CHIEF EXECUTIVE OFFICER COMPENSATION AND THE EFFECT ON COMPANY PERFORMANCE IN A SOUTH AFRICAN CONTEXT

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ABSTRACT

The goal of this research was to determine, in a South African context, whether there is any correlation between chief executive officer compensation and the performance of the company. For the purposes of the research, the compensation of chief executive officers was broken down into three components: salary, bonus and "other" remuneration, while company performance was measured on return on equity, return on assets and earnings per share figures. Studies on this topic have been carried out in other countries, most notably in the United States of America and the United Kingdom. It appears that no research of a similar nature has been carried out in South Africa.

Data in respect of the forty largest listed companies in South Africa were collected over a period of five years. The econometric models used for the research were based on models identified in the literature study. The data were then analysed for evidence of a correlation between chief executive officer compensation and the performance of the company. The results of this study indicate that there is no linear relationship between chief executive officer compensation and company performance variables. The econometric models did, however, show correlations between certain variables, taking into account the other predictor variables in the model. Evidence of correlations between age and experience and compensation was also found, which may present potential avenues of research to scholars in the future.

Key words: Chief executive officer (CEO) compensation, remuneration, company performance, agency theory, managerial incentives

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"True leadership must be for the benefit of the followers, not the enrichment of the leaders."

Robert Townsend (1920 – 1998)

CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND

Executive compensation has been in the limelight recently and often for the wrong reasons (Ozkan: 2007). The financial crisis of 2008 has led to many national recessions, as well as retrenchments and other cost-cutting measures at companies. This situation has increased the awareness of the general public of the pay-cheques of the rich and powerful (Bognanno: 2010), with more and more fingers being pointed at these "outrageously high salaries for executives" (Sharma & Smith, 2001:7). South Africans were reminded of this in July 2011 when a petroleum workers' strike caused fuel shortages. The strike took place to "protest against massive pay hikes of the executives at Sasol" (Khuzwayo & Matomela, 2011:1).

The amount of legislation dealing with executive compensation has also increased (Morrissey: 2009). In America the Troubled Asset Relief Program instituted legislation in an attempt to halt the increase in executive compensation, with measures such as "say on pay" resolutions (non-binding advisory votes from shareholders) and increased disclosure requirements being instituted (Kim: 2010). Companies in South Africa are regulated by the King Code of Governance Principles and the King Report on Governance (2009) ("King III"), as well as the Companies Act 2008 (Act No. 71 of 2008) ("Company Act 2008").

Much criticism has been levelled at companies (and their remuneration committees in particular) for the increases in executive compensation in the face of disappointing financial results (Grunditz & Lindqvist: 2003). Ozkan (2007) stated that it is widely felt that the link between executive compensation and company performance is not strong enough, meaning that directors receive their compensation regardless of the results of the company. As stated by former American Securities Exchange Commission chairman Mr Andrew Levitt, the "single greatest impediment to the restoration of confidence in corporate America is continuing instances of extravagant non-performance-based compensation" (Levitt, 2004:1).

It is in this current economic climate that the present research is relevant. Research on Chief Executive Officer (CEO) pay has grown even faster than actual CEO pay (Murphy: 1999), and it is to this body of knowledge that this research attempts to add. South African disclosure requirements have increased due to the release of the King Code of Governance Principles and the King Report on Governance in 2009 (Temkin: 2009), and consequently the data necessary for this research should be readily available from companies' annual reports.

1.2 LITERATURE SURVEY

The aim of this research is to determine whether there is a correlation between CEO compensation and the performance of a company. International studies have been carried out on the same topic, with most studies finding no link between the two variables. Most of the research has been done in the United States of America (USA) and the United Kingdom (UK). Studies in the USA that have focused on the relationship between compensation and performance include Lambert and Larcker (1987), Jensen and Murphy (1990), Murphy (1999), Baber, Kang and Kumar (1999) and Ofek and Yermack (2000).

In the United Kingdom Conyon, Gregg and Machin (1995), Gregg, Jewell and Tonks (2005), and Girma, Thompson and Wright (2007) found weak relationships between compensation and performance, although Ozkan (2007:4) found "a positive and significant relationship" between CEO compensation and firm performance. A study in Sweden by Grunditz and Lindqvist (2003) showed no link, while a Danish study by Eriksson and Lausten (2000) showed a weak link between executive compensation and company performance. A study in Australia and Canada by Sharma and Smith (2001:6) failed to find a "robust relationship" between company performance and base salary growth.

Swartz and Eitzen (2011:3) stated that even though an increase in disclosure requirements in South Africa has resulted in more information being available regarding executive remuneration, South African researchers have "seemingly ignored this previously unavailable information." It is due to the availability of data, and the particular scarcity of such research in South Africa, that this research is undertaken.

The table below provides a brief summary of some of the previous studies conducted on the correlation between CEO compensation and company performance which are similar to the present study.

Table 1: A summary of previous studies on a similar topic, including the author(s), the country of research and the year of publication

Study no.	Title	Author(s)	Country	Year
1	Accounting earnings and top executive compensation	Sloan	USA	1992
2	Executive Compensation	Murphy	USA	1999
3	Managerial pay and firm performance	Eriksson and Lausten	Denmark	2000
4	CEO pay, firm size, and corporate performance: evidence from Canada	Zhou	Canada	2000
5	CEO compensation and company performance	Grunditz and Lindqvist	Sweden	2003
6	CEO compensation and firm performance: An empirical investigation of UK panel data	Ozkan	UK	2007
7	Directors' remuneration and performance in Australian banking	Doucouliagos, Haman and Askary	Australia	2007
8	Executive pay and firm performance in the Philippines	Unite, Sullivan, Brookman, Majadillas and Taningco	Philippines	2008
9	Executive pay dispersion, corporate governance, and firm performance	Lee, Lev and Yeo	USA	2008
10	An empirical evaluation of the level and mix of CEO compensation in South Africa	Swartz and Eitzen	South Africa	2011

(Own design)

1.3 GOAL OF RESEARCH

The goal of the research is to determine, in a South African context, whether there is a correlation between CEO compensation and the performance of the company. If such a correlation does exist, the secondary goal of the research is to analyse the effect that CEO compensation has on the performance of a company. The specific aims of the research are as follows:

- to determine whether there is a correlation between CEO compensation and company performance;
- to determine whether the relationship between CEO compensation and company performance is influenced by the industry in which the company operates;
- to determine whether variable compensation (for example bonuses) affects the performance of the company;
- and to determine whether CEO compensation is affected by variables such as the age and experience of the CEO.

1.4 RESEARCH METHOD AND DESIGN

A literature survey was carried out in order to identify the methodology that other researchers have applied in their research on the question to be addressed in the present research. This was used to design the methodology to be applied in the present research. Using a similar methodology facilitated both a comparison with other studies, as well as providing assurance that the methodology used in the present research is statistically sound.

As all the data for the present study are in the public domain, no ethical considerations arise.

1.4.1 Sample selection procedure

The research utilized the forty largest publicly listed companies on the Johannesburg Stock Exchange (JSE), measured by market capitalization on the 18th March 2010. The reason for selecting these companies as the sample is that because they are listed on the JSE, they are required to follow JSE listing requirements, and will therefore disclose the data that are needed for the study. Despite the fact that only the forty largest companies have been included in the sample, these companies have a combined market capitalisation of 66.70% of the total JSE capitalisation. It is therefore concluded that this is a large enough proportion of the total capitalisation to be sufficient for the research.

The size of the company studied, and the possible effect that this would have on the compensation of the CEO, was deemed to be beyond the scope of this research topic. The fact that all the companies selected are large companies would therefore address the problem of company size as a threat to the validity of the research.

1.4.2 CEO compensation variables

Data was obtained from the companies' annual reports regarding compensation paid to CEOs of the companies selected. Despite the fact that this information is provided by the company itself and could therefore be manipulated, it is assumed that the fact that these annual reports have been audited reduces the risk of misstatement to an acceptable level. Data was retrieved from the annual reports and categorized using the Microsoft Excel software program. Where figures are provided in a foreign currency, they were converted using the average exchange rate for that year. Other variable data which could affect CEO compensation, such as the age of the CEO and length of time the CEO has served in that capacity, were obtained and analysed for correlation to both company performance and CEO compensation.

Due to strict disclosure requirements in South Africa, companies are forced to disclose CEO and board members' compensation. It was hypothesized that certain components of CEO compensation would have a stronger correlation with company performance than others and it would therefore be appropriate to separate CEO compensation into separate components.

"CEO compensation is defined as the sum of base pay, bonuses, stock grants, stock options, other forms of compensation and benefits" (Bognanno, 2010:2). Based on past research, the components of CEO compensation to be analysed in the present research were split into four categories, consisting of base salary, bonus, benefits and long-term incentives. This decision was influenced by Sharma and Smith (2001:2), who stated that:

> [c]onsequently, executive compensation is constituted of three key components: cash compensation, typically consisting of a salary and bonus; a variety of perquisites and supplementary benefits such as insurance, club memberships, and other noncash rewards; and long-term incentives, which may include various forms of stock options and deferred compensation.

These components, identified by the researchers, were incorporated into this study, with the only difference being that a distinction was made between the salary and bonus components. The present research assumes that bonus pay will be more elastic than fixed salary and that it should therefore be separately analysed. Murphy (1999) separates executive compensation into these same four components (salary, bonus, other payments and long-term payments) in his study on executive compensation.

a) Salary

Any fixed remuneration received during the year was included in the subtotal reflecting the salary. Director's fees, cash remuneration and any form of guaranteed compensation were also included.

b) Bonus

Short-term bonuses were deemed to include any unguaranteed forms of compensation. The salary was analysed separately from the bonus, as the bonus element of compensation is more likely to be dependent on performance than the salary element. All bonuses due in less than twelve months were categorized as 'short term,' and included as part of this component of remuneration.

c) "Other" Remuneration

As stated by Levitt (2004), many companies try to disguise the actual compensation paid to executives by including fringe benefits (such as corporate jets) in their compensation. This study aims to include these benefits in the research. "Other" remuneration includes all non-cash rewards, such as insurance payments, club memberships, retirement contributions and payments, contributions to defined contribution plans, pension contributions and any other benefits paid by the company on behalf of its Chief Executive Officer.

d) Long-term options

Currently there are various different long-term options or share schemes used by companies to reward their executive team. Calculating the value of options and shares awarded during a year, and putting the data into a standard format, is beyond the scope of this research. Most other research on this topic has excluded the value of long-term options from the data set. By excluding it from the present research, the findings are more readily comparable to other research. A study by Tower Perrin showed that with regard to CEO remuneration in the USA, stock options had fallen from 38% of total CEO remuneration in 2004 to 23% in 2008, making them less relevant to the study of CEO remuneration as time progressed (Farmer: 2008).

1.4.3 Company performance variables

Company performance is either measured using stock market indicators or accounting earnings measures (Eriksson & Lausten: 2000). In order to ensure that this study is comparable to similar studies, the variables chosen to measure company performance are widely known and commonly used. The data for the forty companies selected on the JSE also needed to be readily available for the measures chosen. Only accounting measures were therefore used, due to the fact that the data are "verifiable and widely understood (Murphy, 1999:2490)." Murphy also stated that the "the primary determinant of executive compensation is accounting profits" (1999:2490).

Using accounting variables to measure company performance has a few weaknesses. Dechow and Sloan (1991, in Murphy: 1999) stated that accounting profits are backward looking. They also noted that managers can become too focused on the short-term objectives, and may not be willing to reduce current profitability even if it would result in higher future profitability. Another weakness as noted by Healy (1985, in Murphy: 1999) is that accounting profits can be manipulated. This can be done in a variety of ways, such as adjusting discretionary amounts, or by moving earnings to different periods.

Another weakness was pointed out by Wernerfelt and Montgomery (1988) when they stated that:

> accounting rates of return are distorted by a failure to consider differences in systematic risk, temporary disequilibrium effects, tax laws, and accounting conventions regarding R&D and advertising. These properties are likely to vary more across industries than across firms.

The fact that not all of the companies analysed trade in the same country could have an effect on the accounting variables. The systematic risk of doing business in a different economic climate may lead to differences when comparing the results of companies. However it is believed that this weakness is mitigated to a large extent by the fact that all of the companies surveyed are conducting business in South Africa, and almost all are based in South Africa.

Despite these criticisms, it is believed that by using three measures, as opposed to only one, these weaknesses would be suitably reduced. These weaknesses were further mitigated by measuring and comparing company's performances within three different industries. This is because comparing companies which operate in the same business sector allows comparisons between companies to be made with greater reliability. It is also suggested that because accounting standards are continually being tightened, the opportunity for profit manipulation continues to be reduced over time.

This view is similar to the view of Eriksson and Lausten (2000) who concluded that "we do not see the use of accounting profits as a performance indicator as any great disadvantage to our analysis." As stated by Murphy (1999:2496), "almost all companies rely on some measure of accounting profits."

Some measures were not suitable for selection. Total shareholder return was omitted due to the fact that it cannot be measured on an individual business level, as well as the fact that the performance may reflect the performance of the stock market rather than that of the company (Kozan: 2004).

Economic value added was not selected as a performance measure. Economic value added is defined by Tenneco (1995:3) as "a non-conventional measure of a company's after-tax profits, minus a total annual cost of capital." Due to the fact that data on each specific company's cost of capital is needed (and is not readily available), this measure was discarded as being too impractical to use.

"Tobin's q" was also not used because of its impracticality for a large sample size. Tobin's q is defined by Wernerfelt and Montgomery (2000:247) as "the capital market value of the firm divided by the replacement value of its assets." The replacement value of all the assets held by a company is not disclosed, nor is the data readily available.

The following three measures were used:

a) *Return on Equity*

Return on equity (ROE) is a widely used performance measure both in evaluating management performance and in determining executive compensation (Pandya & Rao: 1998), and was described as a metric that is "most meaningful when evaluating publicly owned companies" (Siciliano, 2003:111). ROE is defined as net income (i.e. income distributable to shareholders) divided by shareholders equity (Pandya & Rao: 1998). Hagel, Brown and Davison (2010) suggest that it is logical that ROE has remained the most enduring and popular performance measure, as its focus is on shareholders returns, which is of primary importance to the investor. ROE is also a measure of how well a company uses debt in its capital structure in order to maximize shareholder returns.

ROE has been criticized due to the fact that it is an accounting figure and therefore could be manipulated by management to appear better than it actually is (Rosen: 1992). Due to the fact that the ROE figure for a company could be manipulated by unscrupulous managers, and in order to make this study more complete, two more variables were introduced. Using additional measures of performance also has the advantage of increasing the possibility of identifying a correlation between CEO compensation and company performance.

b) Earnings per Share

Earnings per share (EPS) is a commonly used performance measure, and is also very commonly used as a bonus base (Mäkeläinen: 1998). It has been described as a "central performance indicator for shareholders" by Otley (2002:10) and was described by Bunting (2009:19/1) as a "fundamentally important performance indicator." This ratio is calculated by dividing the earnings (or profits) by the number of shares in issue (Bunting: 2009).

EPS also has the advantage of being widely recognised and accepted, which was shown by the fact that it was used as a performance measure in most of the ten previous research papers used for comparison (see table one). Kozan (2004) pointed out that accounting measures (such as EPS) have many advantages: they are affected by both revenues and expenses, they force managers to focus on generating profits and they are easily measurable.

c) Return on Assets

Return on assets (ROA) measures the profits that a company generates with the assets that it controls. It is a good measure of the performance of management of the company, as it analyses how well assets are being utilized by management to generate accounting returns. Hagel *et al* (2010) pointed out that ROA is a better measure of financial performance than income statement performance measures, as it explicitly takes into account the assets that are used to generate returns. There are a few variances of this formula, but it is suggested that the most commonly used formula is the "Return on Average Assets" formula, which is: ROA = profit after tax / average assets. Unlike ROE, the capital structure of debt and equity chosen by management does not affect the ROA measurement.

Some scholars have claimed that "Gross Rate of Return on Assets" is a superior measure to ROA because it is "less sensitive to depreciation and other noncash transactions" (Huselid, Jackson & Schuler, 1997:177). Despite this, ROA was used because of its wide use and obvious recognition (Pandya & Rao: 1998). Another reason for its use is that ROA relies on net profit, which is affected by decisions made by management. Due to the aim of the study being to identify a correlation between CEO compensation and company performance, using a measure that is affected by decisions made by management will increase the chances of identifying such a link.

1.4.4 Grouping of companies

It was decided that it would be beneficial to group the companies into sectors or industries. This allowed for meaningful comparisons to be made within the sectors, and also ensured that the sample is well diversified and that each sector is represented in the research.

Various factors were considered when allocating companies to the three sectors which were chosen for the purposes of this research. The JSE formally recognises thirty sectors, which is too large to be practical for the purposes of this research. Murphy recognises four groups of industry, namely mining and manufacturing, financial services, utilities and other industries (1999). These sectors were slightly adapted for this research paper into three sectors, and are as follows:

- Mining – includes mining for any mineral, precious stone or raw material, or exploration for such materials;

- Financial services – includes banking, logistics, insurance and health care;

- Industrial - includes agriculture, building construction, processing and manufacturing of goods, pharmaceuticals, tobacco, jewellery, property, telecommunications, media, industrial goods, food and beverages, oil and gas, retail and personal and household goods.

The sample chosen has the following number of companies in the following sectors:

Company Sector	Number
Mining	12
Financial services	12
Industrial	16

1.4.5 Statistical method

The company performance variables for a period of six years from 2005 to 2010 (inclusive) were used for the purposes of the study. Multivariate analysis was used to identify the independent variables that influence the dependent variable, with the CEO compensation variables initially assumed to be the independent variables. Data regarding CEO compensation were obtained for the five years from 2006 to 2010 (inclusive). The company performance variables are therefore assumed to be the dependent variables. The dependent variable has been included for an extra year in order to test whether there is a "lag-effect" (i.e. the independent variables only change due to the current state of the dependent variable in the following year). The data has only been collected for this period due to the availability of data. Disclosure of sensitive information such as CEO compensation has improved during recent years in South Africa (van Zyl Smit & Nel: 2010) and this data has not been made available prior to 2006 by many of the companies selected.

There are reasons to believe that independent variables will be better correlated to dependent variables in the following year than in the current year (Doucouliagos, Haman & Askary: 2007). Boschen and Smith (1995) stated that remuneration contracts often contain an element of deferred compensation, meaning that performance by a CEO in a current period will only result in a change in remuneration in a future period. Companies themselves seem to recognize the existence of a lag between remuneration and performance: many of the remuneration reports within the annual reports emphasized the aim to use compensation incentives to reward long term and sustainable growth rather than short term gains. Another possible reason for a lag between performance and remuneration could be due to the recent increased use of compensation consultants (Doucouliagos *et al*: 2007).

1.4.6 Limitations of the research design

Certain limitations apply to the present research. The performance of a company can be influenced by all the employees and management of a company, not just the CEO. However, because the CEO is responsible for providing the vision and the business model for the company (as well as having the most easily accessible compensation figures), this study is focused solely on the CEO. Another reason for this is that prior studies have found that "pay performance association is stronger and more direct for CEO remuneration than it is for total directors' remuneration" (Doucouliagos *et al*, 2007:1363).

The gathering of the source data has been done with as little bias as possible. Figures measuring company performance have been drawn from an independent and trustworthy source, namely the Profile's Stock Exchange Handbook (Profile Media: 2010). A small proportion of the data could not be obtained from this source and was calculated using figures from the companies' annual reports. Data relating to CEO compensation have been extracted from the annual reports of the company. While there may be motivation for the company preparing the annual report to manipulate these figures, it is believed that these figures are reliable. This is suggested due to the rigorous accounting statements which govern the preparation of financial standards, and the fact that the companies selected are all audited by independent professionals.

1.5 CONCLUSION

Chapter one described the background of the research, provided a literature survey and described the research methodology. The goal of the research, which is to determine whether there is a correlation between CEO compensation and company performance, was also set out. Chapter two describes the agency problem and chapter three discusses the corporate governance mechanisms used to mitigate the agency problem. The design of the model is described in chapter four, while the analysis of the findings presented in chapter five and chapter six set out the conclusions and suggestions for further research.

CHAPTER TWO: CONFLICTS CAUSED BY THE AGENCY PROBLEM

2.1 INTRODUCTION AND BACKGROUND

As discussed in chapter one, the goal of the research is to determine whether there is a correlation between CEO compensation and the performance of the company. The agency relationship explains the link between these variables: it is because the agency problem exists that directors will not always do their utmost for the sake of the company, and therefore need to be motivated through incentive based compensation to perform. To mitigate the risks posed by the agency relationship, CEO compensation is used as a means to regulate and motivate the performances of the directors (Shaw and Zhang: 2010). This research is seeking to evaluate the correlation between director's compensation and their performance, which will demonstrate whether CEO compensation can be used as an effective method for countering the agency problem, and thereby controlling director performance.

In order for this analysis to be done, a sound understanding of the agency relationship needs to be gained. Chapter two aims to define and discuss the intricacies of the agency relationship. This relationship is discussed in the context of a company, with the directors acting as the agents and the shareholders as the principal. Managerial opportunistic behaviour and management entrenchment (two common forms of the agency problem) are identified and discussed.

2.2 THE AGENCY RELATIONSHIP

Adam Smith outlined the agency relationship a few centuries ago in his book *The Wealth of Nations* (1776:607) as follows:

> The directors of such companies, however, being the managers rather of other people's money than of their own, it cannot be well expected, that they should watch over it with the same anxious vigilance with which the partners in a private co-partnery frequently watch over their own. Like the stewards of a rich man, they are apt to consider attention to small matters as not for their master's honour, and very easily give themselves a dispensation from having it. Negligence and profusion, therefore, must always prevail, more or less, in the management of the affairs of such a company.

Jensen and Meckling (1976:308) defined an agency relationship as "a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making to the agent." Fama and Jensen (1983) described entities with an agency relationship as organizations which have separate ownership and control functions. They went on to state that this occurs when "important decision agents do not bear a substantial share of the wealth effects of their decisions" (1983:1).

This agency relationship is relatively common and can be found in many relationships, from the sports field (where players may be tempted by make decisions which would increase their fame and reputation, rather than act in the team's interests) to that of a business entity. It is found in all organizations, including universities, government bureaus, unions and real estate markets (Jensen & Meckling: 1976). The most common example is that of a company, with the shareholders being the principal and the directors or managers being the agents.

2.3 TRADITIONAL CONFLICT AREAS

The agency relationship is often referred to as an "agency problem" due to the fact that the agent will not always act in the best interests of the principal. Agents often act as "utility maximizers," (Jensen & Meckling, 1976:310), with the result that if not monitored, they will place their own interests above those of the principal which they serve (Hope & Thomas: 2007). This agency problem is highly relevant to the business community, as its existence was not only important in the establishment of governance agencies, such as the Securities and Exchange Commission in the United States of America, but it is also at the root of the high emphasis which is placed on good corporate governance (Fama & Jensen: 1983).

Jensen and Meckling (1976) stated that it is impossible for the principal to ensure that the agent will act in the best interests of the principal without incurring costs. These costs are referred to as "agency costs," and are found by calculating the sum of monitoring costs, bonding costs and residual loss, as well as any output lost.

Agency costs = monitoring costs + bonding costs + residual loss + output lost

Monitoring costs are incurred by the principal in monitoring the activities of the agent to ensure that they are in the interests of the principal. An example of a monitoring cost would be audit costs. In some cases it will be in the interests of the agent to expend extra costs to satisfy the principal that the agent's actions are honest (Moloi: 2008). These costs are referred to as bonding costs. An example of a bonding cost would be the cost incurred by management in preparing additional disclosures for the shareholders. Bonding costs, which are incurred by the agent, are more rarely incurred than monitoring costs, which are incurred by the principal.

Residual loss is the measurable difference in the decision which would be best for the principal less the decision actually taken by the agent (Jensen & Meckling: 1976). In some cases, the cost of enforcing a contract to its full extent exceeds the benefit to be obtained. Agency costs also include the value of this output lost (Fama & Jensen: 1983).

Bebchuk and Fried (2003) identified two common forms of managers acting in a self-serving manner: managerial opportunistic behaviour and management entrenchment.

2.3.1 Managerial opportunistic behaviour

Managerial opportunistic behaviour may occur when managers take on investment projects that may not be profitable for the shareholder, but are undertaken purely to increase the size of the company. This method of management, commonly referred to as "empire building," has become a "common problem" in large companies (Grunditz & Lindqvist, 2003:15).

Hope and Thomas (2008) established that when executive directors are not monitored, they will maximize corporate wealth at the expense of shareholder wealth. There are various reasons why a manager may want to act in such a way and pursue a goal of "excessive growth" (Hope & Thomas, 2008:595). Jensen and Murphy (1990) showed that because executive compensation is often tied to measures such as firm size or sales, managers may seek growth as a path to personal riches. Stulz (1990) showed that in some cases, managers may want to control a larger empire due to the power and prestige that goes with the position.

Amihud and Lev (1981) argued that one of the main reasons why managers engage their entity in a conglomerate merger is to diversify operations and reduce their personal risk. A manager's career and salary is tied to the one firm that they work for, so it benefits them personally to diversify operations and thereby reduce the risk of liquidation. In a large percentage of cases these mergers do not benefit the shareholders, as the shareholders can reduce their risk simply by diversifying their portfolio. This value lost can be regarded as an agency cost (Amihud & Lev: 1981). It was empirically established by Mueller (1977:344, in Amihud & Lev, 1981:605) that "[w]hatever the stated or unstated goals of managers are, the

mergers they have consummated have on average not generated extra profits for the acquiring firms [and] have not resulted in increased economic efficiency."
Shleifer and Vishny (1989, in Hope & Thomas: 2008) showed that managers may seek to grow a firm to a larger size as this makes them more indispensable to the firm, and therefore increases their job security. Finally, Hope and Thomas (2008) pointed out that managers may seek to grow the firm for personal promotion. This is because the board often has limited information on which to judge a manager's ability and growth in company size will more often than not cast the manager in a favourable light.

2.3.2 Managerial entrenchment

Managerial entrenchment is defined by Weisbach (1988:435) as follows: "[m]anagerial entrenchment occurs when managers gain so much power that they are able to use the firm to further their own interests rather than the interests of shareholders." This definition is similar to that of Florackis and Ozkan (2009:498), who define managerial entrenchment as "the extent to which managers have the ability and incentives to pursue their self-interest and expropriate wealth from shareholders." Managers are said to entrench themselves in their position by making it very difficult for boards to remove them, even due to poor performance.

The results of managerial entrenchment are generally negative for the principal, as it has been established that entrenched managers take fewer risks: they prefer a lower than optimal leverage ratio (Brounen, De Jong & Koedijk: 2006) as they prefer to hold onto more cash reserves (Yun, 2009:1447) and pay out lower dividends than non-entrenched managers do (Hu & Kumar, 2004). In addition, they seek less debt (Berger, Ofek & Yermack: 1997) or they choose debt with longer repayment terms (Datta, Iskandar-Datta & Aman: 2006). Significantly, firms with entrenched managers have also been shown to underperform in comparison to other firms, with lower sales growth and lower net profit margins (Gompers, Ishii & Metrick: 2003, in Hirschey, John & Makhija: 2009). Shleifer and Vishny (1989, in Xuan: 2009) showed that managers overinvest in projects that require their specific human capital, as this enhances their job security and lessens the chance of them being replaced.

Managers (i.e. agents) tend to act in this way for selfish reasons. As explained by Shleifer and Vishny (1989:123), "[b]y making manager-specific investments, managers can reduce the probability of being replaced, extract higher wages and larger perquisites from shareholders, and obtain more latitude in determining corporate strategy." Shareholders should also be aware of the possible effects of managerial entrenchment when deciding whether or not to liquidate their company: liquidation may be in the best interests of the shareholders (as it could result in a cash pay-out before bankruptcy), but it is probably not in the best interests of the managers, who rely on the company for their employment and remuneration (Grunditz & Lindqvist: 2003). In this situation managers may be tempted to place their personal interests ahead of those of the shareholders. For the same reason, managers will often be opposed to hostile takeovers, even though this could be beneficial to the shareholders (Shleifer & Vishny: 1989).

2.4 CONCLUSION

The agency relationship is a problem which exists because of separation between the principal and the agent and the consequent separation of control. The interests of the principal and the agents will not always be aligned, and the conflict of interests which exists because of this has been shown to have negative consequences for the principal. The two common forms of agency problem, namely managerial opportunistic behaviour and managerial entrenchment, are both examples of this.

Assuming that Adam Smith was correct in his statement that "[n]egligence and profusion, therefore, must always prevail" (Smith, 1776:607), the agency problem is a long-term problem, and one with no quick or easy remedies. Many solutions have been suggested as means of mitigating and reducing agency costs for companies and organisations. Chapter three analyses these solutions, focusing particularly on the use of executive compensation to align the interests of executives to those of the entity.

CHAPTER THREE: CORPORATE GOVERNANCE MECHANISMS USED TO SOLVE THE AGENCY PROBLEM

3.1 INTRODUCTION AND BACKGROUND

Chapter two discussed the agency problem, which arises because of a separation between the principal and the agent (or in a company setting, between shareholders and directors). Much attention has been paid to solutions to this problem, which have become known as corporate governance mechanisms (McKnight & Weir: 2009). Chapter three discusses various corporate governance mechanisms which are utilised by companies to mitigate the agency problem.

It is suggested that in order to effectively evaluate whether remuneration can be successfully used as a corporate governance mechanism, it is first necessary to analyse other available corporate governance mechanisms and evaluate their effectiveness in controlling executive behaviour. Due to managerial incentives and share based remuneration being the subject of the research it is analysed in more detail than the other forms of corporate governance. Assessing the role of this mechanism in controlling the actions of management is a necessary step in determining whether executive compensation could be linked to the performance of the company.

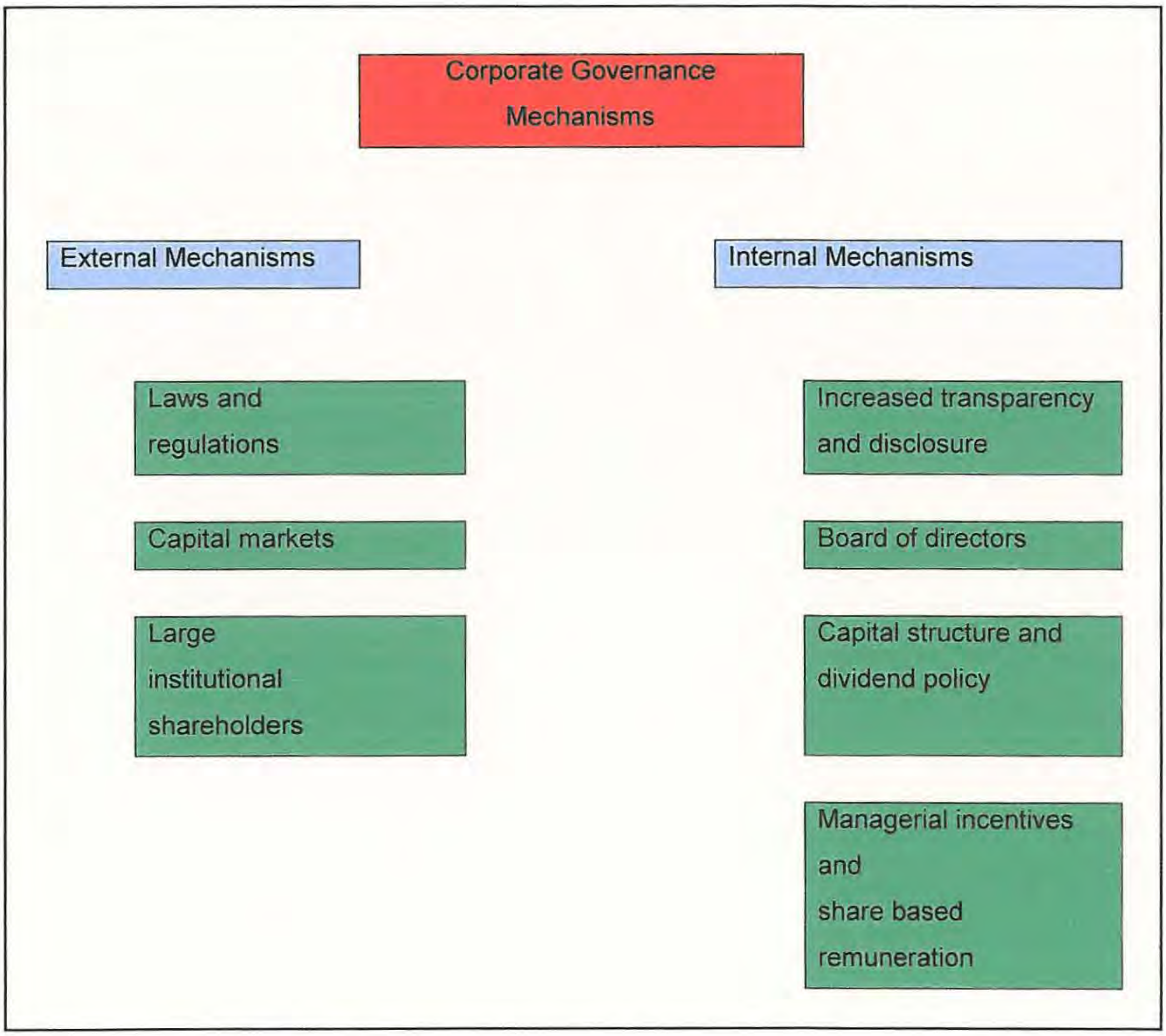
3.2 CORPORATE GOVERNANCE MECHANISMS

Corporate governance has been defined as "the system of laws, rules, and factors that control operations at a company (Gilian & Starks, 1998:13). Shleifer and Vishny (1997:737) defined it as "the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment." Due to a string of well-publicized scandals, corporate-governance reform has been in the spotlight over the last decade (Hauswald & Marquez: 2005). Farmer (2008:2) explained the renewal of global interest in corporate governance as being due to the USA administration's response to some cases of "spectacular corporate failure."

Studies have shown that good corporate governance can also increase shareholder value. In 2000 a survey was done which found that "more than 84% of the investors would be willing to pay a premium for the shares of a well-governed company," (Swartz & Eitzen, 2011:5) and that "three-quarters of these investors indicated that board practices were at least as important as financial performance."

Daouk, Lee and Ng (2006, in Gillan: 2006) also examine the link between company performance and corporate governance. The study finds that better capital market governance results in better market pricing efficiency, higher market liquidity and a lower cost of equity. Corporate governance mechanisms are used to "realign the interests of agents and principals and so reduce agency costs" (McKnight & Weir, 2009:140). Oba (2004) notes that corporate governance mechanisms can be classified as monitoring mechanisms (mechanisms which observe the performance of agents) or bonding mechanisms (mechanisms which penalize or reward the agent depending on their actions). Alternatively, corporate governance mechanisms can also be separated into internal and external mechanisms (Gillan: 2006). The main internal and external mechanisms are discussed in this chapter. Executive remuneration, being the focus of the research, is analysed as a corporate governance mechanism in greater detail.

Table 2: A summary listing of the major corporate governance mechanisms



(Table 2: own design, based on Figure 3 in Gillan, 2006:384)

3.2.1 External corporate governance mechanisms

a) Laws and regulations

Firms operate under legal constraints and are subject to various sources of oversight (Gillan: 2006). Many of the laws and regulations applicable to companies are aimed at controlling the behaviour of its management, and thereby reducing agency costs (Armour, Hansmann & Kraakman: 2009). In the United States of America the Sarbanes-Oxley Act of 2002 was the most extensive set of business regulations passed since 1934 (Hansen: 2011), while in the United Kingdom the UK Corporate Governance Code, released in June 2010, (Financial Reporting Council: 2010) was brought about due to financial crisis of 2008 and 2009.

Corporate governance regulation in South Africa has followed the way of the United Kingdom and other commonwealth countries by implementing a principle based system, commonly known as the "comply or explain" system. This is in contrast to the United States of America, which has implemented its governance legislation on a statutory basis, known as the "comply or else" system (Institute of Directors Southern Africa: 2009). Companies in South Africa are regulated by the King Code of Governance Principles and the King Report on Governance (2009) ("King III Report"), as well as the Companies Act 2008 (Act No. 71 of 2008) ("Companies Act 2008"). In addition, public companies in South Africa that are listed on the Johannesburg Stock Exchange (JSE) need to continually meet the stringent listing requirements. These requirements, while only applicable to companies that choose to be listed on the JSE, are another set of regulations which control the activities of management.

b) Capital markets

The market for corporate control is described as the "ultimate corporate governance mechanism" (Gillan, 2006:391), while takeovers have been noted to be "the critical corporate governance mechanism in the United States, without which managerial discretion cannot be effectively controlled" (Shleifer & Vishny, 1997:756). The reason is that when a takeover occurs, whether hostile or friendly, companies are acquired by the managers that can extract the highest value from them. These acquisitions result in inefficient managers being removed from their position within the company and replaced by more skilled managers (Gillan: 2006). This competition between managers, which exists through the threat of a company takeover, is a powerful motivator for managers to perform adequately.

Shleifer and Vishny (1997:756) stated that hostile takeovers operate as "rapid-fire mechanisms for ownership concentration." This opinion is similar to the hypothesis of the Market for Corporate Control. According to Tsagkanos, Georgopoulos and Siriopoulos

(2006:183) this theory shows that takeover mechanisms "discipline and replace management teams who engage in inefficient behaviour." This hypothesis is argued due to the substantial evidence which shows that takeovers address many corporate governance problems (Shleifer & Vishny: 1997). In most cases, takeover targets are firms that are performing poorly (Palepu: 1985, in Shleifer & Vishny: 1997). This is shown by the fact that takeovers usually increase the combined value of the target firm and the acquirer firm (Ruback & Jensen: 1983), as well as the fact that successful takeovers often result in the management team being replaced (Martin & McConnell: 1991).

Takeovers can also serve as a corporate governance mechanism by helping to solve the free cash flow problem. Free cash flow is defined as "cash flow in excess of that required to fund all projects that have positive net present values when discounted at the relevant cost of capital" (Jensen, 1986:325). Excess cash can be a danger for companies, as due to the agency problem managers may be tempted to waste this excess cash on unnecessary benefits. The free cash flow problem can be reduced by investment in value-maximizing mergers and takeovers (Jensen: 1986). It is therefore fair to conclude that the "corporate takeover market plays an important role in disciplining top managers" (Martin and McConnell, 1991:672).

c) Large institutional shareholders

Gillan (2006) suggests that institutional investors play a role in reducing agency costs by monitoring the actions of management. Hartzell and Starks (2003:2351) also conducted research to show that:

> institutional ownership concentration is positively related to the pay-per-performance sensitivity of executive compensation and negatively related to the level of compensation, even after controlling for firm size, industry, investment opportunities, and performance. These results suggest that the institutions serve a monitoring role in mitigating the agency problem between shareholders and managers.

The monitoring role played by large institutional shareholders is therefore believed to reduce agency costs as well as ensuring a greater link between executive compensation and company performance. This external corporate governance mechanism is only applicable to publicly listed companies, as only these companies would be in a position for large institutional shareholders to own a portion of the company.
The role that shareholders can play in reducing agency costs is limited, however. Salacuse (2002) pointed out the only decisions that shareholders can make, which could directly

influence corporate governance matters of the company, is electing directors to the board, approving items that require shareholder approval and, in extreme cases, using their legal rights against the directors.

3.2.2 Internal corporate governance mechanisms

A company may implement various internal mechanisms (also known as organisational mechanisms) in order to limit the potential for suboptimal managerial behaviour.

a) Increased transparency and disclosure

"Publicity is justly commended as a remedy for social and industrial diseases. Sunlight is said to be the best of disinfectants; electric light the most efficient policeman" (Brandeis & Hapgood, 1914:92). Despite being written almost one hundred years ago, it is suggested that these words are still true today, especially as it was a lack of disclosure that was one of the reasons given for the recent recession (Bertomeu & Magee: 2011). Hauswald and Marquez (2005:26) state that "[r]ecent regulation addressing perceived shortcomings in corporate governance has put a heavy emphasis on disclosure, improvements in firm transparency, and outsiders' access to information, as well as on board and CEO accountability."

Adequate disclosure is important to agency costs, as "[i]Increased and improved disclosure is likely to reduce agency costs as better information flows from the company to the shareholder, which in turn reduces information asymmetry" (Solomon, 2007:144). Hauswald and Marquez (2005) stated that good disclosure can make external corporate governance mechanisms more effective. Their reason is that "when the quality of disclosure rises, external screening success increases and an outside bid for the company becomes more likely" (Hauswald & Marquez, 2005:8).

There are other benefits to good disclosure: it is the foundation of good governance, it gives a company a competitive advantage, it increases management credibility and it attracts long-term investors (Temkin: 2003). Good disclosure standards also result in lower costs of capital, a higher share price and a greater analyst following (Temkin: 2003). Using disclosure to minimize agency costs and control costly incentives of managers is perhaps best summed up by Warren Buffett who said that the best way "to get big shots to change their behaviour is to embarrass them" (McGurn: 2010).

Companies in South Africa are at the "forefront of corporate governance and requirements for disclosure" (Visser, 2009:1). Specifically related to executive compensation in South

Africa, there is a strong focus on disclosure. King III refers to the following principle and recommended practices, shown in Table 3. Table 4 shows that requirements of the Companies Act 2008 with regard to disclosure of executive compensation.

Table 3: Disclosure requirements relating to executive compensation in the King III report

Governance element	Principle	Recommended Practice
Remuneration of directors and senior executives.	2.26. Companies should disclose the remuneration of each individual director and certain senior executives.	The remuneration report, included in the integrated report, should include:
		2.26.1. all benefits paid to directors;
		2.26.2. the salaries of the three most highly-paid employees who are not directors;
		2.26.3. the policy on base pay;
		2.26.4. participation in share incentive schemes;
		2.26.5. the use of benchmarks;
		2.26.6. incentive schemes to encourage retention;
		2.26.7. justification of salaries above the median;
		2.26.8. material payments that are ex-gratia in nature;
		2.26.9. policies regarding executive employment; and
		2.26.10. the maximum expected potential dilution as a result of incentive awards.

(Table 3 based on information from King III Report, taken from the IODSA website)

Table 4: Disclosure requirements relating to compensation in the Companies Act 2008

Section

30. (4) The annual financial statements of each company that is required in terms of this Act to have its annual financial statements audited, must include particulars showing—

(a) the remuneration, as defined in subsection (6), and benefits received by each director, or individual holding any prescribed office in the company;

(b) the amount of—

(i) any pensions paid by the company to or receivable by current or past directors or individuals who hold or have held any prescribed office in the company;

(ii) any amount paid or payable by the company to a pension scheme with respect to current or past directors or individuals who hold or have held any prescribed office in the company;

(c) the amount of any compensation paid in respect of loss of office to current or past directors or individuals who hold or have held any prescribed office in the company;

(d) the number and class of any securities issued to a director or person holding any prescribed office in the company, or to any person related to any of them, and the consideration received by the company for those securities; and

(e) details of service contracts of current directors and individuals who hold any prescribed office in the company.

(Table 4 based on information from subsection 4 of section 30 of the Companies Act 2008, taken from the Creamer Media website)

b) Board of directors

Boards of directors have been described by Gillan (2006:385) as the "lynchpin of corporate governance." They are responsible for providing strategic direction to the company, they have a fiduciary duty to act in the interests of the shareholders and they are responsible for monitoring the management team (Gillan: 2006). Jensen (1993:874) described the board as "the apex of the internal control system," and went on to state that it is the board that is responsible for hiring, firing and compensating the CEO.

The board is responsible "to provide entrepreneurial leadership of the company within a framework of prudent and effective controls which enables risk to be assessed and managed" (Solomon, 2007:315). Weisbach (1988) showed that monitoring by the board is more effective when the board of directors are controlled by independent directors, while Salacuse (2002:46) noted that when large institutional shareholders have a seat on the board it is harder for managers to "manipulate the machinery of corporate governance in their interests." In South Africa the roles and responsibilities of board members are laid out in the King III report and the Companies Act 2008.

Table 5: The leadership role of the board in terms of the King III report

Governance element	Principle	Recommended Practice
Responsible leadership	1.1 The board should provide effective leadership based on an ethical foundation.	The board should:
		1.1.6. be responsible for the strategic direction of the company and for the control of the company;
		1.1.7. set the values to which the company will adhere to formulated in its code of conduct;
		1.1.8. ensure that its conduct and that of management aligns to the values and is adhered to in all aspects of its business; and
		1.1.9. promote the stakeholder-inclusive approach of governance.

(Table 5 based on information from King III Report,
taken from the Institute of Directors Southern Africa (IODSA) website)

Table 6: Responsibilities of the board in terms of the Companies Act 2008

Section
66. (1) The business and affairs of a company must be managed by or under the direction of its board, which has the authority to exercise all of the powers and perform any of the functions of the company, except to the extent that this Act or the company's Memorandum of Incorporation provides otherwise.

(Table 6 based on information from subsection 1 of section 66 of the Companies Act 2008, taken from the Creamer Media website)

In spite of their responsibility as board members to remain independent and fair minded, there are cases where board members place the interests of the directors above those of the shareholders. Warren Buffett famously stated that he has voted in favour of excessive executive compensation because "collegiality trumps independence" (Bartiromo: 2009). To curb this excessive compensation, the King III Report recommends that a Remuneration Committee be appointed, which should then assist the board in managing executive compensation.

Table 7: Guidelines concerning the Remuneration Committee in the King III Report

Guideline
130. Unless legislated otherwise, the board should appoint the risk, remuneration and nomination committees as standing committees.
150. The remuneration committee should assist the board in its responsibility for setting and administering remuneration policies in the company's long term interests. The committee considers and recommends remuneration policies for all levels in the company, but should be especially concerned with the remuneration of senior executives, including executive directors, and should also advise on the remuneration of non-executive directors.

(Table 7 based on information from King III Report, taken from the Institute of Directors Southern Africa (IODSA) website)

c) Capital structure and dividend policy

Agency costs affect the capital structure (meaning the mix between debt and equity used for financing purposes) adopted by a firm (Leland: 1998). Debt restricts the availability of free cash flow at a manager's disposal, which prevents the manager from "pursuing a personal agenda at the expense of value maximization" (Zwiebel, 1996:1197). This is elaborated on by Jensen (1986:323), who stated that companies with free cash flow need to "motivate managers to disgorge the cash rather than investing it at below the cost of capital or wasting it on organization inefficiencies." Employing the correct capital structure is therefore an important control mechanism which can be used by a firm.

Harris and Raviv (1990) state that debt can also force managers to liquidate inefficient operations, which will contribute towards maximizing firm value. This has been referred to as "capital rationing" by Shleifer and Vishny (1989:136), who explained how it helps lower agency costs as follows:

Capital rationing can cut off some manager-specific negative net-present value investments pursued by division managers. It also helps to avoid the project-by-project lobbying and distortion of data by division managers seeking projects that entrench them. Capital rationing slows the rate of investment, so that a manager's performance can be observed before he is allowed to invest more.

Easterbrook (1984) suggested that using a dividend payout policy can reduce agency costs in two ways. By increasing its dividend payout policy, the company will have to approach the capital market if it needs to raise additional finance. This will reduce agency problems as investors, who will want to confirm that their money is in safe hands, will serve as monitors of management. Secondly, managers are more risk-averse than shareholders, who can diversify their portfolio to reduce the risk of their investment losing value. By implementing a dividend payout policy, managers are forced to reduce expenses (which often results in a decrease in agency costs) and become more risk tolerant in order to generate the required profits needed to pay out the dividend.

d) Managerial incentives and share based remuneration

One of the best ways to reduce agency costs is to align the interests of managers to those of the company (Gillan: 2006). This is commonly done by way of incentive payments, such as profit-related bonuses, share based remuneration (Oba: 2004) and even the threat of dismissal for poor results (Shleifer & Vishny: 1997). Due to the fact that compensation contracts complement other corporate governance mechanisms (Lee, Lev & Yeo: 2008), they should be used in conjunction with other mechanisms and not as a solitary method of minimizing the agency problem.

There are different theories on how best to measure executive performance, and this leads to different methods of implementing and paying incentive payments. Some companies believe that share prices are a good measure of executive performance, and therefore implement share-based incentive payments or option schemes (Zhou: 2000). Others believe that accounting earnings more accurately reflect the performance of the manager, and offer incentive-based payments based on accounting figures (Sloan: 1993). Both of these theories are expanded on below. Because salaries and other fixed payments paid to management do not vary, they are not seen as a management incentive and are not included in this analysis.

i) Earnings based incentive payments

Incentive contracts based on earnings, such as typical bonus plans, are widely used with Murphy noting that "[v]irtually every for-profit company offers an annual bonus plan" (1999:2495). This could be due to some of the advantages that an earnings based incentive scheme holds over share based payments. For example Sloan (1993:56) believes that accounting measures are commonly used because they "help shield executive compensation from market-wide fluctuations in equity values." This stops underperforming managers from being unfairly rewarded (Schnusenberg & McDaniel: 2000).

Another advantage pointed out by Watts and Zimmerman (1986, in Sloan: 1992) is that earnings based incentives may be better at aligning the interests of shareholders and debtholders than share based incentives. Finally, O'Byrne pointed out that earnings based incentives have the advantage of measuring expected <u>and</u> unexpected firm performance. He showed that with regard to share based incentives investors play a role in setting the stock price, meaning that any increases in the value of a share are only due to unexpected performance.

Bonus plans seem to be generally uniform in their format. Unite, Sullivan, Brookman, Majadillas and Taningco (2008) found that in the Philippines most bonuses are paid annually at the end of the year. Murphy (1999) reported the same findings in the United States of America, and found that a typical bonus plan includes a minimum performance level that must be reached, as well as a cap on bonus payable. The range in between the threshold and the cap he labels the "incentive zone" (1999:2496). Zhou (2000) found that in Canada the annual bonus is normally about 33% of base salary. Murphy (1999) shows that contracts are largely explicit, meaning that there is little room for discretionary adjustments to the bonus payments.

ii) Share-based incentive payments

Some researchers view share based incentive payments more favourably than earnings based incentive payments. Zhou (2000:233) stated that paying CEO's with company shares is a "natural way" to mitigate the agency problem, and he went on to say that share ownership plays "one of the most important roles in motivating top executives."

Instead of paying directors in shares, many companies have chosen to embrace option based compensation. This compensation method has risen in popularity recently, with a surge in the number of companies employing this in the 1990's (Gillan: 2006). Murphy (1999:2501) defined stock options as "contracts which give the recipient the right to buy a share of stock at a pre-specified exercise price for a pre-specified term." He showed that most options are granted at an exercise price equal to the fair market value on that date, and they typically expire in ten years. Zhou (2000) found that in Canada the average share based payment is up to 40% of the total cash compensation amount.

Despite its recent popularity, there are question marks surrounding the effectiveness of share-based incentive payments. Gillan (2006) points out a few problems, such as lack of a link between compensation and performance, as well as cases of excessive payments being made to management. Due to the complexities of valuing share-based payments, and the many different forms of the payments, they are not included in the data collected for this research.

3.3 THE USE OF COMPENSATION IN REDUCING AGENCY COSTS

According to Bebchuk and Fried (2003), there are two contrasting views on the link between executive compensation and the agency problem. The more widely accepted view is the optimal contracting approach, which views executive compensation as a *remedy* to the agency problem. Another view is the managerial power approach, which views executive compensation as *part* of the agency problem.

3.3.1 Optimal contracting approach

Shaw and Zhang (2010:1066) state that ideal compensation contracts will link executive compensation to firm performance by "providing strong incentives to executives to operate in shareholders' best interests." Bebchuk and Fried (2003) state that under the optimal contracting approach, executive compensation is seen as a remedy to the agency problem. This approach assumes that boards "design compensation schemes to provide managers with efficient incentives to maximize shareholder value" (Bebchuk & Fried, 2003:72). The board sets up an executive compensation scheme which seeks to maximize shareholder value, and therefore minimize the agency costs that exist between management and shareholders (Bebchuk *et al*: 2002). They went on to show that optimal compensation contracts could result from three forces (2002:755), namely from:

> effective arm's length bargaining between the board and the executives, from market constraints that induce players to adopt such contracts even in the absence of arm's length bargaining, or from shareholders' ability to directly shape executive compensation arrangements.

The optimal contracting approach is the dominant approach to studies in executive remuneration (Bebchuk & Fried: 2003).

3.3.2 Managerial power approach

It is believed by Bebchuk *et al* (2002) that compensation contracts are not only shaped by what would be optimal, but are also influenced by the CEO. The managerial power approach takes into account the fact that the CEO has influence and power over the board of directors, who in turn are responsible for determining CEO compensation. The influence that the CEO could exert over the board of directors may result in a compensation contract that is not fully optimal for the purpose of maximizing shareholder wealth. Levitt (2004:1) agrees, stating that "unseemly excessive compensation and separation packages are a consequence of boards falling victim to a seduction by the CEO." Bebchuk *et al* (2002) believe that the three forces which could contribute towards establishing optimal compensation contracts (mentioned in 3.3.1) are not always effective. Bargaining between the board and the executives does not always happen at an arm's length, shareholders do not always have the ability to restrain CEO compensation and market forces are not guaranteed to effectively prevent contracts from deviating from their optimum amount and structure.

As a result, the managerial power approach focuses "on the ability of executives to influence their own compensation schemes" (Bebchuk *et al*, 2002:754). The CEO may be able to receive more than the optimal level of compensation due to board members being influenced by the CEO, sympathetic to the CEO or simply ineffective in implementing the optimal compensation structure. The excess compensation received by the CEO above the optimal level is referred to as "rents," and its existence forms the basis of the managerial power approach.

Despite the weaknesses of the optimal contracting approach, which are highlighted in the managerial power approach, it is still widely believed that executive compensation <u>can</u> be used to align the interests of the CEO to those of the shareholders, and thereby reduce possible agency costs.

3.4 CONCLUSION

Chapter two recognised the existence of the agency problem, and the effect that this problem has on the relationship between the management of a company and its shareholders. Chapter three analysed the various corporate governance mechanisms which are employed by companies to minimize the agency costs incurred. Various internal and external mechanisms exist, all of which play a role in aligning the interests of the owners and the managers of the entity. Executive compensation, being the focus of this research paper, was analysed in greater depth than other mechanisms. Under the optimal contracting approach compensation is an effective method of reducing agency costs. The managerial power approach shows that CEOs may have an influence over those who decide their compensation, and that this can result in deviations from the optimal compensation contract. Despite this, incentive-based payments are believed to be an effective way of aligning the interests of management to those of their shareholders.

Chapters four and five analyse the data to test whether there is a correlation between CEO compensation and company performance. A strong correlation would suggest that CEO compensation <u>is</u> an effective method of incentivising CEOs to increase the value of the company, and would support the validity of the optimal contracting approach. No correlation, or a weak correlation between CEO compensation and company performance, would suggest that CEO compensation is a less effective corporate governance mechanism for reducing agency costs than previously believed. It is also suggested that the lack of a strong correlation could be due to the influence of the CEO over the board of directors, as suggested in the managerial power approach.

CHAPTER FOUR: DESIGN OF THE MODELS

4.1 INTRODUCTION

This chapter details the collection of the data as well as the design of the models used to analyse the data. The accuracy of the data is important because in order for the findings to be valid, the data need to be accurate, valid and reliable. The data is used to achieve the goal of the research, which is to determine whether a correlation between CEO compensation and company performance exists in a South African context. Once the models have been formulated possible errors are tested for in order to assess the reliability of the data. Descriptive statistics are then presented which summarises the data for each year from 2006 until 2010.

4.2 THE POPULATION

The forty largest companies (Top 40) listed on the FTSE/JSE All Share Index of the Johannesburg Stock Exchange (JSE) were selected by market capitalization as at 18 March 2010. Despite the fact that only the forty largest companies have been included in the sample, these companies have a combined market capitalisation of 66.70% of the total JSE capitalisation (this figure was obtained directly from the JSE, and was correct as at 29/03/2011). It is therefore concluded that this is a large enough proportion of the total capitalisation to be sufficient for the intended research. These companies were split up into three sectors.

The sectors and companies selected are as follows:

No.	Company Name	Company Sector
1	Absa Group Ltd	Financial services
2	African Bank Investments	Financial services
3	African Rainbow Minerals	Mining
4	Anglo American Plc	Mining
5	Anglo Platinum Ltd	Mining
6	Anglogold Ashanti Ltd	Mining
7	ArcelorMittal SA Ltd	Mining
8	Aspen Pharmacare Holdings	Industrial
9	BHP Billiton Plc	Mining
10	Bidvest Ltd	Financial services
11	British American Tobacco Plc	Industrial
12	Capital Shopping Centres Group Plc	Industrial
13	Compagnie Fin Richemont	Industrial
14	Exxaro Resources Ltd	Mining
15	Firstrand Ltd	Financial services
16	Gold Fields Ltd	Mining
17	Growthpoint Properties Ltd	Industrial
18	Harmony Gold Mining Company Ltd	Mining
19	Impala Platinum Holdings Ltd	Mining
20	Imperial Holdings Ltd	Industrial
21	Investec Plc	Financial services
22	Kumba Iron Ore Ltd	Mining
23	Liberty Holdings Ltd	Financial services
24	Lonmin Plc	Mining
25	MTN Group Ltd	Industrial
26	Naspers Ltd	Industrial
27	Nedbank Group Ltd	Financial services
28	Old Mutual Plc	Financial services
29	Reinet Investments SCA	Financial services
30	Remgro Ltd	Industrial
31	Rmb Holdings Ltd	Financial services
32	Sabmiller Plc	Industrial
33	Sanlam Ltd	Financial services
34	Sasol Ltd	Industrial
35	Shoprite Holdings Ltd	Industrial
36	Standard Bank Group Ltd	Financial services
37	Steinhoff International Holdings	Industrial
38	Tiger Brands Ltd	Industrial
39	Truworths International	Industrial
40	Vodacom Group Ltd	Industrial

The forty companies selected are therefore classified as follows:

Company Sector	Number
Mining	12
Financial services	12
Industrial	16
Total	40

4.3 THE DATA

For each of the companies listed, the CEO's name, age (on 1 January 2011) and length of time served (as at 1 January 2011) were obtained.

The following data were collected for the years 2006, 2007, 2008, 2009 and 2010:

- guaranteed compensation - cash salary and directors fees;
- short-term performance bonuses; and
- non-cash rewards, insurance, club memberships, other benefits and retirement contributions.

The following data were collected for the years 2005, 2006, 2007, 2008, 2009 and 2010:

- ROE (%), ROA (%) and EPS (South African cents).

In a few cases, despite extra research and correspondence with the company, some data has remained unattainable. Where this has occurred, the statistical analysis was run on the remaining population. It is submitted that the quantity of missing data was small enough not to compromise the results.

4.4 THE VALIDITY OF THE DATA

The collection of the source data has been done with as little bias as possible. Figures measuring company performance have been drawn from an independent and trustworthy source, namely the Profile's Stock Exchange Handbook (Profile Media: 2010). A small proportion (6.25%) of the data could not be obtained from this source and was calculated using figures from the relevant company's annual report. Figures reflecting CEO compensation were extracted from the annual reports of the company. While these figures could be manipulated by the company, it is submitted that because these annual reports are audited, and prepared in accordance with rigorous accounting standards, they are reliable and fair.

4.5 ECONOMETRIC MODELS USED

A number of econometric models were used to analyse the data in order to determine the variables that may affect the remuneration of the CEO and the company performance. For each of the six econometric models presented the Financial Services Sector dummy variable has been omitted. This has been done to avoid the dummy variable trap (Hirschberg and Lye: 2001). This is an error which is created when a model contains exact collinearity, meaning that the matrix of the independent variables is singular.

4.5.1 Company performance or other variables affecting CEO compensation

Econometric Model 1: Salary as dependent variable

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \beta_7 X_{7i} + \delta_1 D_{1i} + \delta_2 D_{2i} + \varepsilon_i$$

for i = 1, 2, ..., n, where Y_i = Salary, X_{1i} = Age, X_{2i} = Service, X_{3i} = Bonus, X_{4i} = Other, X_{5i} = ROE, X_{6i}= ROA, X_{7i}= EPS, D_{1i}= Mining, D_{2i}= Industrial and ε_i are independent, identically distributed $N(0, s^2)$.

Econometric Model 2: Bonus as dependent variable

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \beta_7 X_{7i} + \delta_1 D_{1i} + \delta_2 D_{2i} + \varepsilon_i$$

for i = 1, 2, ..., n, where Y_i = Bonus, X_{1i} = Age, X_{2i} = Service, X_{3i} = Salary, X_{4i} = Other, X_{5i} = ROE, X_{6i}= ROA, X_{7i}= EPS, D_{1i}= Mining, D_{2i}= Industrial and ε_i are independent, identically distributed $N(0, s^2)$.

Econometric Model 3: "Other" as dependent variable

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \beta_7 X_{7i} + \delta_1 D_{1i} + \delta_2 D_{2i} + \varepsilon_i$$

for i = 1, 2, ..., n, where Y_i = Other, X_{1i} = Age, X_{2i} = Service, X_{3i} = Salary, X_{4i} = Bonus, X_{5i} = ROE, X_{6i}= ROA, X_{7i}= EPS, D_{1i}= Mining, D_{2i}= Industrial and ε_i are independent, identically distributed $N(0, s^2)$.

4.5.2 CEO compensation or any other variables affecting company performance

Econometric Model 4: ROE as dependent variable

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \delta_1 D_{1i} + \delta_2 D_{2i} + \varepsilon_i$$

for i = 1, 2, ..., n, where Y_i = ROE, X_{1i} = Age, X_{2i} = Service, X_{3i} = Salary, X_{4i} = Other, X_{5i} = Bonus, D_{1i}= Mining, and D_{2i}= Industrial and ε_i are independent, identically distributed $N(0, s^2)$.

Econometric Model 5: ROA as dependent variable

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \delta_1 D_{1i} + \delta_2 D_{2i} + \varepsilon_i$$

for i = 1, 2, ..., n, where Y_i = ROA, X_{1i} = Age, X_{2i} = Service, X_{3i} = Salary, X_{4i} = Other, X_{5i} = Bonus, D_{1i}= Mining, and D_{2i}= Industrial and ε_i are independent, identically distributed $N(0, s^2)$.

Econometric Model 6: EPS as dependent variable

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \delta_1 D_{1i} + \delta_2 D_{2i} + \varepsilon_i$$

for i = 1, 2, ..., n, where Y_i = EPS, X_{1i} = Age, X_{2i} = Service, X_{3i} = Salary, X_{4i} = Other, X_{5i} = Bonus, D_{1i}= Mining, and D_{2i}= Industrial and ε_i are independent, identically distributed $N(0, s^2)$.

4.6 POSSIBLE ECONOMETRIC SPECIFICATION ERRORS

If the underlying assumptions of the linear regression model are incorrect, there is a possibility of specification errors. The assumptions of the disturbance term are normality and homogeneity of the variances and that the disturbances are pair-wise uncorrelated. The assumptions of the explanatory variables (regressors) are that they are non-stochastic and linearly independent.

4.6.1 Autocorrelation

The Durbin-Watson *d* statistic was used to test for autocorrelation of the disturbances. Tables giving the upper and lower bounds (d_L and d_U) for *d* were used to test for zero autocorrelation against the alternative positive first-order autocorrelation if the value of *d* was less than 2. If the value of *d* was greater than 2 the value of 4 – *d* was compared with the tabulated upper and lower bounds to test for zero autocorrelation against the alternative negative first-order autocorrelation.

4.6.2 Heteroskedasticity

Detection of heteroskedasticity of the disturbance variance was examined by means of residual plots. The Breusch-Pagan Godfrey test was also used to test for homoscedasticity of the disturbances against the alternative heteroskedasticity. The hypothesis of homoscedasticity is rejected for large values of the test statistic, compared to the tabulated chi-square-distribution critical values.

4.6.3 Normality of the disturbances

The Kolmogorov-Smirnov test on the residuals was used to test for normality of the disturbances.

4.6.4 Multicollinearity

The presence of multicollinearity was detected by examining the correlation coefficient matrix of the regressors. The hypothesis of no multicollinearity is rejected for large values of the sample correlation coefficient.

4.7 DESCRIPTIVE STATISTICS

The following tables were designed by the researcher and show the general data for the years 2006 to 2010.

Table 8: Descriptive statistics of data collected for the year 2006

Variable	*n*	Mean	Median	Minimum	Maximum	Lower Quartile	Upper Quartile	Std.Dev.
Salary (R1000)	36	4551.73	4028.02	0.00	12807.33	2368.50	5765.00	3304.28
Bonus (R1000)	36	5137.94	3083.50	0.00	23115.68	1627.00	7565.66	5173.46
Other (R1000)	36	947.43	642.00	0.00	4616.65	299.00	1077.03	1067.55
ROE	39	35.01	23.04	-2.18	234.99	16.48	33.05	46.45
ROA	39	18.95	14.78	-0.76	130.27	6.21	25.86	22.41
EPS	39	1070.50	631.26	-216.00	6124.28	186.37	1198.11	1487.15
ROELag	38	22.78	22.28	-13.84	46.23	14.26	28.45	12.85
ROALag	38	13.41	11.55	0.32	38.26	5.44	19.50	9.44
EPSLag	38	618.77	648.11	-888.34	1947.00	150.92	990.03	599.02

(Own design)

Table 9: Descriptive statistics of data collected for the year 2007

Variable	*n*	Mean	Median	Minimum	Maximum	Lower Quartile	Upper Quartile	Std.Dev.
Salary (R1000)	37	5659.76	4154.00	0.00	16791.00	2494.45	6347.00	4414.39
Bonus (R1000)	37	5805.12	2992.00	0.00	43011.56	816.05	8000.00	7962.18
Other (R1000)	37	1574.96	712.29	0.00	15879.02	385.00	1400.00	2791.07
ROE	39	25.93	23.42	-3.30	117.84	14.73	29.80	19.74
ROA	39	16.07	13.32	-1.62	58.82	3.33	24.00	13.49
EPS	39	939.60	731.25	-1517.00	5241.00	248.56	1428.90	1127.99
ROELag	39	35.01	23.04	-2.18	234.99	16.48	33.05	46.45
ROALag	39	18.95	14.78	-0.76	130.27	6.21	25.86	22.41
EPSLag	39	1070.50	631.26	-216.00	6124.28	186.37	1198.11	1487.15

(Own design)

Table 10: Descriptive statistics of data collected for the year 2008

Variable	*n*	Mean	Median	Minimum	Maximum	Lower Quartile	Upper Quartile	Std.Dev.
Salary (R1000)	39	5737.63	4493.00	0.00	15879.97	2810.50	7035.39	4365.94
Bonus (R1000)	39	6033.58	3630.00	0.00	43858.96	902.00	8000.00	8157.61
Other (R1000)	39	1476.52	684.00	0.00	9697.59	400.00	1501.00	2328.55
ROE	40	19.18	21.98	-129.80	106.78	13.16	32.70	34.98
ROA	40	15.74	15.80	-27.30	79.40	2.12	26.09	18.29
EPS	40	736.05	765.17	-10293.60	6011.00	234.35	1723.31	2400.71
ROELag	39	25.93	23.42	-3.30	117.84	14.73	29.80	19.76
ROALag	39	16.07	13.32	-1.60	58.82	3.33	24.00	13.49
EPSLag	39	939.60	731.25	-1517.00	5241.00	248.56	1428.90	1127.99

(Own design)

Table 11: Descriptive statistics of data collected for the year 2009

Variable	*n*	Mean	Median	Minimum	Maximum	Lower Quartile	Upper Quartile	Std.Dev.
Salary (R1000)	39	5923.04	4837.25	0.00	19305.00	3319.00	6790.00	4198.28
Bonus (R1000)	39	4975.39	3600.00	0.00	16520.42	1580.34	7627.00	4408.06
Other (R1000)	39	1370.74	818.00	0.00	6229.57	448.00	1796.37	1539.31
ROE	40	19.66	14.14	-15.30	117.11	10.01	21.94	24.05
ROA	40	12.49	9.24	-7.40	71.62	2.40	17.74	14.84
EPS	40	819.80	542.89	-1473.30	9607.90	214.60	994.09	1614.20
ROELag	40	19.18	21.98	-129.80	106.78	13.16	32.70	34.98
ROALag	40	15.74	15.80	-27.30	79.40	2.12	26.08	18.29
EPSLag	40	736.05	765.17	-10293.60	6011.00	234.35	1723.31	2400.71

(Own design)

Table 12: Descriptive statistics of data collected for the year 2010

Variable	*n*	Mean	Median	Minimum	Maximum	Lower Quartile	Upper Quartile	Std.Dev.
Salary (R1000)	39	6714.43	5375.00	0.00	25350.00	3995.00	8234.00	4719.41
Bonus (R1000)	39	6200.62	4550.00	0.00	30687.30	1560.00	9000.00	6559.28
Other (R1000)	39	1339.79	980.00	0.00	6297.00	491.32	1665.14	1410.26
ROE	40	18.35	16.06	-0.66	99.53	10.14	22.88	16.32
ROA	40	14.92	11.88	0.47	90.05	5.35	20.12	15.77
EPS	40	956.05	675.78	-73.52	4466.00	264.95	1112.91	1079.62
ROELag	40	19.66	14.14	-15.29	117.11	10.01	21.94	24.05
ROALag	40	12.49	9.24	-7.43	71.62	2.40	17.74	14.84
EPSLag	40	819.80	542.89	-1473.30	9607.90	214.60	994.09	1614.20

(Own design)

These tables provide a brief summary of the data collected. By examining the statistics it is clear to see that the mean CEO remuneration figures increased in 2007, slowed and even dropped in 2008 and 2009 before increasing again in 2010. Company performance figures decreased in 2007 and 2008 before increasing slightly in 2009 and 2010. The data are analysed in greater depth in chapter five.

4.8 CONCLUSION

Chapter three discussed various corporate governance mechanisms which firms use to minimize agency costs, with the use of incentive payments made to management being suggested as one such mechanism. Chapters four and five set out to test the data to determine whether there is a correlation between the compensation made to top management and the performance of the company.

Chapter four presented the data that was collected for analysis and discussed the econometric models that would be used to test for correlations within the data. The results of tests run on the data were also presented to show that no econometric specification errors were detected. Chapter five analyses the data on a more detailed level to determine whether CEO compensation figures and company performance figures are correlated.

CHAPTER FIVE: ANALYSIS OF RESULTS

5.1 INTRODUCTION

Chapter five presents the findings of the study. While it is hypothesised that CEO compensation affects company performance, there is still the possibility that it is company performance that affects CEO compensation. It was therefore necessary to apply different econometric models in order to capture various possible relationships between CEO compensation and company performance (Grunditz & Lindqvist: 2003).

Various models have been created in order to test for correlations within different business sectors. Section 5.2 shows the effect of CEO compensation on company performance by analysing each of the CEO variables separately in order to determine their level of correlation to company performance. Section 5.3 uses the same method to test company performance for correlation to CEO compensation.

Each variable for CEO compensation (salary, bonus and other) and company performance (ROE, ROA and EPS) are analysed as the dependent variable. The coefficient of determination (R^2) measures the proportion of the variation in the dependent variable which can be explained by the variation in the independent variables (Grunditz & Lindqvist, 2003). The coefficient of determination ranges between zero and one and has been referred to as "a descriptive measure of the goodness of fit" (Grunditz & Lindqvist, 2003:36), with a higher figure showing a stronger correlation than a lower figure. This can be seen in the six econometric models which are presented in this chapter.

Sections 5.2 and 5.3 both present findings from these six econometric models which give an indication of the relationship between a predictor variable and the response variable after taking into account the other predictor variables in the model. This is different to section 5.4, which presents a correlation matrix table showing only the linear relationship between two variables. This table does not take other predictor variables into account.

5.2 THE EFFECT OF CEO COMPENSATION ON COMPANY PERFORMANCE

The following analysis shows the effect on company performance when CEO compensation figures are changed. For each variable of CEO compensation a table of descriptive statistics is presented as well as a graph showing the average amounts of that variable for each of the three sectors (the bars in the graph denote standard errors). An econometric model with the various CEO compensation variables as the dependent variables is then presented, along with the results and finally the findings of the diagnostic tests of the assumptions of the linear model.

5.2.1 Salary as dependent variable

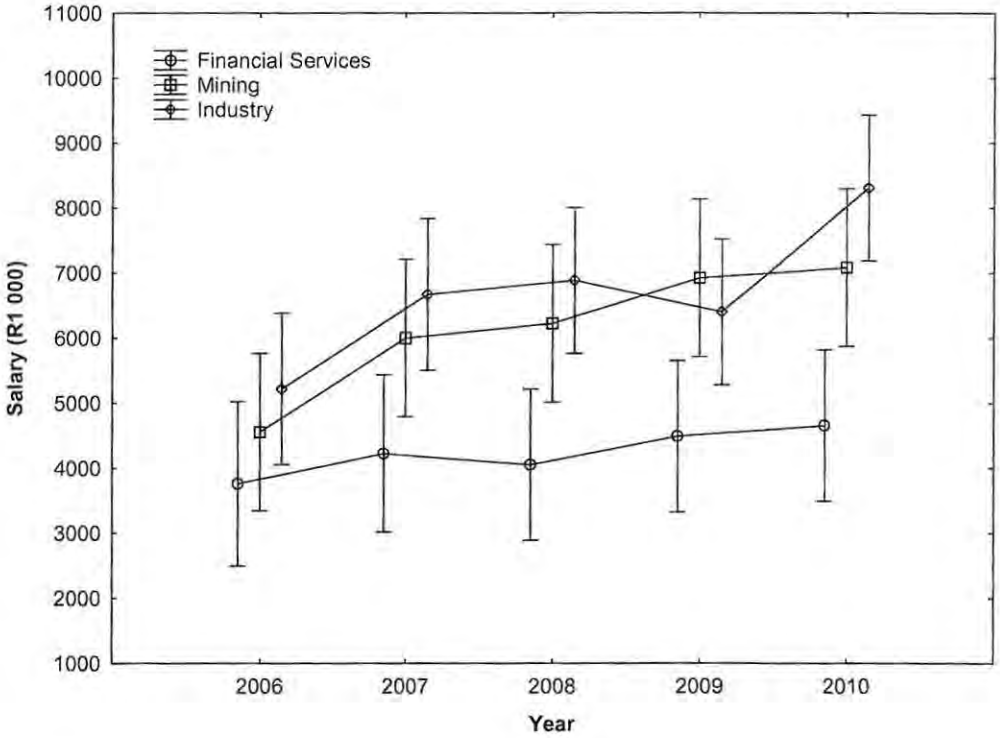
Table 13: Descriptive statistics for salary

All figures except for *n* are given in thousands, and refer to South African Rands.

Sector	Year	*n*	Mean	Std. Dev.	Std. Err.	lower 95%	upper 95%
2006		36	4551.73	3304.28	550.71	3433.72	5669.7
2007		37	5659.76	4414.39	725.72	4187.93	7131.6
2008		39	5737.63	4365.94	699.11	4322.35	7152.9
2009		39	5923.05	4198.28	672.26	4562.12	7284.0
2010		39	6714.44	4719.41	755.71	5184.58	8244.3
Financial	2006	11	3760.63	2036.97	614.17	2392.17	5129.1
Financial	2007	12	4224.65	2300.90	664.21	2762.73	5686.6
Financial	2008	13	4052.10	2519.24	698.71	2529.74	5574.5
Financial	2009	13	4486.75	2596.16	720.05	2917.90	6055.6
Financial	2010	13	4655.78	2466.92	684.20	3165.04	6146.5
Industry	2006	12	4554.22	4063.36	1172.99	1972.48	7136.0
Mining	2007	12	6001.01	5321.15	1536.09	2620.11	9381.9
Mining	2008	12	6223.65	4769.75	1376.91	3193.09	9254.2
Mining	2009	12	6923.07	4154.87	1199.41	4283.19	9563.0
Mining	2010	12	7084.75	3794.10	1095.26	4674.09	9495.4
Industrial	2006	13	5218.82	3492.33	968.60	3108.43	7329.2
Industrial	2007	13	6669.48	4936.79	1369.22	3686.21	9652.7
Industrial	2008	14	6886.17	5111.71	1366.16	3934.76	9837.6
Industrial	2009	14	6399.58	5240.37	1400.55	3373.88	9425.3
Industrial	2010	14	8308.64	6340.77	1694.64	4647.59	11969.7

(Own design)

Graph 1: Average salary from 2006 to 2010 for each sector



(Own design)

Table 14: Econometric Model 1 showing salary as the dependent variable with lagged ROE, ROA and EPS

n =189	Regression Summary for Dependent Variable: **Salary** R = 0.680, R^2 = 0.462, Adjusted R^2 = 0.435 $F(9,179)=17.01$, $p<0.0001$			
	B	**Std.Err. of *b***	***t*(179)**	***p*-value**
Intercept	4566.41	2893.47	1.58	0.1163
Age	-71.33	59.70	-1.19	0.2337
Service	177.67	53.86	3.30	0.0012
Bonus	0.17	0.04	4.33	<0.0001
Other	1.04	0.13	7.94	<0.0001
ROELag	23.92	14.32	1.67	0.0965
ROALag	-78.94	25.16	-3.14	0.0020
EPSLag	0.11	0.19	0.58	0.5635
DMining	3111.50	708.16	4.39	<0.0001
DIndustrial	2285.07	631.65	3.62	0.0004

(Own design)

a) Results

The model accounts for 46.2% of the variation in salary (R^2= 0.462), and the overall model is significant ($F_{9,179}$ = 17.01, p < 0.0001). Lagged ROE, lagged EPS and Age are all not significant as they have p-values greater than 0.05. However ROA lagged is significant as it has a p-value less than 0.05. Salary is negatively correlated to lagged ROA as it decreases on average by R78 940.00 for each unit increase in ROA (t_{179} = -3.14, p = 0.0020).

Mining and Industrial Sectors have significantly higher salaries than the Financial Services Sector (Mining Sector: t_{179} = 4.39, p < 0.0001; Industrial Sector: t_{179} = 3.62, p = 0.0004), which has been illustrated in the graph. On average the Mining Sector CEOs receive R3 111 500.00 more in salary than the Financial Services Sector, and the Industrial Sector CEOs receive an average of R2 285 070.00 more in salary than the Financial Services Sector.

Service, Bonus and "Other" remuneration are all positively correlated to salary. For every 1 year of service, salary increases on average by R177 670.00 (t_{179} = 3.30, p = 0.0012). For every R1 000.00 increase in bonus, salary increases on average by R166.00 (t_{179} = 4.33, p < 0.0001). For every R1 000.00 increase in "Other" remuneration, salary increases on average by R1 041.00 (t_{179} = 7.94, p < 0.0001).

b) Findings of the diagnostics tests of the assumptions of the linear model

There was no significant autocorrelation present (Durbin-Watson test: d = 2.01, 4 - d = 1.99, d_L = 1.665, d_U = 1.874, p > 0.05). There was also no evidence of heteroskedasticity of the disturbance variances (Breusch-Pagan Godfrey test: nR^2 = 13.23, χ^2_5 (0.01) = 15.09, p > 0.02) nor was there evidence of multicollinearity among the regressors (all pair-wise correlation coefficients < 0.78). The disturbances, however, failed the test of normality (Kolmogorov-Smirnov test: K-S = 0.1211, n =189; p < 0.01).

5.2.2 Bonus as dependent variable

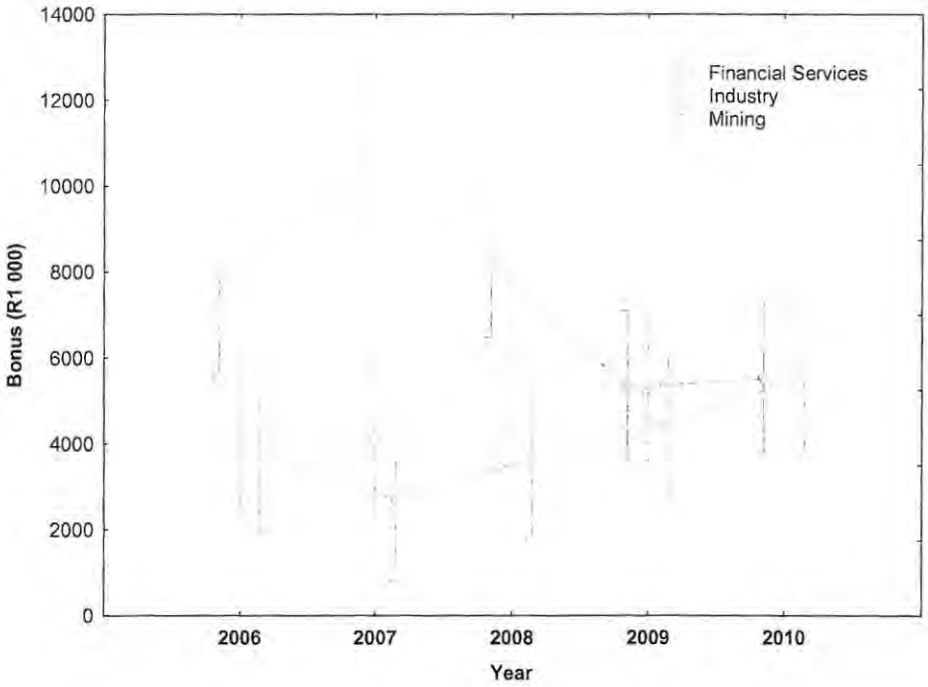
Table 15: Descriptive statistics for bonus

All figures except for *n* are given in thousands, and refer to South African Rands.

Sector	Year	*n*	Mean	Std. Dev.	Std. Err.	lower 95%	upper 95%
	2006	36	5137.94	5173.46	862.24	3387.50	6888.39
	2007	37	5805.12	7962.18	1308.97	3150.40	8459.85
	2008	39	6033.58	8157.61	1306.26	3389.19	8677.97
	2009	39	4975.39	4408.06	705.86	3546.46	6404.32
	2010	39	6200.62	6559.29	1050.33	4074.35	8326.90
Financial	2006	10	8136.49	6054.35	1914.55	3805.47	12467.52
Financial	2007	11	11683.49	10834.55	3266.74	4404.74	18962.24
Financial	2008	12	8835.24	11441.86	3302.98	1565.42	16105.05
Financial	2009	12	5468.26	5110.39	1475.24	2221.27	8715.25
Financial	2010	12	5657.99	4424.41	1277.22	2846.86	8469.13
Mining	2006	12	3829.82	3932.94	1135.34	1330.94	6328.69
Mining	2007	12	2685.32	3502.48	1011.08	459.95	4910.69
Mining	2008	12	3650.91	4081.05	1178.10	1057.93	6243.89
Mining	2009	12	4428.65	3754.99	1083.97	2042.84	6814.46
Mining	2010	12	5600.94	4591.82	1325.54	2683.43	8518.44
Industrial	2006	14	4117.37	4896.54	1308.66	1290.20	6944.55
Industrial	2007	14	3860.52	5708.32	1525.61	564.64	7156.41
Industrial	2008	15	5698.40	7277.57	1879.06	1668.21	9728.59
Industrial	2009	15	5018.49	4547.15	1174.07	2500.36	7536.62
Industrial	2010	15	7114.48	9131.12	2357.64	2057.83	12171.12

(Own design)

Graph 2: Average bonus from 2006 to 2010 for each sector



(Own design)

Table 16: Econometric Model 2 showing bonus as the dependent variable with lagged ROE, ROA and EPS

n =189	Regression Summary for Dependent Variable: **Bonus** R = 0.482, R^2 = 0.232, Adjusted R^2 = 0.194 $F(9,179)$=6.02, p<0.0001			
	B	**Std.Err. of *b***	***t*(179)**	***p*-value**
Intercept	-10466.39	5342.03	-1.96	0.0516
Age	340.15	108.12	3.15	0.0019
Service	-313.78	100.09	-3.14	0.0020
Salary	0.57	0.13	4.33	<0.0001
Other	0.13	0.28	0.45	0.6567
ROELag	-9.21	26.73	-0.34	0.7307
ROALag	58.61	47.69	1.23	0.2207
EPSLag	-0.44	0.35	-1.23	0.2193
DMining	-6213.05	1300.83	-4.78	<0.0001
DIndustrial	-3511.18	1183.80	-2.97	0.0034

(Own design)

a) Results

The model accounts for 23.2% of the variation in Bonus (R^2= 0.232), and the overall model is significant ($F_{9,179}$ = 6.02, p < 0.0001). Lagged ROE, ROA, EPS and "Other" remuneration are not significant as they all have p-values greater than 0.05.

The Mining and Industrial Sectors have significantly lower bonuses than the Financial Sector (Mining Sector: $t_{179} = -4.78$, $p < 0.0001$; Industrial Sector: $t_{179} = -2.97$, $p = 0.0034$), which has been illustrated in the graph. The Financial Services Sector receives higher average bonuses then both the Mining Sector CEOs (R6 213 050.00 more) and the Industrial Sector CEOs (R3 511 180.00 more).

Age and Salary are both positively correlated to bonus. If age increases by 1 year, bonus increases on average by R340 150.00 ($t_{179} = 3.15$, $p = 0.0019$), while for every R1 000.00 increase in salary, bonus increases on average by R570.00 ($t_{179} = 4.33$, $p < 0.0001$)). Service is negatively correlated to bonus: for every 1 year of service, bonus decreases on average by R313 780.00 ($t_{179} = -3.14$, $p = 0.0020$).

b) Findings of the diagnostics tests of the assumptions of the linear model

There was no significant autocorrelation present (Durbin-Watson test: $d = 2.05$, $4 - d = 1.99$, $d_L = 1.665$, $d_U = 1.874$, $p > 0.05$). There was also no evidence of heteroskedasticity of the disturbance variances (Breusch-Pagan Godfrey test: $nR^2 = 3.99$, $\chi^2_5\ (0.01) = 15.09$, $p > 0.55$) nor was there evidence of multicollinearity among the regressors (all pair-wise correlation coefficients < 0.78). The disturbances, however, failed the test of normality (Kolmogorov-Smirnov test: $K\text{-}S = 0.1324$, $n = 189$; $p < 0.01$).

5.2.3 "Other" remuneration as dependent variable

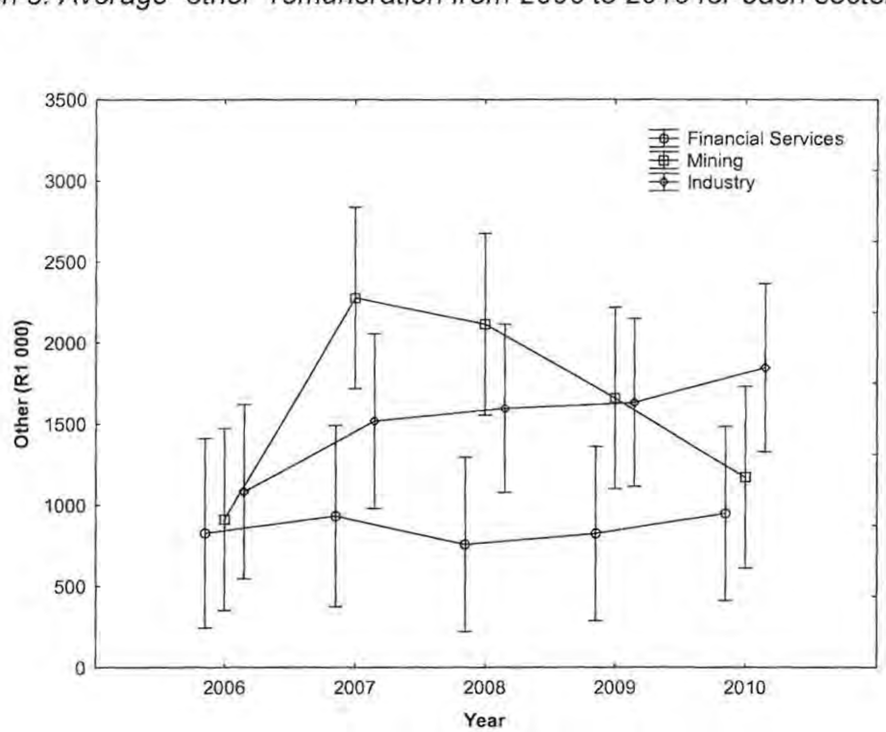
Table 17: Descriptive statistics for "other" remuneration

All figures except for *n* are given in thousands, and refer to South African Rands.

Sector	Year	*n*	Mean	Std. Dev.	Std. Err.	lower 95%	upper 95%
	2006	36	947.43	1067.55	177.93	586.23	1308.64
	2007	37	1574.96	2791.07	458.85	644.37	2505.55
	2008	39	1476.52	2328.55	372.87	721.70	2231.35
	2009	39	1370.74	1539.31	246.49	871.76	1869.73
	2010	39	1339.79	1410.26	225.82	882.64	1796.94
Financial	2006	10	845.79	1146.09	362.42	25.93	1665.65
Financial	2007	11	976.31	1376.25	414.95	51.74	1900.89
Financial	2008	12	764.12	877.26	253.24	206.74	1321.51
Financial	2009	12	829.12	989.71	285.71	200.29	1457.95
Financial	2010	12	961.17	991.70	286.28	331.08	1591.27
Mining	2006	12	911.36	1017.09	293.61	265.13	1557.58
Mining	2007	12	2278.00	4509.47	1301.77	-587.18	5143.18
Mining	2008	12	2114.83	3167.60	914.41	102.24	4127.43
Mining	2009	12	1659.15	1758.07	507.51	542.12	2776.17
Mining	2010	12	1170.95	1171.08	338.06	426.89	1915.02
Industrial	2006	14	1050.96	1123.82	300.35	402.08	1699.84
Industrial	2007	14	1442.71	1459.62	390.10	599.95	2285.47
Industrial	2008	15	1535.80	2332.58	602.27	244.06	2827.54
Industrial	2009	15	1573.32	1693.10	437.16	635.71	2510.92
Industrial	2010	15	1777.75	1787.50	461.53	787.87	2767.64

(Own design)

Graph 3: Average "other" remuneration from 2006 to 2010 for each sector



(Own design)

Table 18: Econometric Model 3 showing "other" remuneration as the dependent variable with lagged ROE, ROA and EPS

n =189	Regression Summary for Dependent Variable: **Other** R = 0.612, R^2 = 0.375, Adjusted R^2 = 0.343 $F(9,179)=11.91$, $p<0.0001$			
	B	**Std.Err. of *b***	***t*(179)**	***p*-value**
Intercept	-2287.81	1417.81	-1.61	0.1084
Age	42.77	29.20	1.46	0.1448
Service	-20.91	27.15	-0.77	0.4421
Salary	0.25	0.03	7.94	<0.0001
Bonus	0.01	0.02	0.45	0.6566
ROELag	-17.29	6.95	-2.49	0.0138
ROALag	23.48	12.54	1.87	0.0629
EPSLag	0.15	0.09	1.65	0.1017
DMining	46.62	365.33	0.13	0.8986
DIndustrial	-112.34	320.62	-0.35	0.7265

(Own design)

a) Results

The model accounts for 37.5% of the variation in "Other" remuneration (R^2= 0.375), and the overall model is significant ($F_{9,179}$ = 11.91, p < 0.0001). Lagged ROA, EPS, Bonus, Age and Service are all not significant as their p-values are greater than 0.05. The Mining and Industrial sectors are not significant (p-values greater than 0.05). The ROE lag is significant (p-value less than 0.05), as "Other" remuneration decreases on average by R17 290.00 for each unit increase in ROE (t_{179} = -2.49, p = 0.0138). Salary is positively correlated to "Other" remuneration. For every R1 000.00 increase in salary, "Other" remuneration increases on average by R250.00 (t_{179} = 7.94, p < 0.0001).

b) *Findings of the diagnostics tests of the assumptions of the linear model*

There was no significant autocorrelation present (Durbin-Watson test: d = 2.10, 4 - d = 1.90, d_L = 1.665, d_U = 1.874, p > 0.05). There was also no evidence of heteroskedasticity of the disturbance variances (Breusch-Pagan Godfrey test: nR^2 = 15.12, χ^2_5 (0.01) = 15.09, p > 0.01), nor was there evidence of multicollinearity among the regressors (all pair-wise correlation coefficients < 0.78). The disturbances, however, failed the test of normality (Kolmogorov-Smirnov test: K-S = 0.2016, n =189; p < 0.01).

5.3 THE EFFECT OF COMPANY PERFORMANCE ON CEO COMPENSATION

This section shows the effect of a change in company performance on CEO compensation. The layout of this section is the same as that of previous section: for each variable of company performance a table of descriptive statistics, a graph showing the average amounts of that variable for each of the three sectors and an econometric model is presented, along with results and finally the findings of the diagnostic tests of the assumptions of the linear model.

5.3.1 ROE as dependent variable

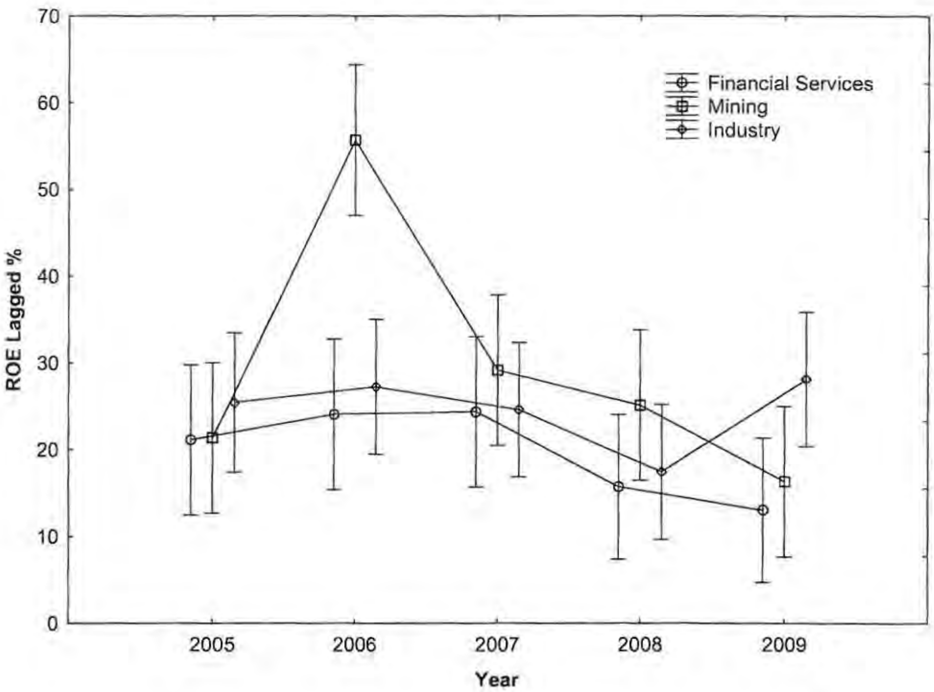
Table 19: Descriptive statistics for ROE

All figures except for *n* are given as a percentage.

Sector	Year	*n*	Mean	Std. Dev.	Std. Err.	lower 95%	upper 95%
	2005	38	22.78	12.85	2.08	18.56	27.00
	2006	39	35.01	46.45	7.44	19.95	50.06
	2007	39	25.93	19.76	3.16	19.53	32.34
	2008	40	19.18	34.98	5.53	7.99	30.36
	2009	40	19.66	24.05	3.80	11.97	27.35
Financial	2005	11	20.45	7.65	2.31	15.31	25.59
Financial	2006	11	24.17	7.82	2.36	18.91	29.42
Financial	2007	11	24.44	8.43	2.54	18.78	30.11
Financial	2008	12	17.43	5.78	1.67	13.76	21.11
Financial	2009	12	12.82	7.38	2.13	8.13	17.51
Mining	2005	12	21.35	17.49	5.05	10.24	32.46
Mining	2006	12	55.66	80.53	23.25	4.49	106.83
Mining	2007	12	29.16	30.81	8.89	9.59	48.74
Mining	2008	12	25.12	42.46	12.26	-1.85	52.10
Mining	2009	12	16.30	27.14	7.84	-0.94	33.55
Industrial	2005	15	25.63	11.82	3.05	19.09	32.18
Industrial	2006	16	26.97	13.14	3.28	19.97	33.97
Industrial	2007	16	24.53	15.28	3.82	16.39	32.67
Industrial	2008	16	16.03	42.36	10.59	-6.55	38.60
Industrial	2009	16	27.31	28.54	7.14	12.10	42.52

(Own design)

Graph 4: Average ROE from 2005 to 2009 for each sector



(Own design)

Table 20: Econometric Model 4 showing ROE lagged as the dependent variable

n =189	Regression Summary for Dependent Variable: **ROELag** $R = 0.198$, $R^2 = 0.039$, Adjusted $R^2 = 0.002$ $F(7,181)=1.05$, $p=0.3976$			
	B	**Std.Err. of *b***	***t*(181)**	***p*-value**
Intercept	49.98	27.25	1.83	0.0683
Age	-0.61	0.56	-1.09	0.2775
Service	0.55	0.51	1.09	0.2772
Salary	-0.0003	0.0007	-0.54	0.5875
Bonus	0.00001	0.0004	0.02	0.9821
Other	-0.0012	0.0014	-0.83	0.4070
DMining	13.61	6.43	2.12	0.0357
DIndustrial	5.92	5.84	1.01	0.3115

(Own design)

a) Results

The model accounts for only 3.9% of the variation in ROE (R^2= 0.039), and the overall model is not significant ($F_{7,181}$ = 1.05, p = 0.3976). Salary, Bonus, Other, Service, Age and Industrial Sector are not significant as all of their p-values are greater than 0.05.

The Mining Sector has significantly higher ROEs than the Financial Services Sector (Mining Sector: t_{181} = 2.12, p = 0.0357). On average the Mining sector ROEs are 13.61% higher than the Financial Services sector.

b) Findings of the diagnostics tests of the assumptions of the linear model

There was no significant autocorrelation present (Durbin-Watson test: d = 1.90, d_L = 1.686, d_U = 1.852, p > 0.05). There was also no evidence of heteroskedasticity of the disturbance variances (Breusch-Pagan Godfrey test: nR^2 = 2.08, χ^2_3 (0.01) = 11.34, p > 0.61), nor was there evidence of multicollinearity among the regressors (all pair-wise correlation coefficients < 0.58). The disturbances, however, failed the test of normality (Kolmogorov-Smirnov test: K-S = 0.2099, n =189; p < 0.01).

5.3.2 ROA AS DEPENDENT VARIABLE

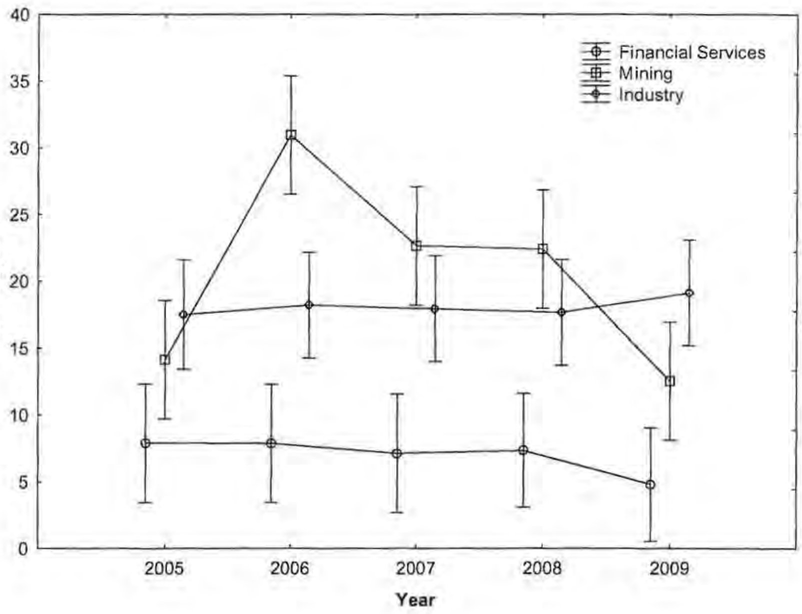
Table 21: Descriptive statistics for ROA

All figures except for *n* are given as a percentage.

Sector	Year	*n*	Mean	Std. Dev.	Std. Err.	lower 95%	upper 95%
	2005	38	13.41	9.44	1.53	10.31	16.51
	2006	39	18.95	22.41	3.59	11.68	26.21
	2007	39	16.07	13.49	2.16	11.69	20.44
	2008	40	15.74	18.29	2.89	9.89	21.59
	2009	40	12.49	14.84	2.35	7.75	17.24
Financial	2005	11	7.60	8.88	2.68	1.64	13.57
Financial	2006	11	7.59	9.05	2.73	1.51	13.67
Financial	2007	11	7.05	8.26	2.49	1.50	12.60
Financial	2008	12	7.41	9.77	2.82	1.20	13.61
Financial	2009	12	4.78	5.45	1.57	1.32	8.24
Mining	2005	12	14.14	8.59	2.48	8.69	19.60
Mining	2006	12	30.96	35.04	10.11	8.70	53.22
Mining	2007	12	22.66	15.93	4.60	12.54	32.79
Mining	2008	12	22.42	24.86	7.18	6.62	38.21
Mining	2009	12	12.53	20.01	5.78	-0.19	25.24
Industrial	2005	15	17.08	8.93	2.30	12.14	22.03
Industrial	2006	16	17.75	10.29	2.57	12.26	23.23
Industrial	2007	16	17.32	11.54	2.88	11.17	23.47
Industrial	2008	16	16.98	15.92	3.98	8.50	25.46
Industrial	2009	16	18.25	13.20	3.30	11.22	25.29

(Own design)

Graph 5: Average ROA from 2005 to 2009 for each sector



(Own design)

Table 22: Econometric Model 5 showing ROA lagged as the dependent variable

n =189	Regression Summary for Dependent Variable: **ROALag** $R = 0.420$, $R^2 = 0.176$, Adjusted $R^2 = 0.144$ $F(7,181)=5.53$, $p<0.0001$			
	B	**Std.Err. of *b***	***t*(181)**	***p*-value**
Intercept	27.84	13.56	2.05	0.0415
Age	-0.45	0.28	-1.61	0.1096
Service	0.64	0.25	2.55	0.0117
Salary	-0.00082	0.0003	-2.35	0.0200
Bonus	0.00015	0.0002	0.80	0.4267
Other	0.00031	0.0007	0.42	0.6713
DMining	17.72	3.20	5.53	<0.0001
DIndustrial	11.92	2.91	4.10	0.0001

(Own design)

a) Results

The model accounts for 17.6% of the variation in ROA ($R^2 = 0.176$) and the overall model is significant ($F_{7,181} = 5.53$, $p < 0.0001$). Bonus, "Other" remuneration and Age are all not significant as their p-values are greater than 0.05.

The Mining and Industrial Sectors have significantly higher ROAs than the Financial Services Sector (Mining Sector: $t_{181} = 5.53$, $p < 0.0001$; Industrial Sector: $t_{181} = 4.10$, $p < 0.0001$). On average the Mining Sector ROAs are 17.72 percentage points higher than the Financial Services Sector, and the Industrial Sector ROAs are 11.92 percentage points higher than the Financial Services Sector.

Service is significant (p-value of less than 0.05) as ROA increases on average by 0.64 percentage points for each additional year of service ($t_{181} = 2.55$, $p = 0.0117$). Salary, however, is negatively correlated to ROA, as for every R1 000.00 increase in salary ROA decreases on average by 0.00082 percentage points ($t_{181} = -2.35$, $p = 0.0200$).

b) Findings of the diagnostics tests of the assumptions of the linear model

There was no significant autocorrelation present (Durbin-Watson test: $d = 2.03$, $4 - d = 1.97$, $d_L = 1.686$, $d_U = 1.852$, $p > 0.05$). There was also no evidence of heteroskedasticity of the disturbance variances (Breusch-Pagan Godfrey test: $nR^2 = 1.85$, $\chi^2_3\ (0.01) = 11.34$, $p > 0.60$), nor was there evidence of multicollinearity among the regressors (all pair-wise correlation coefficients < 0.58). The disturbances, however, failed the test of normality (Kolmogorov-Smirnov test: $K\text{-}S = 0.1297$, $n = 189$; $p < 0.01$).

5.3.3 EPS as dependent variable

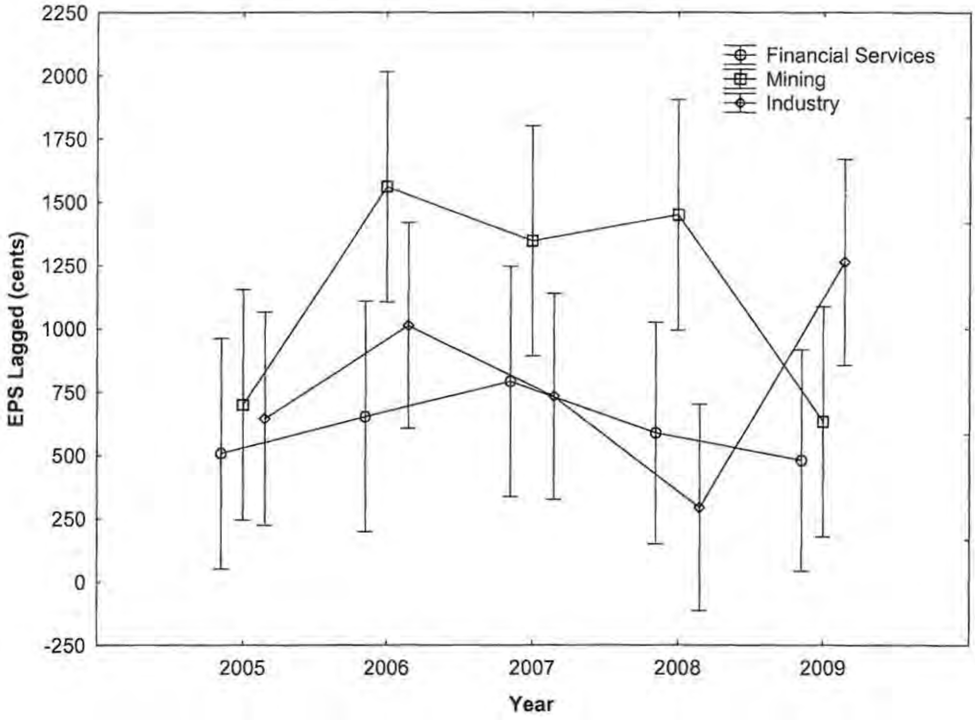
Table 23: Descriptive statistics for EPS

All figures except for *n* are given in South African cents.

Sector	Year	*n*	Mean	Std. Dev.	Std. Err.	lower 95%	upper 95%
	2005	38	618.77	599.02	97.17	421.88	815.66
	2006	39	1070.50	1487.15	238.13	588.42	1552.58
	2007	39	939.60	1127.99	180.62	573.94	1305.25
	2008	40	736.05	2400.71	379.59	-31.73	1503.84
	2009	40	819.80	1614.20	255.23	303.55	1336.04
Financial	2005	11	454.18	317.75	95.81	240.72	667.65
Financial	2006	11	603.27	411.41	124.04	326.89	879.66
Financial	2007	11	729.62	500.00	150.76	393.71	1065.53
Financial	2008	12	679.55	533.67	154.06	340.47	1018.62
Financial	2009	12	455.61	412.05	118.95	193.80	717.41
Mining	2005	12	699.51	817.45	235.98	180.13	1218.89
Mining	2006	12	1560.68	2086.15	602.22	235.21	2886.15
Mining	2007	12	1346.94	1751.10	505.50	234.34	2459.54
Mining	2008	12	1449.99	2652.13	765.60	-235.09	3135.07
Mining	2009	12	633.52	1034.50	298.63	-23.77	1290.81
Industrial	2005	15	674.88	566.49	146.27	361.17	988.59
Industrial	2006	16	1024.08	1394.21	348.55	281.16	1767.01
Industrial	2007	16	778.44	784.34	196.09	360.50	1196.39
Industrial	2008	16	242.97	2991.37	747.84	-1351.01	1836.96
Industrial	2009	16	1232.64	2355.78	588.94	-22.66	2487.95

(Own design)

Graph 6: Average EPS from 2005 to 2009 for each sector



(Own design)

Table 24: Econometric Model 5 showing ROA lagged as the dependent variable

n =189	Regression Summary for Dependent Variable: **EPSLag** R = 0.227, R^2 = 0.051, Adjusted R^2 = 0.015 $F(7,181)$=1.40, p=0.2079			
	B	**Std.Err. of *b***	***t*(181)**	***p*-value**
Intercept	-1564.69	1393.94	-1.12	0.2631
Age	50.87	28.70	1.77	0.0780
Service	-56.83	25.94	-2.19	0.0297
Salary	0.01	0.04	0.25	0.8037
Bonus	-0.02	0.02	-1.01	0.3140
Other	0.05	0.07	0.73	0.4670
DMining	196.57	329.15	0.60	0.5511
DIndustrial	258.30	298.61	0.86	0.3882

(Own design)

a) Results

The model accounts for only 5.1% of the variation in EPS ($R^2 = 0.051$), and the overall model is not significant ($F_{7,181} = 1.40$, $p = 0.2079$). Salary, Bonus, "Other" remuneration and Age are all not significant (p-values greater than 0.05). The Mining and Industrial Sectors are also not significant (p-values greater than 0.05). Service is negatively correlated to EPS (for every 1 year of service, EPS decreases on average by 56.83 cents ($t_{181} = -2.19$, $p = 0.0297$)).

b) Findings of the diagnostics tests of the assumptions of the linear model

There was no significant autocorrelation present (Durbin-Watson test: $d = 2.14$, $4 - d = 1.86$, $d_L = 1.686$, $d_U = 1.852$, $p > 0.05$). There was also no evidence of heteroskedasticity of the disturbance variances (Breusch-Pagan Godfrey test: $nR^2 = 1.81$, $\chi^2_3\ (0.01) = 11.34$, $p > 0.61$) nor was there evidence of multicollinearity among the regressors (all pair-wise correlation coefficients < 0.58). The disturbances, however, failed the test of normality (Kolmogorov-Smirnov test: $K\text{-}S = 0.1947$, $n = 189$; $p < 0.01$).

5.4 CORRELATION MATRIX TABLE

The following correlation matrix table indicates only the linear relationship between two variables. Unlike the econometric models, it does not take any other predictor variables into account. The probability value (p) is the probability that the t-distribution has a value greater than or equal to the absolute sample value of the test statistics (Grunditz & Lindqvist: 2003). A probability value which is less than the level of significance will result in the null hypothesis being rejected. Grunditz and Lindqvist (2003:36) use 0.05 as the level of significance, noting that the "majority of the previous research studies have selected a significance level of 0.05." Performance measures are lagged as these are more likely to be correlated to CEO remuneration, and probability values of less than 0.05 are shown in red.

Table 25: A correlation matrix using lagged performance measures

				Correlations *n* =189				
Variable	**Age**	**Service**	**Salary**	**Bonus**	**Other**	**ROELag**	**ROALag**	**EPSLag**
Age	1.0000	.5862	.2139	.1869	.2108	-.0749	-.0306	.0393
	p= ---	p=.000	p=.003	p=.010	p=.004	p=.306	p=.676	p=.591
Service	.5862	1.0000	.2085	.0374	.0964	-.0149	.0549	-.1192
	p=.000	p= ---	p=.004	p=.609	p=.187	p=.839	p=.453	p=.102
Salary	.2139	.2085	1.0000	.3005	.5764	-.0644	-.0588	.0408
	p=.003	p=.004	p= ---	p=.000	p=.000	p=.378	p=.422	p=.577
Bonus	.1869	.0374	.3005	1.0000	.2079	-.0821	-.1065	-.0515
	p=.010	p=.609	p=.000	p= ---	p=.004	p=.261	p=.145	p=.481
Other	.2108	.0964	.5764	.2079	1.0000	-.0887	-.0041	.0862
	p=.004	p=.187	p=.000	p=.004	p= ---	p=.225	p=.956	p=.238
ROELag	-.0749	-.0149	-.0644	-.0821	-.0887	1.0000	.7815	.5892
	p=.306	p=.839	p=.378	p=.261	p=.225	p= ---	p=.000	p=.000
ROALag	-.0306	.0549	-.0588	-.1065	-.0041	.7815	1.0000	.4320
	p=.676	p=.453	p=.422	p=.145	p=.956	p=.000	p= ---	p=.000
EPSLag	.0393	-.1192	.0408	-.0515	.0862	.5892	.4320	1.0000
	p=.591	p=.102	p=.577	p=.481	p=.238	p=.000	p=.000	p= ---

(Own design)

As can be seen in the above table, when predictor variables are not taken into account, no correlations between CEO remuneration and lagged performance measures exist. These findings can be considered reasonable as they are similar to the findings of various prior studies done on this topic. There are, however, correlations between lagged company performance variables. This is to be expected, as if a CEO receives a higher salary it is understandable that the bonus and "other" remuneration levels would also increase. Correlations also exist between the variables within CEO remuneration. This is to be expected, as the company performance variables used are similar in nature, with the result that a high level of correlation between the variables is to be expected.

It is interesting to note that the age of the CEO, as well as years of service, is correlated to CEO remuneration figures but not to company performance figures. This shows that older and more experienced CEO's can expect an increase in their remuneration package, although it also shows that companies with older or more experienced CEO should not expect the performance of the company to increase relative to other companies.

5.5 CONCLUSION

Chapter four detailed the collection of data as well as the testing of the data for possible econometric specification errors. This data was then analysed in the present chapter to determine whether a correlation exists between CEO compensation and company performance in large South African companies.

The results indicate that there is no linear relationship between CEO compensation and company performance variables, regardless of which variables are assumed to be the independent variables. This confirms many of the studies analysed in the literature review, and appears to be consistent with findings in other countries. The econometric models did show correlations between certain variables, after taking into account other predictor variables in the model. These findings may present opportunities for further research, and are discussed in chapter six.

CHAPTER SIX: CONCLUSION AND SUGGESTIONS FOR FURTHER RESEARCH

6.1 INTRODUCTION

Chapter one presented an overview of the research, which included stating the goal and the specific aims of the research. The agency problem that exists in organisations which have separate owners and managers was described in chapter two, while chapter three outlined the corporate governance mechanisms used to mitigate this problem. Chapters four and five detailed the design of the model and the analysis of the results respectively. Chapter six will re-state the goals of the research and the research method and design. It will then conclude on the results of chapter five and present possible areas for further research.

6.2 GOALS OF THE RESEARCH

The goal of this research was to determine whether there was a correlation between CEO compensation and company performance in a South African context, with the secondary aim being to determine the extent of the effect of CEO compensation on the performance of a company. Specific aims of the research, as set out in chapter one, included determining whether the relationship between CEO compensation and company performance is influenced by the industry in which the company operates, whether variable compensation affects the performance of the company and whether CEO compensation is affected by variables such as the age and experience of the CEO.

6.3 RESEARCH METHOD AND DESIGN

The population comprised the forty largest companies listed on the Johannesburg Stock Exchange as at 18 March 2010. These companies were then split into a Mining Sector, a Financial Services Sector and an Industrial Sector to allow for further analysis within these three sectors. The data collected for each of these companies included data on the CEO as well as company performance data for a period of at least five years.

Data collected on each of the CEOs comprised their name, age, length of time served, guaranteed compensation, short-term bonus and non-cash rewards (i.e. "other" remuneration). Data collected to measure the performance of the company included ROE, ROA and EPS, and this data was collected for a period of six years. This data was collected for an extra year because the company performance variables were assumed to be the dependent variable, which meant that the extra data obtained allowed a greater extent of testing to be done to determine whether the independent variables would only change due to the current state of the dependent variable in the following year (i.e. to determine whether a "lag-effect" existed).

6.4 FINDINGS

The findings obtained from this study were presented and analysed in chapter five. The correlation matrix table in section 5.4 (Table 25) demonstrates that there is no correlation between any of the CEO compensation variables and any of the lagged company performance variables. This correlation matrix table indicates only the linear relationship between two variables, and does not take any other predictor variables into account.

The econometric models give an indication of the linear relationship between a predictor variable and the response variable after taking into account the other predictor variables in the model. The econometric models, which were presented in chapters four and five, are analysed in more detail in this chapter.

The findings in terms of the specific aims of the research (presented in chapter one) are as follows:

- no direct correlation between CEO compensation and company performance was found;
- the (hypothetical) relationship is not influenced by the industry in which the company operates;
- variable compensation (for example bonuses) does not affect the performance of the company;
- CEO compensation is affected by variables such as the age and experience of the CEO. More details of these findings are presented in section 6.4.1 below.

6.4.1 CEO compensation findings

- Salary, bonus and "other" remuneration are all positively correlated, which is to be expected (p56).

- Salary is positively correlated to years of service. Every year of service of CEOs results in CEOs salaries increasing on average by R177 670.00 (p43). This could suggest that as CEOs gain experience, so their value to the company increases, which results in them commanding a higher salary. Alternatively, a more likely reason is that this is simply due to annual increases which are awarded to CEOs to compensate for inflation.

- Bonus is positively correlated to age. For every year by which the CEOs' ages increase, the bonus payable to CEOs increases on average by R340 150.00 (p45). The fact that the CEO bonus is not correlated to years of service (see below) suggests that the bonus does not increase over time due to the experience of the CEOs. Although unlikely, it is suggested that older CEOs could command greater bonuses simply due to their increased rank and status within the firm.

- CEO bonus is negatively correlated to years of service. For every year of service of the CEO, the CEO bonus decreases on average by R313 780.00 (p45). It is not immediately clear why this would be the case. The financial crisis, which occurred during the years under review and generally resulted in lower profits being recorded by companies, could have affected this statistic. Bonuses, being variable in nature and depending on the performance of the company, would have decreased due to this downturn in the global economy. This can be seen by the descriptive statistics presented in chapter four, which showed the mean bonus dropping from R6.034 million in 2008 to R4.975 million in 2009 (figures rounded to three decimals) (p39).

6.4.2 Company performance findings

- ROE lagged is negatively correlated to "Other" payments. For every one percentage point that ROE increases by, "Other" payments made to the CEOs decrease on average by R17 290.00 (p48). This amount could be too small to merit further analysis, but it could suggest that when a company makes an effort to increase its ROE it does so by eliminating wasteful expenses, including extra payments previously made to the CEOs. Alternatively, it is suggested that this decrease in "other" remuneration could be a result of companies minimising their expenses due to the financial crisis rather than as a direct result of company performance.

- ROA lagged is negatively correlated to salary. For every R1 000.00 by which salary increases, the ROA decreases on average by 0.00082 percentage points (p53). It is possible that companies that are focused on increasing their ROA figure will cut down on expenses, which could include a decrease in the CEO's salary. Once again the amounts are too small to merit an in-depth analysis into possible reasons for this correlation.

- ROA lagged is positively correlated to years of service. For every year of service of the CEO, the ROA lagged increases by 0.64 percentage points (p53). This would suggest that as CEOs gain experience they are able to add value to the company, resulting in a higher ROA.

- EPS lagged is negatively correlated to years of service. For every year of service of the CEO, the EPS of the company decreases on average by 56.83 South African Cents (p55). It is not clear why this would be the case, and it is suggested that this decrease in average EPS could be due to the financial crisis during the period of analysis, rather than due to increased years of service of the CEO.

6.4.3 General findings

- The Financial Services Sector receives lower average salaries than the Mining Sector (R3 111 500.00 lower) and the Industrial Sector (R 2 285 070.00 lower) (p43). This added remuneration is, however, offset by the fact that The Financial Services Sector receives significantly higher average bonuses than the Mining Sector (R6 213 050.00 higher) and the Industrial Sector (R3 511 180.00 higher) (p46). This could be due to the Financial Services Sector operating in a different environment, in which variable remuneration forms a greater part of the remuneration package of CEOs. There could also be a smaller supply of CEOs who can serve in this sector, meaning that higher bonuses are paid by companies to retain their services.

- The Financial Services Sector has a significantly lower average ROE than the Mining Sector (13.61 percentage points lower) (p51). The Financial Services Sector also has a significantly lower average ROA than both the Mining Sector (17.72 percentage points lower) and the Industry Sector (11.92 percentage points lower) (p53). It is suggested that different markets and operating environments could explain the lower ROE figures.

6.5 SUGGESTIONS FOR FURTHER RESEARCH

6.5.1 Further research in terms of the goals of this study

The goal of the research was to determine, in a South African context, whether there is a correlation between CEO compensation and the performance of the company. While this goal has been achieved, there have been limitations to this study which may open up new avenues of research to scholars.

This study has only been done on forty companies which are all large in size. Further research could be done on the effect of different company sizes on CEO compensation. According to research done in other countries, it appears more likely that company size will have an effect on CEO compensation, rather than company performance.

Expanding the study to include more companies would allow for a greater possibility of finding correlations, as would increasing the number of years' data analysed. Another advantage of analysing more companies would be that the data could be broken down into a greater number of sectors, which could then be analysed to reveal previously unknown correlations between sectors.

The performance measures used, as well as the breakdown of CEO compensation, could allow for future research. Technological advances have resulted in more information becoming available. Some performance measures that were discarded as being too impractical to use during this study, such as Tobin's q and EVA, could possibly be used in future studies. As disclosure levels increase, so more details on CEO remuneration will become available. Future studies could also include previously excluded components of CEO compensation such as share payments and options granted.

6.5.2 Further research in terms of the findings of this study

The findings that are presented in this study could also provide further research opportunities. Some of the correlations revealed by the research have not been satisfactorily explained and could benefit from further analysis. These correlations could be confirmed by a more detailed and in-depth study, and would perhaps only be satisfactorily explained by researchers studying the correlations from an economic or a social perspective.

In addition, the effects that age and experience of the CEO have on both company performance and CEO remuneration have largely been ignored by researchers until the present. These variables would need to be fully analysed to determine what effect they have on both company performance and CEO remuneration.

Lastly, the correlations discovered in the present research between the three different sectors used for the purposes of the research could benefit from further analysis. Different sectors in the economy seem to have different remuneration trends as well as different performance levels. This is a relatively untouched area of research from a South African business perspective, and both of these topics, as well as the relationship between the two, could benefit from a more detailed inspection.

6.6 CONCLUSION

Chapter six has concluded this research by setting out the goal of the study and how this goal has been achieved. The findings from chapter five have been summarized and possible reasons given for these correlations. The chapter concluded with a discussion of further possible topics of research in this field, both in terms of the goals as well as the findings of the study.

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