonus plan based on a single-year's performance". He graphically illustrates that bonus plans can be categorized in terms of three basic components: performance measures[5], performance standards[6], and the structure of the pay–performance relations.

Sykes (2002) believes that remuneration committees should incentivise executives, but differently. He argues that "incentive payments should mainly create long-term shareholder value", in support of his following statement that bonuses are merely imposed only if certain minimum performance criteria were first met. The bonus system was started to analyze already in the early times upon detecting that this system is an especially useful mechanism for reinforcing the higher performance (Lawler, 1981; Kahn and Sherer, 1990). Kahn, Sherer (1990) illustrate that bonuses induce high performance because they are not subject to the same constraints. In addition, they state that, from the company's point of view, they are attractive because they are not part of the base salary. Moreover, bonus pay is also far more variable, flexible over time than is base salary (Leonard, 1990). J. Leonard finds that from 1984 to 1985 the average base pay increased by 5.6%, whereas the bonus pay increased by 64%.

By far the most common executive incentive program based on corporate long-term performance is the stock option plan (Fox, 1980). The method for valuing executive stock option is based on the Black–Scholes option pricing model which, according to Cuny and Philippe (1995), has been successfully applied to a variety of financial markets. Black and Scholes demonstrated that, "since investors can hedge, options can be valued

---

[5] The most common non-financial performance measure used in annual incentive plans is "individual performance" which also includes customer satisfaction, operational and/or strategic objectives, etc. (see more in Murphy, 1999).

[6] Performance standards can be inferred in two cases: when the performance measure in the plan was specified as a growth measure and when the performance measure is EVA, as the company's cost of capital (Murphy 1999).

as if investors were risk neutral and all assets appreciate at the risk-free rate." The value of a European call option paying dividends is

$$c = Se^{-qt}N(d_1) - Xe^{-rt}N(d_2),$$

where S is the stock price, X is the exercise price, t is the maturity term, r is the risk-free interest rate, q is the dividend yield; $N(d_n)$ is the cumulative probability distribution function for a standardized normal variable, and e is Euler's constant.

Following the theory in constructing the aggregate measure of CEO incentives, the instrument by which we weight option is the *Option Delta*[7] which ranges from near zero[8] to near one[9]. The option delta is a well-known concept from option pricing theory and equals the slope of the Black–Sholes function (Conyon, Murphy, 2000). Formally,

$$Option \ Delta = e^{-ln \ (1+d) \ T} N(z)^{[10]}.$$

The level of compensation to chief executive officers has been a topic of considerable controversy in the academic and business communities (Core et al., 1999). The reason why this discussion has been introduced publicly, as some authors mention, is because some issues in the history of the modern corporation have triggered this attention (Murphy, 1999). Based on many researchers' observation, the selection of a new CEO is an important decision that can, according to Wallace, Carol et al. (2002), influence the firm's future directions and effectiveness.

The vast majority of the debates over remuneration are associated with accounting scandals and collapses[11] in the prices of the company's shares, the controversies over a number of CEOs who left behind noticeable holes in the corporation structure and disrupted the fluent business circulation. Moreover, the dangerous pressures and widespread conflicts of interest that govern the determination of executive remuneration are perhaps the most egregious illustration of the debilitating governance weaknesses that need to be urgently addressed to restore public trust (Jensen et al. 2004; Sykes, 2002).

Methods

The study method is based on a comparative analysis of cross-sectional and cross-country data on CEO remuneration. The aim of this methodology is to draw the best fit regression

---

[7] The percentage of option holdings multiplied by the option delta is a measure of the change in CEO option-related wealth, corresponding to a change in shareholder wealth. See Conyon and Murphy (2000) for more details.

[8] It is for deep out-of-the-money options. In theory it is a call option where the asset price is less than the strike price. See Hull (2006) for more details.

[9] It is for deep in-the-money options on non-dividend paying stock. In theory, it is a call option where the asset price is greater than the strike price. See Hull (2006) for more details.

[10] Calculating the option delta for each option held at the end of the fiscal year requires exercise price and expiration-term information for each outstanding option grant.

[11] Enron case. See more on http://www.guardian.co.uk/enron/story/0,,1971756,00.html

line intended to derive such a line that the sum of the squared deviations of the distance of all the points to the line is minimized. It is important to develop a good prediction equation – one that makes accurate CEO compensation – because it allows obtaining a better understanding of the manner in which these controllable predictor variables x_1, x_2, and x_n affect the CEO's salary[12]. The form of the multiple regression model applied in this study is as follows:

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_{p-1} x_{p-1} + \varepsilon\ [13].$$

In this model, there are p regression parameters β_0, β_1, …, β_{p-1}. Thus the constant term is denoted by β_0, and there are $p-1$ predictor variables denoted as x_1, x_2, …, x_{p-1}. The random component ε is assumed to satisfy the following objectives: it is drawn from a distribution with mean 0 and variance σ^2, and the random components are assumed to be statistically independent.

It is important to keep in mind that the parameters are estimated by the method of least square. Therefore, the estimated regression equation can be expressed in the form

$$\hat{y} = b_0 + b_1 x_1 + b_2 x_2 + \ldots + b_{p-1} x_{p-1}.$$

This equation, again, can be used to estimate or predict the expected value of y for a specified set of values of the predictor variables x_1, x_2, …, x_{p-1}. The former index represents a dependent variable and the latter one the independent variable. The value of b_j can be interpreted as the estimated change in the expected value of y if the value of x_j is increased by 1, however, the value of all other variables being constant.

The model was tested with a primary sample data of 1319 large and medium firms from various market sectors (see the list below) in Continental Europe and the United Kingdom. Being more precise, EUR sample contains 819 observations and UK – 500 observations. The research sample includes the data collected by the author using various publicly available companies' annual reports, end-of-year financial reports, analyses and publications where the disclosure of CEO remuneration was provided. As a matter of fact, the primary focus was on the data provided by the biggest companies/corporations in the industry which added the highest value to the economy at that time. However, it is important to clarify that the smaller companies have not been eliminated from the model if the adequate data were approachable.

The set of instruments chosen to frame the CEO compensation would be rather fit in a rising number of discussion papers. This implies that there is a limitation with prior research in its narrow definition of executive remuneration. As this is the keystone

---

[12] The theory refers to Mendenhall (1983).

[13] Remark: the notation used in this study may differ from those used by other authors and studies.

TABLE 1. **The list of sectors involved in the model**

Aerospace and Defence	Food producers and processors	Pharmaceuticals an Biotechnology
Automobiles and Parts	General Retailers	Publishing
Banks	Health	Real Estate
Beverages	Household Goods and Textiles	Software and Computer Services
Chemicals	Information Technology Hardware	Speciality and Other Finance
Construction and Biulding Materials	Insurance	Steel and Other Metals
Diversified Industrials	Investment Companies	Support Services
Electricity	Leisure and Hotels	Telecommunication Services
Electronic and Electrical Equipment	Media and Entertainment	Tobacco
Engineering and Machinery	Mining	Transport
Food and Drug Retailers	Oil and Gas	Utilities – Other
Forestry and Paper	Personal Care and Household Products	Wholesale Trade

Source: table constructed by the author.

focus and one of the key dependent variables of this study, indeed, careful attention was paid to measuring CEO salary and bonus. The model in this study consists of the following expected (*dependent*) variables: *CEO pay* (refers to the sum of base salary plus bonus paid in a given year and represents single measurement because of the sensitivity between salary only and other independent factors (McKnight et al., 2000)). Consequently, the dependent variables were adequately regressed against the set of independent variables.

The model was run with a variety of independent variables, such as *market capitalization* (here used as the measure of company size, because it is adequate to a measurement of corporate or economic size[14]), *CEO age* and *CEO time in role*. According to previous studies, it is stated that executive compensation has historically correlated with market capitalization. The time when the rising stock market was carrying the poorly performing companies was also a convenient justification in most companies for a substantial compensation rise. In this case, with other factors remaining the same, the market capitalization would have a substantial impact on final compensation, what makes us understand that this factor takes an important role in the analysis.

The CEO age and tenure with the company variables were measured in a number of years. CEO age is simply the age of a CEO. CEO age and CEO tenure with the firm are attributed to *control variables* (Elhagraseyet al., 1999), and separate analysis can be run for them; however, because of the scope of this study; they are grouped together with the rest of variables. In addition, it is important to point out that dependent and independent variables are the log (log(*salary+bonus*) and log(*CEO time in role*) in this research in order to reduce heteroscedasticity (as most of the variables are not normally distributed). The age-squared is included as an additional explanatory variable which usually is attributed to the traditional human capital group and allows a concave age-earnings profile.

---

[14] Black, J. (2003). A Dictionary of Economics. Oxford University Press.

The regression model in this research also includes *dummy variables* which lead to regression models' improvements in their approximation**.**

They have been created for Continental Europe and the United Kingdom, also for 36 different market sectors introduced earlier in this study. Consequently, the dummy variables allow to stratify data and to obtain a more accurate and systematic result of the further analysis.

Research hypotheses postulation

To illustrate the application of the study's perspective, hypotheses were empirically tested based on some of the preceding discussions. The hypotheses advanced in this study are as follows:

Hypothesis 1: *There is a positive relationship between CEO's time in role (tenure) and compensation (salary and bonus).*

Since salary negotiation is really a bargaining process, the CEO's relative bargaining power should come into play; the more the power, the greater the bargaining strength and the higher a potential compensation. The example of CEO power can be a long tenure (Hill, Phan, 1991). It is believed that the longer a CEO stays in role, the bigger compensation he might get. This argument suggests that a long tenure helps CEOs influence the board.

Hypothesis 2: *The CEO's age is positively related to compensation (salary and bonus).*

It can be based on the experience. The older CEOs have more experience which allows taking better decisions and generating better profits; this in most cases pleases shareholders and owners.

Hypothesis 3: *There is a positive relationship between market capitalization and CEO compensation (salary and bonus).*

Market capitalization is the market value of a company's issued shares. The hypothesis says that as a result of the rise of the company's share price the company's market value should rise accordingly. However, it is clear that the company's share value rises in respect to its present performance. If a CEO leads the company that gives results and raise its trust, the shareholders are more likely to invest in this firm; this results in a higher CEO salary and bonus.

For simplicity, the hypotheses postulated for Wealth Delta, CEO cumulative value of options held and CEO total compensation were not illustrated; however, the structure of these hypotheses remains the same as above. The hypotheses test a linear relationship between CEO compensation, CEO wealth delta, CEO options, CEO total compensation and market capitalization, age, time in role, time on board, time in organization using the Pearson product moment correlation and least squares regression analysis.

Drawing on the previous research on CEO compensation (Core et al., 1999), an equation was developed with a variety of independent variables to minimize the specification bias in testing the hypothesis:

$$\textbf{CEO Salary and Bonus} = \alpha + \beta_1 * R + \beta_2 * T + \beta_3 * B + \beta_4 * A + \beta_5 * M + \\ + \beta_6 * O + \beta_7 * C_d + \beta_8 * S_d,$$

where: R – CEO time in role

T – CEO time in organization

B – CEO time on board

A – CEO age

M – market value

O – CEO options awarded

C_d – country dummies

S_d – sector dummies.

Descriptive Data analysis and discussion

Analysis of CEO remuneration data and their major components gives rather significant results, a broader picture and a better interpretation of the issue itself. Data analysis for *Salary & Bonus* of the years 2005–2006 (Table 2) shows that the highest mean throughout the sectors varies with the value of $2,462,000 in Continental Europe and $2,514,000 in the UK within the Bank sector. The lowest mean of *Salary & Bonus* appears to be $415,000 in Continental Europe within the Steel and Other Metals sector and $524,000 in the UK within the Information Technology Hardware sector. The results on the minimum and maximum values variance throughout the sectors and countries are as follows: the minimum $7,000 in Continental Europe in the Information Technology Hardware sector and $49,000 in the UK in the Support Services sector. In contrast, the highest amount of $12,000,000 was paid in Continental Europe in the Information Technology Hardware sector and $227,044,000 in the UK in the Oil and Gas sector.

The highest correlation (Table 3) was found between CEO time on board and CEO time in organization. The correlation coefficient between these variables is 0.788 (significant at 1% level) due to the fact that they are closely interrelated. It is important to emphasize

TABLE 2. **Statistically descriptive table of salary & bonus for different sectors in continental Europe (EUR) and United Kingdom (in thousand dollars)**

SECTORS	Count		Mean		Median		Std. Deviation		Minimum		Maximum	
	EUR	UK	EUR	UK	EUR	UK	EUR	UK	EUR	UK	EUR	UK
Aerospace & Defence	6	11	1.069	1.351	963	1.174	600	904	324	352	1.857	3.064
Automobiles & Parts	7	5	2.288	1.057	1.825	846	2.907	483	22	498	7.922	1.681
Banks	39	9	2.462	2.514	1.463	2.063	2.313	1.222	170	1.137	9.991	4.923
Beverages	8	5	1.771	2.324	1.163	1.951	1.439	1.710	840	631	3.917	4.287
Chemicals	15	9	1.356	1.211	1.291	1.138	717	476	362	705	2.622	2.035
Construction & Building Materials	30	30	1.210	1.093	770	871	935	755	123	245	2.799	4.090
Diversified Industrials	80	2	812	0	566	0	713	0	72	0	3.514	0
Electricity	8	8	681	1.054	622	1.220	568	577	38	242	1.547	1.789
Electronic & Electrical Equipment	28	14	1.419	882	712	802	1.261	544	389	358	4.080	2.010
Engineering & Machinery	19	21	666	1.149	593	961	469	583	247	445	2.043	2.880
Food & Drug Retailers	9	5	1.433	2.226	1.214	2.253	1.186	1.690	209	523	3.568	3.903
Food Producers & Processors	19	13	1.138	1.058	786	921	777	749	550	90	2.962	2.803
Foresty & Paper	4	1	1.283	847	1.283	847	108	0	1.206	847	1.359	847
General Retailers	19	31	775	1.137	528	1.180	882	796	45	143	3.198	3.830
Health	32	9	466	862	276	728	406	497	37	401	1.425	1.747
Household Goods & Textiles	39	2	851	1.052	611	1.052	772	686	89	567	3.344	1.537
Information Technology Hardware	33	7	1.161	524	573	551	2.466	334	7	111	12.000	993
Insurance	5	10	1.846	1.344	1.598	1.138	1.115	756	840	463	3.347	2.665
Investment Companies	4	6	1.179	1.109	819	906	814	881	683	382	2.393	2.681
Leisure & Hotels	18	25	510	1.161	374	825	450	1.121	43	137	1.296	5.456
Life Assurance	2	8	1.101	1.624	1.101	1.686	272	847	909	451	1.293	3.141
Media & Entertainment	30	31	1.563	1.535	1.748	1.214	1.070	1.032	175	156	3.647	4.495
Mining	7	9	899	1.291	87	783	1.662	1.196	31	63	3.392	3.081
Oil & Gas	42	27	871	10.983	689	930	856	47.115	142	108	3.675	227.044
Personal Care & Household Products	7	3	1.180	2.230	585	765	1.178	2.612	417	679	2.537	5.245
Pharmaceuticals and Biotechnology	22	12	1.134	1.366	544	833	1.370	1.598	154	462	5.372	5.950
Publishing	1	0	2.425	0	2.425	0	0	0	2.425	0	2.425	0
Real Estate	19	29	1.022	1.037	559	984	1.646	493	105	409	6.420	2.099
Software & Computer Services	108	26	548	926	322	730	844	488	10	215	5.627	2.198
Speciality & Other Finance	56	37	679	2.210	585	1.113	532	2.999	40	262	2.330	14.079
Steel & Other Metals	8	1	415	1.753	415	1.753	472	0	81	1.753	748	1.753
Support Services	30	60	1.039	813	843	804	910	386	54	49	3.718	2.073
Telecommunication Services	28	9	1.264	1.246	772	917	1.407	826	182	318	6.055	2.592
Tobacco	0	3	0	2.373	0	2.309	0	183	0	2.230	0	2.579
Transport	21	18	946	1.158	991	837	523	1.078	229	387	1.752	4.751
Utilities – Other	13	4	2.278	800	1.984	908	1.787	623	108	130	5.160	1.362
Wholesale Trade	3	0	0	0	0	0	0	0	0	0	0	0
TOTAL:	**819**	**500**										

Source: prepared by author using CEO Salary & Bonus data from 2005–2006 companies' annual reports.

that the high multicollinearity between some of the independent variables is not an unexpected event because of the nature of this study; however, further in this study, only one independent variable can be used. As one can see from the list of independent variables of this study, some multicollinearity is inevitable in this particular research, and variable correlations (Table 3) can confirm this statement. Although CEO time on board and CEO time in organization are interdependent in this research, it was necessary, however, to analyze whether CEO time on board or time in organization and the rest of the independent factors correlate with CEO's total salary and bonus.

It is believed that CEOs in Europe have traditionally earned less than their UK or even U.S. counterparts. Table 4 supports this statement because the dominant t value is negative, implying that CEOs in Europe throughout all the sectors earn less in comparison with their British counterparts. These analyses bring us to the conclusion that CEOs in the UK receive the highest basic salary plus bonus in comparison with European CEOs.

The hypotheses can now be explained as follows:

TABLE 3. **Variable correlations**

		LOGSALB	LOGMV	AGESQ	LNROLE	LNORG	LNBD	LNDELTA	LNOPTION	LNTotalComp
LOGSALB	Pearson's correlation	1	.631(**)	.213(**)	0,015	.200(**)	.094(**)	.472(**)	.420(**)	.858(**)
	Sig. (2-tailed)		0.000	0.000	0.577	0.000	0.001	0.000	0.000	0.000
	N	1.430	1.429	1.377	1.424	1.430	1.356	1.256	795	1.429
LOGMV	Pearson's correlation	.631(**)	1	.256(**)	-.050(*)	.198(**)	0.010	.490(**)	.488(**)	.670(**)
	Sig. (2-tailed)	0.000		0.000	0.024	0.000	0.655	0.000	0.000	0.000
	N	1.429	2.078	1.925	2.060	2.075	1.928	1.324	815	1.441
AGESQ	Pearson's correlation	.213(**)	.256(**)	1	.203(**)	.268(**)	.285(**)	.232(**)	.316(**)	.201(**)
	Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000
	N	1.377	1.925	1.929	1.915	1.927	1.795	1.293	801	1.387
LNROLE	Pearson's correlation	0.015	-.050(*)	.203(**)	1	.508(**)	.687(**)	.065(*)	-0,053	-.088(**)
	Sig. (2-tailed)	0.577	0.024	0.000		0.000	0.000	0.018	0.131	0.001
	N	1.424	2.060	1.915	2.066	2.066	1.919	1.316	811	1.434
LNORG	Pearson's correlation	.200(**)	.198(**)	.268(**)	.508(**)	1	.788(**)	.331(**)	.183(**)	.158(**)
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000
	N	1.430	2.075	1.927	2.066	2.081	1.931	1.324	815	1.442
LNBD	Pearson's correlation	.094(**)	0.010	.285(**)	.687(**)	.788(**)	1	.263(**)	0.036	0.000
	Sig. (2-tailed)	0.001	0.655	0.000	0.000	0.000		0.000	0.308	0.990
	N	1.356	1.928	1.795	1.919	1.931	1.931	1.281	808	1.367
LNDELTA	Pearson's correlation	.472(**)	.490(**)	.232(**)	.065(*)	.331(**)	.263(**)	1	.704(**)	.570(**)
	Sig. (2-tailed)	0.000	0.000	0.000	0.018	0.000	0.000		0.000	0.000
	N	1.256	1.324	1.293	1.316	1.324	1.281	1.324	815	1.267
LNOPTION	Pearson's correlation	.420(**)	.488(**)	.316(**)	-0,053	.183(**)	0.036	.704(**)	1	.568(**)
	Sig. (2-tailed)	0.000	0.000	0.000	0.131	0.000	0.308	0.000		0.000
	N	795	815	801	811	815	808	815	815	805
LNTotal-Comp	Pearson's correlation	.858(**)	.670(**)	.201(**)	-.088(**)	.158(**)	0.000	.570(**)	.568(**)	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.001	0.000	0.990	0.000	0.000	
	N	1.429	1.441	1.387	1.434	1.442	1.367	1.267	805	1.442

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Source: prepared by author using data from 2005–2006 companies' annual reports and calculations produced by SPSS14.

Hypothesis 1: *There is a positive relationship between CEO's time in role (tenure) and compensation (salary and bonus).*

In the multivariate test (Table 5), there is significant a positive relationship between CEO time in role and CEO compensation (salary & bonus). Regression of salary & bonus on CEO time in role shows the beta value of 0.139. This implies that if a CEO stays in role for an additional year, the pay (salary & bonus) of the CEO will increase by 0.139.

Hypothesis 2: *the CEO's age is positively related to compensation (salary and bonus).*

This postulation coincides with the standard labour economics argument that age should determine pay. The research results suggest that there is a positive insignificant

TABLE 4. **Descriptive statistics and independent sample t test for CEO salary & bonus**

SECTORS	N		Mean		EUR vs. UK	
	EUR	UK	EUR	UK	t	Sig. (2-tailed)
Aerospace & Defence	5	11	1.069	1.351	-0.630	0.539
Automobiles & Parts	6	5	2.288	1.057	0.929	0.377
Banks	27	9	2.462	2.514	-0.065	0.949
Beverages	4	5	1.771	2.324	-0.516	0.622
Chemicals	8	6	1.356	1.211	0.425	0.678
Construction & Building Materials	23	26	1.210	1.093	0.476	0.636
Diversified Industrials	44	0	812	0	0.000	0.000
Electricity	5	7	681	1.054	-1.112	2.292
Electronic & Electrical Equipment	9	11	1.419	882	1.188	0.261
Engineering & Machinery	12	20	666	1.149	-2.428	0.021
Food & Drug Retailers	6	3	1.433	2.226	-0.831	0.433
Foresty & Paper	2	1	1.283	847	3.287	0.188
Food Producers & Processors	13	13	1.138	1.058	0.267	0.792
General Retailers	12	24	775	1.137	-1.242	0.223
Health	23	8	466	862	-2.245	0.033
Household Goods & Textiles	26	2	851	1.052	-0.357	0.724
Information Technology Hardware	22	5	1.161	524	0.568	0.575
Insurance	4	10	1.846	1.344	0.986	0.343
Investment Companies	4	6	1.179	1.109	0.126	0.903
Leisure & Hotels	8	22	510	1.161	-1.582	0.125
Life Assurance	2	7	1.101	1.624	-0.825	0.437
Media & Entertainment	17	29	1.563	1.535	0.088	0.931
Mining	4	9	899	1.291	-0.487	0.636
Oil & Gas	29	23	871	10.983	-1.029	0.315
Personal Care & Household Products	3	3	1.180	2.230	-0.635	0.560
Pharmaceuticals and Biotechnology	16	11	1.134	1.366	-0.404	0.689
Publishing	1	0	2.425	0	0.000	0.000
Real Estate	13	26	1.022	1.037	-0.041	0.967
Software & Computer Services	63	22	548	926	-1.983	0.051
Speciality & Other Finance	27	32	679	2.210	-2.836	0.008
Steel & Other Metals	2	1	415	1.753	-2.317	0.259
Support Services	21	50	1.039	813	1.097	0.284
Telecommunication Services	17	9	1.264	1.246	0.034	0.973
Tobacco	0	3	0	2.373	0.000	0.000
Transport	12	14	946	1.158	-0.620	0.541
Utilities – Other	8	3	2.278	800	1.362	0.206
Wholesale Trade	0	0	0	0	0	0

Source: prepared by author using data from 2005–2006 companies' annual reports and calculations produced by SPSS14.

correlation between CEO age and CEO compensation. This implies that there is no evidence that with a higher age and experience budget CEOs earn more.

Hypothesis 3. *There is a positive relationship between market capitalization and CEO compensation (salary and bonus).*

As data in Table 5 indicate, there is a strong positive correlation between the market value and CEO cash compensation.

TABLE 5. **Explanatory regression for CEO salary & bonus**

Independent variable	Dependent variables			
	ln (salary and bonus)			
	(1)		(2)	
Intercept	7.074	(60.064)***	6.519	(8.238)***
ln (Market value)	0.299	(21.063)***	0.302	(19.757)***
EUR Company (Dummy)	-0.662	(-10.932)***	-0.657	(-10.523)***
UK Company (Dummy)	-0.225	(-3.562)***	-0.296	(-4.563)***
ln (CEO time in role)	–		0.139	(5.462)***
CEO Age	–		0.014	(-0.476)
CEO Age-Squared	–		0.000	(-0.459)
Aerospace & Defence (Dummy)	-0.050	(-0.259)	-0.067	(-0.345)
Automobiles & Parts (Dummy)	-0.092	(-0.451)	-0.088	(-0.445)
Beverages (Dummy)	-0.073	(-0.312)	-0.046	(-0.196)
Chemicals (Dummy)	-0.054	(-0.304)	-0.035	(-0.199)
Construction & Building Materials (Dummy)	-0.014	(-0.096)	-0.028	(-0.198)
Diversified Industrials (Dummy)	-0.131	(-0.840)	-0.189	(-1.109)
Electricity (Dummy)	-0.683	(-3.017)**	-0.656	(-2.979)**
Electronic & Electrical Equipment (Dummy)	-0.174	(-1.241)	-0.180	(-1.301)
Engineering & Machinery (Dummy)	-0.029	(-0.195)	-0.065	(-0.451)
Food & Drug Retailers (Dummy)	-0.054	(-0.224)	-0.163	(-0.701)
Foresty & Paper (Dummy)	-0.163	(-0.675)	-0.278	(-1.141)
Food Producers & Processors (Dummy)	-0.138	(-0.877)	-0.022	(-1.139)
General Retailers (Dummy)	-0.406	(-2.855)**	-0.353	(-2.503)*
Health (Dummy)	-0.393	(-2.565)*	-0.399	(-2.539)*
Household Goods & Textiles (Dummy)	-0.179	(-1.080)	-0.204	(-1.167)
Information Technology Hardware (Dummy)	-0.279	(-1.661)†	-0.174	(-1.030)
Insurance (Dummy)	0.033	(0.209)	0.033	(-0.208)
Investment Companies (Dummy)	-0.019	(-0.070)	-0.013	(-0.051)
Leisure & Hotels (Dummy)	-0.265	(-1.626)	-0.290	(-1.799)†
Life Assurance (Dummy)	-0.144	(-0.536)	-0.135	(-0.518)
Media & Entertainment (Dummy)	0.276	(1.842)†	0.256	(-1.730)
Mining (Dummy)	-0.548	(-2.810)**	-0.528	(-2.728)**
Oil & Gas (Dummy)	-0.172	(-1.276)	-0.148	(-1.074)
Personal Care & Household Products (Dummy)	-0.128	(-0.479)	-0.052	(-0.191)
Pharmaceuticals and Biotechnology (Dummy)	-0.239	(-1.555)	-0.198	(-1.294)
Publishing (Dummy)	0.102	(0.360)	0.144	(-0.524)
Real Estate (Dummy)	-0.369	(-2.414)*	-0.433	(-2.856)**
Software & Computer Services (Dummy)	-0.527	(-4.049)***	-0.527	(-3.911)***
Speciality & Other Finance (Dummy)	0.021	(0.153)	0.056	(-0.415)
Steel & Other Metals (Dummy)	-0.266	(-0.944)	-0.005	(-0.017)
Support Services (Dummy)	-0.244	(-1.805)†	-0.233	(-1.732)†
Telecommunication Services (Dummy)	-0.132	(-0.788)	-0.101	(-0.570)
Tobacco (Dummy)	-0.071	(-0.212)	-0.020	(-0.062)
Transport (Dummy)	-0.146	(-0.902)	-0.121	(-0.741)
Utilities – Other (Dummy)	-0.328	(-2.088)*	-0.305	(-1.982)*
Wholesale Trade (Dummy)	-0.742	(-1.309)	-0.664	(-1.210)
R^2	0.486		0.469	

*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.05$; † $p \leq 0.10$.

Note: t-statistics in parantheses.

Source: prepared by author using CEO salary & bonus data from 2005–2006 companies' annual reports and calculations produced by SPSS 14.

Conclusions

Fundamental discussions on CEO remuneration started as far back as in early 1950s; however, substantial results were obtained only in early 1980s. The subject started to get an extensive attention in the recent years, especially when the global financial industry has been shattered and numerous unpopular decisions have been revealed. It seems that CEOs salary & bonus remuneration before the crisis had been impressively boosted; the evolution and complexity of the pay package led to less transparency, and the hidden 'red herrings' could only signify that top executives could take too much risk in order to boost their pay. Research on CEO compensation is important for several reasons. Firstly, the incentives that are popular among the companies nowadays are likely to have an impact on managerial decision-making and overall strategy. As a result, both of these have implications on firm performance. Secondly, the consequences of compensation patterns at the CEO level are broad and substantial; they include, according to many researches, the ways CEOs evaluate the company's risk, whether they understand the consequences or the full price of the failure and whether the separate components of the total remuneration package push them, like an invisible hand, towards reckless and risky decisions. Finally, understanding CEO compensations allows not only understand the whole nature of the CEO's job, but also the strategic leadership in general.

The theoretical results show that the answer to the question on the reasons that would have the major impact on CEO compensation has several postulations. According to a number of scholars, the firm size and performance have a major impact on CEO compensation. This paper, on the contrary, attempted to demonstrate a positive relationship between CEO salary & bonus and CEO age, tenure and market value in Continental Europe and in the UK within different sectors. The results may be relevant in light of the current debate on why CEO compensation increased so much before the crisis and which factors exactly would influence this enormous shift in CEO overall remuneration. More importantly, the findings on CEO salary & bonus become even more interesting since the sample is stratified in a number of different sectors. It is clear that in some sectors, such as banking, oil & gas, the reward of CEOs is particularly high.

The positive results for the assumption that CEO compensation should be positively related to market value are not surprising, since if the value of a company is increasing, the CEO's compensation is rising accordingly. The overall effect is that firms with a high market value also reward their CEOs with a higher remuneration. These assumptions have been supported by the models adjusted in this study. However, it is important to realize that the market value not always shows the real value (or face value). As a result, in many cases we have seen that most of the projects or strategy moves have been overvalued; this, in turn, would significantly increase the pay of the CEO. This phenomenon could mislead the data on any economy and endanger its healthy and real growth.

The significant positive correlation between CEO compensation and CEO time in role could be explained by the fact that the longer a CEO stays in the role the more experience he might gain. Consequently, the company's efficiency might increase due to the experienced chief executive who, due to incentive programs and bonus schemes, receives an adequate compensation package.

Finally, CEO age has a significant negative effect in this study in relationship with CEO wealth management and the cumulative value of options held. In addition, CEO earning profiles for wealth delta (cumulative value of options held) compensation turn downward after the age of 65 (53.5). There has been no any supportive evidence that CEO age has a direct impact on CEO cash compensation and CEO total compensation.

Several conclusions emerge from these findings. First, it is useful to distinguish between CEO compensation in Continental Europe and in the UK. CEOs in the UK mostly receive a higher salary & bonus package compared with CEOs in Continental Europe. Second, the cross-sectional variation in CEO compensation across the sample shows that CEOs in the sectors Oil of and Gas, Banking, Information Technology, Personal Care and Household Products receive the highest pay.

REFERENCES

Abowd, J., Kaplan, D. (1999). Executive Compensation: Six Questions That Need Answering. Journal of Economic Perspectives, Vol. 13, issue 4, pp. 145–168.

Agrawal, A., Mandelker, G.N. (1987). Managerial Incentives and Corporate Investment and Financing Decisions. The Journal of Finance, Vol. XLII, Issue 4, p. 823.

Bebchuk, L.A., Fried, J. (2004). Pay without Performance: The Unfulfilled Promise of Executive Compensation, Harvard University Press.

Black, F., Scholes M. (1973). The pricing of options and corporate liabilities. Journal of Political Economy, Vol. 81, No 3.

Conyøn, M.J., Murphy, K.J. (2000). The Prince and the Pauper? CEO Pay in the United States and United Kingdom. The Economic Journal, Vol. 110, Issue 467, pp. 640–671.

Conyøn M.J., Core J.E., Guay, W.R. (2006). Are Us CEOs Paid More than UK CEOs? A Comparison with UK CEO Pay. Available at SSRN: http://ssrn.com/abstract=907469

Core, J., Holthausen, R., Larcker, D. (1999). Corporate Governance, Chief Executive Officer Compensation, and Firm Performance. Journal of Financial Economics, Vol. 51, pp. 371–406.

Cuny C.J., Philippe, J. (1995). Valuing executive stock options with endogenous departure. Journal of Accounting & Economics, Vol. 20, pp. 193–205.

Economist (2007), The Politics of Pay, 24 March, pp.79–80.

Elhagrasey, G.M., Harrison J.R., Buchholz, R.A. (1999). Power and pay: the politics of CEO compensation. Journal of Management and Governance, Vol. 2, pp. 309–332.

Fox, H. (1980). "Top Executive Compensation 1980 Edition". A Research Report from Conference Board.

Grossman, W., Hoskisson, R.E. (1998). CEO pay at the crossroads of Wall Street and Main: Towards the strategic design of executive compensation. The Academy of Management EXECUTIVE, Vol.12, pp. 43–57.

Hill, C.W.L., Phan, P. (1991). CEO tenure as a determinate of CEO pay. The Academy of Management Journal, Vol. 34, pp. 707–717

Hull, J.C. (2006). Options, Future, and other Derivatives. Prentice Hall Upper Saddle River.

Jensen, M.C., Murphy K.J., Wruck, E.G. (2004). Remuneration: Where we've been, how we got to here, what are the problems, and how to fix them. Harvard NOM Working Paper No. 04-28; ECGI – Finance Working Paper No. 44/2004. Available at SSRN: http://ssrn.com/abstract=561305

John, T., John, K. (1993). Top-management compensation and capital structure. Journal of Finance, Vol. 48, Issue 3, pp. 949–974.

Kahn L.M., Sherer, P.D. (1990). Contingent pay and managerial performance. Industrial and Labor Relations Review, Vol. 43, Issue 3, pp. 107(S)–120(S)

Lawler, E. (1981). Pay and Organizational Development. Reading, Mass.: Addison-Wesley.

Leonard, J.(1990). The effect of bonus schemes on accounting decisions. Journal of Accounting and Economies, No. 5, pp. 3–30.

19. McKnight, P.J., Tomkins, C., Weir, C., Hobson, D. (2000). CEO age and top executive pay: A UK empirical study. Journal of Management and Governance, Vol. 4, Issue 3, pp. 173–187.

Mendenhall, W. (1983). Introduction to Probability and statistics, Duxbury Press, pp. 624–628.

Miller, D.J. (1995). CEO salary increases may be rational after all: Referants and contracts in CEO pay. Academy of Management Journal, Vol. 38, Issue 5, pp. 1361–1385.

Murphy, K.J. (1999). Executive compensation. In: Handbook of Labor Economics (Volume 3), edited by O. Ashenfelter and D. Card, North Holland, Amsterdam.

Randøy, T., Nielsen, J. (2002). Company performance, corporate governance, and CEO compensation in Norway and Sweden. Journal of Management and Governance, Vol. 6, pp. 57–81.

24. Sykes, A. (2002). Overcoming poor value executive remuneration: resolving the manifest conflicts of interest. Corporate Governance an International Review, Vol. 10, pp. 256–260.

Wallace N. Davidson III, Nemec, C., Worrell D.L., Lin, J. (2002). Industrial origin of CEOs in outside succession: Board preference and stockholder reaction. Journal of Management and Governance, Vol. 6, pp. 295–321.

Webster, M. (2005). The Director's Handbook; Your Duties, Responsibilities and Liabilities. An Institute of Directors Publication, p. 68.

Wright, P., Kroll, M. (2002). Executive discretion and corporate performance as determinants of CEO compensation, contingent on external monitoring activities. Journal of Management and Governance, Vol. 6, pp. 189–214.