Determinants of CEO Compensation: An Empirical Study of the FTSE 100 companies

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Abstract: Chief executive officer (CEO) compensation is a sensitive area and a controversial issue in corporate governance; as critics assert CEOs are paid excessively and thus they maintain strategies to maximize self-returns rather than the interests of shareholders. This paper will investigate the major determinants of variations in CEO compensation among FTSE 100 companies. Amongst the determinants board structure is revealed to be the most power determinant in the variation of the CEO pay whereas, firm performance as a determinant has shown almost no relation to the CEO compensation with significance levels of at least 2% (t-stat).

Keywords: Chief executive officer (CEO) compensation, Executive compensation, pay effectiveness, Financial performance.

I. Introduction

Chief executive officer (CEO) compensation is a sensitive area and a controversial issue in corporate governance; creating a great deal of attention over the past decades. Academics, shareholders, business media, regulators and even politicians are questioning the appropriateness of CEO compensation among firms (Murphy & Jensen, 2018; Pandher & Currie 2013; Clarke et al. 2018); which indicates the failure of regulations and corporate governance to restrain excessive CEO compensation. Critics assert CEOs are paid excessively, thus they maintain strategies to maximize self-returns (such as profit maximization) rather than interest of shareholders (value creation, survival). The current study aims to empirically asses the determinants of CEO compensation among FTSE 100 companies, over a five-year period. Based on agency theory, performance-based compensation is considered to be the major factor for aligning CEOs’ and shareholders’ desired goals while benefiting the firms, their owners and the CEOs as well. (Gerhart et al., 2009). Prior research on corporate governance literature suggests that performance-based compensation can be a powerful governance tool depending on the design of the particular incentive components that determine the compensation. (Bebchuk and Fried, 2003 and McGuire et al., 2017). However, such financial incentives may not necessarily sway CEOs to act in the best interests of the shareholders (Clarke et al.; 2018, Sikka 2018), as it may lead to fraudulent reporting of the firm’s performance (Shan & Walter, 2016) as well as excessive risk taking (Sanders & Hambrick, 2007). Moreover, literature on effect of firm’s performance on executive compensation offers a mixed view, some show a positive correlation (Coles et al., 2006; Cambini et al., 2015) whereas some show a weak effect (Gregg et al., 2005; Parthasarathy et al., 2006). Thus, the need for further research on other factors that influence CEO pay.

Most of the research on this area has been done with focus on American companies as well as studying companies in the same industry with very few studies done based on European countries. There is a lack of studies focusing on British companies and more specifically on the FTSE 100 index. This study contributes to the literature in the following ways: it examines FTSE 100 companies which are considered to have strong corporate governance, including companies from ten different industries. It also adds a look at the effect on board structure and firm size on CEO compensation.

This paper proceeds as follows. Section 2 contains literature on three major variables, namely, firm performance, firm size and board structure and their relationship to CEO compensation. Section 3 contains the description of methodology and data chosen. Section 4 discusses and reports the findings of the empirical analysis. Finally, Section 5 concludes the paper, describing limitations of the study, the implications of the results and recommendations.
II. Literature Review & Hypothesis Development

2.1 Firm Performance and CEO Compensation

The link between firm performance and CEO compensation has been one of the most broadly researched and studied issue in corporate governance. Over 250 studies in the past two decades have suggested the relationship between firm performance and CEO compensation is a result of agency theory (Grossman & Hart 1983; Iqbal et al. (2019)). However, recent studies suggest that corporate governance based on agency assumptions now seem to be outdated, failing to regulate the undesired effect of the agency problem (Gendron, 2018). Jensen and Meckling (1976) discusses the problem of trust among the principals (shareholders) and agents (managers), since principals have no control of day to day activities and decision making. Hence agency theory, payment contracts should be constructed making the interests of principals and agents align; since it solves the problem of agency theory and therefore performance begin a determinant. Specific performance measures selected determine the influence of CEOs’ actions to maximize the rewards thus determining the CEOs’ prioritizations (O’Connell and O’Sullivan, 2014).

Jensen and Murphy (1990) empirically studied the correlation between CEO compensation and firm performance using an enormous sample among US firms throughout 1974 to 1986. Result exhibited a progressive and substantial statistical link between CEO compensation and firm performance. The study also found out a low sensitivity between CEO compensation and shareholders’ wealth which could not suggest agency theory. Studies such as Shao (2018); Pillai and Al-malkawi, (2017) discovered a strong connection between the CEO compensation and ROA of companies in china and GCC countries. They reveal that; if a company is experiencing increased ROA, CEO pay is likely to increase enormously. Similarly, Ismail, Yabai&Kand Hahn (2014) revealed CEO compensation will increase, if ROA & ROE (performance measures) demonstrated any form of increases. In contrast to the arguments. Fleming &Stellios (2002); Shah, Javed& Abbas (2009), stated firm performance does not play any role in CEO compensation; since most large and listed firms’ employ highly educated and qualified individuals who require higher compensations. A recent study on the effect of a firm’s prestige on CEO compensation supports the previous argument because CEOs are willing to trade off monetary compensation to work in a prestigious company (Focke, F., Maug, E., Niessen-Ruenzi, A. 2017). Coherent with the previous studies, the following hypotheses are formulated:

H1: Ceteris paribus, there is a positive association between the CEO compensation and firm performance.

H2: Ceteris paribus, there is a negative association between the CEO compensation and firm performance.

2.2 Firm size and CEO Compensation

Academic literature has well-established that firm size is highly correlated to CEOs compensation. Chalmers, Kohl and Stapledon (2006), larger firms mostly demand CEOs with high qualifications, skills and with diverse characteristics compared to smaller firms, hence the pay quality and quantity of larger firms being hefty. Tosi, Werner, Katz and Gomez (2000), revealed that CEO pay and the firm size are positive correlated, which was indicated by efforts CEOs’ tend to put in maximizing the firm either through increase in sale or total assets, since their pay tend to increase as the firms expands. Correspondingly, Zhou (2003) estimated the CEO compensation and firm size elasticity, she found out for each 10% increase in company sales the cash compensation for the CEOs’ increases by at least 2.5%. Surprisingly, she also revealed 15% to 25% a greater sales elasticity of CEO compensation for larger firms than small firms. In addition, Hallcock&Torok (2010) studied the US public companies and found out, the median salary of the largest 10% ($10.2m) companies was twice time more than of those smallest 10% ($878,000). Nevertheless, Gabaix and Landier (2008) revealed weak relationship than that suggested in earlier studies; and argued variation in organizational size does not mainly affect CEO compensation, however factors such as CEO tenure and duality. Following the studies, it can be hypothesized that:

H2: Ceteris paribus, there is a significant positive association between CEO compensation and firm size

H20: Ceteris paribus, there is a significant negative association between CEO compensation and firm size.

2.3 Board structure and CEO compensation

Ghosh and Sirmans (2005) the primary functions of the board of directors is to protects the shareholders’ interests against those of the managers and aligning the interest conflicts to attain mutual benefits and avoid principal-agent problems. The board also monitors CEOs and other top executives, which includes hiring, firing and setting remunerations. Ciftci et al., (2019) identifies two major characteristics of the boards are considered crucial in setting and monitoring the CEO compensation, which are the proportion of non-executive directors and board size.

The proportion of non-executive directors in the company has demonstrated a strong relation; studies such as sing et al (2018) have suggested companies with a larger proportional of non-executive directors lead to negative influence on CEO compensation increase. Since they are more likely to be independent of CEOs and would make unbiased judgment on the quality of the CEO and provide efficient and effective compensation,
hence restraining excessive pay growth. They also stated, insider-dominated boards would exhibit pay increase year to year due the CEOs are more likely to influence the inside directors career progression in the company. Correspondingly, Bebchuck & Fried (2003) indicated insider-directors believe their career advancements is on the hand of the CEOs; thus, they tend to overlook compensation contracts of CEOs, which could lead to suboptimal contracts for example overcompensation. Furthermore, researchers have found board size is strongly linked with CEO compensation (Lee and Chen, 2011) as the board size increase CEO compensation is deemed to increase since the board becomes ineffective and more prone to CEOs influence and manipulation. Additionally, with large board of directors it becomes difficult to create alliance opposing company CEOs (Cahan, Chua and Nyamori 2011). Moreover, well governed firms with strong boards can have the ability to pay CEOs less (Focke, F., Maug, E., Niessen-Ruenzi, A. 2017, Owen and Temesvary, 2018). Consistent with these studies, the hypotheses below were formed:

H3a: Ceteris paribus, there is a positive relationship between the CEO compensation and the board structure.

H3b: Ceteris paribus, there is a negative relationship between the CEO compensation and the board structure.

III. Methodology

3.1 Research approach
Quantitative approach was employed, which involves examining the relationship among variables, which emphasizes on quantification of data when collecting and analysing through deductive approach (Creswell, 2013). The method was used over qualitative since the aim of the research was to detect the relationship between CEO compensation, firm performance, firm size and board structure. Moreover, the method enabled describing and discovering how common these variables are interconnected while using statistical procedures. Whereas, employing qualitative method it would be difficult to demonstrated and assess measures, statistical validation and data rigidity. Besides, major studies in the area (for example, Wells A. K., Stuebner, E. J., (2018). Jensen & Murphy (1990); Tosi et. al., (2000) utilized quantitative approach to demonstrate the relationships; hence the researcher found the approach appropriate.

3.2 Research design
Bryman (2016) survey design is a numerical description of trend from the sample population studies. The study adopted a cross sectional design, since it could work with different variables, population groups and determine the association patterns of the study.

3.3 Variable Description
Dependent Variable
CEO compensation has been used as a dependent variable which is measures by total base salary, bonuses, Long-term Incentives Plan (LTIP) and stock options; similar practice has been employed in numerous studies examined in the literature review.

Determinants of CEO compensation
Firm performance measures employed was being in line with studies of (Iqbal et al., 2019); where ROE (Net income/Equity) and ROA (Net income+Interest/Assets) were used. Size of the firm the variable was employed, since majority of research papers such as Zhou (2003) used total sales as a form of measurement; while Paniagua et al., (2018) used total assets to find the relationship. Moreover, board structure was employed as it is a vital player of corporate governance; major papers such as Bebchuck & Fried (2003); Paniagua et al.,
(2018) used both board size and proportional of non-executive directors to determine the relation with CEO compensation.

3.4 Data collection & Data Analysis

The study used secondary data from ten corporations listed on FTSE 100 companies’ index during the period of 2013-2017 across various industries; see appendix-1 table-1.1. Brace (2008) secondary data is data collected by a third party previously and can be assessed by other researchers. Though secondary data could be termed risky due to incompleteness and biasness, it was difficult to employ primary data, data gathered directly (first-hand) from the sources (Creswell, 2013). The choice was based on the time constraints and limited resources involved in attain primary data. Nonetheless, secondary data enabled the study to acquire large amount of data; providing generalized and reliable findings. Furthermore, the data was gathered from reliable websites, annual reports and databases such as FAME, LSE, Financial Times and Bloomberg; since official statistics are acknowledged to be useful and reliable as they either gathered by finance bodies or government bodies, and they also include longer period data. The study employed triangulation to guarantee the validity and reliability of data employed; by comparing data from the different sources (such as Annual report & FAME; LSE & Financial Times). Additionally, data collected was analysed by employing inferential and descriptive statistics; inferential statistics was conducted by utilizing the Excess linear regression (Analysis ToolPak) while employing a simple straight-line equation (Y=a+bX), providing correlation coefficient and P values between the variables, thus the relationship among them. Descriptive analysis displayed the fundamental information on CEO compensation and the determinants (in terms of measures).

IV. Data Analysis & Findings

4.1 Descriptive statistics

Table 4.1 demonstrates the summary of the sample firms from 2013-2017, displaying both dependent and independent variables. During these years, average compensation of a CEO was just over £4m including bonuses, LTIP and stock options. Throughout the period FTSE 100 companies maintained average sales and assets amounting at least £89.5m and £136.4m. The average board included 11.5 members with maximum 16 and minimum 8 members with average of 68% independent directors. These findings correspond to Core and Larcker (1999) who found a mean board size of at least 13 members with 70% independent directors. Moreover, average ROA and ROE of the total sample was 11.20% and 39% these low averages could indicate these corporations maintain high leverage and earning more through M&A activities.

<table>
<thead>
<tr>
<th></th>
<th>CEO</th>
<th>ROA</th>
<th>ROE</th>
<th>T-Assets</th>
<th>T-Sales</th>
<th>Prop Non-Exec Dir</th>
<th>B-Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>543,000</td>
<td>-16.85%</td>
<td>-19.18%</td>
<td>4,412,000</td>
<td>1,786,900</td>
<td>0.46</td>
<td>8</td>
</tr>
<tr>
<td>Max</td>
<td>11,601,000</td>
<td>162.00%</td>
<td>290.15%</td>
<td>1,402,983,000</td>
<td>1,402,983,000</td>
<td>0.85</td>
<td>16</td>
</tr>
<tr>
<td>Mean</td>
<td>4,185,135</td>
<td>11.20%</td>
<td>39.30%</td>
<td>136,488,786</td>
<td>89,552,992</td>
<td>0.68</td>
<td>11.5</td>
</tr>
<tr>
<td>Std.Deviation</td>
<td>3,163,542</td>
<td>0.236</td>
<td>0.530</td>
<td>316,707,865</td>
<td>226,321,444</td>
<td>0.090</td>
<td>2.166</td>
</tr>
<tr>
<td>Skewness</td>
<td>1.015</td>
<td>5.425</td>
<td>2.770</td>
<td>2.971</td>
<td>2.887</td>
<td>-0.418</td>
<td>0.055</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-0.186</td>
<td>33.954</td>
<td>9.733</td>
<td>7.990</td>
<td>7.006</td>
<td>0.060</td>
<td>-1.084</td>
</tr>
</tbody>
</table>

Source: Author’s Analysis

4.2 Firm performance and CEO compensation

The table below exhibits negative relationship between firm performance (ROA & ROE) and CEO compensation; due high p values that accept the null hypothesis. These results could be an outcome of the lower LTIP, stock holdings and options holdings offered to CEOs in the UK; compared to countries such as the USA and Japan (Aggrawal&Samwick 2003; Kato and Kubo 2006) where CEOs are offered very high holdings. These findings challenge the agency theory and imply there could be many others factors that determine CEO compensation. For example, it could be political influence age, tenure or role duality of the CEO. Duffhues and Kabir (2008) stated that CEOs are rewarded with high compensation in order to maintain, attract and form good relationship with the company and not based on corporate performance. Similarly, Langsama and Newell (1999); Shah, Javed& Abbas (2009) found no relation (statistics significance), hence concluded CEO compensation is not correlated with corporate performance. Additionally, Michaud and Gai (2009) used six different payment type and found ROE and ROA has insignificant impact on CEO compensation.
4.3 Firm Size and CEO Compensation

The study revealed two different results by employing different measurements see table 4.3. Sales as a variable for firm size revealed a negative relationship with CEO compensation, providing a negative correlation and a very high p value of 7; challenging studies such as Zhou (2003). Nevertheless, assets revealed a positive relationship (t=4.17, p=0.000126) with CEO compensation maintaining a positive correlation. Reasons for these could be large companies require highly competent and knowledgeable individuals due the complicated structure of the companies; hence compensating them more than in small firms. Moreover, most of the FTSE 100 companies are global companies with excess resources and can afford high salaries to their CEOs.

Table 4.2. Regression Analysis on Firm Performance and CEO compensation

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>P-value</th>
<th>Lower 95%</th>
<th>Upper 95%</th>
<th>Lower 95.0%</th>
<th>Upper 95.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>3766587.021</td>
<td>606693.1295</td>
<td>6.21168567</td>
<td>1.2862E+13</td>
<td>2548077.872</td>
<td>2548077.872</td>
<td>4989096.169</td>
</tr>
<tr>
<td>ROA</td>
<td>31137.8865</td>
<td>19586.01077</td>
<td>1.58980238</td>
<td>0.298671277</td>
<td>-8264.08464</td>
<td>70359.8579</td>
<td>70359.85787</td>
</tr>
<tr>
<td>ROE</td>
<td>5024.348964</td>
<td>8728.997034</td>
<td>0.57559293</td>
<td>0.56763617</td>
<td>-12536.12809</td>
<td>22584.8262</td>
<td>22584.82602</td>
</tr>
</tbody>
</table>

Source: Author’s Analysis

Table 4.3. Regression Analysis Firm Size and CEO Compensation

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>P-value</th>
<th>Lower 95%</th>
<th>Upper 95%</th>
<th>Lower 95.0%</th>
<th>Upper 95.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>4095796.005</td>
<td>442942.8247</td>
<td>9.2467826</td>
<td>0.000237686</td>
<td>3204709.979</td>
<td>3204709.979</td>
<td>4986882.03</td>
</tr>
<tr>
<td>Total Sales</td>
<td>-0.05573689</td>
<td>0.012784709</td>
<td>-4.3569524</td>
<td>0.00001264</td>
<td>-0.081456403</td>
<td>-0.081456403</td>
<td>-0.03001737</td>
</tr>
<tr>
<td>Total Assets</td>
<td>0.038174762</td>
<td>0.009136034</td>
<td>4.17848307</td>
<td>0.00012645</td>
<td>0.019795433</td>
<td>0.019795433</td>
<td>0.056554091</td>
</tr>
</tbody>
</table>

Source: Author’s Analysis

4.4 Board Structure and CEO Compensation

Table 4.4 displays the findings of the regression analysis where board size and proportion of non-executive directors (board structure) are significant at a 6% level (t= 2.16, p= 0.0035; t= 3.95, p= 0.00025) rejecting the null hypothesis. It can be observed the proportion of independent directors and CEO compensation have demonstrated a positive relationship; which implies by having a large proportion of independent directors the CEO compensation would not increase excessively and unreasonably. A possible explanation for this positive correlation could be the fact that, CEOs have almost no power when it comes to the decision who would be in the board as a non-executive director. Unless the CEO, also maintains the title of chairman on the board; successively the CEO can influence or even manipulate the decision to solicit independent board members. Similar findings were exhibited by (2018) stating independent directors are unbiased, experienced and their career progression does not depend on CEO influence; thus, they will ensure CEO pay is controlled and rational.

Table 4.4. Regression Analysis Board Structure and CEO Compensation

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>P-value</th>
<th>Lower 95%</th>
<th>Upper 95%</th>
<th>Lower 95.0%</th>
<th>Upper 95.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-12097215.44</td>
<td>3718559.693</td>
<td>-3.253199207</td>
<td>0.002116425</td>
<td>-19577992.63</td>
<td>-19577992.63</td>
<td>-4616438.257</td>
</tr>
<tr>
<td>Board Size</td>
<td>397709.3596</td>
<td>183962.3791</td>
<td>2.161909537</td>
<td>0.035749472</td>
<td>27624.78848</td>
<td>767793.931</td>
<td>767793.9307</td>
</tr>
<tr>
<td>Prop of Non-Exec Dir</td>
<td>17490066.31</td>
<td>4417253.007</td>
<td>3.959489367</td>
<td>0.000253034</td>
<td>8603699.478</td>
<td>26376433.1</td>
<td>26376433.15</td>
</tr>
</tbody>
</table>

Source: Author’s Analysis

5.1 Effect of Firm performance on CEO compensation (H1)

The results from the study on the FTSE 100 companies exhibits a weak relationship between firm performance (specifically ROA and ROE) and CEO compensation that corresponds with other findings from other studies which focuses on prestigious firms such as that on the American Most Admired Companies (MAC) (Focke, F., Maug, E., Niessen-Ruenzi, A. 2017, Parthasarathy et al., 2006). These results support the argument that there are more factors that determine CEO compensation. Therefore, even though CEO compensation where remuneration is tied to ROA and ROE improves performance in generally smaller and less known companies, other factors play a more significant roles in determining CEO pay in large and prestigious firms. CEOs working in these firms increase their social status and future career prospects thus they are more willing to accept lower monetary compensation as a trade-off. (Focke, F., Maug, E., Niessen-Ruenzi, A. 2017).

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Effect of Firm Size on CEO Compensation (H2)

The study reveals a positive correlation when using assets as a measure of a firm’s size (t=4.17, p=0.0000126), considering these are large firms with massive assets and resources compared to smaller firms. These findings correspond with results of Gabiux and Landier (2008), stating an economic theory that CEOs from large firms have increased experience and developed talent than CEOs in smaller firms; therefore, the disproportion in salaries. Correspondingly, Rosen (1992) found due to the in-market equilibrium CEOs believed to be most talented mostly occupy top position in large corporation; where their productivity is highly magnified leading to hefty payments compared to CEOs in small or medium sized firms. This in market equilibrium has provided theoretical background for the positive correlation between firm size and CEO pay; evidenced by studies of researcher such as (Kostiuk 1990; Zhou 2000) who propose these two variables are positively correlated and their relationship has been steady over years.

Effect of Board Structure on CEO Compensation (H3)

The results reveal that effect of board size and proportional of non-executive directors (board structure) are significant at a 6% level (t=2.16, p=0.0035; t=3.95, p=0.00025). It supports the argument that by having a large proportion of independent directors the CEO compensation would not increase excessively and unreasonably. We conclude that this positive correlation results from the strength and effectiveness of independent boards, which give the CEOs almost no power and influences on the when it comes to the decision made by the board of directors. Unless the CEO, also maintains the title of chairman on the board; which means the CEO can influence or even manipulate the decision to solicit independent board members. This poses another factor to be considered in such situations where the CEO duality. Furthermore, CEO compensation and the board size have a significant positive correlation implying that firms with large boards do pay high compensation to their CEOs. These results could be a consequence of the sub-groups formed in larger boards; thus, becoming ineffective, inefficient and easily manipulated by CEOs. These results are consistent to Lee and Chen (2011) stating large corporate board become chaotic and challenging in managing and controlling, hence undoubtedly influenced by CEOs.

VI. Conclusion & Recommendations

The study aimed to investigate the determining factors of the CEO compensation among FTSE 100 companies. The linear regression model identifies that firm size and board structure are significant and positive related to the changes in the CEO compensation. Nonetheless, amongst these determinants board structure is revealed to be the most power determinant in the variation of the CEO pay. While firm performance as a determinant has shown almost no relation to the CEO compensation with significance levels of at least 2% (t-stat). From the findings, firms are recommended to maintain large percent of non-executive directors; as to obstruct CEO’s from using power to influence or manipulate the board of directors by regulating issues such as career advancement of the board members. This way the board will be able to work effectively in monitoring and controlling CEO compensation, since they are less likely to be subjected to CEO influence. This is consistent with actual practices where executive salary and benefits are provided as non-performance-based rewards and bonuses are provided as a variable component. The finds provide practical value to both shareholders, and CEOs as well as boards of directors in understanding how to structure compensations to motive CEOs to pursue corporate objectives.

Ultimately, the interaction between CEO compensation and corporate governance is an area for more research; such as the relationship CEO compensation and shareholders, and the consideration of more factors such as CEO duality.

References:

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