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Corporate governance in major South African state-owned enterprises

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Corporate governance in major South African state-owned enterprises

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A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Business Administration

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ABSTRACT

As a result of SOEs continued dependence on government bailouts and ever-increasing embroilment in corruption scandals this study aims to establish the nature of the relationship that certain corporate governance related characteristics have on the performance of major SOEs in South Africa. Schedule 2 of the PFMA lists the 21 firms considered to be major public SOEs in South Africa. This list formed the basis for the SOE's that were included in the study. A study of the relevant literature was used to determine the appropriate governance and performance metrics before data was then collected from publicly available sources on these metrics. The data collected was then used to perform a regression analysis in order to explore the relationship between governance and performance. It is found that there is a significant negative relationship between the number of board meetings held and SOE performance. Secondly, female representation on the board has a direct and positive influence on the after-tax profits of an SOE. Thirdly, SOEs with higher paid CEOs produced higher after-tax profits than those with lower paid CEOs. Finally, CEOs with tenure of less than a year are able to deliver performance gains over their longer tenured counterparts.

DECLARATION

I, Bongani Phinda Ngwenya, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Bongani Phinda Ngwenya

Signed at PARKTOWN

On the 7th day of FEBRUARY 2019

DEDICATION

I dedicate this thesis to my parents Mr and Mrs Ngwenya. Mom thanks for the support and the occasional push and tough love to get me to this latest achievement. Thank you, I could not have done it without you.

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I would like to acknowledge my sister Sizakele and my brother Sibusiso who, in their own way and perhaps unbeknown to them, have pushed me to achieve anything I set my mind to. I would also like to acknowledge my parents once again as many a meal and impromptu visit was entertained with the continued support to help me finish my thesis. Finally, I acknowledge the efforts of my supervisor, Douglas Taylor, without whose guidance I would not have completed this thesis.

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CHAPTER 1. INTRODUCTION

1.1 Purpose of the study

The purpose of this research is to determine which corporate governance characteristics in State-owned Enterprises explain changes in corporate performance to the extent that the results are informative and interpretive enough to assure stakeholders that the company engages in good corporate governance practices that enhance performance. The inference the investor could then make from such a measure is that the likelihood of a corporate calamity is diminished. Moreover, stakeholders would thus have the confidence that their investments are safe from the unethical and self-interest actions of management. The strength of South Africa's financial system cannot be understated and is in many quarters regarded as a robust financial ecosystem that is an example to many (International Monetary Fund, 2014) . That being said, the success of South Africa's financial system remains subject to the actions of firms participating in the economy both domestically and internationally and for this reason the system is inextricably linked to the ethical behaviour of participant firms. This ethical component is of importance to this study and is deemed to be a part of a greater body of knowledge, that of corporate governance. Despite the ever-heightening awareness and importance of corporate governance over the past decade, the examples of fraudulent and unethical behaviour have largely persisted. There are numerous examples of unethical and fraudulent behaviour by those making decisions for the firm, which has dire consequences for stakeholders at large. This study highlights what has gone wrong and seeks to further explain the relationship between corporate governance and firm performance in South African state-owned entities. The rest of the section is structured as follows: Section 1.2 contextualises the study and whilst Section 1.3 identifies the research problems before the objectives of the study are presented in Section 1.4. Section 1.5 highlights the delimitations of the study and section 1.6 defines key terms before the chapter is rounded off in Section 1.7.

1.2 Context of the study

Good corporate governance may often lead to performance gains, whereas bad corporate governance, that is a low degree of compliance with corporate governance provisions, is associated with lower levels of corporate performance (Klapper & Love, 2004). This relationship however is not the only motivating factor where compliance with established corporate governance directives is concerned. There have been numerous calamitous failures of multi-national corporations like Enron, WorldCom, Lehman Brothers, Bernard L. Maddoff Investment Securities LLC and most recently Steinhoff that have resulted in tremendous losses to all stakeholders, much of which has been attributed to lack of corporate governance control and lack of firm and director honesty and transparency in the discharging of their duties as suggested by Coffee Jr (2005). The 2007/2008 financial crisis is the most recent example of a widespread economic event that closed many businesses not only in the United States of America but all around the world as the reverberations proved to be a global phenomenon (Ntim, Lindop, & Thomas, 2013). Companies are therefore, more than ever, moving to comply with generally accepted codes of corporate governance, such as the King reports and the Sarbanes-Oxley Act, which seek to impose the onus on firms to implement good corporate governance measures and enhance transparency in the disclosure of this adherence in firm annual integrated reports. South Africa adopted the first King report in 1994 as a direct introduction of corporate governance into the South African financial system. This King report took much of its content from the Cadbury report of 1992 and the Sarbanes Oxley Act of 1997. The release of King III in 2010 brought to bear additional disclosure requirements on companies and this study focuses on the King III era, although King IV is the most recent version of the code becoming effective for companies in respect of financial years commencing after 1 April 2017.

1.3 Problem statement

1.3.1 *Main problem*

Despite the depth of literature measuring corporate governance there continues to be a series of corporate scandals. Corporate scandals have affected all types of companies public and private. Numerous models for assessing corporate governance have been produced, but do the corporate governance models themselves tell stakeholders enough about the actual governance of the firm to indicate whether the measures are adequate to indicate governance contraventions, and thereby place the firm at risk? The argument is that the models do not, but nevertheless, the importance of performance to the topic of corporate governance cannot be overlooked. The problem therefore is to determine what the nature of the relationship between certain governance characteristics and SOE performance in state owned entities is.

1.4 Significance of the study

The study is useful to all market participants, as it gives insights into the importance and impact of good corporate governance, as exemplified in the King Reports or Sarbanes-Oxley Act. For investors and other market participants a firm's transparency and degree of adherence to corporate governance codes ought to provide more security and comfort when it comes to investing in those firms. The demise of companies such as WorldCom, Enron, Bernard L. Madoff Securities and locally Fidentia are examples of failures of corporate governance that may have been averted had there been proper adherence to and strict enforcement of corporate governance provisions (Diale, 2010). In addition, more recent failures such as African Bank and Steinhoff emphasise the importance of good governance practices. Corporate governance applies to all companies public and private whose intention is to generate revenue through the manufacture and/or sale of goods or services (Turnbull, 1997, p. 181).

1.5 Delimitations of the study

The study limited the number of firms under investigation to 21 as listed in schedule two of the March 2014 Public Finance Management Act. The study was conducted over the period 2014 to 2016.

1.6 Definition of terms

JSE Top 40 - The top 40 shares ranked by market capitalization listed on the Johannesburg Stock Exchange

ACSA – Airports Company South Africa

ARMSCOR – Armaments Corporation of South Africa

ATNS – Air Traffic and Navigation Services

BBI – Broadband Infrastructure Company

CEF – Central Energy Fund

DBSA – Development Bank of South Africa

IDC – Industrial Development Corporation

IDT – Independent Development Trust

NECSA – South African Nuclear Energy Corporation

PFMA – Public Finance Management Act

PRASA – Passenger Rail Agency of South Africa

SAA – South African Airways

SABC – South African Broadcasting Corporation

SAFCOL – South African Forestry Companies

SAPO – South African Post Office

TCTA – Trans Caledon Tunnel Authority

1.7 Assumptions

The study assumed that:

- All disclosure data is available online, companies whose data is not available were eliminated from the study.
- Linearity; a linear relationship exists between the dependent and independent variables.
- Normality; the residuals are normally distributed.
- Multicollinearity; the independent variables are not highly correlated with each other.
- Homoscedasticity; the variance of the error terms is similar across the values of the independent variables.

1.8 Conclusion of Introductory Chapter

This chapter has introduced the context and significance of the topic of corporate governance in relation to corporate performance, a study and examination of which is the main problem of this analysis. The key definitions of terms and the disclosure of the key assumptions is given.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

The world is not perfect; indeed, humans are imperfect and subject to many moral biases such as greed and the hunger for power. These factors, amongst others, distort managers decision-making ability resulting in decisions that are self-serving and not in the best interests of the firm (García, Rodriguez-Sánchez, & Fdez-Valdivia, 2015).

The motive behind investigating corporate governance as an important factor for all market participants is enshrined in the substantial losses that stakeholders have suffered in numerous global corporate scandals. Stakeholders are at great risk of losing their investments unless there is a universally applied and interpreted corporate governance code to ensure uniformity in disclosure, compliance and by extension interpretation. Indeed unravelling the paradigm that is corporate governance to reveal its most basic definitions and principles is an important point of departure. Fulop (2014, p. 228) defines corporate governance in a modern-day context as “the precise use of firm resources for the benefit of the owners of the firm whilst complying with the expectations of society”.

State-Owned companies are always in the spotlight when governance is the topic of conversation. These companies although similar in a number of respects to private and listed companies, such as taking part in commercial activities, also have some specific differences. In a South African context, the owners include government who not only fulfil an oversight and control role but are intrinsically involved in the appointment of the board and have influence on the appointment of key executives. The government is also answerable to the public who voted them into power and the tax-payer who funds these corporations; therefore numerous stakeholders exist for state-owned entities (SOEs). Additionally, SOEs have to subscribe to legislation specific to them such as the Public Finance Management Act (PFMA). South African SOEs are

currently majority owned by the government and whilst there has been some discussion and consideration around the rationalization and privatization of SOEs, this remains an acknowledgment on the part of the President of the Republic and is yet to be actioned.

2.2 Theories of Corporate Governance

2.2.1 Agency Theory

Corporate Governance has risen to prominence due to increased mismanagement and selfish behaviour on the part of managers who put their own interests above those of the firm. These managers are selfishly concerned with maximizing personal wealth and benefit as their primary motivating factor (Parker, Dressel, Chevers, & Zeppetella, 2018). This led to several catastrophic firm failures which put the spotlight on corporate governance and revealed more needed to be done to address this mismatch between an individual working for the benefit of the firm or shareholders and working for the sole overriding outcome of increased personal wealth. This mismatch is more commonly referred to as the agency theory as aptly described by Eisenhardt (1989) wherein the objectives of the firm as the principal and the manager as the agent are in not in alignment. Indeed, corporate structure is such that those with control to execute on behalf of the owners do not necessarily act to the benefit of these owners (Ross, 1973). The need for corporate governance is thus quite easy to appreciate as to monitor all the actions of the agents would be increasingly costly in terms of time and money L. Donaldson and Davis (1991). Therefore corporate governance aims to address this problem by, amongst other things, (1) ensuring that the goals of principals and agents are aligned and (2) that there is increased effective monitoring of agents appointed to act on behalf of the principals and (3) a combination of internal and external environments in order to maximize performance, minimize risk and ultimately protect the interests of stakeholders (Fulop, 2014). Weston and Ciccotello (2017) describe agency theory to be the misalignment of the corporation’s investment horizon and the differing investment horizons of shareholders.

2.2.2 Stewardship Theory

Stewardship theory unlike agency theory focuses less on the individual agency and principal relationship but rather relates the role of top management to that of stewards who effectively incorporate their personal goals with those of the firm. That is, stewards have reached their objective if organizational success, in the stakeholder context, is achieved (Abdullah & Valentine, 2009). The steward, who can be the chairman of the board or the chief executive officer, is charged with maximizing stakeholder value in a manner that is to the benefit of the firm and larger ecosystem in which the firm operates and not selfish interest (L. Donaldson & Davis, 1991). Firm performance can for the most part be indicative of individual performance therefore individuals acting in a way that enhances firm performance do no harm to perceptions of their own performance. The CEO and the chairman must be the most visible and active stewards in the organisation to mitigate agency problems. Stewardship theory is thus more intricate than agency theory but both focus on shareholders or principals. The theory discussed in section 2.2.3 broadens the focus to include all stakeholders.

2.2.3 Stakeholder Theory

Stakeholder theory has its basis in the fact that top management have more than just shareholders to serve, rather that they should serve a myriad of relationships with all stakeholders (T. Donaldson & Preston, 1995). When stakeholder theory works well the company's management develops relationships with stakeholders, inspires stakeholders and creates communities where every participant does their best to deliver the overall value the firm promises (Freeman, 1994). Stakeholders may include the communities in which they operate, suppliers, and business partners amongst others. The contention is that managerial decision-making is grounded in the context that it serves the interest of all stakeholders equally and creates wealth and benefits that can be enjoyed by the all stakeholders (Jensen, 2001). Freeman (2017) states that managers should be managing for stakeholders by maximizing value for

stakeholders without resorting to trade-offs. The value that Freeman (2017) refers to encompasses customers, suppliers, financiers, employees and communities.

2.2.4 Behavioural Theory of Governance

Managers are but human and for this reason are party and subject to common human mistakes and biases. The fact that managerial decision-making in the wake of accepted governance principles is still sub-optimal to the extent that there are well documented failures of organizations means that the cognitive and experiential forces influencing the individual's decision-making propensity ought to be examined and considered. Thus the study now examines three concepts; Bounded Rationality, Satisficing and Routines as outlined by Van Ees, Gabrielsson, and Huse (2009)

Bounded rationality refers to the actual complexity involved in decision-making and that decision-makers cannot fully appreciate the linkages amongst all variables party to the decision. Therefore, the rationality of decision-makers is indeed bound and thus sub-optimal decisions occur due to a lack of complete understanding, cognitive biases or incompetence. These reasons may posit an explanation for the continued governance failures of corporations despite the widespread awareness of and appreciation of good governance practices and principles.

Satisficing on the other hand suggests that individuals do not really seek out optimal solutions but rather tend to accept choices that are adequate to address the question or problem (Elghuweel, Ntim, Opong, & Avison, 2017). Therefore, current problems faced by the organization are solved for using established often simple decision-heuristics or where a current solution cannot be reached the goalposts are moved such that alternative solutions become available.

Routines suggest that the board of directors really operates from a basic set of routines that are built up over time, an experiential learnings of sorts (Nicholson,

Pugliese, & Bezemer, 2017). This produces cognitive biases that affect decision-making and could result in sub-optimal outcomes.

2.3 The Definitions of Corporate Governance

Corporate Governance encompasses a number of differing definitions that vary not only because of alternative interpretations in different codes but also the geography in which the code was drafted would appear to influence the definition. Ultimately the goal is to ensure a standardized set of company practices that more readily align the agents' actions to the expectations of principals.

The efforts of Turnbull (1997, p. 181) were to contextualise corporate governance by incorporating definitions considered previously to arrive at a definition that the term "describes all the influences affecting the institutional processes, including those for appointing the controllers and regulators, involved in organizing production and sale of goods and services". Intuitively this would appear to be a rather comprehensive definition encompassing the various facets in which one would expect that corporate governance would play a role in the ordinary course of business.

An interesting body of work by Daily, Dalton, and Cannella (2003, p. 371) presents its definition as the "broad uses to which organizational resources will be deployed and the resolution of conflicts among the myriad of participants in organizations". This definition departs from the established definitions which focus for the most part on the links between executive self-interest versus the interest of stakeholders and owners. This is an interesting definition in the sense that the construct of corporate governance is to resolve conflicts even before they occur by deploying resources in such a way that they mitigate the promulgation of conflicts amongst resources.

An argument can be made to establish and contend that earlier definitions of corporate governance were dominated by the separation of ownership and control as a result the definitions were effectively constructed from the

perspective of the shareholder (Morrison, 2004). Notably, most recently the definition has adopted a stakeholder view which is more substantial and comprehensive and will be some variation of corporate governance which is the sum of all rules, routines and organizations governing the relations between stakeholders and the management of a company.

The paper by OECD (2015) helps develop a definition for the purpose of this paper which defines corporate governance as that set of constructs that enable an environment of trust, transparency and accountability necessary for maintaining long-term investment, financial stability and business integrity thereby supporting growth and more inclusive societies.

2.4 The Effects on Performance

The a-priori expectation would be that good corporate governance, that is, increased monitoring and alignment of objectives between the principal and the agent would lead lessen the agency problem thus leading to increased firm performance through the dampening of managerial expropriation and wasteful expenditure as postulated by Renders, Gaeremynck, and Sercu (2010). The results from the literature in an international context would appear to be mixed as there is no clear evidence to support or disprove the initial expectation that good governance reduces the agency problem.

Most of the literature seeking a link between corporate governance and firm value comes from studies conducted on firms in the United States of America and continental Europe. Across the United States, Gompers, Ishii, and Metrick (2001) find a positive relationship between corporate governance and listed equity returns, having formed a corporate governance index as a proxy for corporate governance. Similarly Bebchuk, Cohen, and Ferrell (2009) use the index as constructed by Gompers et al. (2001) to show that there is a positive relationship between corporate governance and firm value. Finally Cremers and Nair (2005) decompose governance into external governance and internal governance before comparing the same to corporate performance in the form of equity returns and also find a strong positive relationship between corporate

governance and corporate performance. The American studies thus to this point appear robust and conclusive in their collective finding that higher levels of compliance with corporate governance provisions translates into higher firm value. However, conflicting with this seemingly certain finding are the studies of Core, Guay, and Rusticus (2006) and Bhagat and Bolton (2008). The former investigate the finding of Gompers et al. (2001) and conclude that there is effectively no evidence of a relationship between corporate governance and firm performance. The latter study finds that none of the corporate governance measures as constructed in the Gompers et al. (2001) study are correlated with future stock performance due largely to incorrect model configuration that fails to control for endogeneity. The endogeneity is thus suggested to have undue influence by erroneously causing an effect which presents itself as a positive relationship between corporate governance and corporate performance.

Continental Europe is of particular interest as well, generating similar conflicts in results. Bauer, Guenster, and Otten (2004) used the Gompers et al. (2001) index to analyse the link between corporate governance indicators and earnings-based performance and find that there is in fact a negative relationship between governance and earnings. Initially giving support to this notion is the work of Renders et al. (2010) who, without configuring their model to control for weakening characteristics, find a negative relationship between corporate governance and corporate performance, however once the model is reconfigured they find that there is indeed a positive relationship between corporate governance and corporate performance. Drobetz, Schillhofer, and Zimmermann (2004) find a positive relationship for a cross-section of firms in Germany whilst Beiner, Drobetz, Schmid, and Zimmermann (2006) arrive at the same conclusion for their study conducted on firms in Switzerland.

There is thus very little empirical basis upon which to conclude decisively that there is a relationship between good governance and higher levels of firm performance, despite the a-priori theorising favouring this view. At this point one should contemplate whether the first world commonalities show any unique findings that would not necessarily be present in developing countries. South

Africa is a developing country and as such it would be imprudent not to discuss the literature on this topic in an emerging market context. In the emerging markets there is strong support for the pre-supposed positive link between corporate governance and corporate performance. Studies conducted in Brazil, China, Russia, India and South Africa by da Silva and Leal (2005), Bai, Liu, Lu, Song, and Zhang (2004), Judge, Naoumova, and Koutzevol (2003), Patibandla (2006) and Ntim (2013) respectively, confirm the a-priori expectation and reveal a positive relationship between good corporate governance and firm performance. Furthermore cross-country emerging market studies as conducted by Klapper and Love (2004) over 14 emerging market countries find that there is a positive relationship between corporate governance and firm performance. However a study conducted by Gibson (2003) hints at being more cautious at arriving at this determination since despite his major finding agreeing with the a-priori expectation Gibson (2003) finds that where firms have a large domestic shareholding the relationship between corporate governance and corporate performance becomes less clear. This raises an important point that individual differences between emerging market countries in terms of structure, corporate governance implementation and design ought to be considered and weighted as they tend to influence results.

2.5 Governance codes and laws as they apply to SOEs

The content of the codes discussed in sections 2.5.1 and 2.5.2 were influenced primarily by the Cadbury report of 1992 as well as the Turnbull report of 1999. These reports amongst others have evolved over time and combined to produce what is now known as the UK Corporate Governance code, formerly the Combined Code. The Cadbury report put forward recommendations on the composition of company boards and company accounting systems to lessen risks and failures attributable to corporate governance. Similarly, the Turnbull report made it incumbent on directors to ensure good internal controls in their companies in order that the company is, through sound audit practices, able to produce financial information of a high quality and promote the early identification of fraudulent activity.

2.5.1 The Sarbanes-Oxley Act of 2002

In the wake of serious corporate scandals that had shaken the world and the financial crisis of 2008/9 that was still to come the Sarbanes-Oxley Act was the United States' government's intervention and strong entrance into the corporate governance area. The Act is a direct response to specific corporate abuses in the wake of the Enron corporate scandal which left investor confidence at an all-time low. The Sarbanes-Oxley Act established new legal standards for all American public company boards, management and public accounting firms. The Act imposed provisions on companies in the areas of auditing, financial reporting, Securities and Exchange Commission rules adherence, whistle-blower protection and penalties. Non-compliance with the Act would result in heavy criminal penalties for boards, executives, directors, auditors, attorneys and securities analysts. Although the provisions are mandatory for public companies, increasingly private companies are expected to adopt the provisions in order to ease access to capital markets.

2.5.2 The King Report

The Institute of Directors in Southern Africa (IoDSA) as a professional body carries out its work to promote corporate governance and corporate citizenship. The IoDSA established the King Committee on Corporate Governance in 1993. The first King report on Corporate Governance was published in November 1994. The second report dubbed King II was published in March 2002 with King III following in September 2009. The most recent version is King IV which was released in November 2016. The study focuses primarily on the King III period. King III is applicable to all entities public, private and section 21 companies and employs the, apply or explain principle. King III principles cover aspects such as ethics and corporate citizenship, boards and directors, the governance of audit, risk, information technology, legal compliance, internal audit, stakeholders and integrated reporting. The main differences to King II are the governance of information technology, the use of the "apply or explain" principle as opposed to merely "comply", increased scope of applicability to include firms not listed on

the stock exchange and business rescue recommendations. Furthermore, in terms of public companies the Johannesburg Stock Exchange requires compliance with certain provisions of the governance principles included in the King reports. The King III report informs this research paper as it establishes the governance basis upon which the firms in the sample were assessed. A King IV analysis should be performed once data has become available due to effluxion of time. King IV, whilst similar in most aspects to King III does have some key differences. King IV stresses the 'apply and explain' method as opposed to the 'apply or explain' method used in King IV. Therefore firms are required to actively report on the implementation of the recommended practices of the code, removing the 'tick-box' nature of King III and requiring firms to reflect and report on the implementation of the recommendations. Additionally King III, contained a 71-item list of governance principles which may have lent itself to a simple checklist approach on the part of companies. King IV takes the material and substantial parts of King III but repackages them into 17 simple and clear principles. The effect of this condensing might make compliance easier for smaller companies who wouldn't need to assess their companies according to 71 principles but rather 17. A further difference is that King IV removes from directors the excuse of not-knowing as the code not only specifies what a good director is, as in King III, but goes further to recommend how the director should ensure that they are aware of all dealings and issues within their company,

2.5.3 The Public Finance Management Act

As stated previously SOEs share some characteristics with other commercial entities but also possess unique qualities due to their ownership differences such as; prerogative of ministers to appoint board members and the role the government plays in their access to funding particularly if the SOE were to be in financial dire straits. As a result, there are some legislative requirements over and above those set out in the Companies Act that SOEs need to adhere to and satisfy. One such requirement is the PFMA, which according to, Treasury (2000), outlines a key set of reforms to the management of government finances, and suggests the changes that need to be made in order for good

management practices to prevail. The key objectives of the Act according to Treasury (2000), is to modernise public sector financial management and reduce fraud, corruption and wasteful expenditure. It is observed that the latter objective has not been achieved at all in SOEs, where fraud, corruption and wasteful expenditure are rife. This leads me to the thought that the failures at SOEs are characterized more by a lack of implementation and disregard for the laws that govern and apply to SOEs, rather than poor conceptualization and formation of the laws. Implementation is also dealt with in the PFMA, albeit in a concessionary rather than dogmatic manner; conceding that reform and proper application will take several years and the prescriptions are likely to be updated and modified throughout the years (Republic of South Africa, 1999). Ultimately managers are equipped to manage in their way whilst remaining accountable for the prudent use and allocation of resources at their disposal. The long-term vision of the Act is to build a public sector that has sound systems and processes along with a transparent budgeting process. Inevitably the result would be an effective management of revenue, expenditure and balance sheet (Republic of South Africa, 1999). These three criteria of the long-term vision could be used as a de facto report card against which one can measure the progress of SOEs. Unfortunately, SOEs in their current state would not receive a pass mark.

2.6 Models for Measuring Corporate Governance

2.6.1 Governance Assessment Instrument (GAI)

The Institute of Directors of South Africa established the Governance Assessment Instrument model to address two specific issues. The first being, the difficulty in uniform interpretation of the governance principles according to King III and its associated application in varying environments, both internal and external to the firm. The second is the difficulty in establishing a credible and generally acceptable national benchmark to measure the performance of

corporations relative to governance (IoDSA, 2012). The assessment criteria contain provision relevant to associated legislation such as the JSE listing rules and the Companies Act of 2008. Currently companies elect to take up the use of the GAI on a voluntary basis to form part of the governance reporting in its annual reports. The assessment criteria are based on practice recommendations as reflected in the King III report (IoDSA, 2012). The GAI according to IoDSA (2012) assigns an individual score per provision of which there are 75 and an overall score indicating the status and application of King III as follows:

AAA – Highest application

AA – High application

BB – Notable application

B – Moderate application

C – Application to be improved

L – Low application

Firms voluntarily sign up to use the assessment, which is more of a self-assessment tool which reports findings according to the 'apply or explain' principle. The obvious benefit to firms is that in their corporate governance report they can disclose the results of the firm-specific application of King III principles, with a detailed explanation in instances where the application of a specific provision is not satisfactory, that is, anything less than AAA. Thereafter an overall score according to the above key is assigned to the firm based on the answers given to the numerous individually assessed provisions. According to the IoDSA (2012) the tool's fundamental objective is to aid companies in producing information on the quality of the organisations governance to the extent that the information provided is material and enables stakeholders to make better informed judgements in so far as the corporate governance of the firm is concerned. The GAI tests numerous parameters according to all nine chapters of the King III report. The critical part of the assessment is that it is a

company self-assessment tool and therefore allows quite a bit of subjectivity but because the same goes into the annual reports the credibility of the information presented would thus be up for scrutiny. The methodology and inputs for this model are not publicly available and as such the model cannot form part of the study.

2.6.2 *The Public Investment Corporation Governance Matrix*

This matrix was developed in 2008 through collaboration between the Public Investment Corporation and the University of Stellenbosch (University of Stellenbosch, 2016). The matrix aims to examine compliance, disclosure and performance dimensions in so far as they relate to governance in a balanced manner. Furthermore, the correlations between those three variables are captured by the matrix. Similar to the GAI, the matrix only uses publicly available information. The matrix has since developed to integrate environmental and social factors in addition to the governance aspect which is a move that is supported in the recent literature on corporate governance (Post, Rahman, & Rubow, 2011). The matrix assesses the governance of companies according to 16 categories; board, individual directors, executive management, remuneration, shareholder treatment, auditing and accounting, disclosure and reporting, corporate behaviour, corporate culture, sustainability report, UN Global Compact, human rights, transformation, health and safety, corporate responsibility and environmental considerations (University of Stellenbosch, 2016). Additionally, the matrix purposefully departed from traditional checklist governance measurement methods to one that is able to provide results on the key values of transparency, honesty and accountability. The matrix initially only considered the JSE top 40 companies, but the research has since been expanded to include the top 100 companies on the JSE.

2.6.3 Traditional Composite Corporate Governance Index

Arguably the most popular tool that researchers have used to measure corporate governance within corporations is the Composite Corporate

Governance Index. The likes of Gompers et al. (2001) and Bebchuk et al. (2009) internationally and Ntim (2013) in a South African context all use variations of the same composite governance index model. Therefore, the research would be incomplete if the study did not also perform the assessment using a composite index model as used by prior researchers. The index construction at its most basic conception is that a binary value is assigned to each question relating to a corporate governance provision in King III, thereafter the degree of adherence is determined by evaluating the total score as well as the score within each sub-category. This method has been used in used in papers (Ntim, 2013) that seek to relate corporate governance to corporate performance outcomes such as share price performance or return on investment. Without this dummy variable it would not be possible to obtain a quantitative measure of governance, hence its popularity amongst scholars. Prior research has indicated that there are problems associated with this method (Gompers et al., 2001). Endogeneity among the different variables is chief amongst those. The governance index method is useful as one can rank firms based on the sub-total and total score outcomes for each firm. If the value 1 is assigned on the basis that the firms actions accord with the provision and the value 0 assigned where this is not the case it follows that the higher the score the better corporate governance adherence. However, these are problematic in the sense that they collapse what is an intricate and to some degree firm dependant set of governance provisions into a single number which seeks to indicate the quality of a firm's corporate governance. In the literature there are three base index models which formed much of the governance research that followed them:

The Gompers et al. (2001) G-Index, was arguably the first and most comprehensive measure of corporate governance quality at the time. The provisions that made up the governance questions were from the Investor Responsible Research Centre which had most of its focus and objective on takeover defensive tactics. The authors themselves were particularly cautious in recommending the model for use as there were a few notable factors that made reliability difficult. Chief amongst them was that the index did not appear to

comprehensively capture all governance related provisions, secondly the provisions themselves seemed to overlap and relate to each other, making direct deductions difficult (Gompers et al., 2001). Nevertheless, the index provided an important departure point for researchers attempting to assess governance quality.

The Bebchuk, Cohen, and Ferrell (2004) E-Index, builds on the work of Gompers et al. (2001) by taking the statistically significant provisions in the G-Index and adding to them provisions that were most likely to thwart a hostile takeover. So once again the index contained a number of defensive tactical provisions which may have influenced the quality of governance assessment by overweighting defensive tactics or indeed the omission of other non-defensive but altogether significant governance provisions. The authors concluded that the E-Index is superior to the G-Index as a measure of corporate governance quality although researchers would appear to disagree as the E-Index has not been used in academic research quite as extensively as the G-Index despite Bebchuk et al. (2004) contention regarding the superiority of their model.

The Brown and Caylor (2006) Gov-Score Index, extends the takeover-defence dominated composition of both the G and E indices to include many more components than takeover defence. Therefore, the authors were of the view that this index provided a better assessment of governance quality than the G-index and the E-Index.

Despite the popularity of these models and their modern contemporary use the seminal work of Bhagat, Bolton, and Romano (2007) caution the use of these indices and go so far as to declare that there is no single best index with which to assess governance quality. Their reasoning is that it is virtually impossible for any single index or number to capture all the nuances necessary for measuring governance with precision. Therefore decision-making on the part of investors and stakeholders is made no easier for the existence of these models. Indeed, in practical terms investors experience has been really poor despite increased focus on governance, the emergence of governance codes and generally accepted move by firms to a more a transparent and governance driven

environment corporate scandals continue to permeate the veil of good governance suggesting errors in design and specification of models used to measure governance.

2.7 Governance Variables

The role of both the board and the executive directors is critical to the operation of any business. As discussed in section 2.2.1 these roles ought to be clearly defined and occupied by individuals that have the requisite combination of experience, skill and ability to optimise the firm.

2.7.1 Board Size

The size of the board, indicated by the number of its members, is of central importance to the functioning and performance of the board (Eisenberg, Sundgren, & Wells, 1998). Intuitively a board that is too large will struggle to synthesize and focus objectives and might find it difficult to reach consensus. In contrast a board that is too small may not be well enough experienced both in the diversity and tenure of that experience with the effect that decisions made may not be of the quality of boards that reflect an adequate and effective number of participants. With the aforementioned implications in mind it is thus important to understand the number of board members that constitute an optimal board size. An additional consideration here is that firms differ in operating environments, nature of business, and company size amongst many other differing characteristics. Thus, finding a single number of board members that would universally be applied to all firms is not expected as different firms lend themselves to different board sizes. Fortunately extensive research has been carried out in this area and Cheng (2008) shows that larger boards are associated with stability in corporate performance as it takes far more for a large board to reach consensus which leads to fewer decision extremities and more stable performance. (Mak & Kusnadi, 2005) concurs with prior studies such as those of (Eisenberg et al., 1998) and (Yermack, 1996) in the topic area

by finding a negative relationship between board size and performance irrespective of the applicable governance system.

The South African Companies Act of 2008 and the JSE listing requirements both specify a minimum number of directors, three and four respectively, without being prescriptive on a maximum number of directors. King III on the other hand charges the board with regular rebalancing of its characteristics; size, demographics, experience and skills to ensure the board is effective.

2.7.2 Board Independence

The South African Companies Act of 2008 requires that a minimum of three non-executive independent directors should be a part of the board. King III, does not specify a number but specifies that the board should comprise a majority of non-executive directors the majority of whom are independent. Literature on board composition is generally in support of a board that is, largely independent, chaired by an independent non-executive director and one that does not allow the CEO and chairman to be the same person (Beasley, Carcello, Hermanson, & Lapides, 2000) and (Tian & Lau, 2001).

2.7.3 Frequency of Board Meeting

The frequency of board meetings refers to the number of times the board meets in any given period, typically this is an annual measurement. Intuitively the expectation would be that the more a board meets the greater the performance of that company. The higher frequency of meetings suggests that companies quicker to identify problems and can tweak or change strategies that are not working. Subsequently, the expectation is, that a positive relationship exists between the frequency of board meetings and performance. The justification for this notion is that the board is able to more effectively monitor and assess the executive management by meeting regularly to measure actual performance versus objectives and make the necessary adjustments sooner than if meetings were sparse. Ntim and Osei (2011) find a statistically significant positive relationship between the frequency of board meetings and corporate

performance with the result that SA boards that meet more frequently are able to generate higher financial returns and performance. However, in a prior Indian study the relationship between the frequency of board meetings and performance was found to be non-existent (Jackling & Johl, 2009).

2.7.4 Female Representation

Female representation is a characteristic of the broader board diversity; which includes age, educational background, technical expertise, industry knowledge and nationality. As the name suggests this characteristic measures the number of females on the board. Erhardt, Werbel, and Shrader (2003) find a positive relationship between board diversity and firm performance. Similarly the work of Miller and del Carmen Triana (2009) finds a positive relationship between board gender diversity and innovation; the latter also having a positive relationship with performance. None of King III, the Companies Act of 2008 and the JSE prescribe a minimum or optimal number of females on the board. However, according to King III, boards must consider whether their size, diversity and demographics make them effective.

2.7.5 CEO Salary

This metric refers to the total annual compensation paid for the role of CEO. Corporate governance codes deal with compensation and in particular excess compensation as a problem that potentially affects performance. It is expected that CEO pay and corporate performance are positively related as in the literature Ozkan (2011) finds a positive and statistically significant relationship between CEO basic pay and corporate performance. The large disparity in pay between some of the SOEs CEOs is the basis for the inclusion of this metric in the study. As is the case with board diversity there is no prescription on the part of King III, JSE listing requirements and the South African companies Act of 2008 as to the maximum and minimum pay of CEOs. The companies are generally free to set this compensation in line with best practice and market-related considerations.

2.7.6 CEO Tenure

This metric refers to the cumulative number of days the incumbent CEO at each year end has been in the role of CEO. It takes time for a CEO to learn the nuances and characteristics of any business, it would appear reasonable that CEOs with greater tenure in their roles would perform better than those with lesser tenure all else equal. Reason being that the decision-making team within an organization is possibly most influenced, or indeed most open to influence, by the CEO of the firm. The expectation of a positive relationship between CEO tenure and firm performance, especially in the short to medium term but in the long run ideas may become stale and relationships too comfortable for performance to be enhanced is confirmed by Henderson, Miller, and Hambrick (2006). However, at some point the lack of new ideas and a 'fresh' CEO may be an impediment to a firm whose performance is stagnating or even abating. Additionally, new CEOs, say with tenure of less than one year, may struggle to exert influence over the board and therefore have difficulty in gaining backing for decisions. In a study by Simsek (2007) a relationship between CEO tenure and performance is found. However, the underlying influence of the CEO on the top management team, which in turn affects performance, is the major driver. When the CEO tenure and organisational performance relationship is explored in specific industries by Henderson et al. (2006), they find that in highly dynamic industries firm performance improves with CEO tenure in the first few years thereafter the relationship reverses and performance abates with tenure. In more stable industries, such as the food industry, Henderson et al. (2006) found that performance improves steadily with tenure and a reversal in the relationship only occurs after 10 to 15 years.

2.8 South African Corporate Scandals

Most of the entities mentioned in sub-sections 2.8.1 and 2.8.2 below are in financial dire straits and therefore there may be a view to consider including an analysis on the prediction of corporate failure in conjunction with the governance analysis to determine whether that comparison yields any insights

that could assist investors in determining the probability of a corporate scandal that leads to corporate failure or distress culminating in losses to stakeholders.

2.8.1 Private Sector Companies

The South African private sector landscape is littered with examples of corporate scandal. In the year 2017 there were 5 separate scandals affecting some of the biggest companies on the JSE as well as some household names as indicated by Bruce (2017). The first and perhaps largest scandal is that of Steinhoff a corporate scandal that continues to unravel today but the company stands accused of major accounting and tax fraud, both the CEO and CFO have resigned from the company in the wake of the revelations. The losses are staggering in the case of Steinhoff as shareholders institutional and private alike watched R282 billion of value wiped out in a mere 3 days (Brown, 2017). Steinhoff's 2016 and 2017 financials remain unaudited and unpublished at the time of writing of this report. The other notable scandal of the year 2017 is the associated fallout from the so-called state capture of South Africa where a company deeply involved in corrupt and irregular activities continued to have its financials signed off by audit firm KPMG which for the first time brought scrutiny upon the auditing firm and profession which is unmistakably the bastion of good corporate governance practice and verification. In February 2017 Tarrant (2017) confirmed that 14 of the top 100 companies had remuneration policies that more than 25% of voters at the respective annual general meetings did not necessarily agree with. Shareholders were starting to express themselves and their discord through this vote.

2.8.2 State Owned Companies

In terms of state owned companies there are even more examples of failed governance and within these companies the governance contraventions are conspicuous and seemingly feeble attempts to hide the misconduct has brought the daring, callous and even criminal acts of the participants into the spotlight. The highlight in these cases and indeed in most corporate scandals is that the

board is not truly independent, is conflicted or is simply incapable of holding the firm's management to account. In the year 2017 there was damning indictments for the boards of Eskom, Prasa and SAA where it can be concluded that the board did not adequately perform its oversight role according to Patrick (2017), which is a clear failure of governance. Furthermore the SABC's board was found to have failed the public broadcaster as stated in a piece by Gqirana (2017), by flouting the provisions of the PFMA to take proper and effective decisions to prevent irregular and wasteful expenditure. These SOEs, amongst others have required multi-billion Rand bailouts from government which has made it difficult for government to manage the overall fiscal health of the Republic resulting in a widening budget deficit, credit ratings impairments which raise government borrowing costs and ultimately a floundering economy.

2.9 Conclusion of Literature Review

This chapter has reviewed the literature related to the study and has considered the models that have been used historically to evaluate the corporate governance and corporate performance relationship. The result of the literature review conducted was to develop hypotheses that enable the evaluation of the relationship between certain governance characteristics and performance in the case of SOEs.

2.9.1 *Hypothesis 1: Board Size and SOE Performance*

A statistically significant negative relationship exists between board size and SOE performance.

2.9.2 *Hypothesis 2: Board Independence and SOE Performance*

A statistically significantly positive relationship exists between board independence and SOE performance.

2.9.3 *Hypothesis 3: Number of Board Meetings and Performance*

A statistically significantly positive relationship exists between the number of board meetings in a year and SOE performance.

2.9.4 *Hypothesis 4: Female Representation and SOE performance*

A statistically significantly positive relationship exists between the number of females on the board and SOE performance.

2.9.5 *Hypothesis 5: CEO Pay and SOE Performance*

A statistically significantly positive relationship exists between CEO pay and SOE performance.

2.9.6 *Hypothesis 6: CEO Tenure and SOE Performance*

A statistically significant positive relationship exists between CEO tenure and SOE performance.

CHAPTER 3. RESEARCH METHODOLOGY

To conduct the study, a regression analysis as part of quantitative methodology is used. The primary concern of this paper is to explain the nature of the relationship between certain governance characteristics and SOE performance. The study uncovers generalizable statements at the conclusion of the analysis that explain certain governance characteristics on SOE performance based on historical evidence. The section is organised as follows; Section 3.1 describes the research methodology and Section 3.2 gives a description of the methodological approach applied before Section 3.3 discusses the population and sample. Section 3.4 details the actual instrument used in the analysis whilst Section 3.5 describes how the data was gathered and in Section 3.6 the analysis and interpretation of the data was discussed. Section 3.7 outlines the limitations of the study before validity and reliability close the chapter in Section 3.8.

3.1 Research methodology / paradigm

Most of the research conducted in corporate governance historically is quantitative in nature, mainly investigating relationships between governance indicators and some corporate performance metric (McNulty, Zattoni, & Douglas, 2013). This type of analysis has been popular in governance analyses and indeed the contributions of such studies have been significant. As this study applies a similar quantitative approach in order to understand the nature of the relationship between governance metrics and performance, the study does not depart from the established methodology but continues to apply the quantitative approach to SOEs. SOEs, apart from their structure and government backing, are commercial entities with commercial interests at heart for the benefit of all stakeholders and the country as a whole. This leads me to believe that they should not escape assessment based on the nuances of ownership and structure. SOEs disclose their annual reports, are for profit and produce

financials like other commercial entities. Therefore, they qualify for assessment using similar methods to those applied to non-SOE commercial entities.

Leedy (1993) defines quantitative research methods as research methods dealing with numbers and anything that is measurable in a systematic way of investigation of phenomena and their relationships. The method is used to answer questions on relationships within measurable variables with an intention to explain, predict and control phenomena. The result of the quantitative analysis particularly in the case of hypothesis testing serves to confirm or disconfirm the hypothesis tested. Thus the method is concerned with the synthesis and analysis of measurable occurrences that can be explored and uncovered by the use of statistical techniques.

Rahman (2016) who conducted a literature review of quantitative and qualitative studies, described the generalisability of the findings as the major benefit of a quantitative research method. Generalisability in the sense that the findings of the analysis can be applied to the population as the sample generally is representative of the population. Additionally, data analysis can be expedited due to the use of statistical software like SPSS or SAS. The study considers all SOEs as listed in schedule 2 of the PFMA. This list is not exhaustive but nevertheless provides a sizeable and representative sample of the population of SOEs in South Africa. Accordingly, the results should be generalizable to the sub-population of SOEs in South Africa. The quantitative method is not without limitation as Rahman (2016) confirms that the method is unable to unearth deeper meanings and explanations usually associated with social phenomena; that which does not readily lend itself to quantitative measurement. The method is thus able to produce generalizable results without necessarily exploring the deep determinants behind the results.

In a South African context, there are several studies that have explored the relationship between performance and governance metrics in a quantitative context. The study, although different in a number of aspects combines and utilizes the studies of Ntim, Lindop, Osei, and Thomas (2015), Mangena, Tauringana, and Chamisa (2012) and Harvey Pamburai, Chamisa, Abdulla, and

Smith (2015) in developing the backbone for the research methodology used in the study along with the with the research design as discussed in the next section.

This study, as per the literature review, identifies a number of contemporary governance variables and performance measures. The information required to assess and build these variables was obtained from publicly available sources such as company annual reports, company websites, the Department of Trade and Industry website and the “Who owns Whom” website. This information was used to build the variables for each company in each year of consideration. The tools that attempt to identify and explain the nature of the relationship between the dependant variables, which are the performance measures, and the independent variables, which are the various governance measures, were constructed. The analysis includes four performance measures in order to cover a range of performance metrics and inputs to try and determine which aspects of performance are more important to governance, in the context of SOEs, than others if any.

The desire to conduct the analysis in this manner is born out of the fact that despite the comprehensive literature on corporate governance post landmark corporate scandals spanning more than two decades, corporate failures continue to occur and prevail. The study was conducted over the period 2014 – 2016. The research period was chosen to allow for the most comprehensive dataset of the sample of 21 SOE companies. In the years preceding 2014 the annual reports of the SOEs were not readily available and where they were, seriously lacked the information required in order to obtain the data needed to run the analysis.

3.2 Research Design

The study employed regression analysis as the methodological approach for exploring the nature of the relationship between SOE performance and certain governance measures. The objective of the study was to arrive at a generalizable statement but also to uncover some insights that would help all

market participants better understand SOE governance and performance. The final data file was organised as one where similar firms (SOEs) were compared over equal time periods across the same variables. Therefore, the data is arranged as panel data and as such produces information that explains the nature of the relationships between the dependant and independent variables. The research tool that was used to examine and analyse the data is a multivariate regression. After synthesizing some of the literature in previous studies that have explored the relationships between firm performance and governance, the regression model specified in section 3.4 below was developed.

The period 2014 to 2016 is under analysis in this study and data was obtained from the annual reports of each SOE for each year under consideration. These annual reports form the primary basis for the information that is used to determine the corporate governance adherence, the respective SOE websites and other websites such Who owns Whom may also be used to find information that may have not been disclosed in the company reports. Similarly, company specific information from the JSE Stock Exchange News Service (SENS) was perused for required information on any of the listed SOE's concerned.

Once all of the data had been compiled for each SOE in each year of the study, the data was analysed for mistakes and outliers which would affect efficacy of the study and treat the data accordingly either by removing the offending observation or transforming where possible in order to incorporate the outlier into the study particularly if the observation changes the model output significantly. Thereafter a regression diagnostic process was performed to ensure that there were no violations of the regression model assumptions. After treating the data as per the above, four separate regressions were run, one for each performance metric in order to understand the nature of the relationships between the governance variables and the performance proxies.

The data collection and analysis method of reading information in multiple annual reports and transferring the information into an Excel file has some dangers, since numbers could be incorrectly captured, through the transposition

of digits or just a manual error. Additionally, calculations may be incorrect due to user error as well. The use of Excel with set formulas for calculating all the relevant ratios should reduce the chances of this error. Furthermore, random checks across the sample were carried out to double check that the information obtained from the annual report has been captured accurately in the correct year. Additionally, the data was analysed as a whole to determine outliers which may indicate calculation or data capturing errors. The main disadvantage thus is that these errors could be made which result in spurious conclusions.

The advantage, though, is the closeness to the data that one is when reading annual reports to obtain the information, there is indeed a multitude of additional information available in the reports which may help explain or inform some of the research or analysis conducted. For example, reasons as to why certain financial metrics changed appreciably from year to year and disclosures around sustainability and the triple bottom line.

3.3 Population and sample

3.3.1 *Population*

The population for the study would be all SOEs referred to as “public institutions in schedules 2 and 3 of the PFMA. Schedule 2 outlines the major SOEs, whereas Schedule 3 outlines the other public entities which in some cases include subsidiaries of schedule 2 entities.

3.3.2 *Sample and sampling method*

For the purposes of sampling, the major SOEs as included in schedule 2 of the PFMA form the sample for this study. Schedule 2 lists 21 SOEs which have all been included in the study. These Schedule 2 SOEs are the major SOEs in the country and represent a large proportion of this company type in South Africa by revenue and assets employed. Additionally, as they are the major SOEs the

availability of information, particularly annual reports and financial statements, tended to be better for these than the smaller firms of similar ilk.

3.4 The research instrument

Studies such as those of Ntim (2013) have used regression techniques in order to examine the relationships between governance and performance. This analysis arrived at a similar model specification which is detailed below.

$$Y_{mt} = \beta_0 + \beta_1 B1_{mt} + \beta_2 B2_{mt} + \beta_3 B3_{mt} + \beta_4 B4_{mt} + \beta_5 B5_{mt} + \beta_6 B6_{mt} + \varepsilon_{mt}$$

Where

- Y_{mt} is Return on Equity (ROE), Return on Assets (ROA), Nett Profit After Tax (NPAT) and Earnings Before Interest Tax and Deprecation (EBITDA)
- $B1_{mt}$ is the Board Size for company m at time t
- $B2_{mt}$ is the Board Independence for company m at time t
- $B3_{mt}$ is the number of Board Meetings for company m at time t
- $B4_{mt}$ is the Board Gender for company m at time t
- $B5_{mt}$ is the CEO Compensation for company m at time t
- $B6_{mt}$ is the CEO Tenure for company m at time t
- ε_{mt} is the error term

The performance measures, ROE, ROA, NPAT and EBITDA collectively represented as Y_{mt} are all measures of financial performance and profitability, the definitions and calculations of which remain consistent with the representation of the same performance measures in Bradford, Westerfield, Ross, and Firer (2012). A brief explanation on each variable is given below.

The (ROA) is a generally accepted financial accounting measure for determining the financial performance of a firm; this measure shows how profitable the firm is in relation to its total assets. Defined differently, the measure shows the efficiency with which management is able to deploy and utilise assets in generating income. Net income and average total assets were collected for each company in each year under observation before the below

calculation was run on each pair for each company to obtain an ROE for each company.

ROA = Net Income / Average Total Assets

The (ROE) is a generally accepted financial accounting measure for determining the financial performance of a firm; this measure depicts the profitability of the firm in relation to shareholders equity. Defined differently, the measure shows the efficiency with which management is able to generate income utilising the shareholders' investment in the firm. Shareholders' equity was collected for each firm in each year before the pairs were calculated according to the below equation to arrive at an ROA for each company.

ROE = Net Income / Shareholders Equity

The (NPAT) nett profit after tax is known as the 'bottom line' and represents the actual profits generated by the firm. Firms typically report this number as part of accepted accounting standards and the same was read off the income statement for each company in each year of the study

The (EBITDA) is a generally accepted financial accounting measure for assessing a firm's financial performance by removing non-operational items such as interest, tax and depreciation. EBITDA is thus a closer approximation of the ability of the firm to generate earnings from its operations. EBITDA in some instances is disclosed in the income statement of firms, where it was not, the following equations were used to calculate EBITDA depending on the information provided.

EBITDA = Operating Income (loss) + Amortization + Depreciation

EBITDA = Net Income + Interest + Taxes + Amortization + Depreciation

The $B1_{mt}$ term which represents the board size of company m at time t, is derived by measuring the board size at year end for each of the 21 companies for each year of the study.

The $B2_{mt}$ term represents the number of non-executive directors of company m at time t. This data is collected at year end of for each of the 21 companies under analysis.

The $B3_{mt}$ term represents the number of board meetings for company m at time t. The metric was derived by counting the number of board meetings including unscheduled/special meetings during the financial year of each of the 21 companies, the process was repeated for all years under analysis in the study.

The $B4_{mt}$ term represents the year-end number of females on the board for company m at time t. At year end for each of the companies a count of all the females on the board for each company in each year under consideration was performed.

The $B5_{mt}$ term represents CEO compensation in year t for company m. Due to the high variability in the incentive structures across the different SOEs. The study limited compensation to the annual basic salary that was paid to the CEO, whether acting or permanent, during the financial year. This process was repeated for each company for each of the years under analysis.

$B6_{mt}$ is the CEO Tenure for company m at time t, was obtained by counting the number of days the incumbent CEO has been in the role since becoming CEO, this was done at year end, in each year for all 21 companies.

3.5 Procedure for data collection

All SOEs have similar year ends, 31 March, which made the ability to compare and extract numbers for the same time period somewhat easier. The data that comprises all the variables was extracted from the respective company annual reports. The reports were either found on the company websites, the Department of Trade and Industry website or on the WhoOwnsWhom website. The study focuses on the period from 2014 to 2016 inclusive. All the information from the reports was collected and input into excel for each variable, for each firm, repeated for each year of the analysis. In order to perform the calculations

of ROE, ROA, NPAT and EBITDA the derivative inputs where required thus figures for nett profit, beginning and ending owners' equity for each year, average total assets for each year, depreciation and amortization for each year where collected for each firm in the study. These inputs were then used to calculate the ROE, ROA, NPAT and EBITDA for each firm in each year of analysis.

3.6 Data analysis and interpretation

As this is a quantitative regression statistical methods were used to analyse the data and interpret the same according to the statistical rules that exist for that interpretation. Firstly, before conducting any analysis on the completed data file ran a data analysis tool that provided descriptive statistics in order to understand the data and obtain a high-level representation of the data. Having observed the data, scatter plots were executed for each variable under consideration to assess and address any outliers that may be present. Once the data set had been controlled for the presence of outliers a data analysis tool in Microsoft Excel, was conducted, that produced a correlation matrix in order to understand the degree of correlation between the variables to assist in identifying and controlling for any autocorrelation present between the variables. Thereafter, the study checks that adherence to the assumptions for each regression was not violated by performing the various tests of linearity, normality, multicollinearity and homoscedasticity. Once the assumptions were satisfied four regressions were executed on the full data set substituting one of the four dependent variables at each iteration. The interpretation of the significance, signs and magnitudes of the slopes was then performed in order to understand the relationships present within the dataset. As an additional process tests were performed whereby the proportions of certain variables were considered instead of their observed values in order to determine the effect of on the results if any. Furthermore as part of the testing process the data was organized in a manner that allowed the identification of variables that either lead or lagged performance.

3.7 Limitations of the study

- The study limited the sample period to 2014 – 2016 due to the availability of all reports and financial statements on the platforms that were used to access the information.
- The study limited the number of SOEs to the major SOEs as defined by schedule 2 of the PFMA as they represent a very large part of the South African SOE universe.

3.8 Validity and reliability

3.8.1 *External validity*

This study should meet external validity requirements due to the largely quantitative methods followed in addition to the restrictive assumptions made. This should allow for transferability of results carried out against a similar population, with similar characteristics and restrictions. Additionally, because the study includes such a large proportion of the SOEs in South Africa which are characterized by majority government ownership, there should be a fairly wide degree of transferability to contexts which are similar, however, this transferability should be done with caution as there are model assumptions, data collections, endogeneity and correlation issues which need to be considered in any similar application.

3.8.2 *Internal validity*

There are a few problems that would affect the internal validity or the correctness of the study. These problems include endogeneity and autocorrelation of the regressors. Additionally, the omission of variables which would have otherwise enhanced the validity and quality of the outcomes is likely as it is not expected that all possible governance variables that could explain variances in firm performance have been included. The study has been deliberately refined and limited to one that seeks to understand the nature of the

relationships between the chosen governance characteristics and firm performance. The study has not deviated from this core focus and attempts to mirror the studies of authors who have previously explored these relationships albeit it in different contexts and in certain cases different geographies.

3.8.3 *Reliability*

Quantitative studies produce scientific outputs that inform a generalizable statement based on the outcomes of the experiments conducted. There has been much literature written about the various governance characteristics and their relationships with firm performance that enables me to develop an a priori expectation of the nature of the relationship in order then to carry out the necessary tests. The research instrument should prove to fairly reliable due to the popularity of regression-based studies in this area, from which the regression model has been developed. This popularity in testing would create the avenue for satisfying the stability and equivalence attributes of validity. Where the consistency of a research instrument's results with repeated testing speaks to the former and the consistency amongst instrument user responses and alternate forms of the instrument speaks to the latter. Heale and Twycross (2015) explain these characteristics in greater detail providing the clarity required for understanding the nature of validity and reliability in the context of their importance to any study.

3.9 Conclusion of Research Methodology

This chapter has outlined the methodology used in the analysis of the relationship between corporate governance and corporate performance for SOEs. A discussion on data collection, the research instrument and validity was also included as part of this chapter.

CHAPTER 4. PRESENTATION OF RESULTS

4.1 Introduction

This chapter presents the results of the tests performed on the variables and includes a discussion on regression diagnostics. The sections that follow are organized as follows, section 4.2 presents the descriptive statistics, section 4.3 presents the independent variable results, section 4.4 presents and discusses regression diagnostics before a summary of the results is given in section 4.5.

4.2 Results pertaining to the state-owned companies

Table 1 Full Sample Descriptive Statistics

	NPAT	ROE	ROA	EBITDA	Size	Independence	Number of Meetings	Gender	Ceo Salary	Ceo Tenure
Mean	103897977.1	0.05885	-0.00518	1961514416	11.14516	9.016129032	8.209677419	4.580645	4789882.26	0.25806452
Standard Error	321831766.4	0.15716	0.01284	736437189.1	0.298814	0.301145298	0.466847556	0.241786	370154.426	0.05602506
Median	103260000	0.05681	0.00948	255361149.5	11.5	9	8	4	3811170	0
Mode	#N/A	0.17316	#N/A	276309000	12	10	8	4	2838597	0
Standard Deviation	2534105863	1.23746	0.10110	5798712226	2.352862	2.371220447	3.67596133	1.903822	2914598.86	0.44114173
Sample Variance	6.42169E+18	1.53130	0.01022	3.36251E+19	5.53596	5.622686409	13.5126917	3.624537	8.4949E+12	0.19460603
Kurtosis	17.59643978	31.73750	8.14482	15.59004117	-0.6021	-0.515296712	0.084614543	-0.33754	2.67761092	-0.7403049
Skewness	-2.709930652	3.39763	-2.31404	3.291268275	0.093314	0.071664283	0.58041732	0.556588	1.68263662	1.13342258
Range	21300433000	12.75333	0.59393	45189637000	11	11	17	8	13400000	1
Minimum	-14274433000	-4.75691	-0.44986	-12378637000	6	4	2	1	1967000	0
Maximum	7026000000	7.99642	0.14407	32811000000	17	15	19	9	15367000	1
Sum	6441674580	3.64871	-0.32136	1.21614E+11	691	559	509	284	296972700	16
Count	62	62	62	62	62	62	62	62	62	62

Table 1 above shows the descriptive statistics for the full sample over the entire period of the analysis. According to the skewness and kurtosis characteristic; a perfectly symmetrical distribution exhibits normality when the skewness and kurtosis is equal to zero. Only board size, board independence, number of board meetings and female representation on the board are close to being normally distributed due to their values being very close to zero. The remaining variables exhibit a fair degree of positive and negative skewness.

Table 2 Yearly Descriptive Statistics

	2014		2015		2016	
	STD DEV	**MEAN**	**STD DEV**	**MEAN**	**STD DEV**	**MEAN**
NPAT	1975180507	498,486,081.62	3524152658	(654,825,478.52)	1540738937	453,276,281.67
ROE	0.33	0.06	0.52	-0.13	2.08	0.19
ROA	0.07	0.01	0.15	-0.03	0.06	0
EBITDA	3301918639	1,595,952,259	6150160498	1,427,537,094	7300945656	2,679,290,125
Size	2.23	11.15	2.47	11.76	2.29	10.52
Indep	2.46	8.8	2.35	9.67	2.27	8.57
Meetings	3.63	8.65	4.14	8.71	3.2	7.29
Gender	1.89	4.7	2.12	4.75	1.79	4.29
CEOSAL	3502717.86	4917707.45	2902816.98	5005181.19	2870954.07	4960698.05
CEOTENURE	0.43643578	0.238095238	0.43643578	0.238095238	0.46291005	0.285714286

Table 2 above presents the mean and standard deviation of all variables split by the year of observation. The table shows slight changes in most variables from year to year with small increases between 2014 and 2015, however, the situation would reverse for most of the variables when comparing years 2015 and 2016.

4.3 Detailed Variable Results

4.3.1 Board Size

Figure 1 Board Size

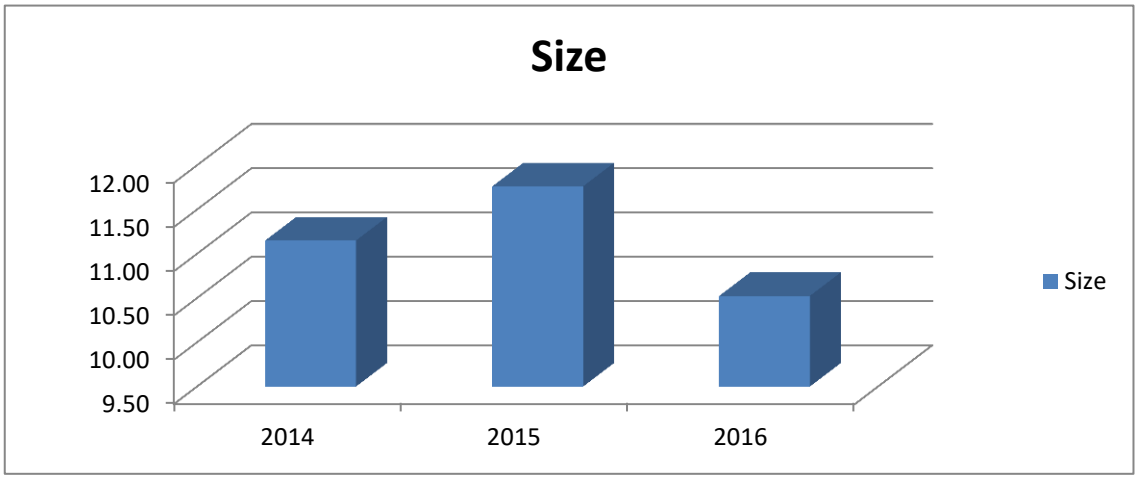


Figure 1 depicts the average number of board members at year end for the sample. Evidently the average board size amongst the major SOEs increased marginally when comparing the 2014 and 2015 number. However, in 2016 the average number of board members has declined materially when compared to both the 2014 and 2015 years. A reason for this may be that the shareholder realised that SOE boards were rather overweight in quantum and began to lessen the number of members.

4.3.2 Board Independence

Figure 2 Board Independence

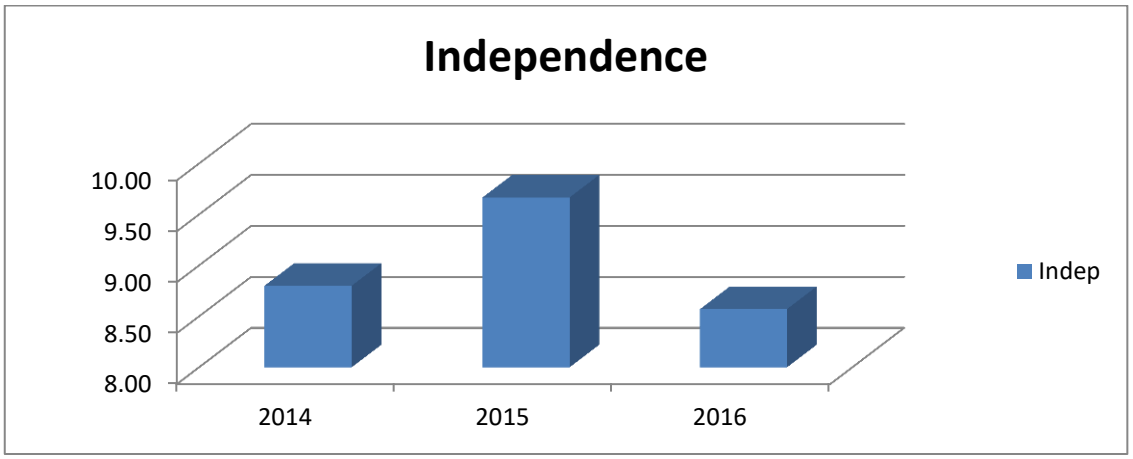


Figure 2 depicts the average number of independent non-executive members that comprise the board. The average has remained fairly constant over the period of the study; however as with board size there is a marginal increase in the number of independent non-executives between 2014 and 2015, however, this force reverses in 2016 as the number decreases. This is unsurprising as the 2016 number should be smaller as the board size in 2016, on average, was smaller than that of the prior years in the study. Board independence is one of the variables that were converted into a proportion of board size to determine the effect, if any, on the results. The proportionate board independence value did not materially change the outcome of the results hence the analysis proceeded with the use of the observed values.

4.3.3 Number of Board Meetings

Figure 3 Number of Meetings

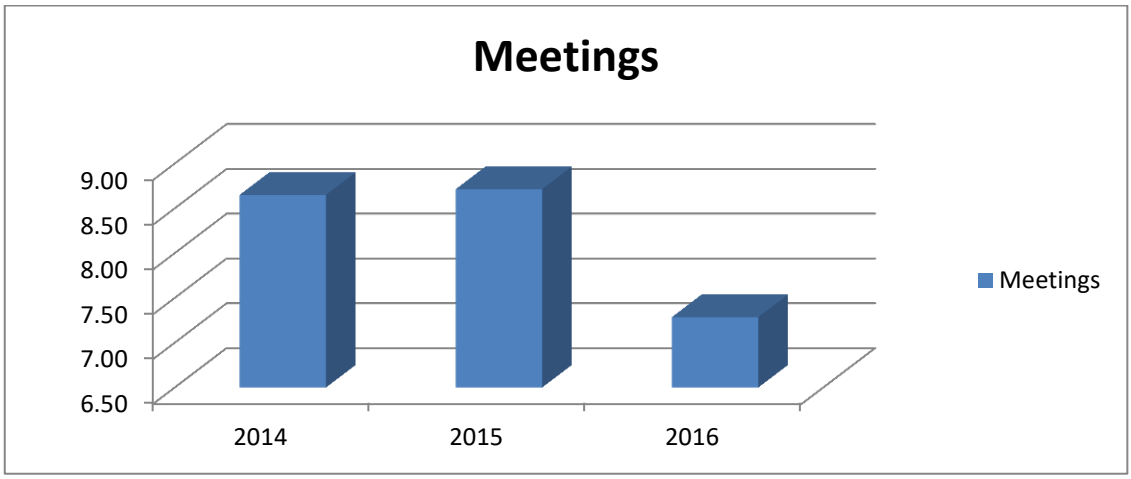


Figure 3 depicts the average number of meetings that took place in each year of the study. Visually it is evident that 2014 and 2015 only saw marginal differences in the average number of meetings that took place. However, in 2016 SOEs managed fewer meetings as on average there were two less meetings in 2016. Board gender is one of the variables were converted into a proportion of board size to determine the effect, if any, on the results. The proportionate number of females on the board did not materially change the outcome of the results, as compared to the observed values; hence the analysis proceeded with the use of the observed values.

4.3.4 Board Diversity

Figure 4 Board Diversity

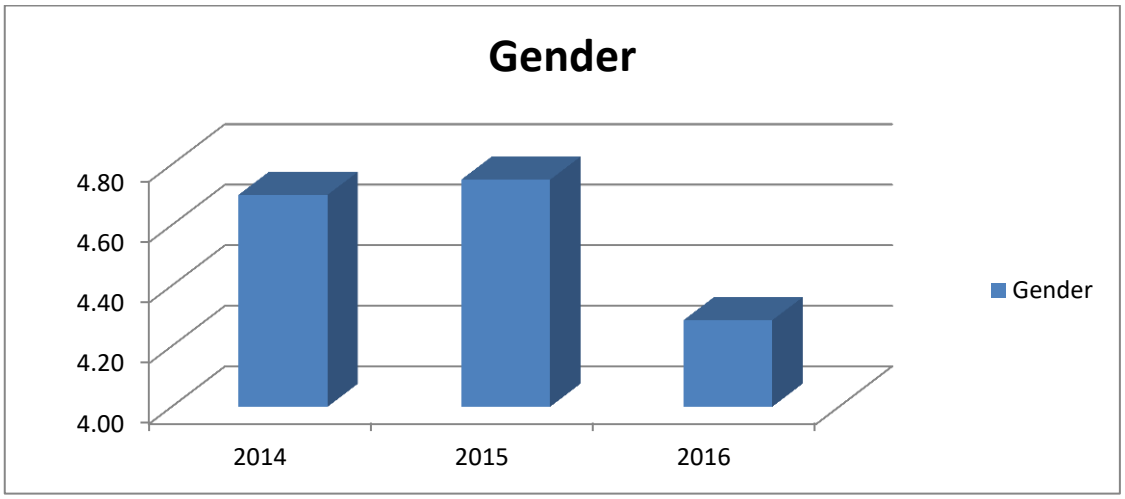


Figure 4 depicts the average number of females on the board for each year of the study. In keeping with the trend of the results presented thus far, 2014 and 2015 show only a marginal difference in the average number of females comprising SOE boards. The year 2016 shows a slight decrease in the number of females on the board, however, the difference is somewhat trivial. Therefore, there has been relative consistency in the number of females on the board.

4.3.5 CEO Salary

Figure 5 CEO Salary

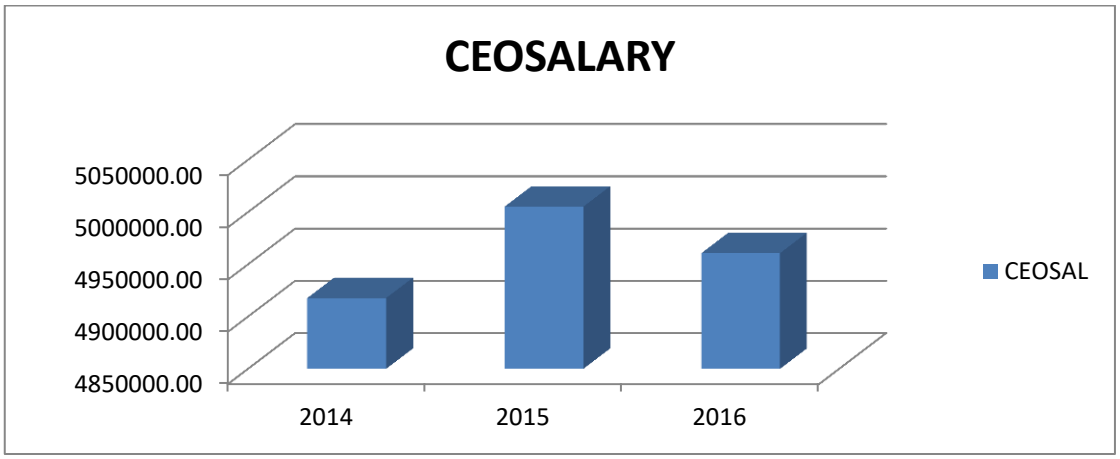


Figure 5 depicts the average salary of the CEOs of SOEs in each year of the study. The average salary of CEOs increased by more than R500 000 from 2014 to 2015. The year 2016 shows a slight decrease in the average salary of the SOE chief executive.

4.3.6 CEO Tenure

Figure 6 CEO Tenure

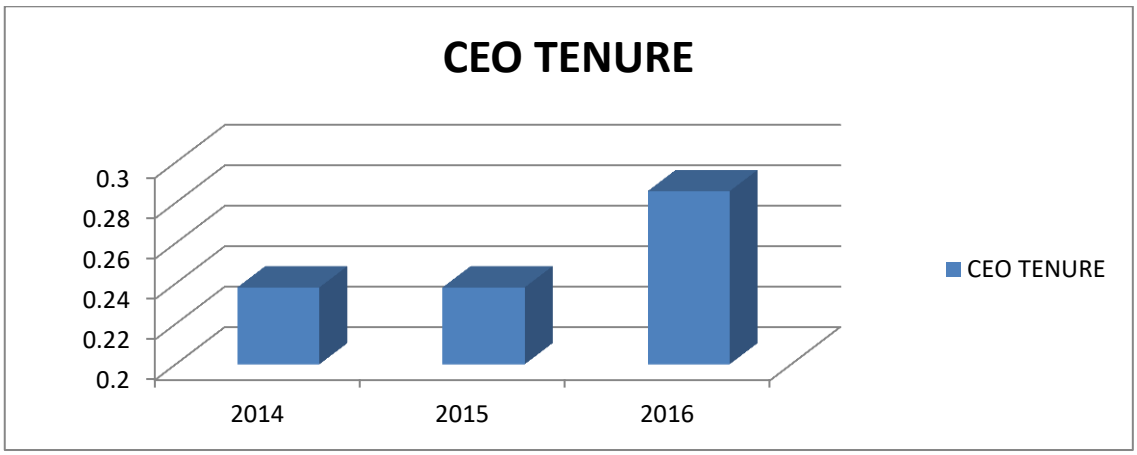


Figure 6 shows the yearly averages of CEO Tenure variable which is collected and recorded as a dummy variable. If the CEO at the end of each year has spent more than 365 days in office then the CEO is not new and is assigned a 0

score. Should the test however reveal that the CEO has less than 365 days in office then in that case the assigned result was be 1. In the years 2014 and 2015 it is observed that the number of new CEOs in each year was 5, hence the dummy mean is the same for both those years. In 2016 the average is slightly higher due to their being 6 new CEOs in that year. The sample is dominated by longer tenure CEOs as opposed to shorter tenure ones. Indeed, the average tenure of the CEOs across the sample is 2.5 years.

4.4 Regression Diagnostic Testing

A regression is used a statistical means to identify the nature of the relation, if any, of the independent variables to the dependent variable. In other words, regressions help one understand the extent to which changes in the independent variable influence or change the dependent variable. In order to run a regression there are some assumptions that must be satisfied. The first of these is linearity, which assumes the presence of a linear or curvilinear relationship between the dependent and independent variables. The second assumption is normality which assumes that the residuals are normally distributed. The third assumption multicollinearity, assumes that the independent variables are not highly correlated with one another. The fourth assumption is homoscedasticity which states that the variance of the error terms is similar across the independent variables. In order for the regression to exhibit the characteristics of a well specified and designed regression, the regression would have to comply with the above assumptions. One impediment to accurately specifying regressions is the omission of variables from the regression that would have otherwise made the regression better by enhancing the degree to which the independent variables influence the dependent variables. Whilst this is important the study does not purport to have included all available material variables in this study, only those that have been widely used in the literature in similar prior studies. Furthermore, the process described below was carried out for each of the four regressions, the results of which can be found in the appendices.

4.4.1 Linearity

As described above, linearity is one of the assumptions for running a regression model. In the case of the study a scatter plot matrix, plotting the dependent variables on the y-axis and the independent variables on the x-axis, was produced using SAS statistical software for all the independent variables in included in the study. When analysing scatter plots, one is concerned with the trend or shape within the scatter plot. Ideally the scatter plot should produce a linear, curvilinear or random shape in order to satisfy the linearity assumption. Should the shape tend to be parabolic or exponential in nature then the assumption of linearity is not satisfied. **Appendix 2** shows scatter plot matrices isolated for each independent variable. From the scatter plots the observation is that there is no exponential or parabolic shape to any of the plots, in fact, the shapes tend to be linear or random at best. Therefore, the analysis shows that, on the basis of linearity, there is no reason to believe that a regression is not suitable to the data and the analysis can proceed.

4.4.2 Normality

Normality is another assumption that needs to be satisfied in preparation to run a regression. Normality refers to the distribution of the residuals, where the residual is the degree to which actual observed value deviates from the mean. An important characteristic of normality tests is that they tend to be more accurate for larger sample sizes than smaller sample sizes. Nevertheless, the normality assumption remains an important assumption and is tested for in the study using the Shapiro-Wilk test. The results of the test are included in **Appendix 3.** The results show that at the 5% significance level, board size, board independence and board meetings fail to produce a p-value that would result in the rejection of the null hypothesis that the variable residuals are normally distributed. Therefore, these three variables have satisfied the normality assumption according to Shapiro-Wilk test. Conversely for board gender, CEO salary and CEO tenure the p-values produced result in a rejection

of the null hypothesis of normality suggesting then that these variables have a non-normal distribution of residuals.

4.4.3 Multicollinearity

Table 3 Correlation Matrix

	Size	*Indep*	*Meetings*	*Gender*	*CEOSAl*	*CEOTENURE*
Size	1					
Indepence	0.8781	1				
Meetings	0.1765	0.1425	1			
Gender	0.7494	0.6697	0.1931	1		
CEOSAl	0.5359	0.4883	0.0518	0.4295	1	
CEOTENURE	0.2277	0.1833	-0.1992	0.1332	0.1985	1

A further assumption when designing and specifying a regression is to understand the degree with which the independent variables correlate with each other. In order to investigate this firstly a correlation matrix was constructed to get a feel for which variables correlate highly with each other. From Table 3 it is evident that board size and board independence is the pair of variables with comfortably the highest correlation at 0.88 with second-highest pair of board size and board gender producing a correlation statistic of 0.75. Therefore, of all the pairs of variable only one produced a correlation statistic in excess of 0.8, nevertheless a concession that there may be a marginal multicollinearity problem in the data is made. In order to confirm these findings, Variance Inflation Factor (VIF) test was executed to test for the presence of multicollinearity. The results of the VIF test are included in **Appendix 4.** From the results of the VIF test the observation is that none of the VIF statistics is greater than 10 for any of the variables and as such permits the conclusion that overall there is limited multicollinearity within the data and the analysis with the regression may proceed.

4.4.4 Homoscedasticity

An additional assumption in performing a regression is homoscedasticity which assumes that different samples have the same variance even if they come from

different populations. In order to test for homoscedasticity in the sample the Bruesch-Pagan heteroscedasticity test is used, critically the p-value of *F* of 0.4875 is greater than the 5% level indicating that the null hypothesis that the error terms are heteroscedastic cannot be rejected and as such have not violated this assumption and the regression can proceed. Table 4 summarizes the outcomes of both regressions, whilst Table 5 presents the regression statistics that informed the outcomes displayed in Table 4. Additionally, the residual plots contained in the appendices provide further information on homoscedasticity.

Table 4 Hypothesis Test Results

		ROE			ROA			NPAT			EBITDA		
	Hypothesis Sign	Regression Result	Statistical Significance	Hypothesis Decision	Regression Result	Statistical Significance	Hypothesis Decision	Regression Result	Statistical Significance	Hypothesis Decision	Regression Result	Statistical Significance	Hypothesis Decision
Board Size	-	+	INSIG	Reject	-	INSIG	Reject	+	INSIG	Reject	+	INSIG	Reject
Number of Independent Directors	+	-	INSIG	Reject	-	INSIG	Reject	-	INSIG	Reject	-	INSIG	Reject
Number of Meetings	+	-	INSIG	Reject	-	**SIG**	**Reject**	-	INSIG	Reject	+	INSIG	Reject
Number of Women on the Board	+	+	INSIG	Reject	+	INSIG	Reject	+	**SIG**	**Accept**	+	INSIG	Reject
CEO Salary	+	-	INSIG	Reject	+	INSIG	Reject	+	**SIG**	**Reject**	+	**SIG**	**Accept**
CEO Tenure	+	+	**SIG**	**Accept**	-	INSIG	Reject	-	INSIG	Reject	+	**SIG**	**Accept**

Hypothesis 1: A statistically significant negative relationship exists between board size and SOE performance.

Hypothesis 2: A statistically significantly positive relationship exists between board independence and SOE performance.

Hypothesis 3: A statistically significantly positive relationship exists between the number of board meetings in a year and SOE performance.

Hypothesis 4: A statistically significantly positive relationship exists between the number of females on the board and SOE performance.

Hypothesis 5: A statistically significantly positive relationship exists between CEO pay and SOE performance.

Hypothesis 6: A statistically significant positive relationship exists between CEO tenure and SOE performance.

4.5 Regression Results

Table 5 Governance and Performance

Panel A - Dependent Variable ROE

Regression Statistics	
Multiple R	0.31902
R Square	0.10177
Adjusted R Square	0.00379
Standard Error	1.23511
Observations	62

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	6	9.506644	1.584441	1.038636	0.41058662
Residual	55	83.90258	1.525501		
Total	61	93.40922			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-0.32010	0.87859	-0.36433	0.71701
Size	0.09946	0.16232	0.61273	0.54258
Independence	-0.05498	0.14023	-0.39210	0.69650
Meetings	-0.04968	0.04429	-1.12171	0.26686
Gender	0.03117	0.12666	0.24611	0.80651
CEO Salary	0.00000	0.00000	-0.58997	0.55763
CEO Tenure	0.80586	0.36375	2.21546	**0.03089****

**Significant at 10% and 5% level

Panel B - Dependent Variable ROA

Regression Statistics	
Multiple R	0.36425
R Square	0.13268
Adjusted R Square	0.03806
Standard Error	0.09915
Observations	62

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	6	0.08272	0.013787	1.402307	0.230355273
Residual	55	0.540728	0.009831		
Total	61	0.623448			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.03530	0.07053	0.50048	0.61873
Size	-0.00053	0.01303	-0.04043	0.96790
Independence	-0.00370	0.01126	-0.32852	0.74376
Meetings	-0.00752	0.00356	-2.11449	**0.03902****
Gender	0.01065	0.01017	1.04717	0.29960
CEO Salary	0.00000	0.00000	0.86976	0.38821
CEO Tenure	-0.03581	0.02920	-1.22641	0.22527

**Significant at 10% and 5% level

Table 4 above shows the outcomes of the regression tests conducted on the sample. Four separate regressions that contained the same explanatory variables whilst changing the dependent variable were conducted. The four dependent variables are ROE, ROA, NPAT and EBITDA.

Where ROE is set as the dependent variable the observation from Panel A of Table 5 is that the regression as a whole has a low R-Squared and an F-Statistic that is not statistically significant at the 5% level of significance. The first interpretation as a result of the above is that the independent variables as combined only explain about 10% of the variation in ROE, this is reflected in an R-Squared score of 0.10. Owners' Equity, a variable used in the calculation of ROE, in the study was found to be highly variable both between years of the same company and across different companies. This could be an explanation as to why the model has low explanatory power. Additionally, the model may not contain all variables that could possibly explain the variation in ROE. Despite the low R-Squared and insignificance of the regression a statistically significant positive relationship was found between CEO Tenure and ROE. The result is thus that the study is unable to reject the null hypothesis for hypothesis 6 and confirms that a positive statistically significant relationship exists between CEO Tenure and SOE performance.

When ROA is set as the dependent variable, the observation from Panel B of Table 5 is that the regression as a whole has low R-Squared and an F-Statistic that is not statistically significant at the 5% level of significance as was the case with the ROE equation. The R-Squared along with F-Statistic for this equation has improved marginally as compared to the ROE model. Nevertheless, the R-Squared for the ROA model indicates that the explanatory variables only explain 13% of the variation in ROA. Despite these low numbers indicating low explanatory power, the model still produced a statistically significant result in the case of the relationship between ROA and the Number of Board Meetings. The coefficient for this variable is negative and statistically significant indicating, albeit counterintuitively, that there is a negative relationship between number of

board meetings and the ability of the company to generate earnings from its assets. No other significant relationships were observed for the ROE model.

Table 6 Governance and Performance

Panel A - Dependent Variable NPAT

Regression Statistics	
Multiple R	0.543176
R Square	0.29504
Adjusted R Square	0.218135
Standard Error	2.24E+09
Observations	62

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	6	1.16E+20	1.93E+19	3.836432	0.002886
Residual	55	2.76E+20	5.02E+18		
Total	61	3.92E+20			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-1.8E+09	1.59E+09	-1.13486	0.261356
Size	20962402	2.94E+08	0.071185	0.943509
Independence	-1E+08	2.54E+08	-0.3982	0.692023
Meetings	-1.3E+08	80343290	-1.62712	0.109429
Gender	4.59E+08	2.3E+08	1.995912	**0.050005****
CEO Salary	328.896	113.4595	2.898797	**0.005372*****
CEO Tenure	-4.1E+07	6.6E+08	-0.06147	0.951205

**Significant at 10% and 5% level
***Significant at 10%, 5% and 1% level

Panel B - Dependent Variable EBITDA

Regression Statistics	
Multiple R	0.5937
R Square	0.35248
Adjusted R Square	0.281841
Standard Error	4.91E+09
Observations	62

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	6	7.23E+20	1.2E+20	4.989902	0.000383
Residual	55	1.33E+21	2.41E+19		
Total	61	2.05E+21			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-7.3E+09	3.5E+09	-2.0841	**0.04181**
Size	1.54E+08	6.46E+08	0.238796	0.812151
Independence	-1.1E+08	5.58E+08	-0.18916	0.850663
Meetings	2.45E+08	1.76E+08	1.390435	0.169998
Gender	3.3E+08	5.04E+08	0.655762	0.514711
CEO Salary	864.4792	248.8238	3.474263	**0.001007*****
CEO Tenure	3.15E+09	1.45E+09	2.178501	**0.033672****

**Significant at 10% and 5% level
***Significant at 10%, 5% and 1% level

Table 4 and Table 6 Panel A show the regression model where NPAT is set as the dependent variable and all the explanatory variables are unchanged and are used in the same manner as the previous two equations. Interestingly this model has managed a substantially higher R-Squared at 0.3 and a statistically significant F-Statistic of <0.05 indicating that the regression where NPAT is proxy for performance is statistically significant. Furthermore, the R-Squared shows that 30% of the variation in NPAT can be explained by changes in the independent variables as specified. This model has thus improved substantially over the first two models where ROE and ROA were set as proxies for performance as those regressions were not only insignificant but had low values of R-Squared. Additionally, the model has exposed two statistically significant relationships. Firstly, the relationship between the number of females on the board and NPAT is shown to statistically significantly positive thus the analysis allows the acceptance and confirmation of the related hypothesis 4, that there is a statistically significantly positive relationship between female representation and NPAT. Therefore, having more females on the board appears to have a direct positive influence on the bottom line or nett profit of SOEs. Secondly the model depicts a statistically significantly positive relationship between CEO Salary and Nett Profit which is counterintuitive as executive salaries are an expense which if increased, all else equal, would decrease NPAT. Nevertheless, in the model which models SOEs the data suggests that higher paid SOE CEOs may contribute more in other ways, maybe work harder, with the effect that NPAT is enhanced.

From Table 4 and Panel B of Table 6 the model is specified as one that explains changes in EBITDA. The model produced an R-Squared of 0.35 indicating that the independent variables are able to explain 35% of the variation in EBITDA. This is an improvement in explanatory power over the three previous models specified. Additionally, the model has produced an F-Statistic of 0.0003 that is statistically significant at the 5% level. Therefore, the regression as a whole is significant indicating that the model fits the data better than the equivalent model with no explanatory variables. That is that the inclusion of the explanatory variables has helped explained the variation in

EBITDA and the model is better for including them as opposed to leaving them out. In this regression where EBITDA is the dependent variable the observation is that there are three significant variables, those are for the intercept, CEO Salary and CEO Tenure. The intercept significance is not materially important as the intercept points to a value of EBITDA if all explanatory variables were made equal to zero. Since the explanatory variables are unlikely to be 0 at the same time the materiality and meaning of the significant intercept is somewhat diminished. In the case of CEO Salary, the coefficient is positive and statistically significant indicating that higher CEO pay contributes to higher EBITDA in SOEs. This could be due to a sizing, that is larger SOEs with larger EBITDAs on aggregate would have CEOs that are paid more than smaller SOEs with lower aggregate EBITDAs. Therefore, the study rejects Hypothesis 5 as the analysis has uncovered a statistically significantly positive relationship between CEO Salary and EBITDA. The other relationship to exhibit significance in the study is the one between CEO Tenure and EBITDA. The coefficient is positive and statistically significant indicating that there is a positive relationship between CEO Tenure and EBITDA. That is longer serving CEOs, as opposed to new CEOs with tenure of less than a year, are associated with higher levels of EBITDA. Therefore, in this instance Hypothesis 6 is accepted and confirms that there is a statistically significantly positive relationship between CEO Tenure and EBITDA.

Table 7 Leading and Lagging Indicators

Type	Y_{mt}	Regression Statistic	R-Squared	Significant	p-value
LEAD	EBITDA	0.00656	0.39230	CEOSAL	**0.01366**
LAG	EBITDA	0.04504	0.30137	CEOSAL	**0.04264**

A further set of regressions were run to establish the ability of the dependent variables to lead or lag performance on a yearly basis. Regressions in which Y_{mt} was set to either of NPAT/ROE or ROA resulted in statistically insignificant regressions with all independent variables failing to produce a statistically significant coefficient. The regression in which Y_{mt} was set to Ebitda produced a statistically significant regression with a regression statistic of 0.00656 and an

R-squared of 39% and a statistically significant coefficient for the variable CEOSALARY with a p-value of 0.01366.

Regressions in which Y_{mt} was set to either of NPAT/ROE or ROA resulted in statistically insignificant regressions with all independent variables failing to produce a statistically significant coefficient. The regression in which Y_{mt} was set to Ebitda produced a statistically significant regression with a regression statistic of 0.4504 and R-squared of 30% and a statistically significant coefficient for the variable CEOSALARY with a p-value of 0.04264.

4.6 Conclusion of the Presentation of Results

In the preceding sections the results of the analysis are presented, following an introduction in section 4.1, the descriptive statistics of the dataset are presented in order to provide a feel for the data in section 4.2. Section 4.3 then visually describes all the independent variables and the nature of their changes over time whilst section 4.4 details the regression diagnostics before section 4.5 presents the results of the regression analysis.

CHAPTER 5. DISCUSSION OF THE RESULTS

5.1 Introduction

This chapter discusses in broad detail the results of this study in relation to the hypothesis developed and stated in section 2.9.

5.2 Discussion pertaining to the stated hypotheses

5.2.1 *Hypothesis 1: Board Size and SOE Performance*

Panel A of Table 5 represents the regression model where ROE is the proxy performance. The table shows that the variable (board size) has a positive coefficient of 0.09946 along with a corresponding p-value of 0.54258 which is statistically insignificant. Therefore the result is to reject the hypothesis that a statistically significantly negative relationship exists between board size and performance.

In terms of Panel B of Table 5 the opposite phenomenon is observed, with a coefficient of -0.00053 and a corresponding statistically insignificant p-value of 0.96790 therefore the ROA model is able to find a negative relationship between board size and performance but the coefficient is not statistically significant. Consequently, as with Panel A in the case of the size and performance relationship therefore the result is to reject the null hypothesis that a statistically significantly negative relationship exists between board size and performance.

In terms of Panel A of Table 6 the opposite phenomenon is observed, with a coefficient of 20962402 and a corresponding statistically insignificant p-value of 0.943509 therefore the NPAT model finds a positive relationship between board size and performance but the coefficient lacks statistical significance. Consequently, in the size and performance relationship, where NPAT is the proxy for performance, therefore, the result is to reject the null hypothesis that a

statistically significantly negative relationship exists between board size and performance.

In terms of Panel B of Table 6 the opposite phenomenon is observed, with a coefficient of 1.54E+08 and a corresponding statistically insignificant p-value of 0.812151 therefore the EBITDA model finds a positive relationship between board size and performance but the coefficient lacks statistical significance. Consequently, in the size and performance relationship, where NPAT is the proxy for performance, therefore, the result is to reject the null hypothesis that a statistically significantly negative relationship exists between board size and performance.

Thus, the only model that was able to find a negative relationship between size and performance was the ROA model, but the regressions model and the coefficient were both insignificant. The analysis thus in terms of size and performance relationship has produced mixed results. The findings appear to agree with those of Larmou and Vafeas (2010) where a positive relationship between board size and performance was found for UK-based firms with smaller boards. In an African context Kyereboah-Coleman (2008) find that large and independent boards enhance firm value, hence the size and performance relationship is found to be positive. The relationship thus appears to be dependent on whether the size of the underlying firms is considered to be large or small and indeed whether the size of the associated board is considered to be large or small. Additionally the conflicting results of the analysis holding all independent variables constant reveals that the nature and direction of the relationship between board size and independence is largely dependent on the performance measure used, this finding is confirmed by Kyereboah-Coleman (2008).

5.2.2 *Hypothesis 2: Board Independence and SOE Performance*

Panel A of Table 5 represents the regression model where ROE is the proxy performance. The table shows that the variable (board independence) has a negative coefficient of -0.05162 along with a corresponding p-value of 0.69650

which is statistically insignificant. Therefore, the result is to reject the hypothesis that a statistically significantly positive relationship exists between board independence and performance.

In terms of Panel B of Table 5 a similar phenomenon is observed, with a coefficient of -0.00370 and a corresponding statistically insignificant p-value of 0.74376 therefore for entirely the same reason as with Panel A in the case of the board independence and performance relationship therefore, the result is to reject the null hypothesis that a statistically significantly positive relationship exists between board independence and performance.

With reference to Panel A of Table 6 a similar phenomenon is observed, with a coefficient of -1E+08 and a corresponding statistically insignificant p-value of 0.692023 therefore in the case of the board independence and performance relationship therefore, the result is to reject the null hypothesis that a statistically significantly positive relationship exists between board independence and performance.

With reference to Panel B of Table 6 a similar phenomenon is observed, with a coefficient of -1.1E+08 and a corresponding statistically insignificant p-value of 0.850663 therefore in the case of the board independence and performance relationship the result is to reject the null hypothesis that a statistically significantly positive relationship exists between board independence and performance.

The findings appear to agree with those of Bhagat and Black (2001) where the generally agreed finding that a greater degree of independence of the board results in higher firm performance is questioned and not supported by his study. The negative coefficients, although statistically insignificant throughout, have proved to be consistent in sign throughout the four different performance measures and as a result the null hypothesis cannot be accepted. This is an interesting finding for SOEs as with the advent of corruption, irregular expenditure and mounting losses throughout SOEs one would have thought that greater independence would have resulted in an increase in performance.

5.2.3 *Hypothesis 3: Number of Board Meetings and Performance*

Panel A of Table 5 represents the regression model where ROE is the proxy performance. The table shows that the variable (meetings) has a negative coefficient of -0.04968 along with a corresponding p-value of 0.69650 which is statistically insignificant. Therefore, the hypothesis that a statistically significantly positive relationship exists between the number of board meetings and performance is rejected.

In terms of Panel B of Table 5, where ROA is the proxy for performance, a similar phenomenon is observed, with a coefficient of -0.00752, however there is a corresponding statistically significant p-value of **0.03902*** therefore for similar reasons to Panel A in the case of the number of meetings and performance relationship the null hypothesis that a statistically significantly positive relationship exists between the number of board meetings and performance is rejected, instead observing that the relationship is statistically significantly negative. Thus, in this instance the sample suggests that performance suffers with an increase in the number of board meetings per year.

Panel A of Table 6 represents the regression model where NPAT is the proxy performance. The table shows that the variable (meetings) has a negative coefficient of -1.3E+08 along with a corresponding p-value of 0.109429 which is statistically insignificant. Therefore, the hypothesis that a statistically significantly positive relationship exists between the number of board meetings and performance is rejected.

Panel B of Table 6 represents the regression model where EBITDA is the proxy performance. The table shows that the variable (meetings) has a positive coefficient of 2.45E+08 along with a corresponding p-value of 0.169998 which is statistically insignificant. Therefore, the hypothesis that a statistically significantly positive relationship exists between the number of board meetings and performance is rejected.

The findings appear to agree with those of Vafeas (1999) where an inverse relationship between the number of board meetings and performance was

found. Given the plethora of governance related problems that continue to plague SOEs, perhaps one should not be surprised by this result. The average number of board meetings has been in excess of 8 meetings per year for each year under analysis and could certainly point to other problems within an organization. The number of unscheduled meetings could be compared to the number of scheduled meetings to ascertain why the board may be meeting too often in relation to its own proposed scheduling. Furthermore, the reasons for the meeting would need to be explored if this information is available as a further insight into whether the board is meeting more often due to a growing number and severity of problems within the organization. The relationship does appear to be sensitive to the performance proxy that is used.

5.2.4 *Hypothesis 4: Female Representation on the Board and Performance*

Panel A of Table 5 represents the regression model where ROE is the proxy performance. The table shows that the variable (gender) has a positive coefficient of 0.03117 along with a corresponding p-value of 0.80651 which is statistically insignificant. Therefore, the hypothesis that a statistically significantly positive relationship exists between female representation and performance is rejected, despite the fact that the coefficient is in agreement its lack of significance violates the requirement for statistical confirmation.

In terms of Panel B of Table A, where ROA is the proxy for performance, a similar phenomenon is observed, with a coefficient of 0.01065 and a corresponding statistically insignificant p-value of 0.29960 therefore for entirely the same reason as with Panel A in the case of the number of females on the board and performance relationship the null hypothesis that a statistically significantly positive relationship exists between board size and performance is rejected.

Panel A of Table 6 represents the regression model where NPAT is the proxy performance. The table shows that the variable (gender) has a positive coefficient of 4.59E+08 along with a corresponding p-value of **0.050000** which is

statistically significant. Therefore, the hypothesis that a statistically significantly positive relationship exists between female representation and performance is accepted and confirms that the relationship does indeed exist and is significant.

Panel B of Table 6 represents the regression model where EBITDA is the proxy performance. The table shows that the variable (gender) has a positive coefficient of 3.3E+08 along with a corresponding p-value of 0.514711 which is statistically insignificant. Therefore, the hypothesis that a statistically significantly positive relationship exists between female representation and performance is rejected.

The findings agree with Campbell and Mínguez-Vera (2008) who finds a positive significant link between the number of women on the board and firm performance. Similarly the findings are in agreement with Erhardt et al. (2003) who find that increased levels of board diversity are highly correlated with increased performance across a range of performance indicators. In the study all the coefficients were positive with one being significant indicating that the relationship has held positive across all the four regressions performed.

5.2.5 *Hypothesis 5: CEO Salary and Performance*

Panel A of Table 5 represents the regression model where ROE is the proxy performance. The table shows that the variable (ceo salary) has a coefficient of 0.00000 along with a corresponding p-value of 0.55763 which is statistically insignificant. Therefore, the hypothesis that a statistically significantly positive relationship exists between CEO salary and performance is rejected.

In terms of Panel B of Table 5 a similar phenomenon is observed using the ROA as a proxy for performance, with a coefficient of 0.00000 and a corresponding statistically insignificant p-value of 0.38821 therefore for entirely the same reason as with Panel A in the case of the size and performance relationship the null hypothesis that a statistically significantly positive relationship exists between CEO salary and performance is rejected.

In terms of Panel A of Table 6 where NPAT is the proxy for performance, with a coefficient of 328.896 and a corresponding statistically significant p-value of **0.005372** therefore the case of the size and performance relationship the null hypothesis that a statistically significantly positive relationship exists between CEO salary and performance cannot be rejected and that there actually exists a statistically significantly positive relationship between NPAT and CEO Salary.

In terms of Panel B of Table 6 a similar phenomenon is observed using the EBITDA as a proxy for performance, with a coefficient of 864.4792 and a corresponding statistically significant p-value of **0.005372** therefore for entirely the same reason as with Panel A in the case of the size and performance relationship the null hypothesis that a statistically significantly positive relationship exists between CEO Salary and performance cannot be rejected, and that the relationship is actually positive and significant.

The finding of a positive relationship between CEO Salary and firm performance is in line with an earlier study conducted by (Lilling, 2006). Therefore, the implication for SOEs is that there is a positive pay-to-performance link therefore incentive-based remuneration strategies may be useful.

5.2.6 *Hypothesis 5: CEO Tenure and Performance*

Panel A of Table 5 represents the regression model where ROE is the proxy performance. The table shows that the variable CEO tenure has a positive coefficient of 0.80586 along with a corresponding p-value of **0.03089** which is statistically significant. Therefore, the hypothesis that a statistically significantly negative relationship exists between CEO tenure and performance is rejected, in fact, longer tenured CEOs who have been serving for more than one year are associated with higher levels of firm performance.

In terms of Panel B of Table 5 where ROA is the proxy for performance, a coefficient of -0.03581 and a corresponding statistically insignificant p-value of 0.22527 is observed therefore in the case of the CEO tenure and ROA-performance relationship the null hypothesis that a statistically significantly

negative relationship exists between board size and performance is rejected, despite finding a negative relationship the lack of significance violates the requirement of the hypothesis.

In terms of Panel A of Table 6 where NPAT is the proxy for performance, a coefficient of -4.1E+07 and a corresponding statistically insignificant p-value of 0.951205 is observed therefore in the case of the CEO tenure and ROA-performance relationship the null hypothesis that a statistically significantly negative relationship exists between board size and performance is rejected, despite finding the negative relationship the lack of significance violates the requirement of the hypothesis.

Panel B of Table 6 represents the regression model where EBITDA is the proxy performance. The table shows that the variable CEO tenure has a positive coefficient of 3.15E+09 along with a corresponding p-value of **0.033672** which is statistically significant. Therefore, the hypothesis that a statistically significantly negative relationship exists between CEO tenure and performance is rejected, in fact, longer tenured CEOs who have been serving for more than one year are associated with higher levels of firm performance.

This study has determined that new CEOs with tenure of less than a year are able to deliver performance gains over their longer tenured counterparts. This may be as a result of the new ideas and strategy and reinvigoration that change brings within an organisation resulting in a more productive workforce and the implementation of projects and practices that immediately improve performance metrics as opposed to continuing the status quo under the same tenured leader.

5.3 Discussion pertaining to The Firm Perspective

This study has primarily concerned itself with the nature of the relationship between governance and firm performance. Indeed performance gains either through perceived or actual good governance disclosures may be the motive behind a firms desire to disclose and confirm good governance adherence. The firm’s motive for producing governance reports and reporting disclosure is the

narrative that good governance enhances performance. There is a plethora of literature producing evidence to support the narrative however; equally there are a few studies that are less conclusive. The perception of transparency, full disclosure and governance adherence may have more to do with firm reputation, an enhancement of which, could lead to better financial performance. A firm with a good reputation as part of enhanced corporate governance adherence regime may find it easier to raise funding in capital markets as they may enjoy a discounted cost of capital through if the enhanced reputation and governance improves credit ratings, this analysis of this component fell outside the scope of the study. The corporate reputation of a firm can be attributed to the quality of corporate governance as postulated by Iwu-Egwuonwu and Chibuike (2010), or stated differently, the development and sustainability of a good corporate reputation is based on the concept of good corporate governance. Reputation is thus a relatively key part of the analysis as in this day and age corporate gaffes are widely broadcast in the media and this information is disseminated to the market faster than ever before. The result is that board members and directors of organisations should align their decision-making activities and actions with those that enhance corporate reputation and firm value. The antithesis of this last statement is that anti-competitive and fraudulent behaviour on the part of managers and the board is likely to do so much damage to the firm's reputation that the firm may never recover. The honesty and validity of governance decisions taken influences stakeholders thus firms are able to make certain disclosures even if they have not been implemented at the time, particularly in the case that they are to be implemented and thus are able to benefit from the associated good governance perception. Westphal and Zajac (1998) investigate the symbolic actions of managers and the associated market reaction and find that symbolic corporate actions can result in significant positive reactions from stakeholders and can inhibit substantive corporate reforms. In the analysis the content and structure of the annual reports hardly changed from year to year a further indication that companies are aligning themselves more with King III governance checklists or provisions and perhaps the efficacy in assessing the real and true quality of the governance of the firm is lost as the firm is merely disclosing as per the King III

checklists and not necessarily actively engaging in governance enhancing activities.

5.4 Conclusion of the Discussion of Results

This chapter has considered the hypotheses presented at the end of Chapter Two along with the results of the study to arrive at the conclusion that SOEs present significantly different characteristics to firms that are not SOEs and these differences may hinder the ability of researchers to understand these firms much in the same way they do other firms, particularly when assessing and selecting performance proxies.

CHAPTER 6. CONCLUSIONS & RECOMMENDATIONS

6.1 Introduction

This chapter will summarise the key findings and conclusions of this study in section 6.2, before summarising recommendations to stakeholders at large in section 6.3. Thereafter section 6.4 will conclude with suggestions for future research.

6.2 Conclusions of the study

This study was to understand the nature of the relationship between certain governance characteristics and firm performance for SOEs. At the conclusion of the study, the way in which the chosen governance characteristics affect performance if at all has become clearer. The first key finding of this study is that there is a significant negative relationship between the number of board meetings held and SOE performance as was the case in (Vafeas, 1999). The relationship however, proved to be sensitive to the performance proxy used. Thus, increased meetings harm performance and boards are advised to meet an appropriate number of times to maintain effective and impactful decision-making and influence over the company. The tests on the meetings variable in order to obtain a leading or lagging indication on performance proved inconclusive and as such the study does not enhance the finding by stating why the increasing meetings occur; due to poor performance or whether the frequent meetings have occurred as a result of poor performance. There is no optimal number of meetings that ought to be held but the board should meet enough, in a manner that is effective to enhance the overall performance of the SOE taking into account the stakeholders of the SOE.

A second key finding is that female representation on the board of directors has a direct positive influence on the bottom line or nett profit of an SOE. Therefore,

SOEs seeking better profit-based results should consider altering their boards to the extent that more women are included in the composition of the board. This derivation arises out of the fact that a statistically significantly positive relationship was found between female representation and SOE after tax profits.

The third key finding is that SOEs with higher paid CEOs seemed to produce higher after-tax profits than those with lower paid CEOs. One reason for this could be that higher paid CEOs work harder than lower paid CEOs through incentives in order to deliver enhanced profits to the SOE. Table 7 shows that CEO salary in this study is both a leading and lagging indicator of performance, proving to be the only statistically significant dependent variable in both the leading and lagging regressions. The result remains that a statistically significantly positive relationship exists between SOE performance and CEO salary.

The fourth key finding is that new CEOs with tenure of less than a year are able to deliver performance gains over their longer tenured counterparts. This may be as a result of the new ideas and strategy and reinvigoration that change brings within an organisation resulting in a more productive workforce and the implementation of projects and practices that immediately improve performance metrics as opposed to continuing the status quo under the same tenured leader.

6.3 Recommendations

This analysis has found that some governance metrics have a positive relationship with performance whilst others have a negative relationship with performance. There are also metrics that don’t have a statistically significant relationship with performance. The study shows that governance and performance are indeed linked thus it is of great importance to understand the contents of any, and all, disclosures made by the SOEs in their corporate governance reports. Furthermore, the assessment of the composition, appropriateness and performance of boards on a regular basis is a central recommendation of this study.

The analysis found that there is no single optimal number of board members as the relationship between board size and performance is inconclusive. Thus, it is recommended that the board assesses and alters its size in accordance with the key performance outcomes of the board and whether the objectives set out as a result of its resolutions have been achieved.

The analysis found that increased diversity has a positive effect on performance and thus the importance of diversity of the board cannot be overstated. Thus it is recommended that boards are continuously reviewed in order to achieve diverse representation in terms of a number of demographics, including but not limited to, race, gender and academic background.

It is recommended that the number of meetings held by the board in a year be well defined in accordance with the complexity of the operational and strategic requirements of the SOE. While no optimal number is proposed, the board should be assessed on the efficacy and outcome of all decisions made on a regular basis.

Furthermore, the study finds a positive pay-to-performance link in terms of the CEO and overall SOE performance. Thus it is recommended that the board closely link remuneration to the performance of the firm. Incentives should be relatively short-dated linked to annual reviews and made dependent on the performance of the SOE.

The study concurs with a recommendation that the board periodically evaluates the tenure of the incumbent CEO and whether the executive is appropriate to drive the strategy and objectives set out by the board.

The major recommendation of this paper is that stakeholders must be cautious with the perception of the concept of good governance and what that entails. Finally, stakeholders must be cognisant that different firm specific characteristics, industry operating environments, honesty of management amongst other factors is critical in understanding the quality of governance within a particular firm and that management could make symbolic declarations

of governance adherence without necessarily inculcating the codes into daily practice.

6.4 Suggestions for further research

An avenue for further research would be investigating the relationships between behavioural theories of corporate governance and corporate governance quality in a South African SOE context. A further suggestion would be research into the development of a contemporary South African framework for measuring the quality of corporate governance in SOEs. Finally, research into the most appropriate performance metrics against which to measure governance quality for SOEs would be useful in helping researchers to better understand the relationship between governance characteristics of SOEs and their performance.

A further suggestion for future research is to include all subsidiaries of the major SOEs along with municipalities in the overall analysis of the relationship between governance characteristics and SOE performance in order to arrive at a larger sample size which will improve adoption of null hypotheses.

A further suggestion for research, whilst including a broader set of SOEs would be to conduct the study over a longer period of time to better capture changes in the relationship over time and arrive at a highly accurate level of model specification in order to explore the relationship between governance characteristics and performance.

The CEO remuneration variable could be modified to include variable aspects of total CEO compensation to measure the relationship based on CEO incentive pay and performance. Additionally, the relationship between corporate governance, SOE performance and associated credit ratings could be explored as an avenue for further research.

An additional avenue for further research would be to obtain access to the models described in section 2.6 and apply those models to governance performance in SOEs.

6.5 Conclusion

This chapter has summarized the fey findings of the study and the related conclusions. Furthermore the chapter has outlined some recommendations emanating from the conclusions reached in the study before suggesting some avenues for future based on the outcomes of study and certain aspects which were deemed to be beyond the scope of the study. The study makes contributions to the understanding of the relationship between corporate governance and corporate performance in the case of SOEs.

REFERENCES

Abdullah, H., & Valentine, B. (2009). Fundamental and ethics theories of corporate governance. *Middle Eastern Finance and Economics, 4*(4), 88-96.

Bai, C.-E., Liu, Q., Lu, J., Song, F. M., & Zhang, J. (2004). Corporate governance and market valuation in China. *Journal of Comparative Economics, 32*(4), 599-616.

Bauer, R., Guenster, N., & Otten, R. (2004). Empirical evidence on corporate governance in Europe: The effect on stock returns, firm value and performance. *Journal of Asset Management, 5*(2), 91-104.

Beasley, M. S., Carcello, J. V., Hermanson, D. R., & Lapides, P. D. (2000). Fraudulent financial reporting: Consideration of industry traits and corporate governance mechanisms. *Accounting Horizons, 14*(4), 441-454.

Bebchuk, L., Cohen, A., & Ferrell, A. (2004). What Matters in Corporate Governance? *Harvard Law School John M. Olin Center Discussion Paper* No. 491

Bebchuk, L., Cohen, A., & Ferrell, A. (2009). What matters in corporate governance? *Review of Financial Studies, 22*(2), 783-827.

Beiner, S., Drobetz, W., Schmid, M. M., & Zimmermann, H. (2006). An integrated framework of corporate governance and firm valuation. *European Financial Management, 12*(2), 249-283.

Bhagat, S., & Black, B. (2001). The non-correlation between board independence and long-term firm performance. Journal of Corporation Law, *27*, 231-273.

Bhagat, S., & Bolton, B. (2008). Corporate governance and firm performance. *Journal of Corporate Finance, 14*(3), 257-273.

Bhagat, S., Bolton, B. J., & Romano, R. (2007). The Promise and Peril of Corporate Governance Indices. *Law Working Paper No. 89/2007; Yale Law & Economics Research* 367.

Bradford, J. D., Westerfield, R. W., Ross, S. A., & Firer, C. (2012). *The Fundamentals of Corporate Finance - South African Edition*. London, United States: McGraw-Hill Education - Europe.

Brown, J., (2017). Steinhoff hits junk as R282bn in value is lost. Retrieved 01 June 2018, from https://www.fin24.com/Companies/Retail/steinhoff-hits-junk-as-r282bn-in-value-is-lost-20171210

Brown, L. D., & Caylor, M. L. (2006). Corporate governance and firm valuation. *Journal of Accounting and Public Policy, 25*(4), 409-434.

Campbell, K., & Mínguez-Vera, A. (2008). Gender diversity in the boardroom and firm financial performance. *Journal of Business Ethics, 83*(3), 435-451.

Cheng, S. (2008). Board size and the variability of corporate performance. *Journal of Financial Economics, 87*(1), 157-176.

Coffee Jr, J. C. (2005). A theory of corporate scandals: Why the USA and Europe differ. *Oxford Review of Economic Policy, 21*(2), 198-211.

Core, J. E., Guay, W. R., & Rusticus, T. O. (2006). Does weak governance cause weak stock returns? An examination of firm operating performance and investors' expectations. *The Journal of Finance, 61*(2), 655-687.

Cremers, K., & Nair, V. B. (2005). Governance mechanisms and equity prices. *The Journal of Finance, 60*(6), 2859-2894.

da Silva, A. L. C., & Leal, R. P. C. (2005). Corporate governance index, firm valuation and performance in Brazil. *Brazilian Review of Finance, 3*(1), 1-18.

Daily, C. M., Dalton, D. R., & Cannella, A. A. (2003). Corporate governance: Decades of dialogue and data. *Academy of Management Review, 28*(3), 371-382.

Diale, A. (2010). The role and importance of whistle-blowing in building organisational integrity in the public sector: A theoretical exposition. *Journal of Public Administration, 45*(Special issue 1), 295-305.

Donaldson, L., & Davis, J. H. (1991). Stewardship theory or agency theory: CEO governance and shareholder returns. *Australian Journal of Management, 16*(1), 49-64.

Donaldson, T., & Preston, L. E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of Management Review, 20*(1), 65-91.

Drobetz, W., Schillhofer, A., & Zimmermann, H. (2004). Corporate governance and expected stock returns: Evidence from Germany. *European Financial Management, 10*(2), 267-293.

Eisenberg, T., Sundgren, S., & Wells, M. T. (1998). Larger board size and decreasing firm value in small firms1. *Journal of Financial Economics, 48*(1), 35-54.

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of Management Review, 14*(1), 57-74.

Elghuweel, M. I., Ntim, C. G., Opong, K. K., & Avison, L. (2017). Corporate governance, Islamic governance and earnings management in Oman: A new empirical insights from a behavioural theoretical framework. *Journal of Accounting in Emerging Economies, 7*(2), 190-224.

Erhardt, N. L., Werbel, J. D., & Shrader, C. B. (2003). Board of director diversity and firm financial performance. *Corporate Governance: An International Review, 11*(2), 102-111.

Freeman, R. E. (1994). The politics of stakeholder theory: Some future directions. *Business Ethics Quarterly*, 409-421.

Freeman, R. E. (2017). Five Challenges to Stakeholder Theory: A Report on Research in Progress. *Stakeholder Management (Business and Society 360, Volume 1)* pp.1 - 20

Fulop, M. T. (2014). Why do we need effective corporate governance? *International Advances in Economic Research, 20*(2), 227-229.

García, J. A., Rodriguez-Sánchez, R., & Fdez-Valdivia, J. (2015). The principal-agent problem in peer review. *Journal of the Association for Information Science and Technology, 66*(2), 297-308.

Gibson, M. S. (2003). Is corporate governance ineffective in emerging markets? *Journal of Financial and Quantitative Analysis, 38*(01), 231-250.

Gompers, P. A., Ishii, J. L., & Metrick, A. (2001). Corporate governance and equity prices: *National Bureau of Economic Research.*

Gqirana, T. (2017). How the SABC board failed the public broadcaster - leaked document. Retrieved 18 June 2018, from https://www.news24.com/SouthAfrica/News/how-the-sabc-board-failed-the-public-broadcaster-leaked-document-20170118

Harvey Pamburai, H., Chamisa, E., Abdulla, C., & Smith, C. (2015). An analysis of corporate governance and company performance: A South African perspective. *South African Journal of Accounting Research, 29*(2), 115-131.

Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-Based Nursing* 2015;18**:**66-67.

Henderson, A. D., Miller, D., & Hambrick, D. C. (2006). How quickly do CEOs become obsolete? Industry dynamism, CEO tenure, and company performance. *Strategic Management Journal, 27*(5), 447-460.

International Monetary Fund. (2014). South Africa Financial System Stabiltiy Assessment. Washington.

IoDSA. (2012). Governance Assessment Instrument.

Iwu-Egwuonwu, D., & Chibuike, R. (2010). Corporate Reputation & Firm Performance: Empiricial Literature Evidence.

Jackling, B., & Johl, S. (2009). Board structure and firm performance: Evidence from India's top companies. *Corporate Governance: An International Review, 17*(4), 492-509.

Jensen, M. C. (2001). Value maximization, stakeholder theory, and the corporate objective function. *Journal of Applied Corporate Finance, 14*(3), 8-21.

Judge, W. Q., Naoumova, I., & Koutzevol, N. (2003). Corporate governance and firm performance in Russia: an empirical study. *Journal of World Business, 38*(4), 385-396.

Klapper, L. F., & Love, I. (2004). Corporate governance, investor protection, and performance in emerging markets. *Journal of Corporate Finance, 10*(5), 703-728.

Kyereboah-Coleman, A. (2008). Corporate governance and firm performance in Africa: A dynamic panel data analysis. *Studies in Economics and Econometrics, 32*(2), 1-24.

Larmou, S., & Vafeas, N. (2010). The relation between board size and firm performance in firms with a history of poor operating performance. *Journal of Management & Governance, 14*(1), 61.

Leedy, P. D. (1993). *Practical research: planning and design*. New Jersey: Prentice-Hall.

Lilling, M. S. (2006). The link between CEO compensation and firm performance: Does simultaneity matter? *Atlantic Economic Journal, 34*(1), 101-114.

Mak, Y., & Kusnadi, Y. (2005). Size really matters: Further evidence on the negative relationship between board size and firm value. *Pacific-Basin Finance Journal, 3*(13), 301-318.

Mangena, M., Tauringana, V., & Chamisa, E. (2012). Corporate boards, ownership structure and firm performance in an environment of severe political and economic crisis. *British Journal of Management, 23*, S23-S41.

McNulty, T., Zattoni, A., & Douglas, T. (2013). Developing corporate governance research through qualitative methods: A review of previous studies. *Corporate Governance: An International Review, 21*(2), 183-198.

Miller, T., & del Carmen Triana, M. (2009). Demographic diversity in the boardroom: Mediators of the board diversity–firm performance relationship. *Journal of Management Studies, 46*(5), 755-786.

Morrison, J. (2004). Legislating for Good Corporate Governance. *Journal of Corporate Citizenship*(15).

Nicholson, G., Pugliese, A., & Bezemer, P.-J. (2017). Habitual accountability routines in the boardroom: how boards balance control and collaboration. *Accounting, Auditing & Accountability Journal, 30*(2), 222-246.

Ntim, C. G. (2013). An Integrated Corporate Governance Framework and Financial Performance in South African-Listed Corporations. *South African Journal of Economics, 81*(3), 373-392.

Ntim, C. G., Lindop, S., Osei, K. A., & Thomas, D. A. (2015). Executive compensation, corporate governance and corporate performance: a simultaneous equation approach. *Managerial and Decision Economics, 36*(2), 67-96.

Ntim, C. G., Lindop, S., & Thomas, D. A. (2013). Corporate governance and risk reporting in South Africa: A study of corporate risk disclosures in the pre- and post-2007/2008 global financial crisis periods. *International Review of Financial Analysis, 30*, 363-383.

Ntim, C. G., & Osei, K. A. (2011). The impact of corporate board meetings on corporate performance in South Africa. *African Review of Economics and Finance, 2*(2), 83-103.

OECD. (2015). G20/OECD Principles of Corporate Governance. Paris.

Ozkan, N. (2011). CEO compensation and firm performance: An empirical investigation of UK panel data. *European financial management, 17*(2), 260-285.

Parker, D. W., Dressel, U., Chevers, D., & Zeppetella, L. (2018). Agency theory perspective on public-private-partnerships: international development project. *International Journal of Productivity and Performance Management*(just-accepted), 00-00.

Patibandla, M. (2006). Equity pattern, corporate governance and performance: A study of India's corporate sector. *Journal of Economic Behavior & Organization, 59*(1), 29-44.

Patrick, C. (2017). Can anyone still think that corporate governance doesn't matter? Retrieved 22 January 2017, from

https://www.moneyweb.co.za/investing/can-anyone-still-think-that-corporate-governance-doesnt-matter/

Post, C., Rahman, N., & Rubow, E. (2011). Green governance: Boards of directors' composition and environmental corporate social responsibility. *Business & Society, 50*(1), 189-223.

Rahman, M. S. (2016). The advantages and disadvantages of using qualitative and quantitative approaches and methods in language "Testing and Assessment" research: A literature review. *Journal of Education and Learning, 6*(1), 102.

Renders, A., Gaeremynck, A., & Sercu, P. (2010). Corporate-Governance Ratings and Company Performance: A Cross-European Study. *Corporate Governance: An International Review, 18*(2), 87-106.

Public Finance Management Act, No 1 C.F.R. (1999).

Ross, S. A. (1973). The economic theory of agency: The principal's problem. *The American Economic Review, 63*(2), 134-139.

Simsek, Z. (2007). CEO tenure and organizational performance: An intervening model. *Strategic Management Journal, 28*(6), 653-662.

Tarrant, H. (2017). These 14 Top 100 companies are under scrutiny for exec pay. Retrieved 18 May 2018 from https://www.moneyweb.co.za/news/companies-and-deals/these-14-top-100-companies-are-under-scrutiny-for-exec-pay/

Tian, J. J., & Lau, C.-M. (2001). Board composition, leadership structure and performance in Chinese shareholding companies. *Asia Pacific Journal of Management, 18*(2), 245-263.

Treasury, N. (2000). Guide for Accounting Officers Public Finance Management Act. Pretoria: Department of Finance.

Turnbull, S. (1997). Corporate governance: Its scope, concerns and theories. *Corporate Governance: An International Review, 5*(4), 181.

University of Stellenbosch. (2016). PIC Corporate Governance Rating Index. Retrieved 01 February 2018, from www.usb.ac.za/governance/Pages/pic-corporate-governance-rating-matrix.aspx

Vafeas, N. (1999). Board meeting frequency and firm performance. *Journal of Financial Economics, 53*(1), 113-142.

Van Ees, H., Gabrielsson, J., & Huse, M. (2009). Toward a behavioral theory of boards and corporate governance. *Corporate Governance: An International Review, 17*(3), 307-319.

Weston, H., & Ciccotello, C. (2017). Flash Traders (Milliseconds) to Indexed Institutions (Centuries): The Challenges of an Agency Theory Approach to Governance in the Era of Diverse Investor Time Horizons. *Seattle UL Rev., 41*, 613.

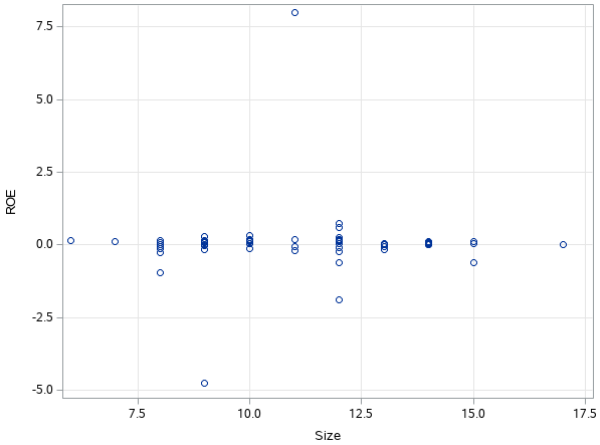
Westphal, J. D., & Zajac, E. J. (1998). The symbolic management of stockholders: Corporate governance reforms and shareholder reactions. *Administrative Science Quarterly*, 127-153.

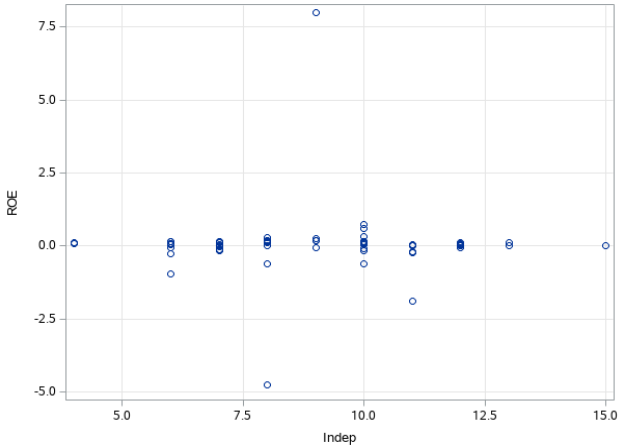
Whitfield, B. (2017). Listen 5 Biggest Corporate Scandals of 2017. Retrieved 01 May 2018 from https://ewn.co.za/2017/12/07/listen-5-biggest-corporate-scandals-of-2017

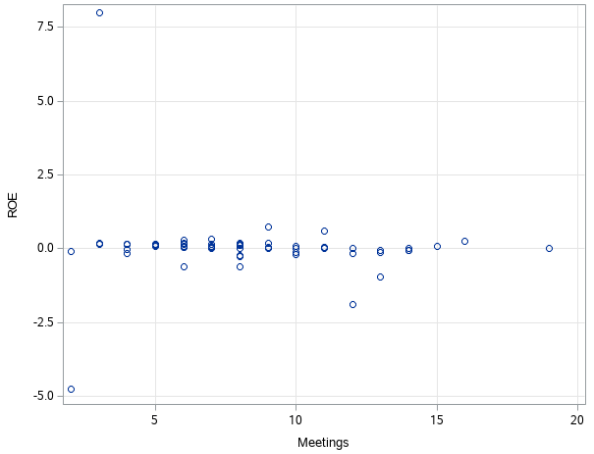
Yermack, D. (1996). Higher market valuation of companies with a small board of directors. *Journal of Financial Economics, 40*(2), 185-211.

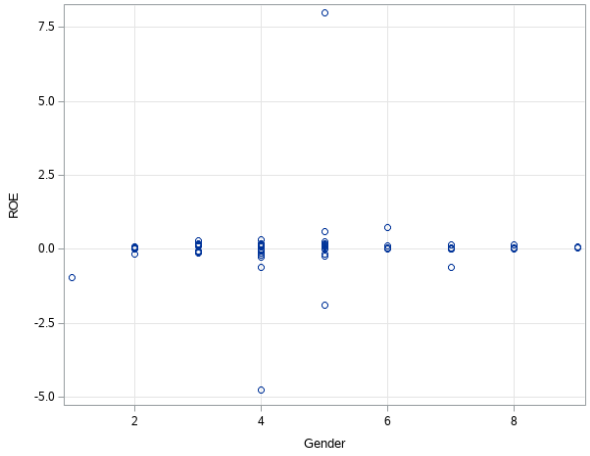
APPENDIX 1

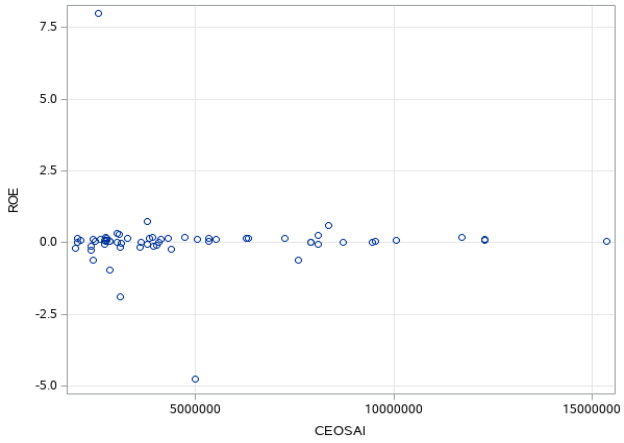
Scatter Plots – Return on Equity

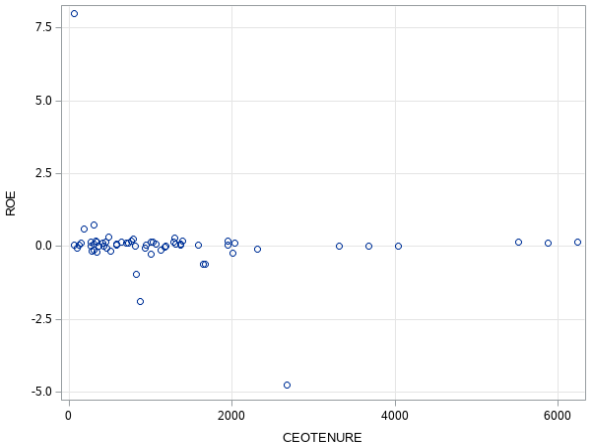




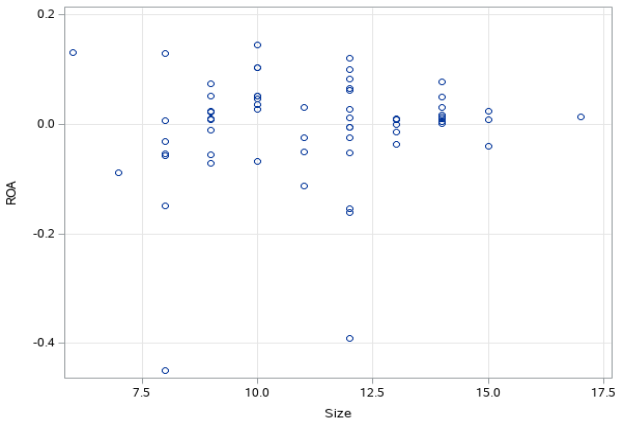


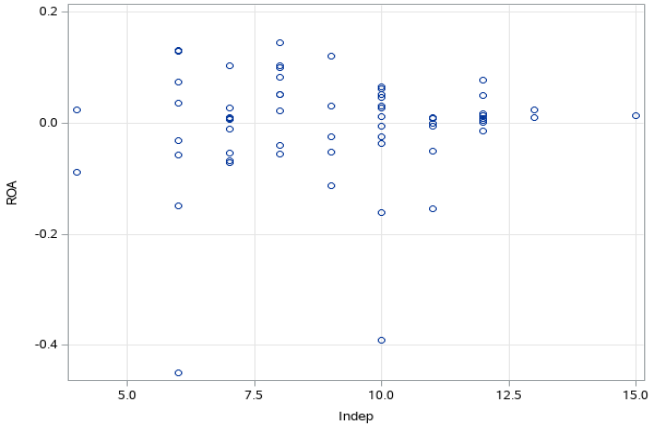


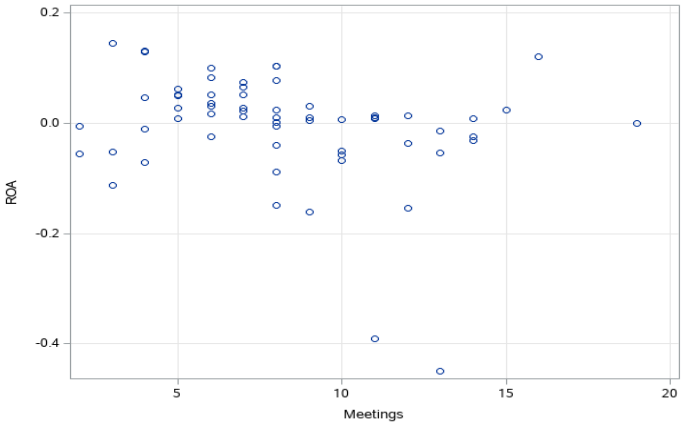


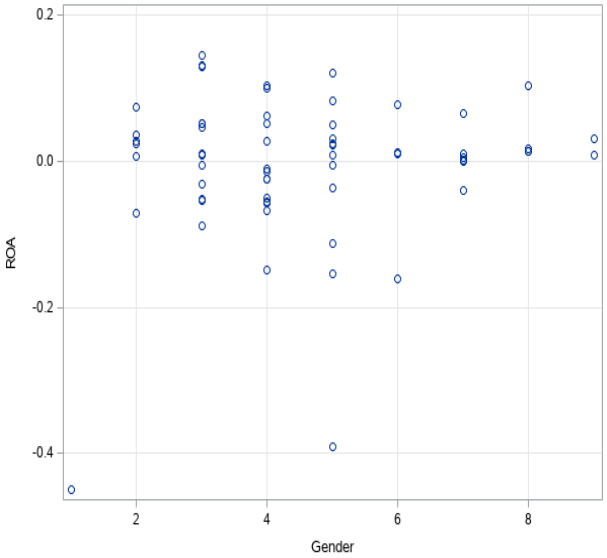


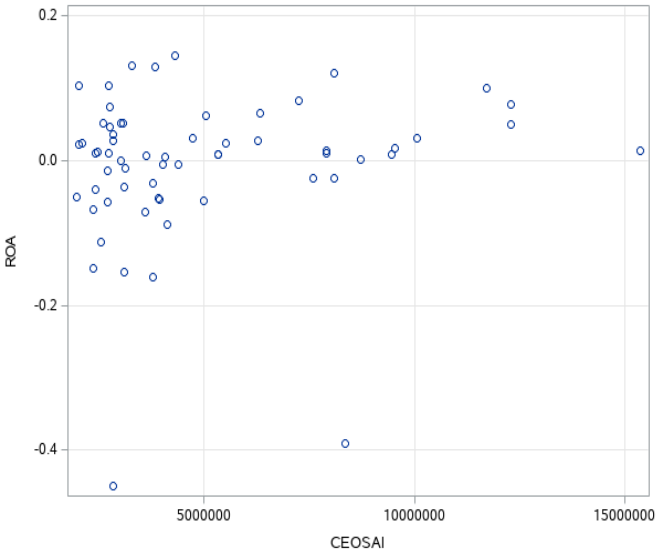
Scatter Plot – Return on Assets

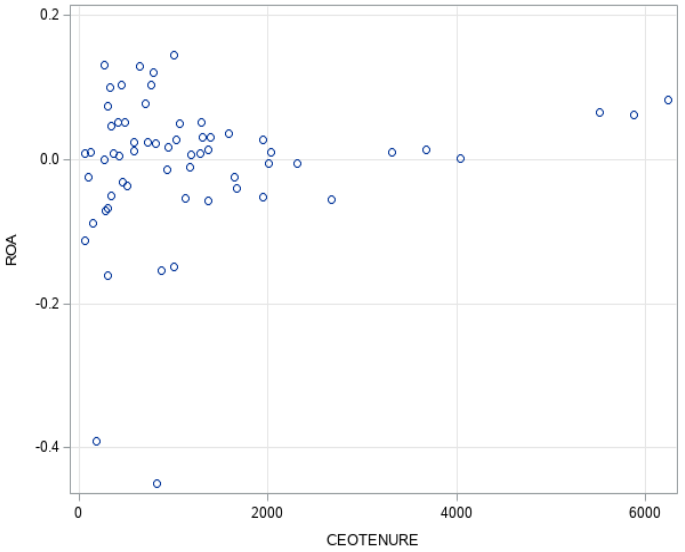




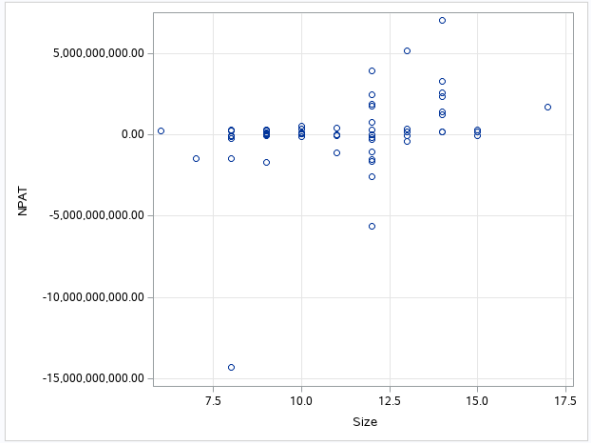


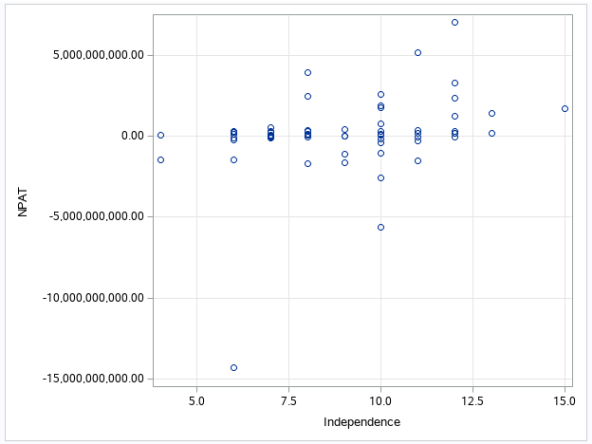


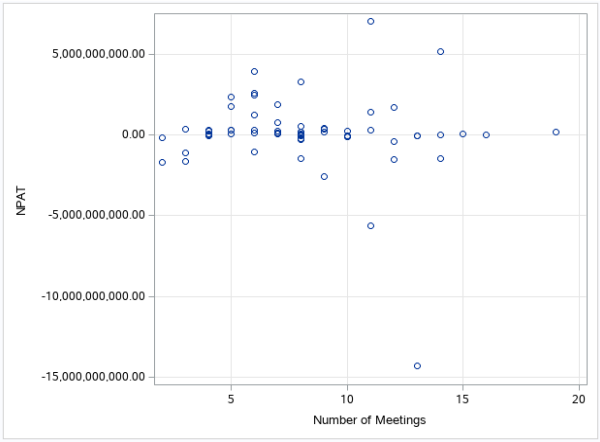


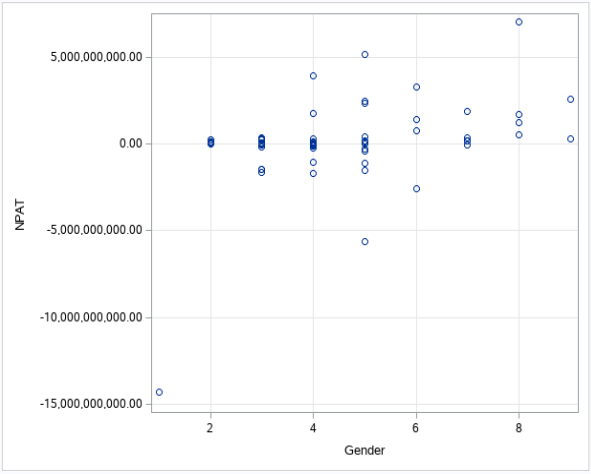


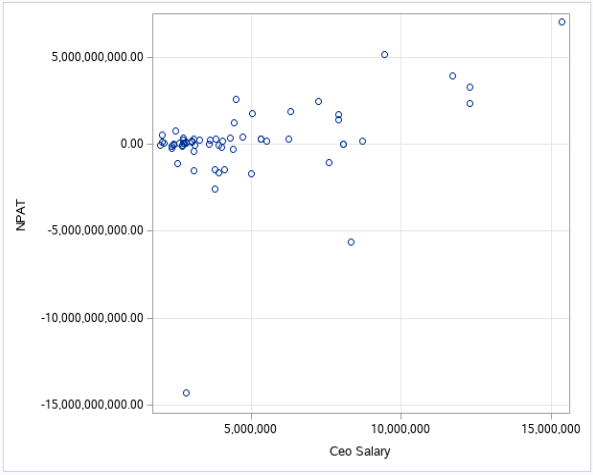
Scatter Plot – NPAT

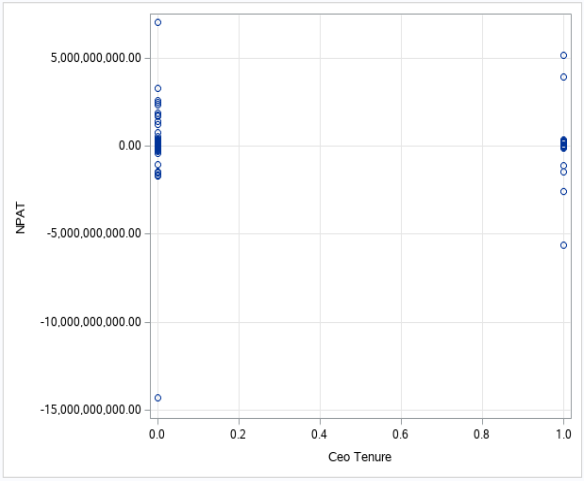




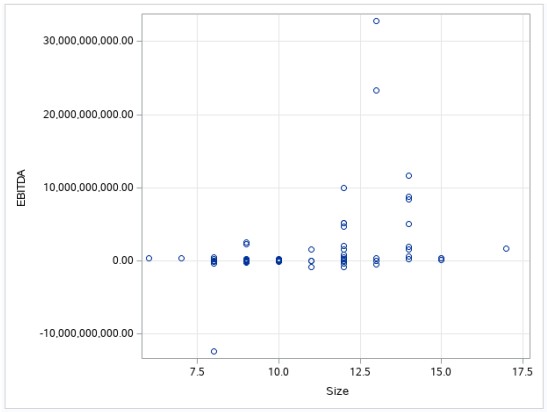


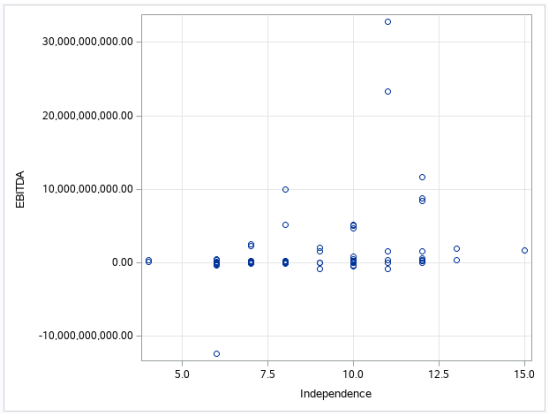


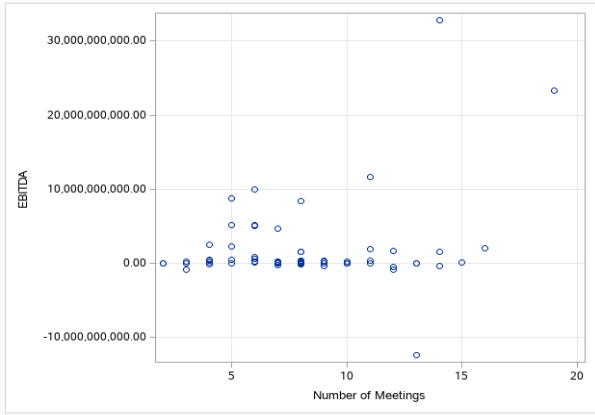


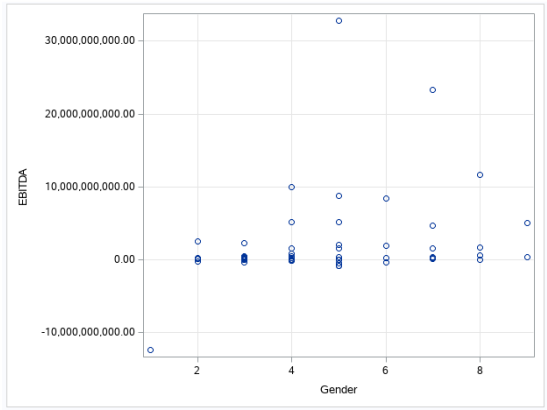


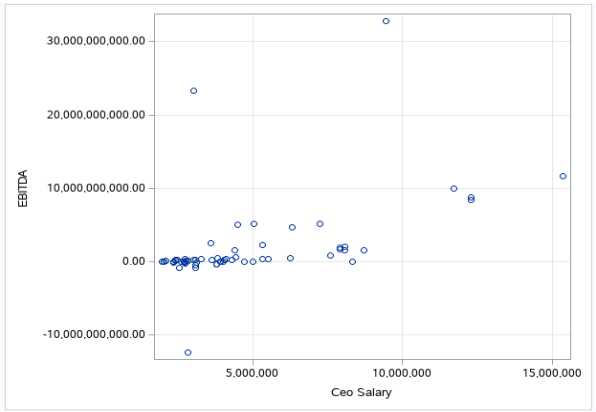
Scatter Plots – EBITDA

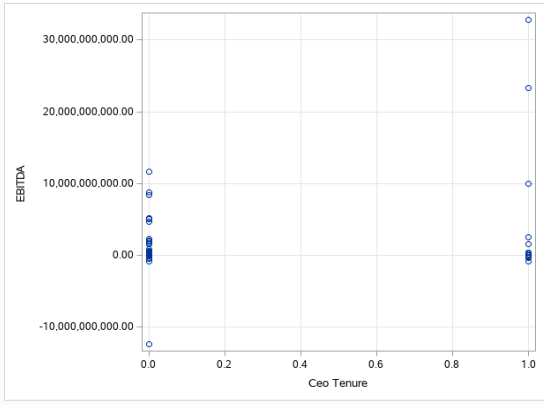












APPENDIX 2

Tests for Normality – Shapiro-Wilk

Variable: Size (Size)

Tests for Normality				
Test	**Statistic**		**p Value**	
Shapiro-Wilk	**W**	0.966596	**Pr < W**	0.0893
Kolmogorov-Smirnov	**D**	0.141817	**Pr > D**	<0.0100
Cramer-von Mises	**W-Sq**	0.165231	**Pr > W-Sq**	0.0157
Anderson-Darling	**A-Sq**	0.934386	**Pr > A-Sq**	0.0182

Variable: Independence (Independence)

Tests for Normality				
Test	**Statistic**		**p Value**	
Shapiro-Wilk	**W**	0.966699	**Pr < W**	0.0904
Kolmogorov-Smirnov	**D**	0.128642	**Pr > D**	0.0118
Cramer-von Mises	**W-Sq**	0.146142	**Pr > W-Sq**	0.0258
Anderson-Darling	**A-Sq**	0.871021	**Pr > A-Sq**	0.0242

Variable: Meetings (Meetings)

Tests for Normality				
Test	**Statistic**		**p Value**	
Shapiro-Wilk	**W**	0.966907	**Pr < W**	0.0926
Kolmogorov-Smirnov	**D**	0.135647	**Pr > D**	<0.0100

Tests for Normality				
Test	**Statistic**		**p Value**	
Cramer-von Mises	**W-Sq**	0.110603	**Pr > W-Sq**	0.0830
Anderson-Darling	**A-Sq**	0.625877	**Pr > A-Sq**	0.0988

Variable: Gender (Gender)

Tests for Normality				
Test	**Statistic**		**p Value**	
Shapiro-Wilk	**W**	0.939324	**Pr < W**	0.0042
Kolmogorov-Smirnov	**D**	0.1682	**Pr > D**	<0.0100
Cramer-von Mises	**W-Sq**	0.261028	**Pr > W-Sq**	<0.0050
Anderson-Darling	**A-Sq**	1.483589	**Pr > A-Sq**	<0.0050

Variable: CEOSAl (CEOSAl)

Tests for Normality				
Test	**Statistic**		**p Value**	
Shapiro-Wilk	**W**	0.822634	**Pr < W**	<0.0001
Kolmogorov-Smirnov	**D**	0.204713	**Pr > D**	<0.0100
Cramer-von Mises	**W-Sq**	0.71058	**Pr > W-Sq**	<0.0050
Anderson-Darling	**A-Sq**	3.889846	**Pr > A-Sq**	<0.0050

Variable: CEOTENURE (CEOTENURE)

Tests for Normality

Test	Statistic		p Value	
Shapiro-Wilk	W	0.733211	Pr < W	<0.0001
Kolmogorov-Smirnov	D	0.215895	Pr > D	<0.0100
Cramer-von Mises	W-Sq	0.869349	Pr > W-Sq	<0.0050
Anderson-Darling	A-Sq	5.07993	Pr > A-Sq	<0.0050

APPENDIX 3

Multicollinearity Test (VIFmust be <= 10)

Parameter Estimates								
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**	**Tol**	**VIF**
Intercept	Intercept	1	0.02014	0.88655	0.02	0.9820	.	0
Size	Size	1	0.10254	0.16689	0.61	0.5415	***0.16912***	***5.91285***
Indep	Indep	1	-0.05162	0.14278	-0.36	0.7191	***0.22750***	***4.39560***
Meetings	Meetings	1	-0.05617	0.04630	-1.21	0.2303	***0.90002***	***1.11109***
Gender	Gender	1	0.04891	0.12905	0.38	0.7061	***0.43198***	***2.31493***
CEOSAl	CEOSAl	1	-3.20978E-8	6.32264E-8	-0.51	0.6137	***0.70229***	***1.42391***
CEOTENURE	CEOTENURE	1	-0.00019330	0.00012711	-1.52	0.1341	***0.87953***	***1.13696***

APPENDIX 4

Breausch-Pagan Test Results

NPAT

	df	*SS*	*MS*	*F*	*Significance F*
Regression	6	2.58E+39	4.29338E+38	1.341822	0.254634
Residual	55	1.76E+40	3.19966E+38		
Total	61	2.02E+40			

ROE

	df	*SS*	*MS*	*F*	*Significance F*
Regression	6	331.8969	55.31615	1.233704	0.303487
Residual	55	2466.059	44.83744		
Total	61	2797.956			

ROA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	6	0.00421	0.000702	1.204036	0.318173
Residual	55	0.032048	0.000583		
Total	61	0.036258			

EBITDA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	6	1.03E+41	1.72E+40	3.756362	0.003331*
Residual	55	2.52E+41	4.59E+39		
Total	61	3.56E+41			

All regressions with the exception of the EBITDA regression produced a p-value that permitted the acceptance of the null that the error terms are homoscedastic.

APPENDIX 5

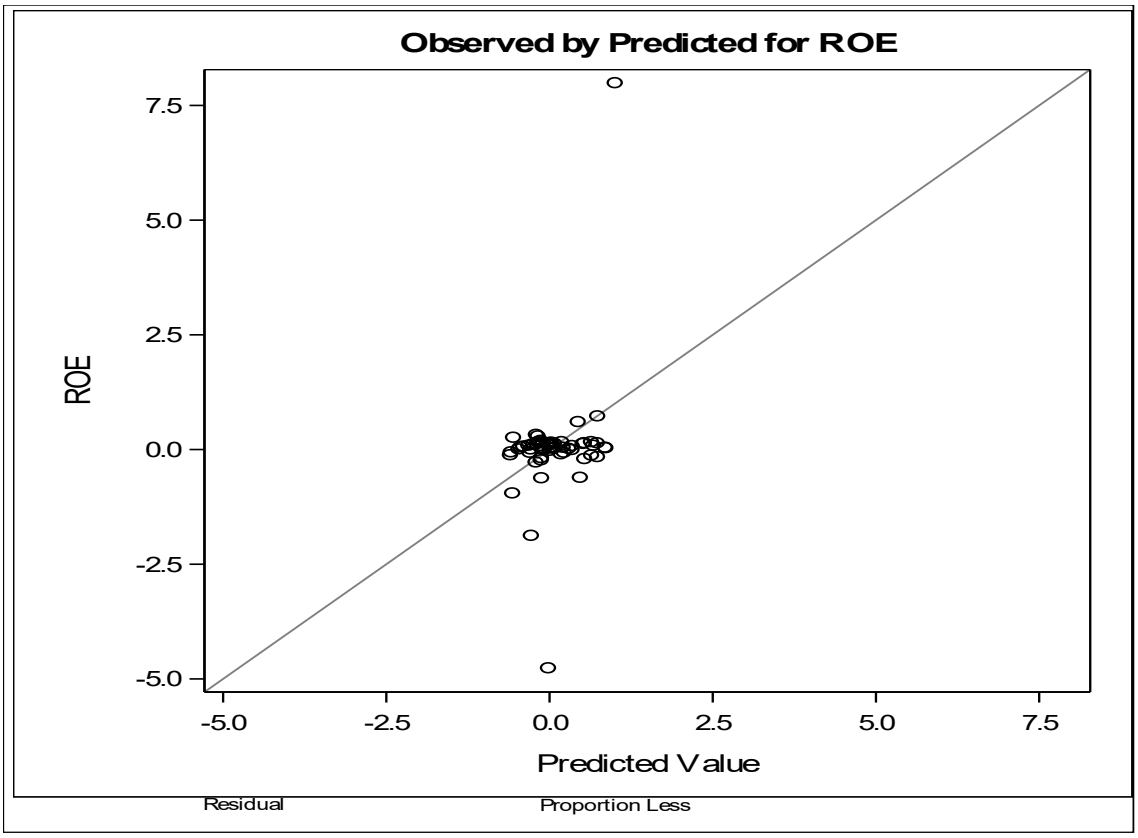
ROE

Number of Observations Read	62
Number of Observations Used	62

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	6	9.50664	1.58444	1.04	0.4106
Error	55	83.90258	1.52550		
Corrected Total	61	93.40922			

Root MSE	1.23511	R-Square	0.1018
Dependent Mean	0.05885	Adj R-Sq	0.0038
Coeff Var	2098.74167		

Parameter Estimates						
Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	-0.32010	0.87859	-0.36	0.7170
Size	Size	1	0.09946	0.16232	0.61	0.5426
Independence	Independence	1	-0.05498	0.14023	-0.39	0.6965
Number_of_Meetings	Number of Meetings	1	-0.04968	0.04429	-1.12	0.2669
Gender	Gender	1	0.03117	0.12666	0.25	0.8065
Ceo_Salary	Ceo Salary	1	-3.68966E-8	6.253978E-8	-0.59	0.5576
Ceo_Tenure	Ceo Tenure	1	0.80586	0.36375	2.22	0.0309


Observed by Predicted for ROE
ROE
7.5
5.0
2.5
0.0
-2.5
-5.0
-5.0
-2.5
0.0
2.5
5.0
7.5
Predicted Value
Residual
Proportion Less

APPENDIX 6

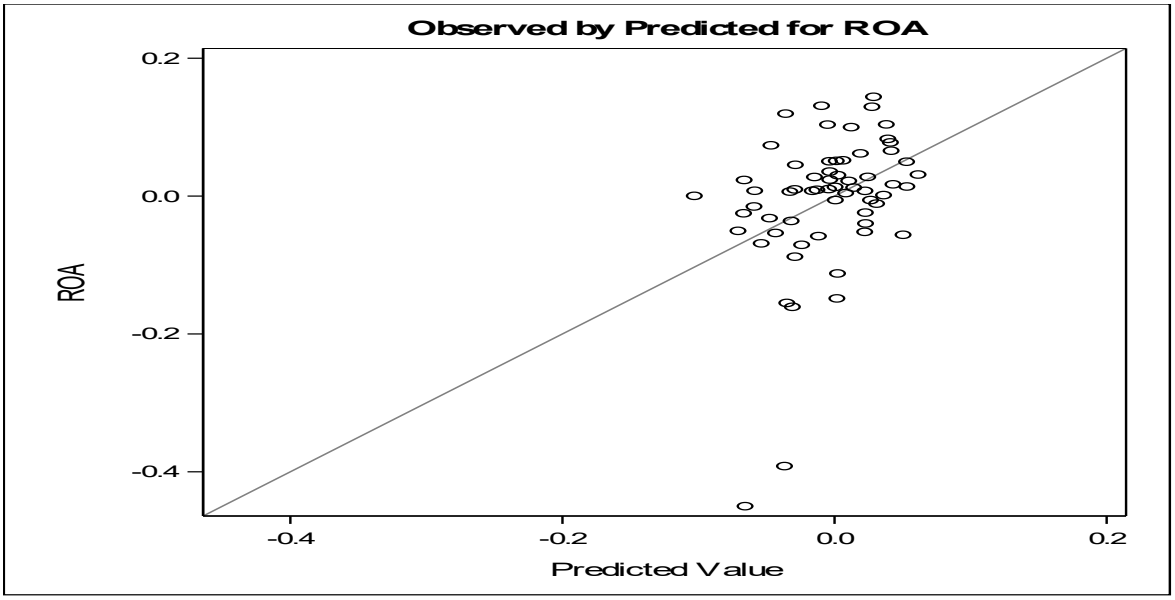
ROA

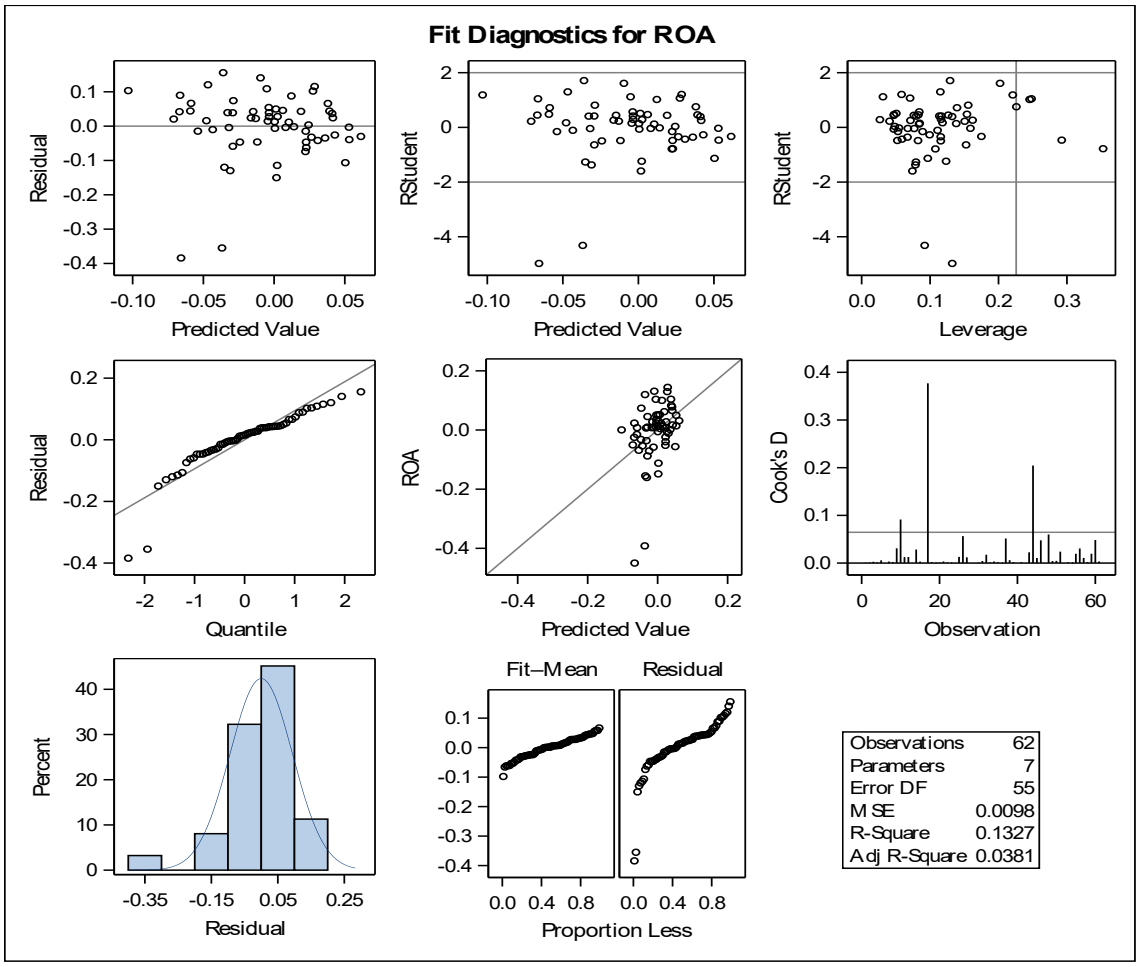
Number of Observations Read	62
Number of Observations Used	62

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	6	0.08272	0.01379	1.40	0.2304
Error	55	0.54073	0.00983		
Corrected Total	61	0.62345			

Root MSE	0.09915	**R-Square**	0.1327
Dependent Mean	-0.00518	**Adj R-Sq**	0.0381
Coeff Var	-1912.94087		

Parameter Estimates						
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	Intercept	1	0.03530	0.07053	0.50	0.6187
Size	Size	1	-0.00052679	0.01303	-0.04	0.9679
Independence	Independence	1	-0.00370	0.01126	-0.33	0.7438
Number_of_Meetings	Number of Meetings	1	-0.00752	0.00356	-2.11	0.0390
Gender	Gender	1	0.01065	0.01017	1.05	0.2996
Ceo_Salary	Ceo Salary	1	4.366757E-9	5.020631E-9	0.87	0.3882
Ceo_Tenure	Ceo Tenure	1	-0.03581	0.02920	-1.23	0.2253


Observed by Predicted for ROA
ROA
Predicted Value
0.2
0.0
-0.2
-0.4
-0.4
-0.2
0.0
0.2


Fit Diagnostics for ROA
Residual
Predicted Value
RStudent
Predicted Value
RStudent
Leverage
Residual
Quantile
ROA
Predicted Value
Cook's D
Observation
Percent
Residual
Fit–Mean
Residual
Proportion Less
Observations 62
Parameters 7
Error DF 55
MSE 0.0098
R-Square 0.1327
Adj R-Square 0.0381

APPENDIX 7

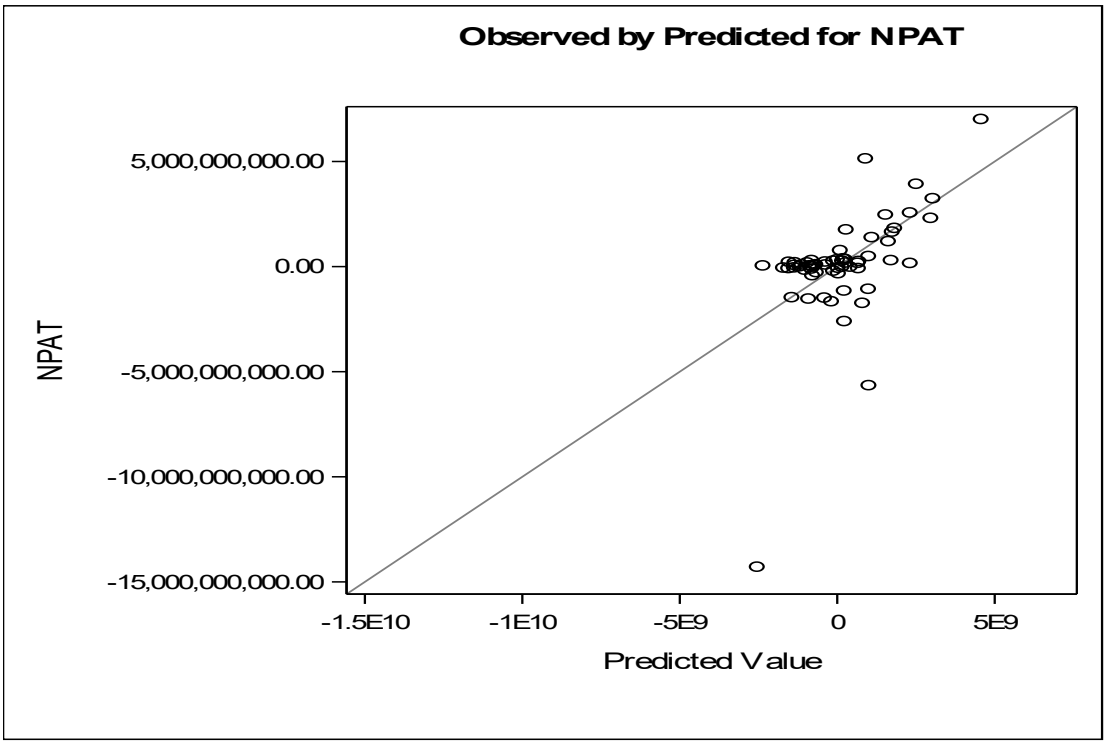
NPAT

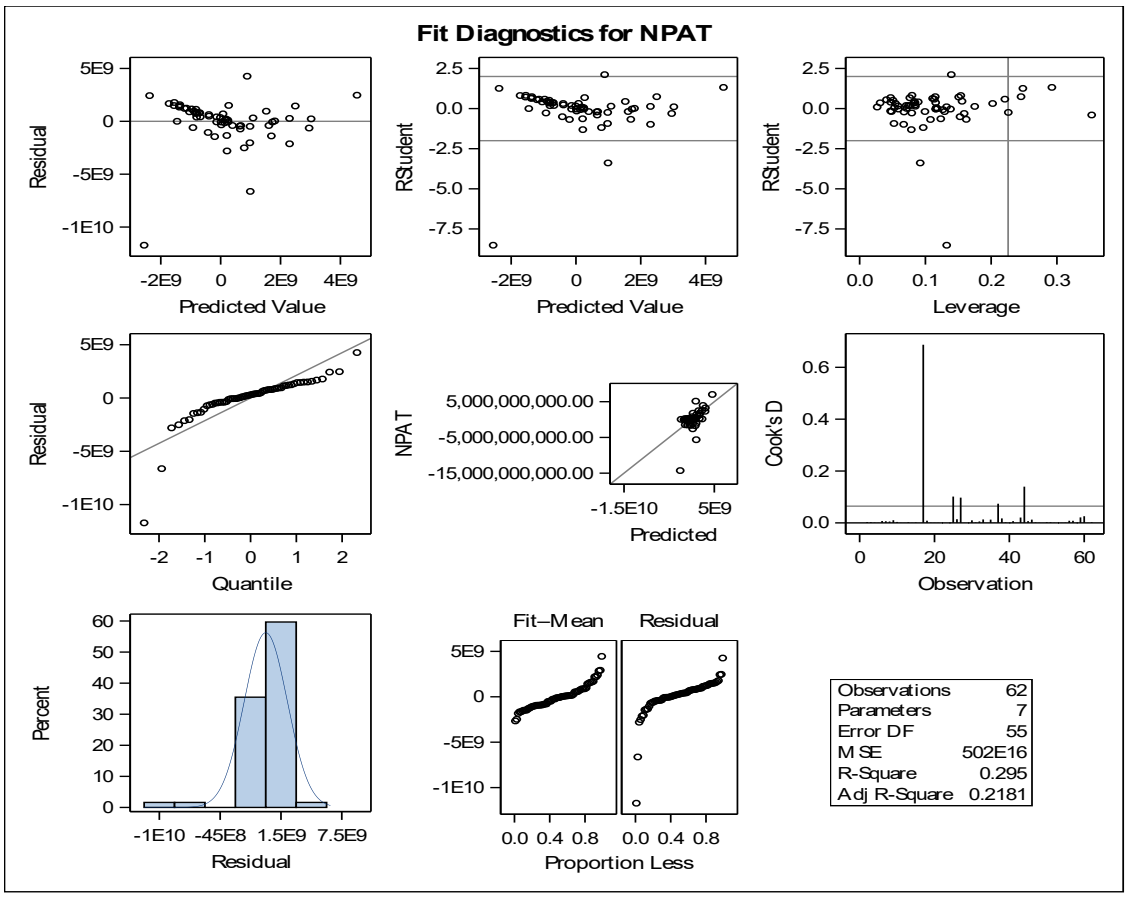
Number of Observations Read	62
Number of Observations Used	62

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	6	1.155739E20	1.926232E19	3.84	0.0029
Error	55	2.761493E20	5.020896E18		
Corrected Total	61	3.917232E20			

Root MSE	2240735655	**R-Square**	0.2950
Dependent Mean	103897977	**Adj R-Sq**	0.2181
Coeff Var	2156.66918		

Parameter Estimates						
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	Intercept	1	-1808884245	1593928046	-1.13	0.2614
Size	Size	1	20962402	294477701	0.07	0.9435
Independence	Independence	1	-101300767	254395968	-0.40	0.6920
Number_of_Meetings	Number of Meetings	1	-130727933	80343290	-1.63	0.1094
Gender	Gender	1	458630543	229784975	2.00	0.0509
Ceo_Salary	Ceo Salary	1	328.89597	113.45945	2.90	0.0054
Ceo_Tenure	Ceo Tenure	1	-40567060	659906127	-0.06	0.9512


Observed by Predicted for NPAT
NPAT
5,000,000,000.00
0.00
-5,000,000,000.00
-10,000,000,000.00
-15,000,000,000.00
-1.5E10
-1E10
-5E9
0
5E9
Predicted Value


Fit Diagnostics for NPAT
Residual
Predicted Value
RStudent
Predicted Value
RStudent
Leverage
Residual
Quantile
NPAT
Predicted
Cook's D
Observation
Percent
Residual
Fit–Mean
Residual
Proportion Less
Observations 62
Parameters 7
Error DF 55
MSE 502E16
R-Square 0.295
Adj R-Square 0.2181

APPENDIX 8

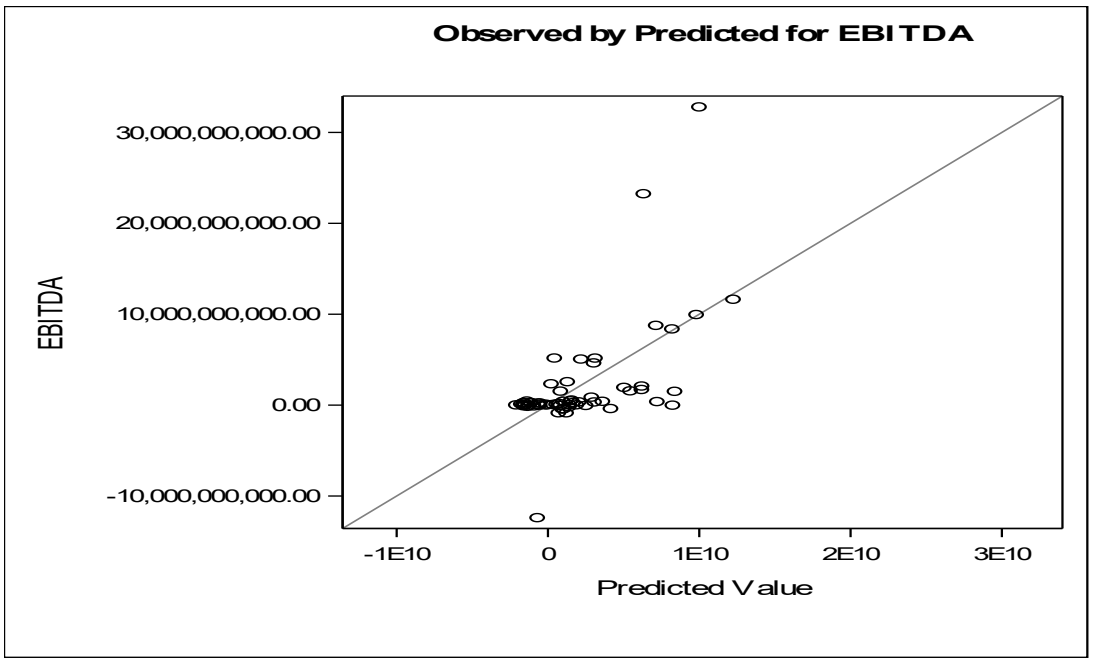
EBITDA

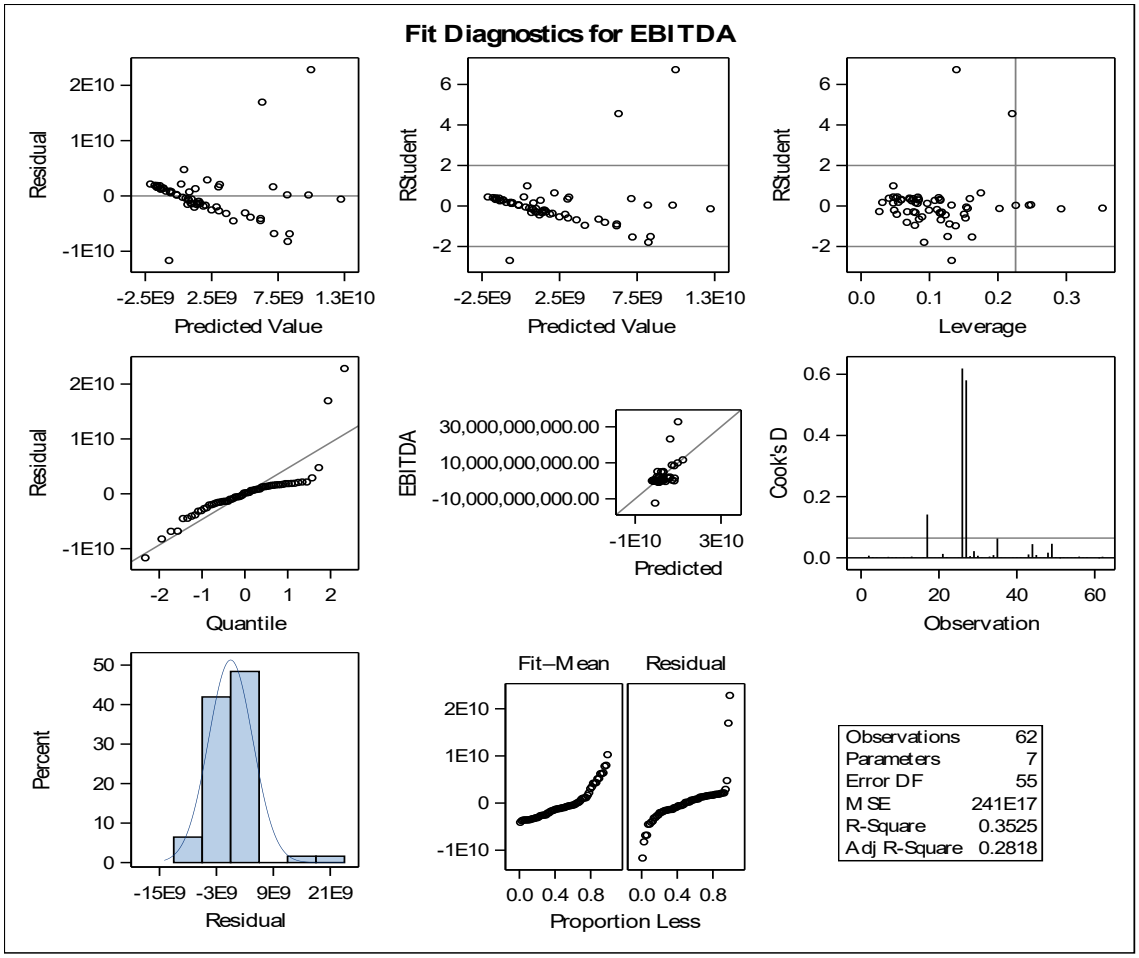
Number of Observations Read	62
Number of Observations Used	62

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	6	7.229811E20	1.204968E20	4.99	0.0004
Error	55	1.328148E21	2.414814E19		
Corrected Total	61	2.051129E21			

Root MSE	4914075841	**R-Square**	0.3525
Dependent Mean	1961514416	**Adj R-Sq**	0.2818
Coeff Var	250.52458		

Parameter Estimates						
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	Intercept	1	-7285140177	3495585606	-2.08	0.0418
Size	Size	1	154216730	645808333	0.24	0.8122
Independence	Independence	1	-105534207	557906541	-0.19	0.8507
Number_of_Meetings	Number of Meetings	1	244991865	176197946	1.39	0.1700
Gender	Gender	1	330460052	503933068	0.66	0.5147
Ceo_Salary	Ceo Salary	1	864.47924	248.82379	3.47	0.0010
Ceo_Tenure	Ceo Tenure	1	3152762448	1447216118	2.18	0.0337


Observed by Predicted for EBITDA
EBITDA
30,000,000,000.00
20,000,000,000.00
10,000,000,000.00
0.00
-10,000,000,000.00
-1E10
0
1E10
2E10
3E10
Predicted Value


Fit Diagnostics for EBITDA
Residual
Predicted Value
RStudent
Predicted Value
RStudent
Leverage
Residual
Quantile
EBITDA
Predicted
Cook's D
Observation
Percent
Residual
Fit–Mean
Residual
Proportion Less
Observations 62
Parameters 7
Error DF 55
MSE 241E17
R-Square 0.3525
Adj R-Square 0.2818