BOARD STRUCTURE, CHIEF EXECUTIVE OFFICER NARCISSISM AND REAL EARNINGS MANAGEMENT AMONG COMPANIES LISTED IN NAIROBI SECURITIES EXCHANGE, KENYA

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DECLARATION

Declaration by the candidate

I declare that this is my original work and has not been presented for any degree award in any other university.

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DEDICATION

I dedicate this thesis to my parents whose presence in my life has been incredible not only during the course of this thesis but all throughout my life.

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ACRONYMS AND ABBREVIATIONS

ACFO	Abnormal Cashflows from Operations
ADISX	Abnormal Discretionary Expenses
AEM	Accruals Earnings Management
APROD	Abnormal Production Cost
CMA	Capital Market Authority
COGS	Cost of Goods Sold
DCI	Document Check Index
FE	Fixed Effects
FGLS	Feasible General Least Squares
ICPAK	Institute of Certified Public Accountants of Kenya
IFRS	International Financial Reporting Standards
IGLS	Integrated General Least Squares
MAR	Missing at Random
NSE	Nairobi Securities Exchange
RE	Random Effects
REM	Real Earnings Management
SEC	Securities and Exchange Commission

OPERATIONAL DEFINITION OF TERMS

Board Structure: This refers to the characteristics of the board which includes, board leadership, board size, board tenure, proportion of independent directors, board committees among others which explains what the board entails and how it carries out its roles. (Sun, Salama & Habbas, 2010; Wang, 2014; Wilson & Wang, 2010; Wu & Li, 2015; Yasser & Mamun, 2016).

Board Independence: This refers to board that has majority of outside directors who are not affiliated with the top executives of the firm, and have minimal or no business dealings with the company to avoid potential conflicts of interests (Lin & Hwang, 2010).

Board Size: This refers to the total number of directors serving in a board of an organization (Kent, Routledge & Stewart, 2016).

Board Tenure: This refers to the duration in which a director has been a member of the board, or participating in board meetings of a given firm (Ahmad-Zaluki & Wan-Hussin, 2010; Mak & Tan, 2006; Huang, 2013; Iqbal & Strong, 2010).

CEO Duality: This refers to the board structure where other firms will separate the roles of the chairman and the CEO, while others allow both roles to be carried out by the CEO (Fama, 1980; Epps & Ismail,

2009; Iyengar, Land & Zampelli, 2010; Amar & Francoeur, 2011; Eckles, Sommer & Zhang, 2011; Rijsenbilt, 2011; Farrell, Yu & Zhang, 2013).

CEO Narcissism: This refers to a personal trait that is characterized by increased sense of importance and entitlement. It often makes the CEO feel aggressive with a desire for increased power and dominance over others. It is also defined as where the CEO aspirations, judgments, and decisions both good and bad, are driven by unyielding arrogance and self-absorption (Rijsenbilt, 2011; Brennan & Conroy, 2013; Jones, 2013; O'Reill, Doerr & Caldwell, 2013).

Real Earnings Management: This refers to an act of increasing reported earnings by diverging from the best practice so as to improve the appearance of cash flow of the firm. It involves increasing sales through offering more discounts or relaxing credit period, tending to reduce expenditure and increasing production to cut down the fixed cost per unit (Roychowdhury, 2006).

ABSTRACT

Real Earnings Management has earned little attention in developing countries, yet it contributes to fraudulent reporting through operational activities. Extant literature indicates that boards' effectiveness in reviewing the financial statements is crucial. In addition, individual characteristics of the CEO such as preferences, experiences and dispositions influence the way financial statements are reported. Several studies have been conducted to determine the relationship between board structure and earnings management, however, the results are mixed. Despite the extensive research on CEO's individual characteristics and its influence on decision making and financial reporting, little attention has been given to CEO narcissism. The purpose of this study was to determine the effect of the board structure on real earnings management and the interaction effects of CEO narcissism among firms listed in Nairobi Securities Exchange. The specific objectives were to determine the effect of board independence, board tenure, board duality and board size on real earnings management and the moderating effect of CEO narcissism on the relationship between board independence, board tenure, CEO duality and board size on real earnings management. Agency theory, upper echelons theory and catering theory of earnings management were used to support the study. The study used longitudinal research design. Target population was 50 firms listed at Nairobi Securities Exchange. Secondary data from published financial reports of these listed firms from 2002 to 2017 was collected from Nairobi Securities Exchange and Capital Market Authority database using content analysis. Both descriptive and inferential statistics were used to analyse the data. Inferential statistics were done using hierarchical regression. The findings of the study showed that board independence (β = -.234, ρ < .05), board tenure (β = -.019, ρ < .05) and board size (β = -.035, ρ < .05) had a negative and significant effect on real earnings management while CEO duality (β = .643, ρ < .05) had a positive and significant effect on real earnings management. Further, the interaction effects showed that CEO narcissism negatively moderates the relationship between CEO duality (β = -.523, ρ < .05) and real earnings management, but had a negative but insignificant relationship between board independence (β = -.001, ρ > .05) and real earnings management, and a positive but insignificant relationship between board tenure (β = .002, ρ > .05), board size (β = .000, ρ > .05) and real earnings management. The study concludes that board independence, board tenure, board size and separated roles of the CEO, are crucial in mitigating real earnings management among firms listed in Nairobi Securities exchange. Further, CEO narcissism can help reduce the cases of real earnings management in situations where the CEO duality exist. The results support the agency theory that managers manipulate financial statements using real earnings management. It further supports the upper echelons theory that CEOs personal preferences can greatly influences the financial accounting choices and subsequently the level of earnings management. The study recommends that, for listed firms in NSE to reduce real earnings management, it should increase the proportion of independent board members, increase the board tenure, increase the size of the boards and ensure that there is separation of CEO and chairman roles. Additionally in cases where the CEO duality exist, a narcissistic CEO would be the remedy to reduce the real earnings management.

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter presents the background of the study, the role of Nairobi Securities Exchange (NSE), the statement of the problem, both general and specific objectives, hypothesis, significance and scope of the study.

1.1 Background of the Study

The proliferation of accounting scandals in both developed and developing countries is largely associated with the use of earnings management (Hu *et al.*, 2015). Earnings management, refers to manager's use of judgments in financial reporting and in structuring transactions to alter financial reports, either to mislead the stakeholders or to influence a given contractual outcome (Beasley, 1996; Dawar, 2014). Earnings management obscures real performance, and not only impedes the ability of shareholders to make informed decisions, but also market inefficiencies due to inability of the capital markets to set accurate security prices (Epps & Ismail, 2009; Li & Hwang, 2019)

Drawing from the literature, scholars have categorized earnings management differently. Some have categorized them into fraudulent reporting, accrual earnings management and real earnings management (Ghosh, Marra & Moon, 2010; Gulzar & Zongjun, 2011; Kim & Yang, 2014), While others have categorized earnings management into accruals earnings management and real earnings management (Al-Amri, Al Shidi, Al Busaidi, & Akguc, 2017; Roychowdhury, 2006; Seybert, 2010; Sun, Lan, & liu., 2014). The contrast shows that, whereas fraudulent reporting involves the use of window dressing and kitting by the management, accruals earnings management involves management discretion in application of the accruals concept in preparation

of the financial statements where the end results affects the earnings, while real earnings management involves manipulation of operational activities which ultimately affects the cashflows of the firm (Ferentinou & Anagnostopoulou, 2016; Ronen, 2008; Sun *et al.*, 2014; Wang, 2014; Wilson & Wang, 2010).

Boards of directors form an integral part of the firms' structure (Boulila Taktak & Mbarki, 2014). The board provides a link that bridges the shareholders with the investors and play a supervisory role of monitoring the quality of the information contained in the financial reports (Niu, 2006; Maria *et al.*, 2011). In addition, the board have a duty as provided for by law to guard against potential private gains of managers to manage earnings with an intention of misleading shareholders (Jensen and Meckling, 1976).

Despite plethora of studies on the relationship between board structure and earnings management, the results remain inconclusive. While other studies have shown negative relationships (Chen, Cheng, & Wang, 2015; Epps & Ismail, 2011; Farrell *et al.*, 2013; Khalil & Ozkan, 2016; Peasnell & Pope, 2005; Wu & Li, 2015) other studies have shown positive relationships (Ahmad-Zaluki & Wan-Hussin, 2010; Iqbal & Strong, 2010) while others have shown no relationships between board structure and earnings management (Mather & Ramsay, 2006). There are two reasons that can explain the reasons for the mixed results. First, most of these studies have been carried out in developed countries, hence its results cannot be generalized to developing countries due to difference in institutional and legal settings which vary from country to country. Secondly, most of the countries have moved from the application of Generally Accepted Accounting Principles and International Accounting Standards in preparation of financial statements and adopted the current International Financial Reporting Standards which has only reduced the cases of accruals

earnings management. Further, there is limited research that examines the relationship between the board structure and the real earnings management especially in the Kenyan context. Moreover the moderating effect of the CEO narcissism on the relationship between board structure and real earnings management remains unexplored.

Previous literature alludes that earnings management in developed countries such as US, Malaysia and Australia is largely attributed to inadequate monitoring by the board members who are considered to be the ultimate guardians of the financial reporting (Khalil & Ozkan, 2016; Mak & Li, 2001; Rohaida, 2011). Their inability to carry out the monitoring role has been linked to lack of independency among the board members, inadequate sizes of the boards that either are too big that becomes problematic in decision making or too small such that it fails to include a wide expertise in the board, inadequate financial knowledge among board members making it hard for them to comprehend anomalies in the financial statements, inefficient board leadership and prolonged tenure that ends up compromising their independence (Farrell *et al.*, 2013; Lin, Wang, Chiou, & Huang, 2014; Wu & Li, 2015; Yasser & Mamun, 2015).

Notably, with the increase in corporate scandals and collapse of listed firms, concerns have been raised on the integrity of the accounting information disseminated in capital markets and the ethics of the accounting practice and financial reporting, together with the corporate governance practices in listed firms. This has precipitated the formulation of rules and regulations that govern corporations which among others include; the Olivencia report 1998 in Spain, Sarbanes Oxley Act of 2002 in US, Cadbury report 1992 in UK, Kings Report 2002 in South Africa, the Malaysian Corporate Governance code of ethics 2007 and Corporate Governance Guidelines of 2002 in Kenya. All these reports emphasize the board structure as a principle representing critical

foundation of the ethics in financial reporting and virtues of good corporate governance practices (Beasley, 1996; Shank & Stang, 2013; Vinten, 2002).

Board structure has been defined by previous studies as the characteristics of the board which involves, board leadership, board size, board tenure, proportion of independent directors, board committees among others which explains what the board entails and how it carries out its roles. (Sun, Salama & Habbas, 2010; Wang, 2014; Wilson & Wang, 2010; Wu & Li, 2015; Yasser & Mamun, 2016). Empirically, the role of the board of directors' can be categorized into four interrelated roles. First, shaping the strategic direction of the firm and reviewing its progress (Haynes & Hillman, 2010; Hendry & Kiel, 2004; Kim, Burns, & Prescott, 2009; Tarus & Aime, 2014; Westphal & Fredrickson, 2001). Secondly, linking the firm to its external environment (Cooke,2000; Donaldson & Preston, 1995). Thirdly, hiring and dismissing underperforming managers and evaluating their performance (Fairchild & Li, 2005; Jensen, & Meckling, 1976). Fourthly and more importantly, reviewing on a regular basis the adequacy and integrity of the company's internal controls and compliance with applicable standards and regulations in preparation and presentation of accurate financial statements (Chen, Cheng, & Wang, 2015; Ebaid & Ebaid, 2013; Leuz & Wysocki, 2016).

The study was anchored on agency theory. The theory emphasizes the exigencies of introducing a layer of scrutiny in form of board of directors to carry out the fiduciary role of measuring executive performance, disciplining managers and approving and ratifying significant decisions (Fama & Jensen, 1983). This reduces divergence of interest, which precipitates the conflicts between the shareholders and the managers. In addition, it increases transparency of managerial actions hence reducing opportunistic behaviours of managers and information asymmetry between the

shareholders and the agents (Johl *et al.*, 2011; Vinten, 2002; Wahidahwati & Prasetiyono, 2012). Further, the study was also built on the catering theory of earnings management which posits that managers reflect earnings in the financial statements depending on the magnitude of the investors' demands for earnings surprises. This means that managers exaggerate earnings due to the expectations of the shareholders and other stakeholders (Rajgopal, *et al*. 2007).

According to the Corporate Governance Guidelines 2002 in Kenya, Gazette Notice No.3362, at least a third of the board membership should comprise of independent, non-executive directors. It should also be composed of directors who reflect the company shareholding structure. It further stipulates that, the board size should not be too large to the point of undermining the inactive discussions during the meetings, and not too small to the point of compromising the inclusion of wider expertise and skills aimed at improve the efficiency of the board. Regarding the leadership of the board, the Act stipulates that there should be separation of roles of the chairman and the Chief Executive Officer. This ensures that there is symmetrical balance of powers of authority and provide efficient control mechanisms such that no one individual has unvetted powers of decision making. Where such roles are combined, a rationale for the same should be disclosed in the company report.

Most of the literature recognizes the role of board structure on earnings management. However, there is scant evidence on how CEO influence earnings management. This is rather perplexing because even though the board structure could be effective, it largely depends on the personality trait of the CEO's influence in ensuring transparency, accuracy, completeness and proper presentation and disclosure of financial information (Zhang, Bartolk, Smith, Pfarrer & Khanin, 2017). According to Combs, *et al*, (2007) the CEO confers considerable powers over a firms

resources, This shows that, he can have more influence on the magnititude in which he can either increase or reduce the level of earnings manupulation. Further, Chen (2010) argues that the major cause of accounting scandals has largely been associated with the unethical leadership of the CEO's. This personality trait includes the CEO's judgements and decisions both good and bad in the preparation and accuracy of the financial statement. Previous literature has regarded this personality trait as CEO narcissism (Petit & Bollaert, 2012; Shurden, 2014).Drawing from the management literature, a narcissistic CEO refers to a personality trait that is characterized by increased sense of importance and entitlement (Chatterjee & Hambrick, 2007; Lubit, 2002). It often makes the CEO feel aggressive and dominant over others and are driven by unyielding arrogance and self-absorption (Brennan & Conroy, 2013; Ham, Lang & Seybert, 2015; Jones, 2013; O'Reill, Doerr & Caldwell, 2013; Rijsenbilt, 2011).

A critical analysis of the literature reveals that, there are three reasons why the CEO can determine the magnitude of the level of earnings management in an organization. First, financial accounting results act as a personal reflection or a report card on the success and failure of an organization (Koh, 2011; Mande & Son, 2012; Rickling & Sharma, 2017). Hence a narcissistic CEO would always ensure good performance is reported to maintain his ego (Amernic, Craig, & Craig, 2015). Secondly, CEO's understand more about the organizations and in most cases they table issues that need to be discussed and be approved by the board. Hence, in cases where the board is not independent, the decisions will be done in favour of the needs of the CEO (Zorn, Shropshire Martin & Combs, 2017). Thirdly, the CEO is in charge of the overall daily operations of the organization, hence he has the mandate to ensure proper execution of internal control systems that aid in attaining

complete and accurate financial statements (Lin, Wang, Chiou, & Huang, 2014; Zhang ,Bartolk,Smith, Pfarrer & Khanin , 2017).

Hence the moderating effect of the CEO narcissism was anchored on upper echelons theory which posits that organizational outcomes, strategic choices and performance levels are partially predicted by managerial background characteristics (Hambrick & Mason, 1984). This shows that the CEOs can align his personal preferences on what the financial statements should reflect. Therefore, this greatly influences the financial accounting choices and subsequently the level of earnings management.

1.1.1 The Kenyan Context

The history of NSE dates back to 1920 when trading took place on simple individual agreement with no physical trading floor (Tarus & Ayabei, 2016). Later, London stock exchange officials accepted to recognize the setting up of NSE as an overseas stock exchange in 1954 and got registered under the Societies Act as a voluntary association of brokers, charged with the responsibility of developing the security markets and regulating the trading activities (Iraya, Mwangi, & Muchoki, 2015). This involved operating as a regional market in East Africa and dealing with issues of the East African countries. However, with the changing political regimes among East African Community members, various decisions affected the free market movement of capital which ultimately led to delisting of companies domiciled in Uganda and Tanzania from Nairobi Securities Exchange.

Nairobi Securities Exchange was strengthened by the enactment of Kenyan Capital Market Authority (CMA) in 1990, whose responsibility was to promote and facilitate the development of orderly and efficient capital market (Tarus & Ayabei, 2016). Capital Markets Authority in its role

of ensuring efficient market of securities, adopted constitution of effective board to promote good corporate governance for the firms listed in the securities exchange which by then was faced by lack of investor's confidence due to losses experienced in the past, collapse of the brokerage firms and poor financial reporting standards (Iraya, *et al*., 2015). Currently there are 68 listings in the securities exchange.

The corporate governance guidelines enacted by CMA in 2002, was developed with the assistance of the Commonwealth Association for corporate governance and the organization for economic corporation and development who followed the Anglo American models of corporate governance. These models have been questioned by prior studies on their appropriateness in developing countries such as Kenya (Outa *et al*, 2017; Waweru & Prot, 2018). The questions arise from the notion that success of the codes depends on a number of institutional settings such as well-developed capital markets, established accounting bodies, democratic institutions and various autonomous bodies whose effectiveness in Kenyan context are debatable. Hence Kenya CMA recently, under the Gazette Notice No.1420, issued revised corporate governance guidelines (2015), which clearly admitted that, there are several governance issues with listed firms and went further to suggest mandatory disclosures, contrary to the spirit of voluntary "comply and explain" code in operation.

Besides the new enactments, there remains a need to determine whether governance mechanisms enhance effective decision making in Kenya, particularly with regard to accuracy of financial reporting (Nyamongo & Temesgen, 2013). This is due to the increase in corporate failures among the listed firms which among the notable cases include; Uchumi Supermarket, Chase Bank, Imperial Bank, Kenya Airways, Mumias, CMC Motors and many others. The main reason

attributed to these corporate failures are their inefficient boards and increase in fraudulent reporting (Iraya, *et al.*, 2015; Outa & Waweru , 2016).

Few studies that have been conducted in Kenyan context, have yielded mixed results. For example, Iraya *et al.* (2015) reported that earnings management is negatively related to ownership concentration, board size and board independence. Similarly, Waweru & Riro (2013) found that ownership structure and board independence are the main corporate governance variables influencing earnings management negatively in Kenya. In contrast, Outa *et al*., (2017), found that earnings management is not significantly related to corporate governance among the Kenyan listed firms. It is therefore unclear from the studies how each board characteristic can influence real earnings management and furthermore the moderating effect of the CEO narcissism on the relationship between the board structure and real earnings management remains unexplored in the Kenyan context.

1.2 Statement of the Problem

The Institute of Certified Public Accountants of Kenya requires managers to uphold professionalism in preparation of the financial statements by complying with the International Financial Reporting Standards (IFRS). In addition, the Corporate Governance Guidelines 2002 in Kenya, emphasizes the board's responsibility for preparation and accuracy of the financial statements and need for audit committees that aid in establishing any anomalies in the financial statements. Further Sec 635 of the Company's Act 2015 provides for the offences and penalties to the directors who default in presenting true and fair financial statements.

The corporate governance guidelines enacted by CMA in 2002, was developed with the assistance of the Commonwealth Association for corporate governance and the organization for economic

corporation and development who followed the Anglo American models of corporate governance. These models have been questioned by prior studies on their appropriateness in developing countries such as Kenya (Outa *et al*, 2017; Waweru & Prot, 2018). The questions arise from the notion that success of the codes depends on a number of institutional settings such as well-developed institutions, capital markets, established accounting bodies, democratic and various autonomous bodies whose effectiveness in Kenyan context are debatable.

Hence Kenya CMA recently, issued revised corporate governance guidelines (2015), which clearly admitted that, there are several governance issues with listed firms and went further to suggest mandatory disclosures, contrary to the spirit of voluntary "comply and explain" code in operation.Besides the new enactments, accounting scandals and fraudulent reporting by the managers is still on the rise and at an inconceivable levels and magnitudes (Muriithi, 2009; Mang'unyi, 2011). Large listed firms such as Mumias Sugar Company, CMC Motors, Uchumi Supermarkets, Kenya Airways, East African Portland Cement and many others have been associated with financial misreporting (Outa & Waweru, 2016). In addition most of them have been reporting losses several years in a row contrary to the capital markets' requirements, and in most cases this occurs after the departure of powerful CEO's from those firms (Outa *et al.,* 2017) In emphasis of this, World Economic Forum (2012) reports revealed that companies listed at NSE have been rocked by numerous scandals which have deemed investor confidence and cast aspersions on the integrity of the auditing and reporting standards in the affected firms.

Few studies that have been conducted in Kenyan context, have yielded mixed results. While, Iraya *et al.* (2015) reported that earnings management is negatively related to ownership concentration, board size and board independence, Waweru & Riro (2013) found that ownership structure and

board independence are the main corporate governance variables influencing earnings management negatively in Kenya. In contrast, Outa *et al*., (2017), found that earnings management is not significantly related to corporate governance among the Kenyan listed firms. It is therefore unclear from the studies how each board characteristic can influence financial reporting in Kenya. Secondly, studies that have been conducted in Kenya have concentrated in AEM and utilized a balanced panel data. This study therefore extends the literature by introducing REM and utilizing unbalanced panel data considering that firms were started, registered and listed at different times. Further, although there is an empirical evidence that board structure influences earnings management both in developed and emerging countries, limited research has focused on the moderating role of CEO narcissism, more particularly in an emerging market like Kenya. Therefore the study sought to establish the relationship between board structure and REM under the moderating role of CEO narcissism among the listed firms at NSE).

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of the study was to determine the moderating effect of CEO narcissism on the relationship between board structure and real earnings management for the firms listed in Nairobi Securities Exchange.

1.3.2 Specific Objectives

1. To examine the effect of board independence on real earnings management among the firms listed in Nairobi Securities Exchange.
2. To determine the effect of board tenure on real earnings management among the firms listed in Nairobi Securities Exchange.

3. To establish the effect of CEO duality on real earnings management among the firms listed in Nairobi Securities Exchange.
4. To determine the effect of board size on real earnings management among the firms listed in Nairobi Securities Exchange.

5a To establish the moderating effect of CEO narcissism on the relationship between board independence and real earnings management among the firms listed in Nairobi Securities Exchange.

5b To determine the moderating effect of CEO narcissism on the relationship between board tenure and real earnings management among the firms listed in Nairobi Securities Exchange.

5c To establish the moderating effect of CEO narcissism on the relationship between CEO duality and real earnings management among the firms listed in Nairobi Securities Exchange.

5d To examine the moderating effect of CEO narcissism on the relationship between board size and real earnings management among the firms listed in Nairobi Securities Exchange.

1.4 Hypotheses

The hypotheses for the study was as follows;

H_{01} Board independence does not affect the real earning management among the firms listed in Nairobi Securities Exchange.

H_{02} Board tenure does not affect the real earning management among the firms listed in Nairobi Securities Exchange.

H_{03} CEO duality does not affect the real earning management among the firms listed in Nairobi Securities Exchange.

H_{04} Board size does not affect the real earning management among the firms listed in Nairobi Securities Exchange.

H_{05a} CEO narcissism does not moderate the relationship between board independence and real earnings management among the firms listed in Nairobi Securities Exchange. .

H_{05b} CEO narcissism does not moderate the relationship between board tenure and real earnings management among the firms listed in Nairobi Securities Exchange.

H_{05c} CEO narcissism does not moderate the relationship between CEO duality and real earnings management among the firms listed in Nairobi Securities Exchange

H_{05d} CEO narcissism does not moderate the relationship between board size and real earnings management among the firms listed in Nairobi Securities Exchange

1.5 Significance of the Study

The purpose of the study was to examine the moderating role of CEO narcissism on the relationship between board structure and real earnings management. This study makes theoretical and methodological contributions to the literature. It also offers practical implications and policy implications to regulatory agencies. From the theoretical perspective, this research is the first study

to examine the relationship between the board structure and real earnings management among the listed firms at Nairobi Securities Exchange. The study aimed at adding value to the existing literature by expanding knowledge on the nature of the board structure that can constrain the real earnings management in the Kenyan context. The study adds on the debate on whether independent directors increase or decrease the real earnings management. It further provides evidence on the size of the board that can mitigate real earnings management. The study also explores whether the long term or short term serving directors can be effective in reducing real earnings management. Lastly most of the previous studies have revealed positive relationship between CEO duality and earnings management. Hence this study seeks to examine whether CEO duality have any effects on real earnings management in the Kenyan context. Further, the introduction of CEO narcissism as a moderator also reveals additional insights to the extant literature on how the CEO's personal traits such as narcissism can moderate the relationship between the board structure and real earnings management.

From the methodology contribution the study applied the use of unobtrusive measures of narcissism which gives more personal expression by the CEO's and is more reliable as compared to the previously used NPI- 16 measures which depends on respondents' perceptions on the CEO and can be subject to a lot of bias. Further previous studies in Kenyan context explored the use of balanced panel data which assumes that all the firms existed for the same period. Hence this study sought to contribute to the previous studies by exploring the use of unbalanced panel data, considering that companies listed at Nairobi Securities Exchange were started, registered and listed at different times.

Secondly, the findings of the study would be important for policy implications. The regulators of corporate governance in emerging economies tend to adopt corporate governance recommendations based on evidence from the studies of western economy firms, particularly the developed countries that are based on the agency theory. The findings of this study, adds to the growing body of evidence that suggests such an approach is irrelevant to the emerging markets like Kenya due to differences in the economic and corporate structures as well as the broader cultural differences. Hence it is imperative for regulators in Kenya to develop a viable regulatory framework according to the findings reported in this study, so that they can take enforceable actions to mitigate the potential consequences derived from real earnings management.

Thirdly, the results of this study would also be important for practical implications. This would promote a general understanding of the effective board structure that would mitigate real earnings management. These includes the effectiveness of the independent board members in mitigating real earnings management, the ideal size of the board that can reduce opportunistic behaviors of the managers, the duration in which a board member should serve an organization and the leadership structure of the board that aid in mitigating real earnings management. Hence this will aid in ensuring that boards strictly comply with the corporate governance regulations especially on issues that affect the independency and integrity of the boards (Combs *et al.*, 2007). Further, it will also alert the audit committees, internal auditors, external auditors and financial analyst on the operational activities that managers use to defraud the company of its resources. This will also help them understand the areas of concentration during audit assignments (Al-Mamun, Yasser, Rahman, Wickramansinghe & Nathan, 2014; Chiang, Huang, & Hsiao, 2011).

1.6 Scope of the Study

Currently the total number of companies listed in NSE are 68 in number, but those that have been trading since 2002 to 2017 including those that got listed during this period are 51.The unit of analysis was 51 listed firms that have been trading at NSE from 2002 to 2017. The reason for beginning from year 2002 is because of the corporate governance guidelines in Kenya, which were enacted in 2002. Since the companies were started, registered and listed at different times, the data used in the study was unbalanced. Hence the total number of observations was expected to be 816.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This literature review highlights the previous studies done on the board structures and real earnings management and the moderating role of CEO narcissism. This literature review is done to facilitate acquisition of information from previous studies that explain further on the board structures and its subsequent effects on earnings management. Theoretical literature is reviewed. The conceptual framework is also provided.

2.1 The Concept of Real Earnings Management

The term earnings management, is an accounting concept that has widely received attention since the late eighties, as it is viewed as an important ethical financial reporting issue (Achleitner, Guenther, Kaserer & Siciliano, 2014; Archambault & Archambault, 2003). While the prior literature explains earnings management by use of the positive accounting theory, the recent research has shifted focus to the agency theory due to the negativity impacted to the public confidence on the reliance of the audited financial statements (Moradi, Salehi, & Zamanirad, 2015; Pacheco Paredes & Wheatley, 2017; Seybert, 2010; Soderstrom & Zeyun Chen, 2016). There exists two strands of literature that has focused on the investigation of frauds and scandals in firms. The first strand comprise of scholars who rely on the psychological approach to investigate the motivation behind those who engage in earnings management (Chen, 2010; Gulzar & Zongjun, 2011; Moradi *et al.*, 2015; Uwuigbe, Ranti, Uwuigbe, & Bernard, 2014). The other strand of literature focuses on the earning management outcomes (Al-Amri *et al.*, 2017; Ferentinou & Anagnostopoulou, 2016; Pacheco Paredes & Wheatley, 2017; Roychowdhury, 2006; Sun *et al.*, 2014).

The definition of earning management in accounting research has been associated with frauds and scandals in organizations (Lee & Hwang, 2012; Nugroho & Eko., 2011; Sáenz González & García-Meca, 2014). It is worth noting that earnings management relates to practice of manipulating financial statements with an aim of fulfilling private gains (Beasley,1996) while fraudulent accounting refers to the practice of not adhering to the stipulated accounting standards (Ewert & Wagenhofer, 2005). Financial statements should paint a clear picture about companies' financial position so as to enable stakeholders make informed decisions. The existence of information asymmetry and agency problems among insiders of firms leads to significant earnings management. This could affect firms' reliability and distort the true financial health. (Chen *et al*., 2015; Rauf *et al,* 2012; Sáenz González & García-Meca, 2014).

Prior literature summarizes the factors that compel the managers to indulge in earnings management into two categories namely internal and external causes of earnings management (Goncharov & Zimmermann, 2006). Further it explains that whereas the internal factors can be as a result of capital market motivations, contracting motivations and regulatory motivations the external factors cannot be controlled by the firm and include the institutional framework, the degree of investor protection in the country, bankruptcy proceedings, economic crises, tax rates and accounting regulations (Achleitner *et al.,* 2014; Allen, Larson & Sloan, 2013; Arnedo, Lizarraga & Sánchez, 2007; Badertscher, 2011; DeFond & Jiambalvo, 1994; Gaver *et al*, 1995; Goncharov *et al*., 2006)

Earnings management has further been categorized by literature into accruals earnings management (EAM) and real earnings management (REM). In accrual earnings management, managers introduce their judgement and subjectivity by accounting choices in the financial reports

and hence it distorts a company's underlying operating performance. Hence, it does not generally involve altering operations themselves (Cohen & Zarowin, 2010; Rauf *et al*., 2012; Schipper, 1989). However in real earnings management (REM) managers' use real activities with an objective of misleading stakeholders into believing that the results reported in the financial statements have been achieved in the normal course of operations (Ferentinou & Anagnostopoulou, 2016; Moradi *et al*., 2015; Seybert, 2010; Soderstrom & Zeyun Chen, 2016).

Drawing from the extant literature, application of accruals earnings management has decreased after the Sarbanes-Oxley periods, due to improved corporate governance guidelines and mandatory adoption of the IFRS (Ferentinou & Anagnostopoulou, 2016). Instead, firms have switched to real earnings management. Real activity is preferred to accrual manipulation because it is easier to implement, less costly and more difficult to detect and constrain (Cohen & Zarowin ,2010). In addition, real manipulation is perceived to be less ethical than accrual manipulation, and it can reduce the future valuation of companies as well as their profitability and long-term competitiveness (Pacheco Paredes & Wheatley, 2017).

There are a variety of real earnings management techniques that management may use to influence earnings. These varies across companies depending on the unique nature of the company's operating environment (Braswell & Daniels, 2017). For example, manufacturing firms can increase production of more inventory towards end of the financial year especially when the forecasted earnings are less than expectations (Roychowdhury, 2006). Hence the additional inventory results to less overhead per unit resulting into a reduction of cost of goods sold. Thus increasing the reported earnings. Another approach involves deferring discretionary expenses such as research and development expenses to the next accounting period (Pacheco *et al*, 2017).

Deferring of such expenditures reduces the expenses for the year and thus increasing the earnings. Investment decisions may also be used as a real earnings management tool. This involves delaying capital projects which results in deferring the associated expenses such as depreciation on fixed assets (Graham & Harvey, 2005). The results of deferring such depreciation expenses is reduction of expenses and thus over casted profits. A more desperate approach of improving the earnings involves recording gains from selling profitable operating assets towards the end of the financial year, with the aim of supporting the current stock prices (Braswell & Daniels, 2017). The investors are unlikely to know the purpose of such transactions and therefore unable to make the optimal investment decisions. Lastly, another approach involves expediting increase in sales through offering more price discounts or more lenient credit terms (Sun *et al.*, 2014). Although such efforts may help the management achieve analysts' earnings per share estimates investors with longer term investment horizons may misprice stock prices based on the mistaken presumption that the current period increase in sales revenue will be consistent over years.

Prior studies have provided some company characteristics that are associated with real earnings management. Some of the notable characteristics includes; companies dealing in manufacturing and with larger net operating assets due to their flexibility in holding stock in various forms (Roychowdhury, 2006; Sun *et al.,* 2014). Secondly, firms with lower degree of institutional ownership. (Cunningham *et al,* 2019; Dou *et al*, 2016; Geertsema *et al*, 2019; Ho *et al*, 2015; Zang, 2012) Thirdly, companies with high levels of debt and risk exposure will use real earnings management to improve the outlook of the financial performance (Herrmann *et al* , 2003). Lastly, firms with greater financial health and market share tend to maintain their performance by use of real earnings management (Zang, 2012). A critical analysis of the literature shows that cases of

earnings management have been evidenced in developed nations such as Asia, America and Europe (Al-Mamun, Yasser, Rahman, Wickramansinghe & Nathan, 2014; Liu, 2012; Llukani, 2013; Sun *et al*., 2014). Hence the study sought to examine whether real earnings management existed among the listed firms in Kenya.

2.2 The Concept of Board Structure

Board of directors are an important part of the firm's structure. It refers to a group of individuals elected as representatives of the stakeholders, to establish corporate management related policies and to make decisions on major company issues (Karaibrahimoglu, 2013). They also provide a link between the providers of capital and the managers. They are also responsible for monitoring the quality of the information contained in the financial reports. In the process of increasing the efficiency of the boards, different countries have formulated rules and regulations that govern corporations in the desired structure of the boards (Andres, Azofra & Lopez, 2005). These include the Olivencia report 1998 in Spain, Sarbanes Oxley Act of 2002 in US, Cadbury report in UK, Kings Report in South Africa, The Malaysian Corporate Governance code of ethics 2007 and Corporate Governance Guidelines of 2002 in Kenya. Besides the introduction of these guidelines in different countries, their effectiveness still varies due to legal and regulatory framework (Abatecola, Farina & Gordini, 2014). Secondly the appointment of the board members in emerging markets has been largely associated with political influence, hence directors may not be appointed on merit and meet the corporate governance guidelines.

According to Jensen and Meckling (1976), introduction of a thin layer of the board of directors is important as part of monitoring mechanisms, in that it limits opportunistic activities of the managers. In addition, this is aimed at enhancing transparency hence reducing agency conflicts

(Aguilera, 2005; Andres *et al.*, 2005; Bonn, Yoshikawa & Phan, 2004; Mak & Rousch, 2000). Thus, the board of directors and its structure tend to be an effective corporate governance mechanism to diminish the agency problems and hence to reduce earnings management.

Several research studies have found that board structure has an impact on corporate financial reporting choices, including the earnings management (Abed & Al-Attar, 2012; Abed *et al*, 2011; Aygun & Sayim, 2014; Beasley, 1996; Bradbury *et al.*, 2006; Epps & Ismail, 2009; Gulzar & Zongjun, 2011; Hashim & Devi, 2008; Khalil & Ozkan, 2016; Niu, 2006; Park & Shin, 2004; Peasnell & Pope, 2005; Vafeas, 2003; Waweru & Prot, 2018; Wu & Li, 2015; Xie *et al*, 2003). Drawing from the extant literature, none of the studies have given conclusive results on the recommended structure of the board that can reduce the earnings management. For example Aygun and Sayim (2014) did a study basing on Turkey listed firms on effect of corporate ownership structure and board size on earnings management and found that board size had a negative significant relationship with earnings management. Other studies that found consistent results included (Ahmad-Zaluki & Wan-Hussin, 2010; Bradbury *et al*., 2006; Chen, Cheng & Wang, 2015).

In contrast, other studies such as Rahman and Ali (2006), found that board size has a positive significant relationship with earnings management while other studies have shown that board size has insignificant effect on earnings management. These include (Gulzar & Zongjun, 2011; Jamaludin, Sanusi & Kamaluddin, 2015; Rauf, Johari, Buniamin & Rahman, 2012). In addition to this, the effect of board independence on earnings management has also yielded mixed results for example Klein (2002) argued that, outside directors reduce earnings management. Other studies that have concurred with the findings include (Ajinkya,Bhojraj & Sengupta,2005; Ahmad-

Zaluki & Wan-Hussin, 2010; Chen *et al*., 2015; Epps & Ismail, 2009; Farrell *et al*., 2013; Iqbal & Strong, 2010; Jamaludin *et al*., 2015; Khalil & Ozkan, 2016; Mather & Ramsay, 2006; Niu, 2006; Peasnell, Pope & Young, 2005.; Sáenz González & García-Meca, 2014; Wu & Li, 2015). Other studies have shown insignificant relationship between board independence and earnings management (Iyengar *et al.*, 2010; Rahman & Ali, 2006).

Furthermore the effect of board leadership on earnings management has also not yielded conclusive results for example Farrell *et al.* (2013), found that the separation of the roles of the CEO and chairman of the board are less likely to engage in earnings management. The findings were also supported by Mather and Ramsay (2006) and Mohamad *et al*. (2012). In contrast Yasser and Mamun (2016) found that board leadership structure do not have a significant influence on financial reporting quality. Lastly, prior literature have argued that long tenure directors are more likely to have a friendly relationship with the management, which is developed over time hence their independency is compromised while on the other hand other studies presuppose that, long tenure directors are less mobile and more efficient since they understand the firms systems well, hence becomes easier for them to constrain earnings management (Kim & Yang, 2014; Sun, 2010).

2.3 The Concept of CEO Narcissism

The concept of narcissism originates from narcissus, a beautiful youth in Greek mythology who fell in love with his own reflection and then pined away, not realizing the object of his fancy was a mere reflection of his own image (Erkutlu & Chafra, 2017; Gerstner, König, Enders, & Hambrick, 2013; Rijsenbilt & Commandeur, 2017). In modern usage by social scientists, narcissism concerns our feelings about ourselves and how we regulate our self-esteem (Gerstner *et al.*, 2013; Godkin & Allcorn, 2009; Valérie Petit *et al.*, 2016). Previous literature has defined

narcissism as a pervasive pattern of grandiosity, need for admiration and lack of empathy (Amernic et al., 2015; Capalbo, Frino, Lim, Mollica, & Palumbo, 2017; Erkutlu & Chafra, 2017; Lubit, 2002). Other sets of literature describe a narcissistic CEO as one who constantly try to reconstruct their sense of ego, distract themselves with negative emotions like jealousy, triumph and revenge and have an aptness for enormous self-importance and treat human beings as objects and are totally self-centered (Craig & Amernic, 2011; Godkin & Allcorn, 2009).

According to the corporate governance guidelines the Chief Executive Officer (CEO) is bound to spearheading the development and fulfillment of the companies long term strategy with a view to creating shareholders value (Gerstner *et al*., 2013). He also acts as an interface between the board and the management and communicates on behalf of the company to the shareholders. Unfortunately, agency theory regards CEOs has self-interested, risk averse, and possess goals that diverge from those of shareholders. The theory further explains that CEOs can engage in self-serving actions at shareholders' expense when given an opportunity (Jensen &Meckling 1976). The agency theory further insists that the board should control such CEO powers by ensuring that all management decisions get the board's approval (Fama & Jensen, 1983).

A review of the prior literature associates manipulation of earnings in organizations' with CEO personal attributes (Amernic *et al*., 2015; Capalbo *et al.*, 2017; Chen, 2010; Cormier, Lapointe-Antunes, & Magnan, 2016; Valérie Petit *et al*., 2016;Rijsenbilt, 2011; Rijsenbilt & Commandeur, 2017). Further, the literature summarizes the factors that can compel a CEO to engage in earnings management into three main reasons. First, accounting based performance targets aid in justifying the CEOs bonuses and reward system (Mande & Son, 2012; Zorn , Shropshire, Martin & Combs, 2017). This influences how a CEO describes and discusses accounting performance as represented

by the earnings per share (EPS) and return on investments (ROI). Secondly, CEO has the mandate to wield significant clout over the internal control systems that validate the preparation and reporting of the financial statements (Lin, Wang, Chiou, & Huang, 2014). The literature refers it to as "tone at the top" and it is easier for the followers including the accountants to mirror the behavior of their leader (Combs *et al*., 2007). Thirdly when a person is appointed as the CEO of an organization there is the ample potential for them to assume personal ownership of accounting targets and to consider corporation wide financial accounting results to be a personal reflection or a report card on the success and failures of an organization (Koh, 2011; Mande & Son, 2012; Rickling & Sharma, 2017). Therefore this study delves into and extend the literature on the effect of CEO narcissism, board structures and real earnings management.

2.4 Theoretical Review

The study was guided by catering theory of earnings management, agency theory and upper echelons theory.

2.4.1 Agency Theory

Agency theory was first developed by Stephen Ross and Barry Mitnick in 1973 independently and concurrently. Whereas Ross introduced the study of agency in terms of the compensation contracting, Mitnick introduced out the study of agency theory by arguing that institutions form around agency, and evolve to deal with agency, in response to the essential imperfection of agency relationships.

Agency theory hypothecates that the firm is made up of a nexus of contracts between the owners of economic resources and the managers who are charged with using and controlling those resources (Jensen and Meckling, 1976). Agency theory is based on the premise that, agents have

more information than the owners of capital (Adams, 1994). Hence this information asymmetry adversely affects the principals ability to effectively monitor whether their interests are being properly served by the agents. It also presupposes that principles and agents act rationally and that they will use the contracting process to maximise their wealth (Jensen and Meckling, 1976).This means that managers, have self-seeking motives and in most cases they take the opportunity to act against the interests of the owners of capital. This dilemma is referred to as moral hazard. The other type of agency problem which arises is the adverse selection which occurs when the owners of capital do not have access to all available information at the time the decision is made by the manager and therefore is not in a position to determine whether managers' actions are in the best interest of the firm. Habbash & Alghamdi, (2015), argues that a state of efficiency can exist in the contracting relationship between the owners of capital and agents when neither party can enhance their wealth at the expense of the other. Currently one of the main agency problem that has resulted from separation of ownership and control is the manipulation of books of accounts by the management to exaggerate earnings (Achleitner *et al*., 2014)

Prior studies have established the motivations that compel management to serve their own self interests. First, managers are rewarded on the basis of firm performance. Hence most of the managers will inflate the level of earnings so as to have their terms renewed and to get their bonuses. Secondly, investors are attracted to invest in companies that reflect good financial performance and thirdly, pressure to get more debt financing and meet creditor's requirements (Cooke, 2000).

Therefore, to reduce the management's opportunistic actions, research in corporate governance has identified a number of mechanisms, both internal and external, which can help align

management's actions to the best interest of the shareholders. While external mechanisms include institutional ownership and debt financing, internal mechanisms include managerial ownership executive compensation and bringing on board the directors to monitor the managerial actions (Masud, Anees, & Ahmed, 2017; Nan *et al*, 2010)

The constitution of board plays a critical role in the decision making process (Katti, 2018). The best practices of corporate governance are aimed at the protection of the interest of the shareholders (Hilary, 2018). Therefore, the structure of the board creates a significant impact on the efficiency of board to mitigate the opportunistic behaviours of the management. However there is a debate in the literature in identifying the veracity of the optimal board structures that can mitigate earnings management. Basing on the growing stream of literature on earnings management, it shows that governance characteristics is quite broad and includes various parameters such as ownership structure, board size board independence, CEO duality, board busyness, board diversity among (Ali, 2018; Bathala & Rao, 1995; Denis & Cormier, 2014; Maria, Alves, Maria, & Alves, 2011). All these studies have related each of the board characteristics to earnings management, but all of them have yielded mixed results.

Further, CEOs are part of the executive directors and also are responsible for the general performance of an organization (Mackey, 2008). CEOs may feel pressure to show improved performance and to convince the board and the shareholders that their hiring decision is moving the company in a good direction. Prior research has documented that the personal traits of a CEO can have much influence on the rate at which a company manages earnings. In particular narcisstic CEOs would always ensure that positive financial reports are given out to shareholders (Amernic *et al.*, 2015; Capalbo *et al*., 2017; Tang, 2015). This is to ensure that their personal ego and

reputation is safeguarded. Hence in such a case the CEOs would prefer to safeguard their ego at the expense of the shareholders wealth.

In summary therefore, the desired structure of the board that can constrain the real earnings management still remains inconclusive (Colli & Colpan, 2016). Further the efficiency of the boards, in its monitoring role as explained by the agency theory in many listed companies, such as Enron and Worldcom has raised a lot of concerns on the integrity of the board of directors (Culpan & Trussel, 2005). In addition, most of the CEOs are influential in most of the companies especially where the CEOs have powers in the nomination of the board of directors. Hence, agency theoretic predictions on the link between board structure and real earnings management has not found strong empirical support. Therefore this study sought to confirm or otherwise reject the relevance of agency theory on the moderating effect of CEO narcissism on the relationship between the board structures and real earnings management basing on the Kenyan context.

2.4.2 Upper Echelons Theory

The upper echelons theory is a management theory published by Donald Hambrick and Mason in 1984 explaining a correlation between the organizational outcomes and managerial background characteristics. The upper echelons theory posits that organizational outcomes, strategic choices and performance levels are partially predicted by managerial background characteristics (Hambrick & Mason, 1984). Upper echelons theory is built on two premises that is the management discretion and the executive job demands (Plöckinger, 2019). Management discretion is defined as the extent possible latitude of action, which is the absence of constraints from environmental organizational or personal conditions and the availability of multiple plausible alternatives (Finkelstein, 1990). Executive job demands on the other hand result from the difficult

of the needs and challenges in executives' professional daily routines (Hambrick *et al.*, 2005). Specifically, job demands are proposed to stem from work related challenges such as scarcity of organizational resources, performance challenges such as requirements from shareholders and stakeholders and the executive aspirations such as personal desire to outperform (Hambrick, 2007; Plöckinger, 2019; Tang, 2015)

Prior studies on upper echelons theory exclusively focused on association between managerial characteristics and corporate strategic decisions. This is because earlier studies assumed that management style and influence, are only prominent in the less regulated field of corporate strategic decisions than in highly regulated field of financial reporting (Plöckinger, 2019). Accounting standards set limits on the impact of managerial idiosyncrasies. However, influence can be exerted even in the presence of regulations either systematically by pursuing a conservative or aggressive accounting or by opportunistically managing the earnings upwards whenever the management feel it's beneficial to them. Financial accounting choices are important for firms communication with capital markets and they can be interpreted as part of a firms set of strategic choices that are rendered by top management.

Consistent with the upper echelons theory, studies have also shown that the CEOs personal preferences can greatly influences the financial accounting choices and subsequently the level of earnings management. The CEOs normally confers considerable powers over the firms' resources. Hence he has the ability to influence the magnitude in which he can either increase or reduce the level of earnings manipulation. Further after formulation of internal control systems by the board of directors, it is upon the CEO mandate to ensure that the formulated internal control systems are executed by the managers. A stream of literature has given a number of reasons that compel CEOs

to engage in earnings management. First, the financial performance of an organization act as a personal reflection of the CEOs performance showing the failures or successes of the CEO. Hence to maintain his ego a narcissistic CEO would always ensure that good reports are given during his tenure. Such opportunistic behaviors of the managers are expected to be constrained by strong boards.

Unfortunately, that has not been the case due to a number of reasons. First powerful CEO can adversely impact the board effectiveness through channels other than directly selecting the directors and participating in their nominations. For example the monitoring intensity of the board may be lower when the CEO is more powerful. Secondly, the board depends on the management for information to perform an effective monitoring function. Hence a powerful CEO will only provide information that favour his interest. In addition, the CEO has a greater ability to arrange for friendly outside directors and submissive inside directors to sit on their board (Combs *et al.*, 2007). By doing so, it will be easier for the CEO to have all his decisions approved by the board without much struggle (Wahidahwati & Prasetiyono, 2012). Hence this study sought to confirm or otherwise reject the relevance of this theory in the Kenyan context.

2.4.3 The Catering Theory of Earnings Management

The concept of catering theory of earnings management was first developed by Rajgopal, *et al*. (2007) .They defined catering management as a state were the managers reflect earnings in the financial statements depending on the magnitude of the investors demands for earnings surprises. This means plumbing up abnormal accruals in the periods when investors place a strong price premium on firms that report positive earnings surprises. Gores, Homburg and Naser (2012) defined catering theory as a state that the existence of noise traders, allows management to boost the short term price by adjusting their corporate policies to the noise trader's misperceptions. This

therefore shows that the management reports earnings depending on the expectations of the investors.

Rajgopal, *et al.* (2007) argued that in order to increase or to maintain the current market price levels, managers cater to investors' appetite for positive earnings surpluses by increasing abnormal accruals in the periods in which investors are optimistic about earnings news but during situations where the investors are pessimistic about the earnings news managers rely on income decreasing accruals and report more conservatively which may be as a result of fears on the potential litigation relative to financial reporting. This was further explained by Jackson and Rountree (2014) that manipulation of earnings is generally higher during good sentiments economic times and reduced during low sentiments periods.

From the study of Rajgopal, *et al.* (2007) it can therefore be summarised that the catering theory of earnings management is built on three items namely; that there exist a source of uninformed demand for firms that attach time varying importance. Secondly that the earnings surprises in valuation that limits to arbitrage cannot drive away this demand and thirdly, that the managers rationally weigh the short term benefits of catering to the current mispricing against the associated long run costs. Since these returns are normally attained artificially through window dressing by the managers, it comes at a cost that the firm bears in the long run which finally deteriorates the firms' fame and subsequently difficulties in raising the capital. This has been supported by Ma and Ren (2015) in a study to find out whether catering rewards affect insurance companies and concluded that insurance companies catering management receive abnormal returns in the short term and not in the long run.

2.5 Relationship between Board structure and Real Earnings Management

This examines empirically how board structure affects the magnitude of real earnings management. The study specifically focuses on the relationship between board independence, board size, board tenure and CEO duality on real earnings management.

2.5.1 Board Independence and Real Earnings Management

Previous studies have defined an independent director, as a director who is independent of the management and free from any business or other relationships which could interfere with the exercise of independent judgement or ability to act in the best interest of the shareholders (Abed, Al-Attar, & Suwaidan, 2011; Beekes *et al*, 2004; Davidson *et al*., 2019; García-meca & Sánchez-ballesta, 2009; Witteloostuijn, 2009). Prior studies have recognised the role of the independent directors to include; improving corporate credibility and governance standards (Farber, 2005; Haat *et al* 2008). Functioning as a watchdog and playing a vital role in risk management (Aebi *et al*, 2012; Johnson, 2011). Protection of the shareholders against the opportunistic behaviours of the management, and more importantly providing an effective monitoring tool to the board and thus produce higher quality financial reports (Abed *et al*., 2011; Hashim & Devi, 2008; Peasnell *et al*, 2005)

The standard practice in ensuring effectiveness in most corporate boards is the inclusion of independent directors who may act as arbitrators in the event of disagreements among and between internal managers (Fama & Jensen, 1983). The composition of board members entails senior managers who have the expertise and have over time gained wealth of experience and knowledge to run the firm (Hashim & Devi, 2008). Conflict of interest in running a company's affairs may

however arise with the inclusion of inside board members hence the need to have independent directors as guardians of shareholders wealth (Peasnell, *et al*, 1998). Fama & Jensen, (1983), note that the incorporation of independent directors as members of the board enhances the board's monitoring ability over its top management thus protecting the shareholders wealth against managers who potentially have egoistic interests and are capable of taking advantage of and acting against the interests of the shareholders

Nonetheless, there exist two opposing theories with regard to the effectiveness of independent directors. These are the agency theory and the managerial hegemony theory (Abdullah & Nasir, 2004; Hashim & Devi, 2008). Whereas the protagonists of the agency theory are of the opinion that independent directors play a pertinent role of monitoring the top management, the advocates of managerial hegemony theory argue that the independent directors' ability to effectively oversight the top management is hindered particularly if the top management is domineering. This puts into question the independent directors' ability to make independent decisions given the roles played by the CEOs in proposing and selecting membership to the board as they would wish to have members they can easily get along with (Hashim & Devi, 2008: Abdullah & Nasir, 2004). Further, some scholars have opined that peripheral monitoring role of the independent directors coupled with asymmetric information situation that may exist between the management and the independent board members as well as time constraints may render the board ineffective in discharging its duties (Annuar, 2012; Nguyen, Evans, & Lu, 2017, 2019; Ramesh & Aggarwal, 2010; Roy, 2011). On the flipside however, some studies argue that motivated by the need to safeguard reputational integrity, independent directors excel in constraining earnings management. In addition, by virtue of holding senior management positions and their familiarity with financial

reporting issues in other firms, independent directors are capable of detecting earnings management (Beasley , 1996; Fama, 1980; Peasnell *et al*, 2005).

Prior studies on board independence and earnings management have yielded mixed results. For instance, Beasley (1996) tested agency theory preposition that a higher percentage of outside directors enhances the board effectiveness in its oversighting role. The study established that there was a likelihood of reduced incidences of fraud with the incorporation of independent directors on the board. In extending this strand of literature, Peasnell, *et al* (2005) investigated the role of the board in curbing earnings management among the UK firms. Contrary to extant literature, the study established that there was a negative relationship between the proportion of independent directors on the board and the likelihood of managers posting abnormal accruals to avoid reporting losses and earnings reduction. In the US firms that changed their board composition to a minority of independent directors were found to have posted higher adjusted abnormal accruals in the year of change (Carcello *et al* 2006). Similarly a study by Epps and Ismail (2009), on the relationship between corporate governance and earnings management in US context showed that firms that had hundred percent independent boards had more negative discretionary accruals while those that had between seventy five to ninety percent independent boards showed higher positive discretionary accruals. Other studies that have supported reduction of earnings management by independent directors include (Abed *et al*., 2011; Beekes *et al*., 2004; Mather & Ramsay, 2006; Niu, 2006; Wu & Li, 2015).

In contrast to the above findings, Iyengar *et al* (2010) extended the previous studies by establishing whether board governance improve the quality of accounting earnings, the findings showed that board independence had no association with the earnings quality. Similarly, Bradbury *et al.* (2006) did a study on board characteristics and abnormal accruals basing on Malaysian and Singapore firms and found out that there was no relationship between board independence and abnormal accruals. Other studies that have further showed no significance between independent directors and earnings management include (Abdullah & Nasir, 2004; Hashim & Devi, 2008; Norman *et al*, 2005; Rahman & Ali, 2006). Therefore, advancing from the conflicting results of the prior studies, the current study sought to examine the effect of board independence on real earnings management among the firms listed in Nairobi Securities Exchange.

2.5.2 Board Tenure and Real Earnings Management

Board tenure refers to the duration in which a director has been a member of the board, or participating in board meetings of a given firm (Ahmad-Zaluki & Wan-Hussin, 2010; Mak & Tan, 2006; Huang, 2013; Iqbal & Strong, 2010). The protagonists and antagonists of long tenure are abounding with each providing convincing arguments. There is a general belief among the protagonists that long board tenure provide an effective oversighting role as a result of experience, commitment and knowledge on financial reporting gained over time (Nedler, 1970; Sun , 2010: Sun *et al*., 2014). On the other hand, the antagonists argue that long tenure breeds complacency as board members are more likely to have friendly relations with managers whom they are supposed to oversee. Consequently, managers on the other hand can influence the nomination and re-appointment of directors whom they deem “easy to work with” thus compromise the monitoring effectiveness of the board of directors (Vafeas, 2003). Thus, the consistency in monitoring

effectiveness resulting from the long board tenure directors' experience and commitment could be weakened by their affable relations with the managers.

Tenure related guidelines have been adopted by a number of countries with very few exceptions in developed economies with the recommended maximum tenure for a corporate directors being within 9 and 12 years (Hilary, 2018). Board tenure captures the balance between knowledge accumulation and board independence (Li & Wahid, 2018). A number of studies examining the relationship between board tenure and earnings management have been conducted and all have yielded mixed results. Beasley, (1996) established that there was a lower likelihood of financial reporting fraud in firms with long tenured board of directors. Dhaliwal *et al* (2010) found that there is a positive relationship between earnings management and average board tenure of audit committee members. On the contrary, Moung *et al*, (2013) found out that long board tenure of audit committee members may have less need for increased audit effort because they can effectively oversee the financial reporting process themselves. Li & Wahid, (2018) found that firms with tenure diverse audit committees are less likely to experience accounting restatements. The study further suggested that increasing tenure diversity in the board may help enhance earnings management monitoring.

Kim and Yang (2014) investigated the relationship between director tenure and financial reporting quality basing on the Korean firms, the results showed that the absolute value of discretionary accruals decreases when the tenure of directors increases. Nugroho and Eko (2011) did a study to investigate the effects of board characteristics on earnings management in companies listed in the Indonesian stock, the findings showed that board tenure had no significant effect on earnings management.

Although most of the studies suggest that long board tenure is negatively associated with earnings management, empirical evidence on the effect of board tenure on real earnings management still remains scarce. Hence the current study sought to establish the effect of board tenure on real earnings management among the firms listed in Nairobi Security Exchange.

2.5.3 CEO Duality and Real Earnings Management

CEO duality refers to a situation where the CEO, also holds the position of the chairman of the board (Amar & Francoeur, 2011; Eckles, Sommer & Zhang, 2011; Epps & Ismail, 2009; Fama, 1980; Farrell, Yu & Zhang, 2013; Iyengar *et al.*, 2010). Other studies have referred this phenomenon of CEO duality as a double edged sword (Firth, *et al*, 2012). Two viewpoints exists with regards to the issue of separation of powers between the chairman and the CEO as anchored on the agency and stewardship theories respectively (Hashim & Devi, 2008). The proponents of the agency theory posits that demarcation of duties may result in efficient oversighting over the board process (Fama, 1980; Fama & Jensen, 1983). In the absence of a clear boundary between the role of the chairman and the CEO, the monitoring function of the board over earnings management may be at stake because the CEO has more disposition and predilection to manipulate financial reports (Nuanpradit, 2019; Yasser & Al Mamun, 2016; Yasser & Mamun, 2015). On the other hand, the proponents of the stewardship theory hold the notion that the combination of the two roles enhances the decision making process and affords the CEO with strategic vision to guide the board to implement company's objectives with the minimum of interference from the board (Abels & Martelli, 2013; Lam & Lee, 2010).

An evaluation of current empirical reviews on the effect of CEO duality on earnings management reveal mixed findings. Klein (2002), noted that boards that are more independent of the CEO are

effective and efficient in performing their monitoring roles and are under no duress in relation to earnings management. Saleh *et al* (2007), established that there is a positive relationship between earnings management and CEO duality. The implication being that there is a high likelihood of earning management taking place in firms that the CEO has duality. A study by Mohamad *et al.* (2012), concluded that clear separation of the role of the CEO and chairman leads to curbing of earnings management activities.

Yasser and Mamun (2016) argue that CEO duality varies from one firm to another depending on the firm's unique characteristics. Firms with limited monitoring mechanisms and higher levels of agency problems are better suited having a clear separation of the role of the CEO and the chairman. Hence the issue of split positions should not be a common cure to shareholders and policy makers. Other studies that have shown no significant relationship between board leadership and earnings management include (Adeyemi & Fagbemi, 2010; Alareeni, 2018; Bradbury *et al*., 2006; Chang & Sun, 2010; Yasser & Al Mamun, 2016) .

In summary therefore, basing on the inconclusive results on the type of the board leadership that the publicly traded companies should adapt, the study sought to find out whether CEO duality have any significant effect on real earnings management among the firms listed in Nairobi Securities Exchange

2.5.4 Board Size and Real Earnings Management

Board size refers to the total number of directors serving in a board of an organization (Bradbury *et al*., 2006; Jensen, 1993; Kent, Routledge & Stewart, 2016). A number of studies have shown that board size is related to board effectiveness hence is viewed as an important board characteristic

than can be used to constrain earnings management (Eisenberg *et al*, 1998; Maria *et al*, 2011; Uzun *et al*, 2004). Resource dependency theory posits that, increased board size may yield benefits to the firm by providing a network to the external environment and by securing a broader resource base (Yasser *et al*, 2017). On the other hand, agency theory argues that, the choice of the board size, being an additional cost incurred to reduce the agency problems, is determined by a tradeoff between incremental benefits and costs and differs with organizations (Ali, 2018; Bathala & Rao, 1995; Jensen, 1993).

Does the size of the board matter? Views on this question appear to be divided. There is a general consensus among some scholars that board size positively affects firms' performance (Sun *et al*., 2010; Tarus & Aime, 2014; Yasser & Mamun, 2016). They contend that larger board size has greater monitoring and oversighting ability. This reduces the likelihood of managers to manipulate earnings. Large board membership brings with it a gathering of specialist who have diverse experiences thus contributing to higher firm value (Alareeni, 2018; Egbunike *et al*., 2018).

Other scholars on the other hand are of the view that large boards can lead to a rise of agency problems which include and not limited to lack of proper coordination and as well decision making. This can reduce the efficiency of the board to oversight and monitor the managers (Bradbury *et al*., 2006; Epps & Ismail, 2009; Ghosh. *et al*., 2010; Jensen, 1993; Rahman & Ali, 2006). This suggests that smaller boards can be more effective than larger boards in monitoring managerial behavior. A number of studies have supported the argument that smaller boards constrain earnings managerment (Maria *et al*., 2011; Mersni & Othman, 2016; Mohamed *et al*, 2017; Rauf *et al*., 2012). With respect to effectiveness to monitor the financial reporting process, in a smaller board, each member will be personally accountable for the boards monitoring of the financial statements

and consequently monitor earnings management activity. It may however be difficult at a particular point of time for the large boards to monitor the opportunistic tendencies of managers. This is because in large boards the responsibility of monitoring tend to be diffused among board members, thus they may not be enable to curb earnings management. Other studies have established insignificant relationship between the board size and earnings management (Habib, 2015; Mohamed *et al*, 2017). Therefore, neither of the aforementioned arguments can explain with satisfaction the relationship between board size and earnings management. Hence the study sought to fill the gap by establishing the effect of the board size on real earnings management among the firms listed in Nairobi Securities Exchange.

2.6 Moderating Role of CEO Narcissism on the Relationship between the Board Structure and Real Earnings Management

Research studies have described a moderator as a variable that can determine the magnitude or the strength of the relationship between the independent and the dependent variables (Saunders, .Lewis, & Thornhill, 2008).Whereas the board of directors are entrusted with an oversight role of financial reporting and formulation of strong internal control systems that ensure accuracy and completeness of accounting records (Andres *et al.,* 2005; Barontini & Bozzi, 2011; Bonn *et al*., 2004; Kalaycioglu, 2016; Selekler-Goksen & Karatas ,2008), the accuracy of the financial statements together with the execution of the systems is at the discretion of the powers of the CEOs (Lin *et al.,* 2014) .

Recent financial studies have documented link between CEOs attributes and financial reporting (Lisic, Neal, Zhang & Zhang, 2016; Mayer & Bercovitz, 2008; Minichilli, Zattoni & Zona, 2009). Although some researchers have suggested that narcissistic CEOs may have a positive influence

on firm performance (Crevani & Hallin, 2017; Rijsenbilt, 2011),a growing body of evidence suggest that organizations led by narcissistic CEOs experience considerable downsides including financial misreporting (Chatterjee & Hambrick, 2006; Chen, 2010; Custódio & Metzger, 2013; Godkin & Allcorn, 2009; Ham & Wang, 2018; Koh, 2011; Lubit, 2002; Mande & Son, 2012; O'Reilly, Doerr , Caldwell, 2013; Petit *et al*., 2016; Rijsenbilt & Commandeur, 2017). The justifications for the CEOs involvement in financial misreporting have further been explained by Amernic *et al.*, (2015) as follows; First, the fact that the CEO's project themselves as the corporations they lead and use the financial accounting measures to reflect their performance. Secondly, CEOs are compelled to align firm's financial performance with the stakeholders' expectations so as to preserve their reputation in the labour market and thirdly the CEOs design for increase in bonus and equity compensation mainly depends on earnings reported.

Boards' effectiveness have further been associated with the CEO personal traits (Lisic *et al.*, 2016).The study posits that a powerful CEO can adversely impact the board effectiveness by way of participation in the selection and nomination of directors to the board. As such, the monitoring ability and independence of the board may be compromised. Secondly, the board in performing their monitoring function effectively relies on availability of relevant information. Hence an influential CEO will only disclose information that favors his interest. In addition, the CEO can assemble affable outside directors and accommodative inside directors to sit on their board (Combs *et al.*, 2007). By doing so, it will be easier for the CEO to have all his decisions approved by the board without much struggle (Wahidahwati & Prasetiyono, 2012)

This clearly shows that besides the defined structure of the board, CEOs are more influential in the company. Therefore they have the ability to determine the strength of the direction of earnings

management since they possess the capacity to ensure execution of strong measures that can constrain fraudulent reporting (Amernic *et al*., 2015; Chen, 2010). Hence the reason for the massive move of current studies towards investigating the personal attributes of the CEOs on earnings management.

2.7 Control Variables

Firm size and firm performance were controlled as they may have systematic influence on the level of real earnings management. They were controlled to enable a clearer view of the influence of independent variables as well as the moderating variable on the dependent variable. The use of these variables for statistical control was based on the arguments by Schmitt and Klimoski, (1991) who also referred to a control variable as a variable that does not emanate on the basis of the research objectives but one that a researcher may include in the study to minimize error terms thus increase statistical power and to rule out alternative explanations for the findings. Contrary to the agency theory, Choi and Kim, (2012) in a study of the large firms (grouped firms), revealed impact on real earnings management, that large firms with many branches are less likely to engage in the manipulation of earnings. Choi and Kim, (2012) argued that these firms tend to use actual cashflows, rather than unrestricted accrual earnings management. Further, these authors point out that earnings management is mitigated when the group firms combines their group wide financial report. Further, there is an evidence of the previous studies showing that firm performance impact the level of real earnings management (Chen, 2010; Ebaid & Ebaid, 2013; Sun *et al*., 2014). These studies have revealed that firms that perform well, engage less in real earnings management, while firms that perform poorly engage more in real earnings management.

2.8 Conceptual Framework

A conceptual framework is the diagrammatic presentation of variables, showing the relationship between the independent variables, control variables and dependent variables. In this study, the independent variables was; board independence, board tenure, board leadership, board size and the control variables were; firm size and firm performance. The dependent variable was real earnings management operationalized by sales manipulation, reduction of discretionary expenditure and over production. The study sought to find out how these independent variables influences real earnings management among companies listed in Nairobi Securities Exchange. The relationship between the independent variables and dependent variable is presented in the conceptual Framework in Figure 2.1.

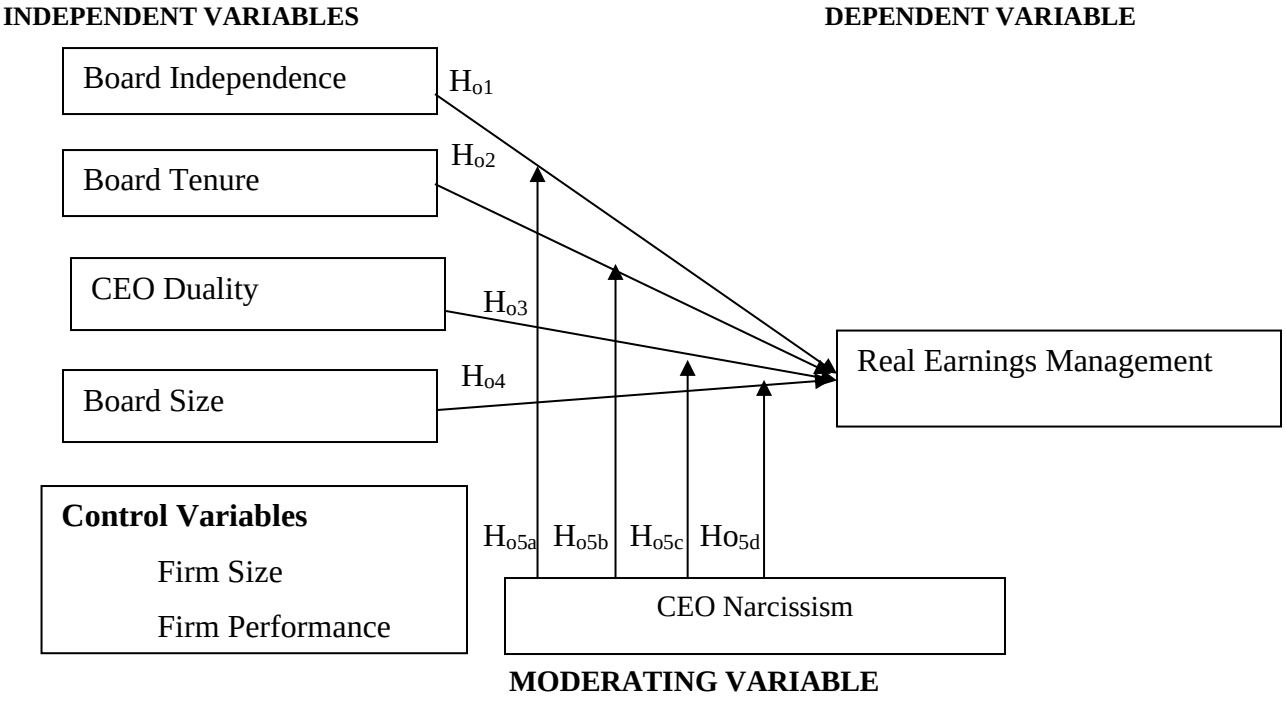

Figure 2.1 Conceptual Framework

Source: Researcher (2020)

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The current chapter discusses the procedures which were followed in attaining the study objectives. It covers research design, target population, data sources, measurement of variables, data collection procedures and techniques and models that were used to analyse the data.

3.1 Research Philosophy

Research philosophy relates to the development of knowledge and the nature of that knowledge. It can also be described as, a belief about the way in which data about a phenomenon should be gathered analysed and used. It also enables the researcher to decide on the approach that should be adopted, and the reasons for adopting the approach depending on the research questions.

Research philosophy can be classified into three categories namely ontology, epistemology and axiology. Ontology is concerned with the nature of the reality and raises its questions on the assumptions that the researchers have about the way the world operates (Johnston, 2014). It is explained by two aspects namely; objectivism which portrays the position that social entities exist in reality independent to social actors and subjectivism that holds that social phenomena are created from the perceptions of the actions of the social actors. On the other hand, epistemology constitutes the acceptable knowledge in the field of study. Chia, (2002) describes epistemology as how and what it is possible to know, and the need to reflect on the methods and standards through which reliable and verifiable knowledge is produced. Axiology on the other hand, is the branch of philosophy that studies judgements about value (Burke, 2007).

Further there are four major aspects of philosophies in management research. These are positivism, realism, interpretivism and pragmatism. Positivism involves working with observable social reality, while realism involves relating to scientific enquiry of whether objects exist independently. Interpretivism establishes to understand the difference between humans and social actors and lastly pragmatism considers the practical consequences, and is largely dependent on the research questions.

According to Carr, (2006), positivism approach reflect the philosophical stance of natural scientist. Hence, since the current study employed empirical methods, used the existing theory to develop hypothesis which was tested and confirmed and made extensive use of quantitative analysis, positivism research philosophy was adopted. Further, Johnston, (2014) explains that deductive approach involves scientific studies, moves from theory to data and involves the need to explain the casual relationships between variables with use of qualitative data. Therefore since the current study sought to explain the casual relationships between the independent and dependent variables using the quantitative data, the study adopted a deductive approach.

3.2 Research Design

Research design is a step by step procedure on how the research objectives will be attained with minimum deviation from the expected results (Jackson, 2009). Saunders *et al.,* (2008) explains several research designs that a researcher can use depending on the nature of the study. These ranges from descriptive research designs, experimental research designs, explanatory research designs, exploratory research design, cross sectional research designs and longitudinal research design. Panel research design is appropriate if the researcher seeks to identify pattern of behavioural change, or conduct several observations of the same subjects over a period of time

(Gujrati, 2013). Hence, since the study sought to conduct observations for the 51 listed firms at Nairobi Securities Exchange over a period of sixteen years, panel research design was deemed appropriate for the study.

3.3 Target Population

Research population refers to a well-defined collection of individuals or objects known to have similar traits that the researcher wishes to study (Saunders *et al.*, 2008). Target population refers to all members of real or hypothetical set of people, events or objects from which the research wishes to generalize the results of their research (Jackson, 2009). This study targeted firms in all sectors that have been trading in NSE from 2002 to 2017.

The choice of the listed firms was due to the uniformity in the application of corporate governance guidelines and presentation of the financial statements as per the IFRS requirements. Further it is a requirement that audited financial statements are published, hence the data was bound to be available and reliable. Only firms that actively traded between 2002 to 2017 were 50. Since the study sought to collect data specifically from all listed firms that have been actively trading at NSE for the last sixteen years that is 2002-2017, then there was no need to sample hence the study used census approach. A census is a study of every unit in a population. These 50 firms have further been categorised into twelve sectors namely; agricultural, automobile and accessories, banking, commercial services, construction and allied, energy and petroleum, insurance, investment, investment services, manufacturing and allied, telecommunication and technology and real estate investment trust. The number of firms in each sector is as per the table below;

Table 3. 1 Distribution of Companies per Sector

Sector	Number of companies
Agricultural	2
Automobiles and Accessories	0
Banking	9
Commercial and services	10
Construction and allied	5
Energy and Petroleum	5
Insurance	6
Investment	4
Investment services	1
Manufacturing and allied	6
Telecommunication and technology	1
Real Estate Investment Trust	1
Total	**50**

3.4 Data Collection Procedure

Secondary data allows access to large amounts of information, coverage of broad range of individuals and topics (Vartanian, 2011). Since the study covered 50 companies for a period of sixteen years, the current study used secondary data which was drawn from annual audited financial statements of the listed companies. The data was collected through the use of Document Check Index (DCI) to get the information on the independent variables, while content analysis was done on the letters from the CEO to the shareholders in the published financial statements, to determine the CEO narcissism. The data was sourced from Nairobi Securities Exchange and Capital Market Authority database.

3.5. Measurement of Variables

Independent Variables

Board Independence refers to a member who has not been employed by the company in an executive capacity within the last five years, is not associated to an adviser or consultant to the company or a member of the company's senior management or a significant customer or supplier of the company, has no personal service contract(s) with the company, is not employed by a public listed company at which an executive officer of the company serves as a director, is not a member of the immediate family of any person described above, or has not had any of the relationships described above with any affiliate of the company (Beekes *et al*, 2004; García-meca & Sánchez-ballesta, 2009; Witteloostuijn, 2009). Following Bradbury *et al* (2006) and Tarus and Ayabei (2016), the current study measured directors independence as the percentage of seats held by unaffiliated directors.

Board Tenure refers to the duration in which a director has been a member of the board, or participating in board meetings of a given firm (Ahmad-Zaluki & Wan-Hussin, 2010; Mak & Tan, 2006; Huang, 2013; Iqbal & Strong, 2010). Prior studies have measured board tenure as the number of years each board member has spent in the firm as a director (Hu *et al.*, 2015). Since some directors may be less than a year old in the company, the study sought to follow Tarus and Aime (2014), by taking into consideration board members who have served for less than one year by calculating tenure on a monthly basis which was then converted to yearly equivalence.

CEO duality refers to the board structure where other firms will separate the roles of the chairman and the CEO, while others allow both roles to be carried out by the CEO. Following the prior literature, the study measured CEO duality as a dummy variable set to one if the CEO duality exists otherwise (Abed *et al*, 2011; Amar & Francoeur, 2011; Davidson *et al.*, 2004; Epps & Ismail,

2009; Fama, 1980; Farrell *et al*., 2013; Hashim & Devi, 2008; Iyengar *et al*., 2010; Norman *et al* 2005; Witteloostuijn, 2009).

Board Size refers to the total number of directors serving in a board of an organization (Bradbury *et al*., 2006; Jensen, 1993; Kent, Routledge & Stewart, 2016). Following Tarus and Aime (2014) and Uyar *et al*., (2013), the study measured board size by counting the number of individuals serving as board of directors.

Dependent Variable

Real Earnings Management (REM) refers to manipulating real companies' earnings, through offering price discounts or more lenient credit terms to temporarily increase sales, reduce discretionary expenses so as to improve reported earnings and overproducing to reduce the cost of goods sold. Following the methodology used by previous studies, the study sought to measure real earnings management using abnormal cashflow from operations, abnormal discretionary expenses and abnormal production (Al-Amri *et al*., 2017; Ferentinou & Anagnostopoulou, 2016; Beyer, &, & Rapley, 2014; Roychowdhury, 2006; Sun *et al*., 2014; Zamri *et al*, 2014) Specifically, the estimated normal cash flows, production and discretionary expenses was measured using the following regression models.

$$CFO_{it} / TA_{it-1} = a_0 + a_1\left(1/TA_{it-1}\right) + a_2\left(SALES_{it} / TA_{it-1}\right) + a_3\left(\Delta SALES_{it} / TA_{it-1}\right) + \varepsilon_{it} \ldots\ldots\ldots\ldots (1)$$

CFO-Cash flows from operations

$SALES_t$ -is sales

TA_{t-1}-Total Assets at the beginning of the year.

$\Delta SALES_t$ -is changes in sales

After the estimation of parameters in equation (1), $ACFO_{it}$ is measured as the difference between the ratio of the actual values of cashflows from the operating activities to total assets and the estimated value of equation (1). Since the signed value of abnormal cash flows from operations decreases with sales manipulation, a high value of $ACFO_{it}$ indicates low real earnings management.

$$DISX_{it} / TA_{it-1} = a_0 + a_1 \left(1 / TA_{it-1}\right) + a_2 \left(SALES_{it-1} / TA_{it-1}\right) + \varepsilon_{it} \quad \text{.....(2)}$$

$DISX_t$ is discretionary expenses

$SALES_{t-1}$ -is lagged sales

The second measure of real earnings management is abnormal discretionary expenses (ADISX*it*), which are obtained using the residual value of equation (2). Prior literature has defined discretionary expenses as a sum of selling, general and administration expenses, advertising and research and development expenses (Al-Amri *et al*., 2017; Ferentinou & Anagnostopoulou, 2016; Pacheco Paredes & Wheatley, 2017; Seybert, 2010). Hence abnormal discretionary expenses will be given by the difference between the ratio of the actual value of discretionary expenses to total assets, and the estimated values of discretionary expenses derived from equation (2). Since a reduction of discretionary expenditures leads to lower values of abnormal discretionary expenses, a high value of ADISX*it* reflects lower real earning management.

$$PROD_{it} / TA_{it-1} = a_0 + a_1 \left(1 / TA_{t-1}\right) + a_2 \left(SALES_{it} / TA_{it-1}\right) + a_3 \left(\Delta SALES_{it} / TA_{it-1}\right) + a_4 \left(\Delta SALES_{it-1} / TA_{it-1}\right) + \varepsilon_{it} \quad \text{.....(3)}$$

$PROD_t$ is production cost

$\Delta SALESt-1$ is lagged change in sales.

The third measure of real earnings management is abnormal production costs, which are measured as the residual value of equation (3). Previous literature defines production cost as the cost of goods sold (COGS) (Cohen & Zarowin, 2010; Othman & Hussainey, 2017; Sun *et al*., 2014). Hence abnormal production cost will be given by the ratio of the actual production cost to total assets minus estimated values of production cost derived from equation (3). A high value of APROD indicates high real earnings management because overproduction leads to higher value of abnormal production costs.

Finally, to achieve a comprehensive measure of REM, the three measures of abnormal cashflow from operations, abnormal discretionary expenses and abnormal production costs was combined into a single indicator as suggested by Ferentinou and Anagnostopoulou, (2016) This measure was calculated by multiplying ACFO and ADISX by negative one (−1) so that the larger their value, the higher their upward REM, and then adding together all resulting amounts plus the value of APROD to derive one single comprehensive measure of REM. The multiplication of ACFO and ADISX by (−1) is justified given that lower values of ADISX and ACFO indicate higher upward REM, while higher values of APROD indicate higher upward REM (Al-Amri et al., 2017; Ferentinou & Anagnostopoulou, 2016).

Moderating Variable

CEO Narcissism refers to a personality trait that is characterized by increased sense of importance and entitlement. Since the current study used panel data, the study sought to use unobtrusive measures of narcissism that could be collected from the audited financial statements. These measures included the prominence of the CEO's photograph in the company's annual report, the

use of the first persons' singular pronouns in the CEO's report and number of official formal titles of the CEO.

The company's annual report provides an opportunity for the CEO to report on the company's prospects but also to showcase himself or herself as a firm leader.it is expected that a narcissistic CEO will seek a great deal of visibility in the annual report as a declaration that he or she is more important than all others in the firm (Chatterjee & Hambrick, 2006). The study adopted Chatterjee and Hambrick (2012) 4-point scale of the prominence of the CEO's photograph in the company's annual report as follows; 4 points if the CEO's photo is of him or her alone and occupies more than half a page; 3 points if the photo is of the CEO alone and occupies less than half a page; 2 points if the CEO is photographed with one or more fellow executives; and 1 point if there is no photograph of the CEO. The level of narcissism was determined as a ratio of the number of points attained to the total number of possible outcomes.

Speech is a form of expressive behaviour reflecting the most dominant personality trait of an individual (Reilly, Doerr, & Chatman, 2018). The use of first person singular pronouns in a CEOs report is an indicator of self-absorption. The use of first persons' singular pronouns was adapted from Capalbo *et al.*,(2017),which was measured as a ratio of the first person singular pronouns to total first person pronouns in the CEO's report calculated as follows;

$$\frac{\sum_n (I,\ me,\ mine,\ myself)}{\sum_n (I,\ me,\ mine,\ myself,\ we,\ us,\ our,\ ourselves)}$$

The number of formal titles was defined as the number of official titles a CEO has, as stated in annual reports. Prior studies shows that narcissistic CEO's would wish to be recognized by a number of titles to imply superiority (Tang, Crossan, & Rowe, 2011). Following Tang *et al.*, 2011)

the ratio of formal titles of the CEO is given by total number of official formal titles of the CEO divided by total number of official formal titles of all top level management.

Control Variables

Firm size was measured as the natural log of total value of firm assets (Rahman & Ali, 2006; Sun *et al*., 2014) while Firm performance has mainly been measured by prior studies in finance using Return on Assets (ROA) (Sun *et al*., 2014 and Tarus and Aime, 2014).Since part of the measures that were used to measure dependent variable include the total assets, the study instead used Return on Equity (ROE) as a measure of firm performance.

Table 3. 2: Summary of the Study Variables

Variable	Measurement
Dependent variable	
Real earnings Management	Use of abnormal cashflow from operations (ACFO), abnormal discretionary expenses (ADISX) and abnormal production costs (APROD) which will be combined into a single indicator by multiplying ACFO and ADISX by negative one (−1) so that the larger their value, the higher their upward REM, and then adding together all resulting amounts plus the value of APROD to derive one single comprehensive measure of REM (Al-Amri et al., 2017; Ferentinou & Anagnostopoulou, 2016).
Independent Variables	
Board Independence	Proportion of unaffiliated directors to total number of directors.
Board Tenure	The number of years each board member has spent in the firm.
CEO duality	Dummy variable set to 1 if there is CEO duality otherwise Zero.
Board Size	Total number of directors.
Moderating Variable	
CEO narcissism	Use of the prominence of the CEO's photograph in the company's annual report, the use of the first persons' singular pronouns in the CEO report and the number of official formal titles of the CEO
Control Variables	
Firm size	Natural logarithm of total assets.

Firm Performance	Measured using return on equity.

Source: Researcher (2020)

3.6 Data Analysis

After collecting the data, the following four steps were followed; data cleaning, data analysis, interpretation and report writing. The data was input into Stata version 12 for analysis. The randomly selected companies were regressed and their results compared with the results of the other sets. The data was longitudinal, since it covered all the firms that have traded at NSE, for the duration of sixteen years that is from 2002 to 2017. Hence, panel regression model was deemed appropriate for analysing the results. Since the study adapted a panel data regression analysis, panel data is known to pose several estimation and inference problems which affects both cross sectional and time series data. Hence the need to perform statistical tests before data is analysed (Gujrati, 2013; Tarus & Aime, 2014). Hence, it was appropriate to carry out the following diagnostic tests as summarised in Table 3.3.

Table 3. 3: Panel Data Diagnostic Tests

Test	**Test Used**	**Conclusion**
Use of pooled or random effects model	Breusch Pagan LM test	If P value <0.05, do not use pooled effects model.
Time Fixed Effects	F statistics	If p value <0.05, there are time fixed effects use two way model or introduce dummy variables
Heteroskedasticity	Modified Wald Test	If P value >0.05, presence of uniform variance.
Serial correlation	Wooldridge Drukker test	If P<0.05, there is serial correlation hence use FGLS
Random or fixed effects	Hausman test	If p value>0.05, use random effects model.
Normality	Jarque Berra Test	If p value>0.05, the data is normally distributed.

(Gujrati, 2013)

After the diagnostic tests, the resultant model was used to examine the nature of the relationship between board structure, CEO narcissism and real earnings management. Following (Yegon,

2015) regression models was done in three stages; The first stage was to establish the relationship between the dependent variable and the control variables. Secondly, the direct effects between dependent variable and the independent variables together with the control variables was determined. Lastly was the introduction of the moderating variable together with the interaction terms to test the moderating effects of the CEO narcissism on the relationship between board structure and real earnings management. The following are the analytical models that were used in the study;

$$\mathrm{Re}m_{it} = \beta_0 + \beta_1 Firsize_{it} + \beta_2 Firper_{it} + \varepsilon_{it} \quad \text{Model 1}$$

$$\mathrm{Re}m_{it} = \beta_0 + \beta_1 Firsize_{it} + \beta_2 Firper_{it} + \beta_3 Boinde_{it} + \beta_4 Boten_{it} + \beta_5 CEOdual_{it} + \beta_6 Bosize_{it} + \varepsilon_{it} \quad \text{Model 2}$$

$$\mathrm{Re}m_{it} = \beta_0 + \beta_1 Firsize_{it} + \beta_2 Firper_{it} + \beta_3 Boinde_{it} + \beta_4 Boten_{it} + \beta_5 CEOdual_{it} + \beta_6 Bosize_{it} + \beta_7 Ceonarc_{it} + \beta_8 Boinde^{*} Ceonarc + \beta_9 Boten^{*} Ceonarc + \beta_{10} CEOdual^{*} Ceonarc + \beta_{11} Bosize^{*} Ceonarc + \varepsilon_{it} \quad \text{Model 3}$$

Where in the analytical model;

Rem = Real earnings management ;
Boinde = Board independence
Boten = Board tenure
CEOdual = CEO duality
Bosize = Board size
Ceonarc = CEO narcissism
Firsize= Firm size,
Firper= Firm Performance,

β_0 is constant, β_1 to β_{11}, are correlation coefficients, **ε** is the error term, *t* is measure of time, i number of firm observations.

The panel model analysis has two options: fixed effects and random effects models. The FE model is suitable where the researcher is interested in analyzing the effects of variables that vary over time. The FE model assumes that each entity has unique characteristics that may or may not relate with the independent variables. Moreover, Fixed Effects model is based on the assumption that some factors within the entity may influence or bias the independent variables and hence this needs to be controlled. The Fixed Effects hence regards the error terms of the entities and the independent variables to be correlated. The Fixed Effects model hence eliminates the influence of those time-invariant features to enable assessment of the net effect of the independent variables on the dependent variable. However, if the error terms of entities are correlated with the independent variables, then fixed effects is not appropriate. The fixed effects model in the study was as follows;

$Y_{it} = \beta_i X_{it} + \alpha_i + u_{it}$ …… (i)

Where

α_i (i=1….3) = intercept for each company.

Y_{it}= the dependent variable (Real earnings management) where i = company and t = time.

X_{it}= Independent variables

β_i = this is the slope coefficient and it shows the change in dependent variable per unit change in independent variables after holding other factors constant.

u_{it} = The error term

The logic behind RE model is that the differences between the entities are uncorrelated and random. This implies that entity error terms are not associated with the independent variables considered in the study (Gujarati, 2013). This makes the time-invariant variables to play a role in the model as independent variables. Therefore, when a researcher believes that differences among

the entities have an effect on the response variable, then random effects model should be applied. Random effects model allows generalization of inferences beyond the sample used in the model. The equation for the random effects model is;

$Y_{it} = \alpha + \beta X_{it} + u_{it} + \varepsilon_{it}$ ……. (ii)

Where

α = Unknown intercept for the companies

Y_{it}= Real earnings management where i = company and t = time.

X_{it}= represents independent variables

βi = this is the slope coefficient and it shows the change in dependent variable per unit change in independent variables after holding other factors constant.

u_{it}= The between-entity error

ε_{it}= The within-entity error

3.6.1 Underlying Assumptions of the Regression Model

A regression model is a statistical representation that assesses whether one or more predictor variables explain the dependent variable. The following are the assumptions that underlie regression model analysis;

i. Linear relationship. This refers to the degree in which the change in dependent variable is related to the change in independent variables (Yegon, 2015).The assumption requires the relationship between the independent and dependent variables to be linear. The linearity assumption was tested by use of scatter plots diagrams and ensuring that there were no outliers.

ii. Normality assumption. Normality is the assumption that the data is normally distributed about the mean. To test for normality Jarque Berra test was used (Gujarati, 2013). If the p

value was greater than 0.05 then the data was normally assumed otherwise there was need for data transformation depending on the level of skewness.

iii. Multicollinearity is a situation in which there is an exact or nearly exact linear relation among two or more input variables. To assess multicollinearity, it should be checked how well each independent (X) variable is predicted from the other X variables, and what is the value of individual R^2 and a Variance Inflation Factor (VIF). When R^2 and VIF values are high for any of the X variables, the fit is affected by multicollinearity (Gujarati, 2013).

iv. Homoscedasticity. This assumption means that the variance around the regression line is the same for all the values of the predictor variables. This was tested using the wald chi square test.

v. Independence of the error term. It explains that the errors from the predictor variables are independent of each other. It means that each case is independent of one another.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.0 Introduction

This chapter presents the statistics of the data collected. It covers descriptive statistics, test of assumptions of the regression analysis, panel data diagnostic tests, panel regression models results, as well as their interpretations.

4.1 Data Preparation and Processing

The data used was secondary extracted from annual reports of the 50 listed companies. The data collection involved extracting numerical data directly from the financial statements and content analysis to extract information from written texts of the managing director's reports and other sections of the company annual reports. Content analysis is a technique used by researchers to explore the presence of certain words or concepts within texts or sets of texts. It can be applied to examine pieces of writings or recorded communications (Marquez, Allan & Zhou, 2018; Robert , 1990). This study considered the use of conceptual content analysis, where concepts or certain words are chosen for examination, such that the analysis involves quantifying and tallying the occurrences within texts (Jauch, Osborn & Martin, 2019). Therefore, since the study sought to use unobtrusive measures for narcissism, conceptual content analysis was deemed appropriate. Before data analysis was carried out, the data was processed and assessed for completeness and missing data.

4.1.1 Analysis of Missing Data

Missing data refers to unavailability of data value for a variable due to non-response (Loukopoulos *et al.,* 2017; Young & Johnson, 2015). It is categorized into three namely; missing completely at random, missing at random and not missing at random (Young & Johnson, 2015). Missing completely at random (MCAR) is defined as a situation where missing data does not depend on any data either observed or missing. Missing at random (MAR) means there is a systematic relationship between the propensity of the missing values and the observed data but not the missing data whereas not missing at random (NMAR), refers to a situation when missing data depends on the value that would have been observed, but is currently missing (Young & Johnson, 2015).

Therefore, missing data analysis was carried out to ensure completeness of the data and assess the magnitude of missing information of each entity across the 16 year period. Since the companies were started, registered and listed at different times, not all the studied firms had reports for the entire period. The data was collected for each company for the years they have been listed in Nairobi Securities Exchange. This implied that the data was not expected to be strongly balanced since the companies had varying time periods. The data yielded was thus treated as unbalanced panel data with 708 entries as indicated in Table 4.1.

Table 4. 1: Panel data description

Number of firms	Average years of data per firm	Total entries
50	14.16	708

Source: Research Data, (2020)

The unbalanced panel data was however assessed for completeness in each of the 708 entries. An entry or response that has less 10% of missing information is not considered to constitute a large

amount of missing data (Cohen *et al*, 2003). In this study, only entities that had more than 10% missing information in any of all the variables on the collection, would have been considered candidates for deletion. Out of the 708 data entries, 639 data entries had no missing data, 42 data entries had a missing data of 4.167%, while 27 data entries had a missing data of 8.333%. None of the 708 data entries was found to have missing information above 10%, thus all the entries were retained as shown in Table 4.2.

There were however traces of missing data across some entries in various variables. This enhanced applications of approaches of handling missing data. These approaches range from list wise and pairwise deletion, weighting techniques, simple imputation and the multiple imputation technique (Ette *et al*, 2006; Loukopoulos *et al*., 2017; Patrician, 2002). Deletion method largely affects standard error calculations and increases biasness while weighting technique and single imputation technique, decreases the sample variance because of replacing the missing data with identical values (Patrician, 2002). Multiple imputation on the other hand is a predictive approach of handling missing data in multivariate analysis, which aims in replacing each missing value with a set of plausible values that represent the uncertainty about the right value to impute. Further, it incorporates random error because it requires random variations in the imputation process (Cohen *et al*., 2003; He *et al*, 2011; Ji *et al*., 2018; Landrum & Becker, 2001; Patrician, 2002; Rässler *et al*, 2013;Schafer, & Olsen, 1998; Maltitz & Merwe, 2012; Young & Johnson, 2015). Since the data was missing at random (MAR) and involved multivariate analysis, all the missing data was therefore cleaned by multiple imputation technique.

Table 4. 2: Missing data analysis

Missing information	Entity years	Percentage	Cumulative Percentage	Action
0.000%	639	90%	90%	Retained
4.167%	42	6%	96%	Retained
8.333%	27	4%	100%	Retained

Source: Research Data, (2020)

4.1.2 Analysis of outliers

Outliers refers to those observations that deviate from the centroid (Zink *et al.,* 2018). It is a data point that differs significantly from other observations (Hadi *et al.*, 2009). Outliers are those observations which tend to extremely deviate from other observations. The possibility of existence of multivariate outliers as a combination of independent and dependent variables was expected. In such cases, the responses from the outlying elements needed to be scrutinized, with the aim of understanding the reason for the outliers. The reasons of the outliers could range from coding error, incorrect data, or distribution of the sample for specific variables which may have a more extreme distribution than normal (Zink *et al.*, 2018). It was therefore important to test whether there were multivariate outliers present among the study variables. Multivariate outliers can be identified with the use of mahalanobis distance (Béguin & Hulliger, 2004).

The Mahalanobis distances are calculated and used to assess how far each observation is from the centroid, where the centroid is calculated as the intersection of the mean of the variables being assessed (Béguin & Hulliger, 2004). Mahalanobis distances of observations is calculated in the multivariate case to consider the shape of the observations under scrutiny (Leys *et al.*, 2018). The Mahalanobis distances are said to follow a chi-square distribution with degrees of freedom as the number of variables (Leys *et al.*, 2018). An observation is said to be a significant outlier if the p-

value of the distance is less than 0.05 (Hadi *et al.*, 2009). In this study, the test of multivariate outliers was carried out where the Mahalanobis distances were calculated for all the 708 entries as shown in appendix V. All the distances calculated had p-values greater than 0.05 implying that none of the years for each entity was considered to be a multivariate outlier.

4.2 Descriptive Statistics

The study sought to assess the moderating effect of CEO narcissism on the relationship between board structure and real earnings management among the firms listed in Nairobi Securities Exchange. The data collected for the study variables were analysed based on the scales of measurement of the variables. Table 4.3 presents a summary of the descriptive statistics of the study variables. Real earnings management was explored as a measure of the level at which the companies manipulate real companies' earnings, through offering price discounts or more lenient credit terms to temporarily increase sales, reducing discretionary expenses to improve reported earnings and overproducing to reduce the cost of goods sold.

The study sought to measure real earning management from financial records using abnormal cash flow from operations, abnormal discretionary expenses and abnormal production costs. Specifically, the proxy measurements of real earnings management that is, abnormal cash flows from operations, abnormal production cost and discretionary expenses were determined using estimates from regression models. The data collected was unbalanced data for fifty entities over sixteen years. Hence, panel models were fitted for estimation of the abnormal cash flow from operations, abnormal discretionary expenses, and abnormal production cost, while considering assumptions for regression model and unbalanced panel data. The resulting models used violated

some assumptions thus integrated generalised least squares models were adopted. The results of the models fitted to measure real earnings management are presented in appendix IV-1.

The fitted models were used to predict each of the proxy indicators; that is abnormal cashflow from operations, abnormal discretionary expenses and abnormal production cost, which were then used to generate the measure of real earnings management. The single indicator of real earnings management was calculated as a combination of the three measures of abnormal cash flow from operations, abnormal discretionary expenses and abnormal production costs. Following Ferentinou and Anagnostopoulou (2016), real earnings management was calculated by multiplying abnormal cash flow from operations and abnormal discretionary expenses by negative one (−1) and then adding together all resulting amounts plus the value of abnormal production costs to derive the single comprehensive measure of real earnings management.

The descriptive statistics summary of real earnings management in Table 4.3 shows that the global mean was -0.136 with an overall variation of .596. Real earnings management was computed as a comprehensive variable of the three measures of real earnings management. The negative value of real earnings management implies that on average, the entities engaged in real earnings management but at lower levels. This shows that firms listed at Nairobi Securities Exchange, engage in real earnings management, but the rate of manipulation, differs across companies and also over time. The standard deviation of the variable is decomposed into between and within components considering the multi-level structure of the panel data, to show the level of variation from the global mean across the entities (between groups variation) and over time (within groups variation). Average real earnings management during the study period for each entity varied

between -1.693 and 1.038 while real earnings management within the firms over the study period varied between -4.114 and 4.166.

Board independence was an independent variable measured as a proportion of unaffiliated directors to total number of directors. The data collected on the number of unaffiliated directors to total number of directors for each entity for each year (entity-year) was used to calculate the ratio used as the proportion of board independence. Table 4.3 shows the descriptive analysis of the ratio while more descriptive analysis is presented in appendix IV-2. As shown in Table 4.3, it was noted that the average independent board members was 0.821 of the total number of directors serving in a board, with a standard deviation of 0.164. The dispersion decomposed to within and between, showed standard deviations of 0.110 and 0.128 respectively. From the descriptive statistics it shows that the minimum levels of board independence between the entities is 0.44 while the maximum level it can have is 1.000. The minimum levels of board independence within the entities is 0.181 and 1.000.

Board tenure sought to address the question of the average number of years the board members served in the firm. This was measured by first determining the number of years each board member had been part of the board of the firm as at the year of entry and determining the average for all the board members for each entity year. The summary descriptive statistics in Table 4.3 shows that the mean board tenure across all the entities studied for all the years was 10.923 with an overall standard deviation is 1.319. This was decomposed to variation of within the entities shown by the standard deviation of 1.225 which is higher than the standard deviation of between groups of 0.476. This implies homogeneous populations with respect to board tenure which could be as a result of

same directors moving across the entities at different times. Average levels of board tenure for each entity varied between 0.476 and 9.853 while varying within the firms over time between 1.225 and 4.002.

CEO duality was measured as a binary categorical variable to determine whether the CEOs of the firms have dual roles of the CEO (Managing director) and chairperson of the board of directors. It was noted that majority of the firms did not have dual CEOs. As shown in the detailed descriptive analysis of the variable presented in appendix IV-2, in the earlier years (2002 to 2005) all the studied entities (100%) had no duality. In years where some firms had dual CEOs, the percentage of firms with dual CEOs were less than 5%. It also presents the summarized results in terms of entity-years. The overall fraction of CEO duality cases is 1.55% with 98.45% of the companies having the roles of the CEO and the chairman separated. The within statistics show the conditional percentages of duality measures. On a condition that a firm have cases of dual CEOs, then it would have 61.88% years of dual CEO cases (1). The between statistics are the fraction of the firms with dual and non-dual CEO cases. They show that, all the firms (100%), at least had years with non-dual CEO while only 4% of the firms had cases (years) of dual CEOs. As shown in table 4.3, the overall mean duality was 0.0016 with a standard deviation of 0.124. This showed that almost all the companies are complying with the current requirements of the corporate governance guidelines 2015, that all companies should have the roles of the chairperson of the board separated from the roles of the CEO. Average levels of CEO duality for each entity varied between 0.000 and 0.800 and varied within the firms over time between -0.784 and 0.578.

Board size was a measure of the total number of directors serving in the board of the organization in each of the years. The study therefore explored to find out whether the size of the boards has any effect on real earnings management among the listed firms in Nairobi Securities Exchange. The overall mean number of directors was found to be 9.370 with an overall standard deviation of 2.767. This implied that, the average size of the boards in Nairobi Securities Exchange is approximately nine members. The decomposed variations for the variable, between and within groups were 2.024 and 1.872 respectively. The within standard deviations are slightly less than the standard deviation between. The variation in board size across the firms is however nearly equal to that observed within a firm over time. Average levels of board size for each entity varied between 5.045 and 14.063 and varied within the firms over time between 1.399 and 19.302. The within number refers to the deviation from each entities average over the period.

CEO narcissism was considered as the moderating variable. The study sought to measure CEO narcissism using three indicators that is; the prominence of the CEOs photograph in the company's annual report, the use of the first persons' singular pronouns in the CEOs report and number of official formal titles of the CEO. Following Tang *et al.* (2011), the ratio of official titles was measured as a ratio of the CEOs official titles in his report to the total official titles of all top management staff. A low ratio showed low levels of narcissism of the CEO. The annual ratios of official titles were less than 0.2 and varied over the years with a seemingly increasing trend. A summary detailing the descriptive analysis for each of the indicators of narcissism is presented in appendix IV-3.

Following Marquez *et al*., (2018), the study used factor analysis for dimension reduction of the measured indicators of latent variable, CEO narcissism. The technique exploratory factor analysis (EFA) used yields an unrestricted factor model which considers a simple structure in which the latent factors try to explain as much variance as possible for a set of observed variables indicators (Schmitt, 2011). In this study the unobserved latent variable was based on the observed indicators of the ratio of official formal titles of the CEO to the total number of tittles of top management, the ratio of the prominence of CEOs photograph in the company's annual report and the ratio of first person singular pronouns to total first person pronouns in the CEOs report. The factor analysis results are also presented in appendix IV-3. Only one factor was retained and taken to be a CEO narcissism measure which had an eigen-value larger than one. The retained factor explains most of the variation in the observed variables. Since only one factor was retained, rotation was not necessary.

The factor loadings table in appendix IV-3 shows that all the three indicators of narcissism considered had loadings of more than 0.4 thus non-was expunged. The factor loading results shows that, the exploratory factor analysis (EFA), echo the conceptual model as hypothesised for CEO narcissism. Table 4.3 shows the overall summary descriptive analysis of CEO narcissism. The index measure of narcissism generated from factor analysis had an overall mean of -0.280. As shown in Table 4.3, the overall standard deviation is 5.760. The index generated ranges from -83.412 to 27.485 for each entity year. The variation of narcissism across the entities (3.863) is less than but almost equal to that within the entities (4.386). This implied that narcissism among the CEOs existed though it varied across the companies and within individual firm's overtime.

Average levels of CEO narcissism for each entity varied between -25.381 and 4.538 while varying within the firms over time between -58.311 and 26.004.

Table 4. 3: Descriptive statistics

	Mean	Std. Dev.	Min	Max	Observations
Real Earnings Management					
Overall	-0.136	0.596	-5.671	4.565	N = 708
Between		0.463	-1.693	1.038	n = 50
Within		0.409	-4.114	4.166	T-bar = 14.16
Board independence					
Overall	0.821	0.164	0.133	1.002	N = 708
Between		0.110	0.440	1.028	n = 50
Within		0.128	0.181	1.031	T-bar = 14.16
Board Tenure					
Overall	10.923	1.319	3.500	14.53	N = 708
Between		0.476	9.853	11.825	n = 50
Within		1.225	4.002	13.644	T-bar = 14.16
CEO duality					
Overall	0.016	0.124	0.000	1	N = 708
Between		0.128	0.000	0.800	n = 50
Within		0.082	-0.784	0.578	T-bar = 14.16
Board size					
Overall	9.370	2.767	4.000	17.930	N = 708
Between		2.024	5.045	14.063	n = 50
Within		1.872	1.399	19.302	T-bar = 14.16
Firm size					
Overall	16.269	1.819	10.716	20.287	N = 708
Between		1.773	11.394	19.142	n = 50
Within		0.756	12.947	18.313	T-bar = 14.16
Firm performance					
Overall	0.061	0.136	-0.662	2.128	N = 708
Between		0.081	-0.146	0.336	n = 50
Within		0.113	-0.457	1.853	T-bar = 14.16
CEO Narcissism					
Overall	-0.280	5.760	-83.412	27.485	N = 708
Between		3.863	-25.381	4.538	n = 50
Within		4.386	-58.311	26.004	T-bar = 14.16

Source: Research Data, (2020)

4.3 Correlation analysis

A correlation analysis was carried out to assess the relationship between board structure, CEO narcissism and real earnings management. Correlation analysis measures the strength and direction or the association between pairs of variables. Pearson correlation coefficients were calculated as the measures of linear association between any two study variables measured on a continuous scale (Jackson, 2012). The significance of the correlation coefficients was based on 2-tailed tests at 5% level of significance. Real Earnings Management was found to have significant correlation with all the independent variables in the study except board tenure.

The correlation between real earnings management and board independence was found to be significant but negative (r=-.120, p<.025). The significant negative relationship implies that when the level of board independence increases, the levels of real earnings management reduces. Board size also had a negative but significant correlation with real earning management (r =-.185, p<.025). The results implied that real earnings management also reduces with increase in the size of the board.

CEO duality showed a significant positive correlation with real earnings management (r =0.164, p<.025). This implied that when the roles of the CEO and the board chair are carried out by one person, the rate of real earnings management increases. The results also showed that both control variables, that is firms size and firm performance had significant relationships with real earnings management. Firm size had a positive correlation with real earnings management (r =.167, p<.025), implying that real earnings management tend to increase with increases in firm size in terms of assets. Firm performance had negative correlation with real earnings management (r =-

232, $p<.025$), implying that levels of real earnings management tend to decrease with increase in firm performance.

The moderating variable, CEO narcissism, had a positive correlation with real earnings management (r =.200, $p<.025$). The results implied that, when the levels of CEO narcissism are high, the levels of real of real earnings management are expected to increase. The moderating variable CEO narcissism which is the moderating variable was observed to have a significant relationship with the independent variable board size but not to have a significant relationship with others such as CEO duality. In mediation analysis, the independent variable is required to significantly relate to the mediator for the test to hold (Bauman *et al*, 2002). In moderation analysis, the moderator is only considered as so due to significant interaction effects with the other independent variables but does not require any significant relationship with the independent variables (Bauman *et al*, 2002). CEO narcissism can therefore influence the relationship between CEO duality and real earnings management due to significant interaction without necessarily having a relationship with CEO duality. The insignificant relationship between CEO duality and CEO narcissism implies that CEO narcissism is a personal character trait that is randomly distributed across the 2 groups of CEOs with dual roles and non-dual roles. The level of narcissism being a natural character trait is not expected to relate or depend on CEO duality which is a variable controlled by the choice of the entity leadership to give dual roles to CEOs or not. Likewise, the duality of the CEO is not expected to be dependent on the CEOs narcissism as the choice the company on duality, is not made by the CEO himself but by the entities' leadership. Board size on the other hand had a significant relationship with CEO narcissism, which implies that the CEO being narcissistic could influence the number of board members. The moderation effect is however

plausible whether the independent variable is related or not to the moderator. As much as the duality of the CEOs roles is not a causative factor of his/ her narcissism, narcissism could affect, the effect that duality has on real earnings management thus further analysis were carried out to assess the moderating effect of CEO narcissism on the relationship between real earnings management and board structure dimensions regardless of the significance or insignificance of the relationship between the them.

The tenure of the board members was however found to have no significant correlation with real earnings management (r=-.056, p<.139). This implied that, real earnings management does not necessarily increase or decrease with changes in the tenure of the organisations' board members.

Table 4. 4: Correlation Matrix

	1	***2***	***3***	***4***	***5***	***6***	***7***	***8***
1	1							
2	-.120*	1						
3	-.056	.075*	1					
4	.164*	.169*	-.015	1				
5	-.185*	-.163*	-.277*	-.145*	1			
6	.120*	.023	.043	.020	-.144*	1		
7	.167*	-.152*	-.014	-.020	.376*	.126*	1	
8	-.232*	.015	.134*	.020	-.011	-.115*	-.007	1

*. Correlation is significant at the 0.05 level (2-tailed)
CEO = Chief Executive Officer

Source: Researcher 2020

Where:

1 = Real Earnings Management (REM)
2 = Board independence
3 = Board tenure
4 = CEO duality
5 = Board size
6 = CEO Narcissism
7 = Firm size
8 = Financial performance

4.4 Panel diagnostic tests and regression assumptions

A multiple regression model was fitted using the panel data collected for all the variables and used for hypothesis testing for the study objectives. Hence it was appropriate to test the model for the regression assumptions before testing hypothesis for the study objectives. In addition, model specification tests were carried out to determine the appropriate model that could fit the data, considering that the data collected was longitudinal. The specification tests included unit root tests for panel stationarity and test for model choice between pooled, fixed effect and random effect models.

4.4.1 Panel stationarity

The regression models to be fitted required the data to exhibit panel stationarity. In analysis of time series models, Augmented Dickey-Fuller (ADF) unit root test is used to test for stationarity which cannot be used in panel data because it lacks powers in distinguishing the unit root null from stationarity alternatives (Dickey & Fuller, 1979; Lander & Haene, 2012). Hence, using panel data unit root tests is one way of increasing the power of unit root tests based on a single time series. In panel data, an Augmented Dickey-Fuller (ADF) unit root, is carried out for every entity which is quietly carried out in various unit root tests for panel data that can be adopted depending on the structure of the data. Some of the panel data unit root test include; the Im Pesaran Shin (IPS) test and the Levin Lin (LL) tests, which even though they have better power in distinguishing the unit roots, they can only be used for the balanced panel data (Banerjee, 1999).

Fisher's unit root test on the other hand, does not require a balanced panel as in the case of the Im Pesaran Shin (IPS) test (Westerland, 2008). Secondly, one can use different lag lengths in the

individual Augmented Dickey-Fuller (ADF) regression. Lastly it can be carried out for any unit root test derived (Maddala & Wu, 1999). Since the study was unbalanced panel data, Fisher's unit root test was used to test for panel stationarity.

The results of the stationarity test on Table 4.5 shows that all the study variables did not exhibit panel unit roots but exhibited panel stationarity. This was depicted by the p-values of the Chi-square statistics which were all less than .05. Thus the null hypothesis that panels contain unit roots was rejected and conclusion drawn that all study variables exhibited panel stationarity.

Table 4. 5 Unit root test for panel stationarity

Fisher-type unit-root test for prod Based on augmented Dickey-Fuller tests			
Ho: All panels contain unit roots		Number of panels = 50	
Ha: Panel are stationary		Avg. number of periods = 14.14	
AR parameter: Panel-specific		Cross-sectional means removed	
Panel means: Included		ADF regressions: 2 lag	
		Statistic	**p-value**
REM	Inverse chi-squared(100) P	284.216	0.000
	Inverse normal Z	-7.280	0.000
	Modified inv. chi-squared Pm	13.026	0.000
Board Independence	Inverse chi-squared(100) P	314.277	0.000
	Inverse normal Z	-7.079	0.000
	Modified inv. chi-squared Pm	15.152	0.000
Board Tenure	Inverse chi-squared(100) P	337.361	0.000
	Inverse normal Z	-10.658	0.000
	Modified inv. chi-squared Pm	16.784	0.000
Board Size	Inverse chi-squared(100) P	216.893	0.000
	Inverse normal Z	-6.359	0.000
	Modified inv. chi-squared Pm	8.266	0.000
CEO duality	Inverse chi-squared(100) P	145.226	0.002
	Inverse normal Z	-2.105	0.018
	Modified inv. chi-squared Pm	-6.984	0.044
Narcissism	Inverse chi-squared(100) P	329.877	0.000
	Inverse normal Z	-8.445	0.000
	Modified inv. chi-squared Pm	16.255	0.000
Firm size	Inverse chi-squared(100) P	139.180	0.006
	Inverse normal Z	-1.998	0.023
	Modified inv. chi-squared Pm	1.710	0.044
Firm performance	Inverse chi-squared(100) P	276.438	0.000
	Inverse normal Z	-3.886	0.000
	Modified inv. chi-squared Pm	12.476	0.000

Source: Research Data, (2020)

4.4.2 Breusch Pagan, Langrange multiplier model specification test

For model specification, the model was tested for panel effects using the Breusch Pagan, Langrange multiplier test. This test allows a decision to be made whether to go by the random

effect regression model or the pooled ordinary least squares regression model (Breusch & Pagan, 1980; Hsiao *et al*, 2012). The test is based on the null hypothesis that there is no panel effects and therefore the variances are zero, as a result the pooled effect regression model is preferred. The pooled effect is a population averaged data that assumes no panel effects following the assumption that any latent heterogeneity has been averaged out (Pesaran *et al.*, 2019). Latent heterogeneity are individual effects that are specific for each entity and are taken to be constant over time. Pooled ordinary least squares model assumes homoscedasticity and no relationship between each entity's observations over time and between different units in the same period. Hence the study first explored the possibility of fitting a significant pooled ordinary least squares model. Table 4.6 shows the results of the Breusch Pagan Langrange Multiplier test which gave a p value of 0.000 which is less than 0.05. This indicates that there are panel effects, implying that there are significant differences across the entities over time. The null hypothesis was therefore rejected and a conclusion drawn that the random effect regression model was the preferred model.

Table 4. 6: LM-BP; Board structure and real earnings management

Var	sd	sd = sqrt (Var)
Rem	0.355	0.596
E	0.176	0.420
U	0.194	0.440
Test: Var(u) = 0		
chibar2(01) = 767.03		
Prob > chibar2= 0.0000		

Source: Research Data, (2020)

4.4.3 Hausman test for model specification

Having tested and disqualified the assumption of using the pooled model, the study further assessed the specification problem of choosing the appropriate model between the fixed and

random effect models. The Hausman test is used to determine whether the random effects model or the fixed effect model is preferred (Wiley, 2008). The random effect models assume that the individual effects are persistent but are uncorrelated to the predictor variables and are thus ignorable. Fixed effect models on the other hand assume that the heterogeneity (individual effects), are both persistent over time and correlated with the predictor variables (independent variables), hence cannot be ignored (Bell & Jones, 2015; Borenstein, Hedges, Higgins, & Rothstein, 2010; Greene, 2005; Hunter & Schmidt, 2000). Thus, the Haussmann specification test was therefore used to determine the appropriate and more viable model between the random effects model and the fixed effect model.

Fixed effects model and pooled models allow for unbalanced panel data (Baltagi & Song, 2006). The random effects model, however yield biased estimators in cases of unbalanced panel data. In cases where the Hausman specification tests favours the random effects, alternative models have been used to deal with the incomplete panel data (Baltagi & Song, 2006; Gardner, 1998). Such estimators include the Swamy–Arora estimators and the matrix-weighted least squares (Baltagi & Song, 2006; Dielman, 1983). Considering the software used, the study adopted the use of Swamy-Arora estimates for random effect models.

The Hausman specification test results are presented in Table 4.7. A chi-square Wald statistic was computed and used to conclude on the model specification. On the table footer, the Wald chi-square statistic computed was 3.91 with a p-value of 0.419. The p-value of the Chi-square statistic being greater than 0.05, means that the random effect model is the preferred model. Given that the panel data was unbalanced, the Swamy-Arora random effect estimate model was fitted.

Table 4. 7 Hausman; Board structure and real earnings management

	(b) fixed	**(B)** random	**(b-B)** Difference	**sqrt(diag(V_b-V_B))** S.E.
Board Independence	-0.193	-0.204	0.011	0.016
Board Tenure	-0.046	-0.047	0.001	0.002
CEO Duality	0.163	0.223	-0.061	0.067
Board Size	-0.025	-0.030	0.005	0.003
Firm size	0.060	0.060	0.000	0.010
Firm performance	-0.592	-0.614	0.021	0.026
chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B) =5.91				
Prob>chi2 = 0.4332				

Source: Research Data, (2020)

4.4.4 Normality Assumption

Normality is the assumption that the data is normally distributed about the mean. To test for normality Jarque Berra test was used (Gujarati, 2013). Violation of the assumption demands the use of other methods. Due to the multi-level structure of panel data, the disturbance term could be attributed due to between or within effects. Thus normality in panel data models are tested for both components of the error term. Hence, Jarque Berra test was used to test for normality which examines the normality of the error for each component separately. The classical Jarque Berra test is based on the fact that the skewness of a normally distributed variable is 0 with a kurtosis of 3. Table 4.8, presents the results of the normality test on the error components. The Jarque Berra chi-square statistics for the between and within components had p-values of 0.052 and 0.0795 respectively. Both are greater than 0.05, implying that the normality assumption was not violated as the error components are normally distributed.

Table 4. 8: Test for normality

	Coefficients	Std. Error	Z	P>z	[95%	Conf. Interval]
Skewness_e	0.093	0.157	0.590	0.554	-0.215	0.400
Kurtosis_e	1.409	0.585	2.410	0.016	0.263	2.556
Skewness_u	-0.033	0.024	-1.340	0.181	-0.080	0.015
Kurtosis_u	0.056	0.031	1.810	0.070	-0.005	0.116
Joint test for Normality on e:		chi2(2) = 5.915 Prob > chi2 = 0.052				
Joint test for Normality on u:		chi2(2) = 5.06 Prob > chi2 = 0.0795				

Source: Research Data, (2019)

4.4.5 Serial correlation

The random effect model fitted was based on Swammy Arora estimates and assumed non-serial correlation. Serial correlation of the error term in linear panel-data models causes a bias on the estimated standard errors resulting into less efficient estimates (Drukker, 2003). In panel data, Wooldridge test is used to test for serial correlation, which is considered to be more robust compared to other tests (Drukker, 2003). The Wooldridge test involves determining a Wooldridge F-statistic, which is used as the criteria for concluding on the existence of serial correlation. The null hypothesis for the test, stated that there is no first order auto-correlation. If the p-value of the F-statistic was greater than .05, the null hypothesis was not rejected, implying the non-existence of serial correlation of order one. Table 4.9 presents the results for serial correlation. The p value of the F-statistics was .1141, which is greater than 0.05, indicating the absence of serial correlation. Therefore the assumption of non-serial correlation was not violated.

Table 4. 9: Test for serial correlation

Breusch-Godfrey/Wooldridge test for serial correlation in panel models		
F(1, 5) Estimate		p-vlalue
2.589		0.1141

Source: Research Data, (2020)

4.4.6 Heteroscedasticity

Heteroscedasticity refers to a condition in which the variance of the residual term or error term in a regression model varies widely (Cohen *et al.*, 2003). Modified Wald test is used to test for heteroscedasticity. If the p value is more than 0.05 then it implies that there is presence of uniform variance. Table 4.10 shows that the p-value of the Wald statistic is less than 0.05 implying presence of heteroscedasticity. This shows that the fitted random effect model violates the assumption of group-wise homoscedastic variances of the disturbance term. A violation of this assumption means that the OLS estimators are no longer the BLUE (Best Linear Unbiased Estimators) because they are no longer efficient, hence the regression predictors will be inefficient. Therefore to address the problem, a generalised least squares model which is robust and allows for heteroscedastic errors was fitted.

Table 4. 10: Test for Heteroscedasticity

Wald Test		
Wald Chi-square	Df	p-vlalue
3.70e+06	53	0.000

Source: Research Data, (2019)

4.4.7 Cross Sectional Dependence

Another assumption when estimating panel data models is that of cross-sectional dependence, which assumes that cross-sectional observations are not correlated (Hoyos & Sarafidis, 2006). When time (T) is greater than the number of cross sectional units (N), Langrange Multiplier test may be used to test for cross sectional dependence while Pesaran Friedman test is appropriate if the cross sectional units (N) are more than the time (T) (Hoyos & Sarafidis, 2006). Further, Pesaran Friedman test can be applied in unbalanced panels (Baltagi & Song, 2006). Hence the Pesaran Friedman test for cross-sectional dependence in random effect models was carried out and the results presented in Table 4.11. The p-value of the Z statistic is 1.000, which is greater than 0.05, implying the presence of cross-sectional correlation of the residuals. Hence, the assumption of cross sectional dependence was not violated.

Table 4. 11: Test for Cross sectional dependence

Pesaran Friedman test	
Pesaran's Z statistic Estimate	p-value
0.060	1.00

Source: Research Data, (2020)

4.4.8 Multicollinearity

Multicollinearity in a regression model is referred to as the presence of predictors which are not true exogenous variables that can be expressed as linear functions of other predictor variables (Donald & Glauber, 1967). Multicollinearity can be exhibited in a situation of a high degree of association between independent variables. Multicollinearity results into large standard errors of the coefficients associated with the affected variables and can be resolved by deleting the variable

exhibiting collinearity with other predictors (Alin, 2010). Multicollinearity is assessed by calculating Variance Inflation Factors (VIF) of each predictor variable (Alin, 2010). High Variance Inflation Factors of 10 and above is an indication of a multicollinearity problem, while Variance Inflation Factors less than 10 are adequately low and implies lack of collinearity (Thompson *et al.*, 2017). The VIFs of the independent variables in this study were all less than 10 implying that there is no multicollinearity between the predictors.

Table 4. 12: Test for Multi-collinearity

Variable	VIF	Tolerance
Board size	1.330	0.754
Board tenure	1.130	0.886
Board independence	1.070	0.936
CEO duality	1.050	0.948
Firm performance	1.020	0.980
Firm size	1.190	0.838
Mean VIF	1.130	

Source: Research Data, (2019)

4.5 Regression Analysis

Regression analysis is a set of statistical methods used for the estimation of relationships between independent variables and the dependent variable (Jackson, 2012). Regression analysis further assesses the strength of the relationships between variables and can be used for modelling future relationships (Gujarati, 2013).

Hence, since the aim of the study was to determine the moderating effect of CEO narcissism on the relationship between board structure and real earnings management for the firms listed in Nairobi Securities Exchange, regression models were fitted and used to assess the study objectives,

test hypotheses and draw conclusions. Bivariate regression models were used to assess the direct relationships between each independent variable, which are the board structure constructs and real earning management. The results of each bivariate regression model are presented in appendix IV-4.

The random effect model fitted violated the assumption tested of panel homoscedasticity of the residual. Therefore, a more robust Generalized Least Squares (GLS) model that allows for heteroscedastic errors was fitted. Since the data was unbalanced, an Integrated Generalized Least Squares (IGLS) was used instead of a Feasible Generalised Least Squares model (FGLS). Hence, the integrated generalized least squares model was fitted to establish the causal relationship between CEO narcissism, board structure and real earnings management among the firms listed in Nairobi Securities Exchange. The results for the integrated generalized least squares model fitted are included in the regression models summary Table 4.13 while the detailed results of the models are presented in appendix IV-4.

Generalized Least Squares (GLS) models are based on maximum likelihood estimation rather than the Ordinary Least Squares (OLS) (Baltagi & Song, 2006). The pseudo R-squared statistic generated using GLS sums of squares do not have to be bounded between zero and one and might not truly reflect the percentage of total variation in the dependent variable that is accounted for by the model. The sum of squares can also not be broken down as was done in the classical random effect and fixed effect models. However, Pseudo R-squares and adjusted Pseudo R-squares were computed using McFadden's Pseudo R-square formula based on the log likelihood statistics. McFadden's Pseudo R-square was adopted as the log likelihood statistics used in the formula also

form the basis of parameter estimation in maximum likelihood techniques adopted in GLS models. Unlike other Pseudo R-squares, McFadden's technique also includes possibility of calculating the adjusted R-square that takes into account the number of predictors in the model.

Considering use of maximum likelihood estimation in generalized least squares model due to violation of the homoscedasticity assumption, the Wald chi-square test is used as it is more robust to failures of the narrow model assumptions than the t or F-statistics in OLS models. The Wald test is based on the asymptotic normality of maximum likelihood estimates. According to Greene, (2010), the Wald test often called "significance test" is commonly used procedure when the regression model is fitted without the restrictions, followed by an assessment of whether the results are within sampling variability, to agree with the hypothesis. As in the case of ANOVA F-statistic, the Wald Chi-square, tests the hypothesis whether the coefficient estimates in the model are jointly equal to zero. In this study, the Wald chi-square test and Likelihood ratio tests were used to test the significance of the models fitted and compare model specifications of the hierarchical regression models fitted which informed the test of the moderating effect. Likelihood ratio tests are used to assess the goodness of fit between two competing models based on the ratio of their likelihood functions with the aim of testing if the ratio is significantly different from 1 to imply that there is no significant difference between the two models.

The regression models were carried out in three stages. The first stage was done for control variables, then the direct effects between independent variables together with the control variables and the dependent variable was determined. Lastly was the introduction of the moderating variable together with the interaction terms to test the moderating effects of the CEO narcissism on the

relationship between board structure and real earnings management. In calculating the moderated regression, the interaction term between the independent variable and the moderator variable was calculated. This was done by multiplying the two variables together to yield a product term that represents the interaction effect. Hence the interaction terms were computed for each of the four independent variables.

4.5.1 Regression results for control variables

The first model was to assess the relationship between the dependent variables and the control variables. The Wald chi-square statistic results for the first model in Table 4.13, shows that the model is generally significant (χ^2= 133.40; p< 0.05). The results further shows that both control variables, that is firm size and firm performance had a significant relationship with real earnings management. The firm size showed a positive and significant relationship with real earnings management (β= 0.054,) p< 0.05) while firm performance showed a negative and significant relationship with real earnings management (β=-0.726, p< 0.05). This implied that, as firms increase in size, they tend to engage more in real earnings management as compared to small companies. Further, it also showed that firms that reflect good performances tend to engage less in real earnings management as compared to companies that are underperforming.

Table 4. 13: Effect of control variables on Real earnings management

Cross-sectional time-series IGLS regression						
Variables	**Coef.**	**Std. Err.**	**z**	**P>z**	**[95% Conf. Interval]**	
Firm size	0.054**	0.005	9.840	0.000	0.043	0.064
Firm performance	-0.726**	0.102	-7.090	0.000	-0.927	-0.525
_cons	-0.240*	0.102	-2.360	0.018	-0.439	-0.041
Panels:	heteroscedastic					
Log likelihood	-70.55218					
Wald chi2(6)	133.40					
Prob > chi2	0.000					

**. Significant at the 0.01 level.

*. Significant at the 0.05 level.

Source: Researcher (2020)

4.5.2 Hypothesis testing for direct effects

The second model was to determine the direct effects of the relationship between the board structure and real earnings management together with the control variables. A multiple regression analysis was therefore fitted to assess this causal relationship. The Wald chi-square statistic results in Table 4.14 shows that the model is generally significant (χ^2=179.56; p< .05). This implied that the board structure had a significant relationship with real earnings management. Hence from the results generated on the direct effects, the hypothesis for the main effects have been explained as follows;

H_{01} postulated that there is no significant relationship between board independence and real earnings management among the firms listed in Nairobi Securities Exchange. The results showed that board independence had a negative and significant relationship with real earnings management (β = -.234; p< .05) thus, the null hypothesis was rejected. This implies that, independent directors are capable of identifying and constraining real earnings management. Thus increasing the number

of independent directors in a board, reduces the probability of firms engaging in real earnings management.

H_{02} stated that there is no significant relationship between board tenure and real earnings management among the firms listed in Nairobi Securities Exchange. The results showed that board tenure had a negative and significant relationship with real earnings management ($\beta = -.019$; $p < .05$) hence the null hypothesis was rejected. This implied that, the longer the term a board member servers an organization, the more the probability of constraining real earnings management due to better understanding of the company systems.

H_{03} stated that there is no significant relationship between CEO duality and real earnings management among the firms listed in Nairobi Securities Exchange. The results showed that CEO duality had a positive and significant relationship with real earnings management ($\beta = .643$; $p > .05$) hence the null hypothesis was rejected. The results implied that, the monopoly of power and control of CEO duality decreases board monitoring effectiveness thus increasing manipulation of earnings through operational activities.

H_{04} predicted that there is no significant relationship between board size and real earnings management among the firms listed in Nairobi Securities Exchange. The results showed that board size had a negative and significant relationship with real earnings management ($\beta = -.035$; $p < .05$). The null hypothesis was therefore rejected and a conclusion drawn that board size has a significant relationship with earnings management. This implied that larger board size not only increase the

expertise of the board, but also increases the proportion of the independent directors and audit committees, thus mitigating the real earnings management.

Table 4. 14: Direct effects of board structure on real earnings management

Cross-sectional time-series IGLS regression						
Variables	**Coef.**	**Std. Err.**	**z**	**P>z**	**[95% Conf. Interval]**	
Board Independence	-0.234**	0.059	-3.930	0.000	-0.350	-0.117
Board Tenure	-0.019**	0.007	-2.780	0.005	-0.032	-0.005
CEO Duality	0.643**	0.244	2.640	0.008	0.166	1.121
Board Size	-0.035**	0.004	-8.160	0.000	-0.043	-0.026
Firm size	0.054**	0.005	9.840	0.000	0.043	0.064
Firm performance	-0.726**	0.102	-7.090	0.000	-0.927	-0.525
_cons	-0.240*	0.102	-2.360	0.018	-0.439	-0.041
Panels:	heteroscedastic					
Log likelihood	-89.294					
Wald chi2(6)	179.56					
Prob > chi2	0.000					

**. Significant at the 0.01 level.

*. Significant at the 0.05 level.

Source: Research Data, (2020)

`4.5.3 Hypothesis testing for the moderating effects of CEO narcissism

A moderator is a variable that affects the direction or the strength of the relationship between an independent variable and the dependent variable (Dawson, 2014). This shows that the causal relationship between the two variables changes as a function of the moderator variable (Dawson, 2014). This implies that the statistical test of moderation must show the differential effect of the independent variable as a function of the moderating variable. Moderating effects can be categorized into three. First, it can increase the effects of the independent variable on the dependent variable hence called an enhancing moderator. Secondly it can reduce the effects of the independent variables on dependent variables, also called the buffering moderator. Lastly, it can

reverse the effect of the independent variable on dependent variable, hence called antagonistic moderation (Yegon, 2015). A summary of the hierarchical regression analysis carried assessing the moderating in an analysis with 6 models is show in table 4.15

Moderation is said to exist if the amount of variance accounted for with interaction is significantly more than the variance accounted for without the interaction (Dawson, 2014). This is normally depicted by the changes in R-squared in cases of normal ordinary least squares regression models. Hence, since the study used the maximum likelihood estimators, the likelihood ratio test, Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) were used to identify the best model. Akaike Information Criterion and Bayesian Information Criterion (BIC) are measures of goodness of fit of statistical models and are commonly used to compare alternative model with the lowest value indicating a better model (Burnham & Anderson, 2004).

To assess the effect of CEO narcissism, the composite index of narcissism was added to the model. Narcissism was used as a moderating variable in the study which was assessed to moderate the relationship between board structure and REM. This was done in a series of hierarchical regressions with the third model (M3) including narcissism in the model as a predictor. In table 4.16 the results of the model 3 including narcissism is shown. The results show that the model is generally significant with a Wald chi-square statistic (χ^2= 217.99, $p < .05$). The results further show that the coefficient of narcissism (β =0.009, $p < .05$) is significant. The p-value is 0.045 which is less than 0.05 implying significant. The positive significant coefficient estimate implies that increasing a CEOs level of narcissism would end up directly affecting the levels of REM by a 0.009 increase.

To assess the moderating effect of CEO narcissism on the relationship between board independence and real earnings management among the firms listed in Nairobi Securities Exchange, the interaction between board independence and CEO narcissism was added to the model and the effect to the model investigated. Table 4.15 includes the likelihood ratio test statistics of the 2 models. Model 3 which includes narcissism without the interaction term is nested in model 4 with the interaction term included. The results show that addition of the interaction term to the model has a -8.760 change in the LR chi-square statistic. The change is however insignificant as shown by the p-value which is greater than 0.05. Further the Bayesian information criterion of model 4 is greater than that of model 3 implying that model 3 is a better model thus addition of the interaction term does not improve the model.

Table 4.15 also shows the coefficient estimates and model summary statistics of model 4 which included the interaction term. The model was found to be generally significant with a Wald chi-square statistic (χ^2= 204.55, p-value = .000). The results however further show that the coefficient of the interaction between narcissism and board independence (β = -.001, p> .05) is insignificant as the p-value is greater than .05. The interaction between narcissism and board independence was not considered in the models in further analysis considering it's insignificance. Hence

H_{05a} stated that CEO narcissism does not moderate the relationship between board independence and real earnings management among the firms listed in Nairobi Securities Exchange. The results shows that CEO narcissism has no significant moderating effect on the relationship between board independence and real earnings management (β = -.001; p> .05). From the LR test, the additional change in the change in LR statistic due to the addition of the interaction term is -8.760 and the p-value of the change due to the addition of the interaction terms is 1 which is greater than .05

implying that the interaction terms do not significantly change the LR of the model. The study thus failed to reject the null hypothesis and concluded that, CEO narcissism does not moderate the relationship between board independence and real earnings management among the firms listed in Nairobi Securities Exchange. This implied that, in cases where the board members are independent, the presence of a narcissistic CEO may not change how the independent directors control real earnings management.

To test the moderating effect of CEO narcissism on the relationship between board tenure and real earnings management among the firms listed in Nairobi Securities Exchange, the interaction between board tenure and CEO narcissism was added to the model and the effect to the model investigated. The interaction between CEO narcissism and board tenure was added to model 3. Table 4.15 results also include the likelihood ratio test statistics of between model 3 with CEO narcissism and model 5 including the interaction term. Model 3 which includes narcissism without the interaction term is nested in model 5 with the interaction term included. The results show that addition of the interaction term to model 3 has a -8.0 change in the LR chi-square statistic. The change is however insignificant as shown by the p-value which is greater than .05. Further the Bayesian information criterion of model 5 is greater than that of model 3 implying that model 3 is a better model thus addition of the interaction term between narcissism and board tenure does not improve the model. In table 4.15, the coefficient estimates and the model summary statistics of model 5 are also shown which included the interaction term. The model was found to be generally significant with a Wald chi-square statistic (χ^2= 232.85, *p* value = 0.000). The results however further show that the coefficient of the interaction between narcissism and board tenure (β =.002, *p*> .05) is insignificant as the *p* value is greater than .05. Hence

H_{05b} stated that CEO narcissism does not moderate the relationship between board tenure and real earnings management among the firms listed in Nairobi Securities Exchange. From the LR test, the additional change in the change in LR statistic due to the addition of the interaction term is -.8 and the *p* value of the change due to the addition of the interaction terms is 1 which is greater than .05 implying that the interaction terms do not significantly change the LR of the model. The results shows that CEO narcissism has no significant moderating effect on the relationship between board tenure and real earnings management (β = -.001; p> .05). Hence, the study failed to reject the null hypothesis and a conclusion drawn that, CEO narcissism does not moderate the relationship between board tenure and real earnings management among the firms listed in Nairobi Securities Exchange. The results implied that, the presence of a narcissistic CEO in an organization, have no influence on how the board tenure would affect real earnings management.

To assess the moderating effect of CEO narcissism on the relationship between CEO duality and real earnings management among the firms listed in Nairobi Securities Exchange, the interaction between CEO duality and CEO narcissism was added to the model and the effect to the model investigated. Table 4.15 shows the likelihood ratio test statistics of the 2 models. Model 3 which includes narcissism without the interaction term is nested in model 6 with the interaction term included. The results show that addition of the interaction term to model 2 has a 8.48 change in the LR chi-square statistic. The change is significant as shown by the p-value which is less than .05. Further the Bayesian information criterion of model 6 is less than that of model 3 implying that model 6 is a better model thus addition of the interaction term between CEO duality and narcissism improves the model.

Table 4.15 shows the coefficient estimates and the model summary statistics of model 6 which included the interaction term. The model was found to be generally significant with a Wald chi-square statistic (χ^2= 222.89, p-value = .000). The results however further show that the coefficient of the interaction between narcissism and CEO duality (β =-.523, $p < .04$) is significant as the p-value is less than .05. Thus

H_{05c} indicated that CEO narcissism does not moderate the relationship between CEO duality and real earnings management among the firms listed in Nairobi Securities Exchange. From the LR test, the additional change in the change in LR statistic due to the addition of the interaction term is 8.48 and the p-value of the change due to the addition of the interaction terms is .004 which is less than .05 implying that the interaction terms significantly change the LR of the model. The results shows that CEO narcissism has a negative and significant moderating effect on the relationship between CEO duality and real earnings management (β = -5.23; $p< .05$). Hence the null hypothesis was rejected and a conclusion drawn that CEO narcissism has a negative and significant effect on the relationship between CEO duality and real earnings management. The results imply that in cases where the CEO is narcissistic, the levels of real earnings management would reduce if CEO duality exists. Further hierarchical analyses were based on a continuation of model 6 with additional interaction terms tested against model 6 which was found to be a better model than all the previous models.

To assess the moderating effect of CEO narcissism on the relationship between board size and real earnings management among the firms listed in Nairobi Securities Exchange, the interaction between board size and CEO narcissism was added to the model and the effect to the model investigated. Table 4.15 shows the likelihood ratio test statistics of the 2 models. Model 6 which

includes narcissism and the interaction between narcissism and CEO duality but not the interaction with board size is nested in Model 7 with the interaction term between CEO narcissism and board size included. The results show that addition of the interaction term to Model 6 has a -3.76 change in the LR chi-square statistic. The change is however insignificant as shown by the p-value which is greater than 0.05. Further the Bayesian information criterion of Model 7 is greater than that of Model 6 implying that Model 6 is still a better model thus addition of the interaction term does not improve the model beyond model 6.

Table 4.15 shows the coefficient estimates and the model summary statistics of model 7 which included the interaction term. The model was found to be generally significant with a Wald chi-square statistic (χ^2= 239.10, p-value = 0.000). The results however further show that the coefficient of the interaction between narcissism and board size (β =.000, p-value = .643) is insignificant as the p-value is greater than .05. Model 6 was thus chosen as the optimal model implying that CEO narcissism only has a moderating effect on the relationship between CEO duality and real earnings management but not with the other direct independent variables. Thus

H_{05d} postulated that CEO narcissism does not moderate the relationship between board size and real earnings management among the firms listed in Nairobi Securities Exchange. From the LR test, the additional change in the change in LR statistic due to the addition of the interaction term is -3.760 and the p-value of the change due to the addition of the interaction terms is 1 which is greater than 0.05 implying that the interaction terms significantly change the LR of the model. The results shows that CEO narcissism has no significant moderating effect on the relationship between board size and real earnings management (β = 0.000; p> 0.05). Hence the study failed to reject the null hypothesis and a conclusion drawn that CEO narcissism does not moderate the relationship

between board size and real earnings management among the firms listed in Nairobi Securities Exchange. This implied that CEO narcissism does not influence the relationship between the size of the board and the real earnings management among the firms listed in Nairobi Securities Exchange.

Table 4. 15: Hierarchical Moderated regression Summary

Variables Parameter	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Intercept	-0.24 (0.018)*	-0.24 (0.018)*	-0.255 (0.010)**	-0.209 (0.041)*	-0.267 (0.008)**	-0.257 (0.009)**	-0.267 (0.008)**	-0.209 (0.041)*
Controls								
Firm Size	0.054 (0.000)**	0.054 (0.000)**	0.053 (0.000)**	0.052 (0.000)**	0.053 (0.000)**	0.052 (0.000)**	0.053 (0.000)**	0.053 (0.000)**
Firm Performance	-0.726 (0.000)**	-0.726 (0.000)**	-0.699 (0.000)**	-0.705 (0.000)**	-0.699 (0.000)**	-0.686 (0.000)**	-0.692 (0.000)**	-0.707 (0.000)**
Main Effects								
Board Independence		-0.234 (0.000)**	-0.23 (0.000)**	-0.28 (0.000)**	-0.228 (0.000)**	-0.208 (0.000)**	-0.205 (0.000)**	-0.263 (0.000)**
Board Tenure		-0.019 (0.005)**	-0.018 (0.005)**	-0.019 (0.004)**	-0.018 (0.006)**	-0.019 (0.004)**	-0.019 (0.004)**	-0.019 (0.004)**
CEO Duality		0.643 (0.008)**	0.638 (0.01)**	0.615 (0.010)**	0.64 (0.009)**	0.934 (0.001)**	0.939 (0.001)**	0.944 (0.001)**
Board Size		-0.035 (0.000)**	-0.032 (0.000)**	-0.033 (0.000)**	-0.032 (0.000)**	-0.032 (0.000)**	-0.033 (0.000)**	-0.033 (0.000)**
Moderating variable								
Narcissism			0.014 (0.000)**	0.02 (0.141)	-0.001 (0.947)	0.014 (0.000)**	0.014 (0.113)	0.009 (0.045)*
Interaction effects								
Board independence interaction narcissism				-0.012 (0.586)				-0.001 (0.957)
Board tenure interaction narcissism					0.001 (0.369)			0.002 (0.330)
CEO duality interaction narcissism						-0.539 (0.003)**	-0.541 (0.003)	-0.523 (0.004)**)
Board size interaction narcissism							0.000 (0.879)	0.000 (0.643)

Summary statistics								
Chi-square	133.40 (0.000)**	179.56 (0.000)**	217.99 (0.000)**	204.55 (0.000)**	232.85 (0.000)	222.89 (0.000)	239.1 (0.000)	241.41 (0.000)**
Likelihood ratio change (LR)		16.61(0.002)**	26.51 (0.000)**	-8.76 (1.000)**	-0.8 (1.000)**	8.48 (0.004)**		17.40 (0.003)**
AIC (Akaike's information criterion)	301.199	292.588	268.079	278.843	270.883	261.6	267.356	285.193
BIC (Bayesian information criterion)	542.406	552.000	532.042	547.357	539.397	530.114	540.421	547.360

**. Significant at the 0.01 level.

*. Significant at the 0.05 level.

Source: Research Data, (2020)

4.6 Presentation of Interaction Effects using Mod Graphs

Mod graphs are slopes that are used to evaluate whether the relationship between independent and dependent variable is significant at a particular value of the moderator (Dawson, 2014). The general test on the moderating effect of CEO narcissism on the joint relationship between board structure and real earnings management was found to be significant. However, on testing the moderating effect of CEO narcissism between each component of board structure and real earnings management, only the relationship between CEO duality and real earnings management was found to be significantly moderated by CEO narcissism.

Figure 4.1 shows the mod graph presentation of the moderating effect of CEO narcissism on the relationship between CEO duality and real earnings management. The study found a significant moderating effect. The coefficient of the interaction term was found to be -.523 implying that CEO narcissism is a buffering moderator as it reduces the effect of CEO duality on the real earnings management. The figure shows that, the increase in real earnings management, due to having a CEO who does both roles, is however seen to be higher with low levels of CEO narcissism. This implies that the level of narcissism of the CEO affects the influence that duality of the CEO would have on real earnings management. A less narcissist CEO would influence a higher real earnings management if given the opportunity to act as a CEO and chairman than a more narcissist CEO.

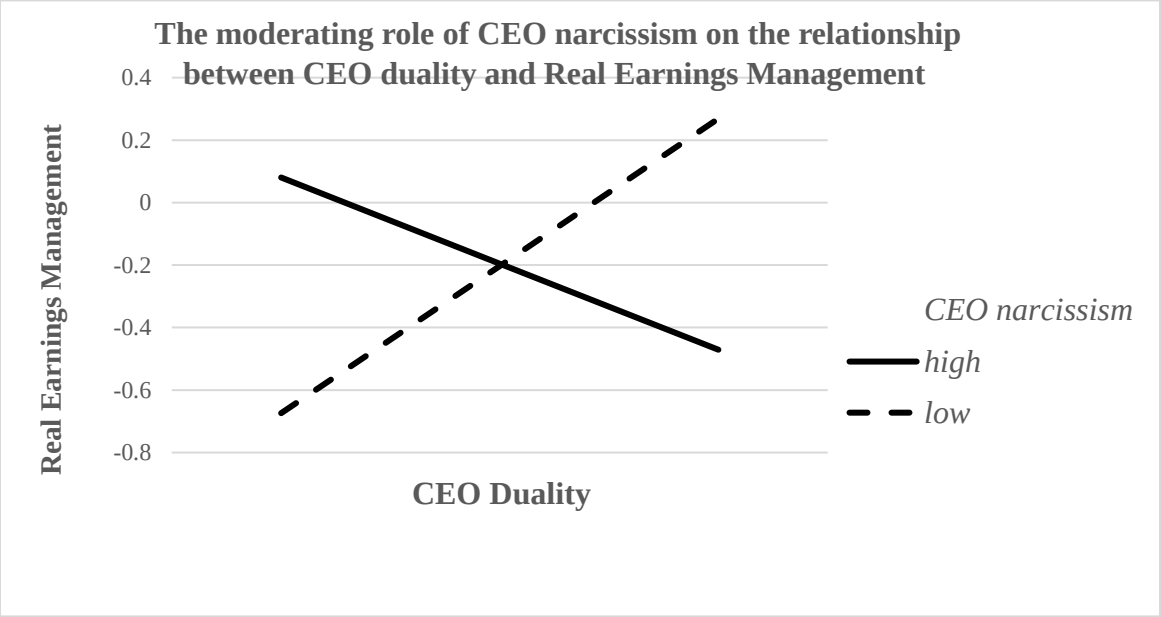

Figure 4. 1: Mod graph showing the moderating effect of CEO narcissism on the relationship between CEO duality and Real earnings management

Source: Research Data, (2020)

4.7 Summary of Hypothesis Testing Results

The summary of the hypothesis testing results of the study on the moderating effects of the CEO narcissism on the relationship between board structure and real earnings management, have been summarised in Table 4.17 below;

Table 4. 16: Summary of Hypotheses tests

Hypothesis	Estimate	P-value	Conclusion
H_{01}: Board independence does not affect the real earning management among the firms listed in Nairobi Securities Exchange.	$\beta_1 =$ -.234	.000	Reject H_{01}
H_{02}: Board tenure does not affect the real earning management among the firms listed in Nairobi Securities Exchange.	$\beta_2 =$ -.019	.005	Reject H_{02}
H_{03}: CEO duality does not affect the real earning management among the firms listed in Nairobi Securities Exchange.	$\beta_3 =$ .643	.008	Reject H_{03}
H_{04}: Board size does not affect the real earning management among the firms listed in Nairobi Securities Exchange.	$\beta_4 =$ -.035	.000	Reject H_{04}
H_{05a}: CEO narcissism does not moderate the relationship between board independence and real earnings management among the firms listed in Nairobi Securities Exchange.	$\beta_{M1} =$ -.0001 LR χ^2 =-8.76	.957 1.000	Fail to Reject H_{05a}
H_{05b}: CEO narcissism does not moderate the relationship between board tenure and real earnings management among the firms listed in Nairobi Securities Exchange.	$\beta_{M2} =$ .002 LR χ^2 = -.8	.330 1.000	Fail to Reject H_{05b}
H_{05c}: CEO narcissism does not moderate the relationship between CEO duality and real earnings management among the firms listed in Nairobi Securities Exchange.	$\beta_{M3} =$ -.523 LR χ^2 = 8.48	.004 .004	Reject H_{05c}
H_{05d}: CEO narcissism does not moderate the relationship between board size and real earnings management among the firms listed in Nairobi Securities Exchange.	$\beta_{M4} =$ .000 LR χ^2 = -3.76	.643 1.000	Fail to Reject H_{05d}

Source: Researcher (2020)

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter summarizes the findings of the study and draws conclusions which form the basis of recommendations on theoretical implications, implications for practice, policy implications and recommendations for further research. The suggestions for further studies are in line with the shortcomings identified in the study. The conclusions as discussed, are aligned to the specific objectives with their corresponding hypothesis.

5.1 Summary of Findings

The general objective of the study was to determine the moderating effect of CEO narcissism on the relationship between board structure and Real Earnings Management for the firms listed in Nairobi Securities Exchange. The hypothesis were examined by regressing models under three stages. The first stage was to determine the direct causal relationship between the dependent variable with the control variables. Secondly, the direct causal relationship between the dependent variable and the independent variables was determined. Lastly, was the introduction of the moderating variable, which is the CEO narcissism, together with the interaction terms between CEO narcissism and each of the independent variables. The addition of the moderating variable together with the interactions, was to test the moderating effects of the CEO narcissism on the relationship between board structure and Real Earnings Management among the firms listed at Nairobi Securities Exchange. Agency theory, upper echelons theory and catering theory of the earnings management were used to underpin the study. The summary of each findings was itemized based on the specific objectives of the study.

5.1.1 Effect of board independence on real earnings management.

The results indicated that there exist a negative and significant effect on the relationship between board independence and Real Earnings Management ($\beta = -.234$; $p < .05$). The results suggested that increasing the number of independent directors sitting in a board, would significantly reduce the managers' efforts to manipulate the financial statements. These findings echoes the proponents of the agency theory that argues that when boards of directors are independent of the management, they become more effective in their monitoring role (Afzalur, 2015; Fama & Jensen, 1983).

There are a number of reasons that support this. First, it's easier for independent board members , to make their decisions independently without any fear, because they have no personal, financial or social ties with the management (Agrawal, Chadha, Journal, & October, 2015; Boulila Taktak & Mbarki, 2014) Secondly, most of the independent directors hold multiple directorships with other firms and therefore they have more experience and technical expertise to identify opportunistic behaviors of the management such as earnings management (Shiah-Hou & Cheng, 2012; Siagian & Tresnaningsih, 2011). Thirdly, independent directors are motivated by the need to maintain their reputation in the competitive market and the fact that they do not benefit from the earnings management.

Hence the results echoes a study by Peasnell, Pope, and Young (2005) which was done on UK firms to examine whether board monitoring could reduce the incidences of earnings management and concluded that the proportion of outsiders on the board was negatively related to the likelihood of managers making income increasing abnormal accruals to avoid reporting losses and earnings reduction. It also supports the findings of Beasley (1996), which argued that inclusion of larger

proportion of outside members on the board of directors provide better oversight of management and thus reduces the likelihood of fraud incidence. It further supports the study of Epps and Ismail (2009), which was done basing on the US context on a relationship between corporate governance and earnings management and found out that firms that had hundred percent independent boards had more negative discretionary accruals. Other studies that has been supported by the results include (Ahmad-Zaluki & Wan-Hussin, 2010; Al-Thuneibat, Al-Angari, & Al-Saad, 2016; Bradbury et al., 2006; Hamdan & Al Mubarak, 2017; Kapoor & Goel, 2017; Mather & Ramsay, 2006; Mohd Saleh, Mohd Iskandar, & Mohid Rahmat, 2007; Niu, 2006; Osma, 2008; Shiah-Hou & Cheng, 2012; Siagian & Tresnaningsih, 2011; Wu & Li, 2015; Zulfiqar & Shah, 2009).

5.1.2 Effect of board tenure on real earnings management.

The results indicated that board tenure has a significant negative effect on real earnings management ($\beta = -.019$; $p < .05$). These results indicated that increasing the period of the tenure of board members, would result into a decrease in real earnings management. This results supports the notion that extended director tenure can enhance the commitment of directors to fulfill their duties since long tenure directors have greater experience on the firms internal control systems and more expertise on the firms operations.

Empirical evidence have argued that board members need time to adjust to a board in order to contribute towards the firm's outcomes (Hilary, 2018; Li & Wahid, 2018). In such cases, during the learning transition, it is easier for the internal managers to make the board an instrument of the management because they can only reveal what is favorable to them (Beasley, 1996). In circumstances where the old board members who understand the systems and operations exist, information asymmetry may be reduced and proper monitoring is done due to familiarity with the

internal control systems. This results echoes the finding of Beasley, (1996), who argued out that when the firm has long average tenure directors, the likelihood of financial reporting fraud is reduced. It further supports the results of Kim & Yang, (2014) who argued out that the absolute value of discretionary accruals decreases when the tenure of the directors increases. Other studies that have been supported by the results of this study include (Dhaliwal *et al.*, 2010; Hilary, 2018; Li & Wahid, 2018; Moung *et al*., 2013).

5.1.3 Effect of CEO Duality on real earnings management.

The results indicated that there is a positive and significant effect on CEO duality and real earnings management ($\beta = .643$; $p < .05$). These results indicated that, in circumstances where the CEO also assumes the roles of the chairman, real earnings management increases. The results are consistent with the argument in agency theory which argues out that agency conflicts accrue when the two parties have asymmetric information and disparate interests, giving rise to CEOs pursuing self-interest at the expense of the shareholders. The results justifies the notion that in circumstances where CEO duality exist, it becomes difficult for the board to perform its critical function of overseeing the CEO hiring, monitoring the opportunistic behaviors of the CEO, firing, evaluating and compensating process (Jensen, 1993).

Hence since the CEO is generally responsible on the overall performance of an organization, it would be easier to manipulate the financial statement which gives a reflection of his personal performance (Erkutlu & Chafra, 2017). Further the results supports the upper echelons theory which argues that, an organizational outcome and its strategic choices and performance are partially predicted by the managerial background. The findings of the study showed that when the CEO duality exist, the rate of earnings management tend to increase. This is because the outcome of the financial performance act as a personal report card of the CEOs performance (Amernic &

Craig, 2010). Hence CEOs would ensure that good performance is reflected so that their reputation is maintained.

This results are consistent with the findings of Farre.ll *et al*.,(2013) which examined the relationship between the CEO duality and earnings management and found out that where the roles of the chairmn and CEO are not separated the likelihood to engage in earnings management is also high.other studies that have been suppported by the results of this study include (Abed *et al*., 2012; Boulila *et al*, 2014; Davidson *et al.*, 2019; Egbunike *et al*., 2018; Epps & Ismail, 2009; Iyengar *et al*., 2010; Mande & Son, 2012; Mather & Ramsay, 2006; Nuanpradit, 2019; Park, 2019)

5.1.4 Effect of board size on real earnings management.

The results indicated that there exist a negative significant relationship between the board size and real earnings management (β =-.035; p< .05). These results indicated that increasing the size of the board members significantly reduces the earnings management.

These results echoes the findings of Yasser & Mamun,(2016) which argued that large boards assures healthier reporting quality in Australia and Malaysia than small boards. Further, it supports a stream of literature that have argued out that, as the size of the board is increased, it also increases the size of audit committees hence increasing monitoring activities, increases the number of independent board members to be appointed, thus enhancing valuable experience from the board and lastly, inclusion of more members with diverse demographic characteristics (Alareeni, 2018; Leventis *et al.*, 2012; Millon *et al.*, 2009; Tarus & Aime, 2014; Uzun *et al*., 2004).

The results thus rejects the arguments of the agency theory that increased board sizes comes with extra costs and difficulties in managing the board during meetings but rather supports the resource dependency theory that increased board size may yield benefits to a firm by providing network to the external environment and by securing a broader resource base (Yasser *et al.*, 2017)..

5.1.5 The moderating effect of CEO narcissism on the relationship between board structure and real earnings management.

The moderating effects of the CEO narcissism on the relationship between board structure and real earnings management was carried out.Table 4.13 shows the coefficient estimates and the summary statistics of model 3 including the interaction terms. The model was found to be generally significant with a Wald chi-square statistic (χ^2= 241.41; p< .05). CEO narcissism was found to have a positive significant moderating effect on the relationship between board structure and real earnings management (β =.009; p< .05). This implied that in circumstances where the company has a CEO who is narcissistic, the probability of manipulating the board and engaging in real earnings management is higher. This supports the past studies that companies that are headed by narcisstic CEOs tend to manipulate earnings since they believe that financial performance of an organization acts as a personal performance reflection. It further supports the upper echelons theory that the organizational outcomes are predicted by managerial background characteristics (Hambrick & Mason, 1984).

Further, addition of the interaction terms between each independent variable and CEO narcissism showed that CEO narcissism had no significant moderating effect between board independence, board tenure and board size on real earnings management. However the interaction between CEO narcissism and CEO duality was however found to have a negative and significant relationship

with real earnings management (β =-.523, p< .05).First this confirms the power of the CEOs who are narcissistic and demand for everything to be done as per their rules. Therefore those responsible for the preparation of financial statements will not engage in manipulation in fear of the powerful CEO. Secondly, the results implies that, since the CEO's are always cautious of their personal reputation, they tend to ensure that positive reports are reflected about the organization. In fear of damage of personal reputation, he will ensure that cases of fraudulent reporting are minimised during his tenure. By doing so, it reduces the cases of real earnings management. This results conflicts with the argument in agency theory that separation of the roles of chairman and the chief executive will help enhance monitoring quality and reduce CEO from withholding information, which may consequently result in improved quality of reporting (Jensen & Meckling, 1976). Instead it supports stewardship theory which adopts a more positive perspective by claiming that as good stewards of corporate assets and essentially wanting to do their best for the company, there is no problem if the two roles are combined.

This study is inconsistent with the findings of Amernic & Craig, (2010) which argued that accounting is a facilitator of extreme narcissism and thus CEO's regard financial accounting language and reports as a self-mirror. This results also are inconsistent with the findings of (Capalbo *et al*., 2017; Chen, 2010; Cormier *et al*., 2016; Ham & Wang, 2018; Ham *et al.*, 2015; Huang, Jain, & Shao, 2017; Koh, 2011; Lin *et al*., 2014; Lisic *et al*., 2016; Mande & Son, 2012; Marquez et al., 2018; Rijsenbilt & Commandeur, 2017).

5.2 Conclusions of the Study

The study extended knowledge by testing the moderating role of CEO narcissism on the relationship between board structure as explained by board independence, board tenure, CEO

duality and board size on real earnings management. Based on the results of the study it can be concluded that board structure has significant effect on real earnings management. Hence, basing on the direct relationships between board structure and real earnings management, the following conclusions can be drawn;

First, having more independent directors sitting in a board is quite advantageous in that they ensure that managers serve the shareholders interest. It's further noting that most of the independent directors do not have any ties with the organization and further their expertise in sitting on a number of other different boards can add more value to the organisations in terms of strategies in controls and monitoring.

Secondly the results show that increasing the number of years that the board member serves on the board significantly reduces the real earnings management. This shows that the more a director serves in an organization the more he or she understands the systems hence they tend to understand the loop holes that the management use to serve their own interest. Having such an idea it easier for the board to tighten the internal controls and increase the monitoring system. This is more efficient as compared to companies that change their directors often which they also need time to understand systems and meanwhile the management may be taking advantage.

Thirdly, allowing CEO to assume both his roles and board chairman's roles can be so disastrous to the organization. This can be explained by two main reasons. First it weakens the internal controls in that roles will not be segregated hence the CEO will have excess powers to exploit the organization resources since the powers will not be vetted. In the ideal circumstances the CEO is

required to present to the board of directors the management reports together with the proposals of the management. In such cases he cannot fail to approve all the proposals because he is also part of the management. Secondly the financial reports acts as report card to assess the performance and effectiveness of a CEO. In such cases therefore where he has powers, it stimulates more manipulation so as to give a better reflection.

Fourthly, it is clear from the results that increasing the size of the board reduces the real earnings management. Putting aside the problems associated in decision making increasing the size of the board can have main advantages to the firm. First the more the size of the board, the more the proportion of independent directors sitting in that board hence efficiency in monitoring activities since the large proportion of independent will be after increasing the shareholders wealth. Secondly increasing the size of the board means also increasing the number of audit committees in the board hence increasing the members with accounting expertise thus reducing chances of management indulging in earnings management

On the moderating effects, the results showed that CEO narcissism jointly moderates the relationship between board structure and real earnings management among the companies listed in Nairobi Securities Exchange. The interaction effects showed that CEO narcissism had no significant effect on the relationship between board independence and real earnings management. Further, CEO narcissism was found to have no effect on the relationship between board tenure and real earnings management. Also the results showed that CEO narcissism had no significant moderating effect on the relationship between board size and real earnings management. Besides this, in reference to the initial results on the relationship between CEO duality and real earnings

management, it showed that CEO duality increases real earnings management. Interestingly, from the moderation results, it showed that CEO narcissism has a negative and significant moderating effect on the relationship between CEO duality and real earnings management. This means that, in circumstances that the narcissistic CEO assumes both his roles and chairman's roles, the CEO tends to be cautious on manipulation of financial statements because he is overly responsible on the reputation of the organization, unlike when roles are separated and the chairman of the board is overly responsible. In this case it shows that narcissistic CEO reduce real earnings management where CEO duality exist.

5.3 Implications of the study

From the results springs out several implications which have further been explained under theoretical implications, practical implications, policy implications and recommendations for further study.

5.3.1 Theoretical Implications

The findings of this study makes a number of new contributions to the extant literature on corporate governance. First, despite the theoretical expectations that the introduction of the 2002 corporate governance guidelines will facilitate uniformity and convergence of corporate governance practices, the findings from the extensive summary on descriptive statistics suggest that the applicability of corporate governance standards in Kenyan listed firms still differ widely over the sixteen years investigated. Even though the level of variability observed is comparable to those reported by prior studies, it is important to indicate that some degree of heterogeneity exist due to the importance that Kenyan listed firms attach to corporate governance practices. However despite

concerns that the voluntary corporate governance code of 2002 may be ineffective in raising the corporate governance standards in Kenyan listed firms given the context, the findings suggest that there has been gradual and observable improvements in corporate governance compliance over the sixteen years though the amendment by CMA in 2015 was necessary since the 2002 corporate governance guidelines followed the Anglo American models which requires well developed markets, established accounting bodies, democratic institutions and various autonomous bodies whose effectiveness in Kenyan context is still questionable.

Secondly, from the descriptive statistics, it is evident enough that firms listed at Nairobi Securities Exchange, engage in real earnings management, but the rate of manipulation differs among companies and also over time. Further, it is evident that the sizes of the boards among the listed firms in Kenya range between nine to twelve directors. Whereas the number of the independent directors is an average number of eight directors which exceeds the requirement of one third of the total directors as per the corporate governance guidelines. In addition, it shows that most of the directors in listed firms in Kenya serve for period between nine to twelve years. It also shows that most of the firms had CEO serving both roles in 2002 to 2005, after which all the firms listed at Nairobi Securities Exchange had the two roles separated. The results also showed that narcissism existed among the CEOs, though it varied across the companies and within individual firms overtime, also considering the issue of CEOs turnover within firms.

Therefore, from the findings, it is worth noting that, in the Kenyan context, increasing the number of independent directors sitting in a board would significantly reduce the management's efforts in

engaging in opportunistic actions such as real earnings management. Secondly, the results also suggested that the longer the board member serves in an organization, the more the experience he gets on how management works, which results in reducing real earnings management. Thirdly it also shows that real earnings management in Kenyan context can be mitigated by increasing the size of the board and lastly, just as the revised corporate governance guidelines recommend that the roles of the board chair and the Chief Executive Officer should be separated, the results of the study confirms the same. However, the moderation results suggests that CEO dualism can mitigate real earnings management in cases where CEO narcissism exist.

Further, basing on the theories that were used to underpin the study, it is evident that listed firms at Nairobi Securities exchange engage in real earnings but at different rates. This supports the catering theory of earnings management which posits that managers reflect earnings in the financial statements depending on the magnitude of the investor's demands for earnings surprises (Rajgopal, *et al.* 2007). This further shows that companies listed at Nairobi Securities Exchange engage in real earnings management for two main reasons, first, to increase and maintain their current market price level and secondly, to meet the expectations of the shareholders and attract more investors (Waweru & Prot, 2018).

Secondly, the agency theory posits that agents have more information that the owners of capital. Hence to reduce the conflicts between the managers and the owners of capital, agency theory emphasizes the exigencies of introducing a layer of scrutiny in form of board of directors to carry out the fiduciary role of measuring executive performance, disciplining managers and approving and ratifying significant decisions (Fama & Jensen, 1983). The direct findings of the current study

confirms that, board structure has significant effects on real earnings management thus supports the agency theory.

The study findings further justifies the upper echelons theory which posits that an organizational outcome and its strategic choices and performance are partially predicted by the managerial background. The findings of the study showed that when the CEO duality exist, the rate of earnings management tend to increase. This supports the upper echelons theory that the outcome of the financial performance acts as a personal report card of the CEOs performance. Hence CEOs would ensure that good performance is reflected so that their reputation is maintained.

The addition of the interaction terms between each independent variable and CEO narcissism showed that CEO narcissism had no significant moderating effect between board independence, board tenure and board size on real earnings management. However the interaction between CEO narcissism and CEO duality was however found to have a negative significant relationship with real earnings management (β =-.523; p< .05). Agency theory posits that when the managers are left alone to run the organization, chances of them serving their own interest tend to be high. Interestingly, the findings of the interactions of CEO narcissism on the relationship between CEO duality and real earnings management failed to support the agency theory but rather supported the stewardship theory which posits that when managers are left on their own, they act as responsible stewards of the assets they control.

5.3.2 Implications for practice

With the increase in fraudulent reporting in listed firms, regulatory bodies such as Nairobi Securities Exchange and Capital Market Authority should ensure that effective governance is

executed in listed firms in Kenya. Basing on the study, some of the suggested recommendation includes; strictly vetting on the independency of outside directors and increasing its proportion to ensure proper monitoring of financial reporting. In reference to Corporate Governance Guidelines 2002 in Kenya, Gazette Notice No.3362, the independent directors are required to be at least one third of the total board members. From Table 4.3, it shows that the mean average of independent board members in each firm listed in Nairobi Securities Exchange is eight members.

Secondly board tenure should be increased so that it gives directors more time to be productive in enhancing effective monitoring through understanding the organizations systems. Further, the sizes of the boards should be increased depending on the size of the business. This will not only increase the expertise of the board, but also increases the proportion of the independent directors and audit committees. In cases where the levels of CEO narcissism is high, he should be allowed to carry both the roles of the chairman and the CEO's roles. From the results of the study, since the narcissist CEO are cautious of their reputation, they will reduce the levels of real earnings management

5.3.3 Policy implication

Most of the regulators of corporate governance in emerging economies, tend to adopt corporate governance recommendations based on evidence from the studies of western economy firms, particularly the developed countries that are based on the agency theory. The findings of this study, adds to the growing body of evidence that suggests such an approach is not fully applicable to the emerging markets like Kenya due to differences in the economic and corporate structures as well as the broader cultural differences. Hence it is imperative for regulators in Kenya to develop a

viable regulatory framework according to the findings reported in this study, so that they can take enforceable actions to mitigate the potential consequences derived from real earnings management.

The corporate governance guidelines requires that the independent non-executive directors should form at least a third of the membership of the board. The findings of the study suggests that the guideline should be revised to give a better proportion of independent directors that can assist in mitigating real earnings management. Secondly firms should have boards that are sufficient in size such that it should not be too large to undermine the active actions during discussions but also not too small that it compromises the monitoring actions of the management. Regarding the tenure of the directors, the current revised guidelines 2015 does not stipulate the actual time that a director should serve an organization, though it only stipulates that a director can serve as an independent director for nine years after which he is regarded as non-executive director. Hence the directors should be allowed to serve for a longer period so that they can help in reducing the opportunistic behaviors of the managers. However the policy makers should consider the possibility of a tradeoff between knowledge accumulation and board independence which may again compromise the monitoring effectiveness of directors. The study further supports the separation of powers of the board chair and the CEO as stipulated in the corporate governance guidelines. However in circumstances where the CEO duality exist, the directors should ensure that a narcisstic CEO is employed who will be after exercising his power hence scaring the managers away of opportunistic activities.

In summary therefore, the regulatory bodies such as Capital Market Authority (CMA) and Nairobi Securities Exchange (NSE) should continuously improve the corporate governance guidelines to

ensure that avenues that management use to misuse the shareholders wealth is reduced. Secondly, basing on The increased cases of fraudulent reporting among the listed firms in Kenya, regulatory bodies should ensure that all firms strictly adhere to the laid down corporate governance guidelines.

Besides the regulatory bodies, the accounting bodies such as Institute of Certified Public Accountants of Kenya (ICPAK) should ensure that the accountants uphold professionalism in preparation of the financial statements and ensure accuracy of the financial statements is enhanced. Further ICPAK should train the external auditors to ensure that they perform their duties with a lot of integrity and ensure that the independent auditors report reflect the true performance of the organization.

Thirdly, Sec 635 of the Company's Act 2015 requires the board of directors to ensure that accurate financial statements are prepared and presented for audit. Hence offences and penalties should be taken against those directors and management who misuse the companies' resources through fraudulent reporting such as real earnings management.

5.3.4 Recommendation for further research

The study had a number of limitations which are important to note. First, the study relied on archived data contained in the financial statements. Although unobtrusive measures of CEO narcissism were collected using the secondary data from the archived data, some of the information on the CEOs report may not be exactly from the CEO, but rather the editorial team of the company. Hence, further research can be explored using primary data such as NPI 16 which incorporates the perceptions of the respondent on the level of CEOs narcissism.

Secondly, while the study considered the four constructs of board structure, that is board independence, board tenure, CEO duality and board size, there are also a number of board structure constructs that can be of help in mitigating real earnings management among the firms listed in Nairobi Securities exchange. Hence further research can be explored on how other constructs such as board activity, audit committees financial expertise, board diversity and multiple directorship can affect real earnings management among the firms listed in Nairobi Securities Exchange.

Thirdly the study is based on a sample of listed firms in Kenya that operate under the corporate governance guidelines developed in 2002. The results cannot be generalized to family owned companies and Non- Profit making organizations due to differences in ownership and institutional settings. Hence further research can be done on private non listed firms, family owned firms and non-profit making organizations.

Further the study used unbalanced panel data from 2002 to 2016. The same study may be replicated using balanced panel data which may yield different results. Lastly, the information collected from archived data of CMA was based on the previous guidelines of CMA (2002) which was rule based with the use of "comply or explain" principle. Future research may be done basing on the revised CMA (2015) of "apply or explain' approach which is principle based rather than rule based.

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APPENDICIES

Appendix I Letter of Introduction

Fiona Jepkosgei Korir,

P.O. Box, 3577-30100,

Eldoret.

Date

Name of Respondent----------

Company Name and address----------

Dear Sir/ Madam,

RE: REQUEST FOR RESEARCH DATA

I am a Doctor of Philosophy student at Moi University, undertaking a Research Project on the "**Board Structure, CEO Narcissism and Real Earnings Management among Companies Listed in Nairobi Securities Exchange".** The research is being carried out as part of the requirements of obtaining the degree. You have been selected to form part of this study and are kindly requested to assist in data collection by responding to questions in the accompanying disclosure check index. The information provided will exclusively be used for academic purposes only and will be treated with utmost confidence. As a participant, you are free to request for a soft copy which can be sent to you via email. Your cooperation and assistance will be highly appreciated.

Yours faithfully,

_____ _____

Fiona Jepkosgei Korir
Phd Student

Prof Daniel Tarus

_____

Dr Joel Tenai
Supervisors

Appendix II Document Check Index

		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	**2017**
A	REAL EARNINGS MANAGEMENT																
	Sales manipulation Cashflows from operations Total assets at the beginning of the year Change in sales Sales during the year.																
	Reduction of discretionary expenditure Advertising expenses Research and Development expenses Selling expenses Gen and administration expenses Sales Total assets																
	Overproduction Cost of goods sold/production cost Changes in inventory (Closing Stock-Opening Stock) Changes in sales (Closing Sales-Opening Sales) Total assets (Fixed Assets + Current Assets)																
B	DIRECTORS INDEPENDENCE																
	Proportion of seats held by unaffiliated directors																
C	BOARD SIZE																
	Total number of directors serving the board																
D	BOARD TENURE																
	The number of years each board member has spent in the firm																
E	BOARD LEADERSHIP																
	Dummy variable set to 1 if there is CEO duality otherwise 0																
F	CEO NARCISSISM																
	Prominence of the CEO's photograph in the company's annual report																
	Use of first persons singular pronouns in the CEO's report																
	Number of official formal tittles of the CEO																

Appendix III List of Listed Companies in NSE (Nairobi Securities Exchange) as at December 2017

	Agricultural
1	Williamson Tea Tea Kenya Ltd.
2	Kakuzi Ltd
	Banking
3	Diamond trust bank
4	Barclays Bank of Kenya Ltd
5	Equity Bank Ltd
6	Housing Finance Co.Kenya Ltd
+7	Kenya Commercial Bank Ltd
8	National Bank of Kenya of Kenya Ltd
9	NIC Bank Ltd
10	Standard Chartered Bank Kenya Ltd
11	The Co-operative Bank of Kenya Ltd
	Commercial & Services
12	Deacons East Africa ltd
13	Eveready East Africa
14	Express Kenya Ltd
15	Nation Media Group
16	Longhorn Publishers
17	Nairobi Business Ventures
18	Sameer Africa Ltd
19	WPP ScanGroup Ltd.
20	TPS Eastern Africa Ltd
21	Uchumi Supermarket Ltd
22	Standard Group
	Construction & Allied
23	ARM Cement Ltd
24	Bamburi Cement Ltd
25	Crown Paints Kenya Ltd
26	East Africa Cables Ltd
27	East Africa Portland Cement Co. Ltd
	Energy & Petroleum
28	KenGen Co. Ltd
29	KenolKobil Ltd
30	Kenya Power and Lighting Co Ltd
31	Total Kenya Ltd
32	Umeme Ltd

	Insurance
33	Britam Holdings Ltd
34	CIC Insurance Group Ltd
35	Sanlam Kenya Ltd.
36	Jubilee Holdings Ltd
37	Kenya Re Insurance Corporation Ltd
38	Liberty Kenya Holdings Ltd
	Investment
39	Centum Investment Co Ltd
40	Olympia Capital Holdings Ltd
41	Home Afrika Ltd.
42	Trans-Century Ltd
43	**Investment Services**
44	Nairobi Securities Exchange Ltd
	Manufacturing & Allied
45	British American Tobacco Kenya Ltd
46	Carbacid Investments Ltd
47	East African Breweries Ltd
48	Mumias Sugar Company Ltd
49	Unga Group Ltd
50	Flame Tree Group Holdings Ltd
	Telecommunication & Technology
51	Safaricom Ltd.

Appendix IV Detailed analysis results

Appendix IV-1 Real earnings management measurement

Table 4. 16 Sales and total assets by year

		Sales		Total assets	
Year	Obs	Mean	Std. Dev.	Mean	Std. Dev.
2002	37	4,968,138	6,071,464	13,300,000	20,900,000
2003	37	4,918,860	6,483,595	14,100,000	22,600,000
2004	38	6,303,120	9,329,262	15,900,000	25,200,000
2005	39	6,595,556	9,651,884	16,400,000	25,300,000
2006	40	7,986,331	10,800,000	19,500,000	27,400,000
2007	41	8,990,146	12,700,000	24,600,000	36,300,000
2008	43	12,100,000	22,700,000	32,900,000	50,200,000
2009	45	12,100,000	18,400,000	33,000,000	46,800,000
2010	45	14,000,000	21,200,000	41,000,000	58,100,000
2011	47	18,700,000	36,300,000	48,000,000	69,500,000
2012	47	21,200,000	34,500,000	52,700,000	79,000,000
2013	49	20,300,000	30,400,000	60,700,000	88,100,000
2014	50	21,700,000	32,300,000	67,600,000	106,000,000
2015	50	21,700,000	32,100,000	82,000,000	126,000,000
2016	50	24,400,000	35,000,000	87,000,000	136,000,000
2017	50	26,400,000	42,600,000	92,500,000	150,000,000
Overall	708	15,300,000	27,200,000	46,500,000	86,100,000

Table 4. 17 Panel data summary of sales and Total assets

Sales					
	Mean	**Std. Dev.**	**Min**	**Max**	**Observations**
Overall	15,300,000.0	27,200,000.0	2,944.4	222,000,000.0	N=708
Between		22,400,000.0	75,744.2	112,000,000.0	n=50
Within		15,700,000.0	-76,000,000.0	145,000,000.0	T-bar=14.16
Total Assets					
	Mean	**Std. Dev.**	**Min**	**Max**	**Observations**
Overall	46,500,000.0	86,100,000.0	45,088.5	647,000,000.0	N = 708
Between		62,700,000.0	116,126.5	281,000,000.0	n = 50
Within		56,400,000.0	-175,000,000.0	412,000,000.0	T-bar = 14.16

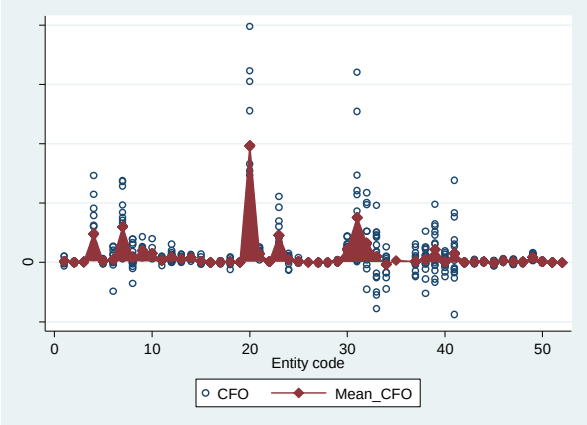
Table 4. 18: CFO and DISX and PRODUCTION by year

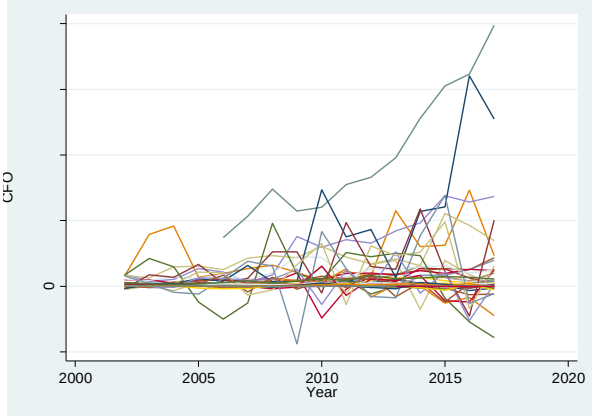
		CFO		DISX		PRODUCTION	
Year	Obs	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
2002	37	628,628	1,246,384	1,628,570	2,090,189	2,157,693	2,638,218
2003	37	1,133,290	2,915,951	1,676,705	2,151,040	2,352,587	3,463,734
2004	38	1,160,777	3,233,553	1,617,785	2,035,074	3,061,593	6,421,259
2005	39	932,384	2,053,651	1,824,202	2,398,046	3,596,001	7,250,788
2006	40	1,111,258	3,199,837	2,245,559	2,947,153	4,660,332	8,464,745
2007	41	1,446,424	3,984,612	2,595,015	3,291,494	5,215,726	9,297,072
2008	43	2,527,476	5,582,453	3,031,931	4,099,490	7,789,541	20,000,000
2009	45	2,006,685	5,420,465	3,006,640	4,494,155	7,283,006	15,100,000
2010	45	3,104,467	6,856,102	3,591,180	5,166,087	8,417,165	16,900,000
2011	47	2,907,445	6,181,634	4,380,381	6,223,182	12,100,000	32,900,000
2012	47	2,947,593	6,052,480	5,311,389	7,241,211	14,000,000	31,000,000
2013	49	3,275,310	7,068,442	5,043,724	7,337,835	12,700,000	25,100,000
2014	50	4,214,422	9,086,713	5,360,741	7,097,702	12,700,000	24,800,000
2015	50	4,521,186	11,200,000	5,862,373	7,453,437	13,600,000	22,400,000
2016	50	3,800,399	14,300,000	9,100,854	22,400,000	13,600,000	21,900,000
2017	50	4,577,575	14,200,000	6,238,579	8,792,027	13,500,000	26,900,000
Overall	708	2,654,600	7,872,442	4,109,027	8,205,960	9,021,142	20,600,000

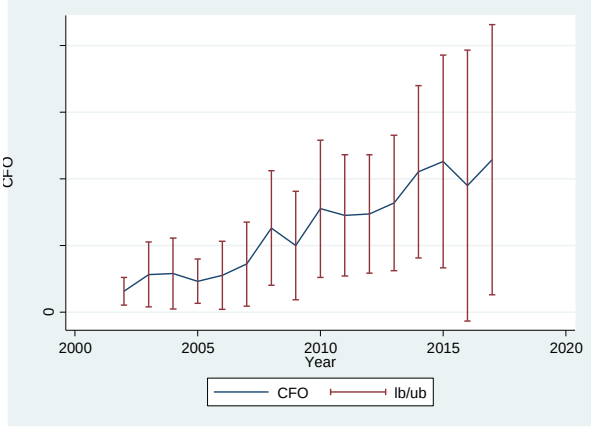
Table 4. 19 Panel data summary of Cash flows from operations

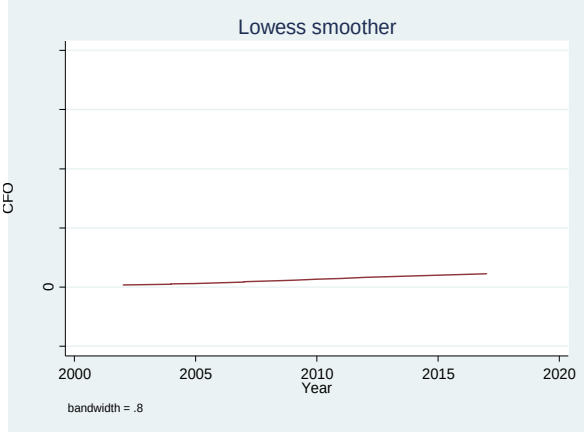
	Mean	Std. Dev.	Min	Max	Observations
Cash flows					
Overall	2,654,600.0	7,872,442.0	-17,600,000.0	79,500,000.0	N=708
Between		6,171,713.0	-688,909.4	39,400,000.0	n=50
Within		5,219,541.0	-21,900,000.0	51,700,000.0	T-bar=14.16
DISX					
Overall	4,109,027.0	8,205,960.0	12,222.0	153,000,000.0	N = 708
Between		5,388,158.0	38,007.9	28,500,000.0	n = 50
Within		6,247,053.0	-15,100,000.0	139,000,000.0	T-bar = 14.16
PROD					
Overall	9,021,142.0	20,600,000.0	-	210,000,000.0	N = 708
Between		16,000,000.0	-	87,700,000.0	n = 50
Within		12,300,000.0	-70,500,000.0	131,000,000.0	T-bar = 14.16

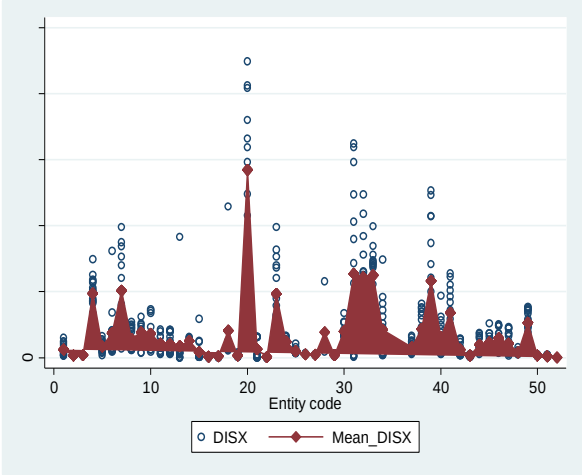
Exploratory analysis for indicators or Real earnings management

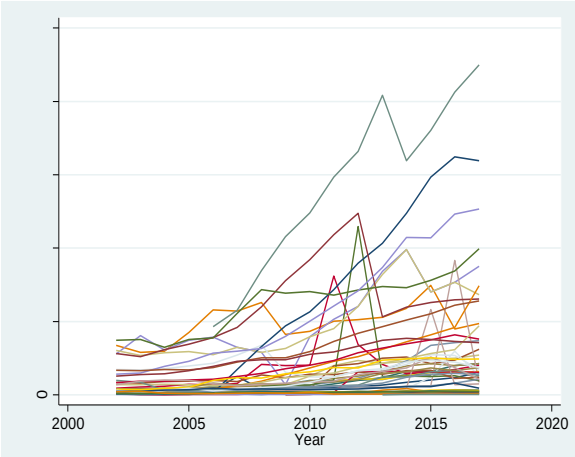


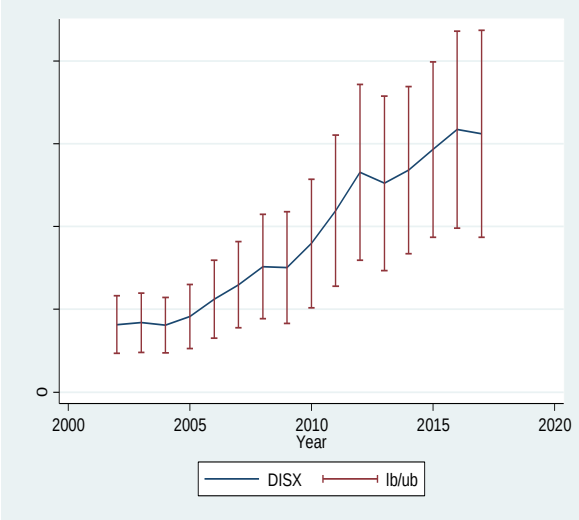








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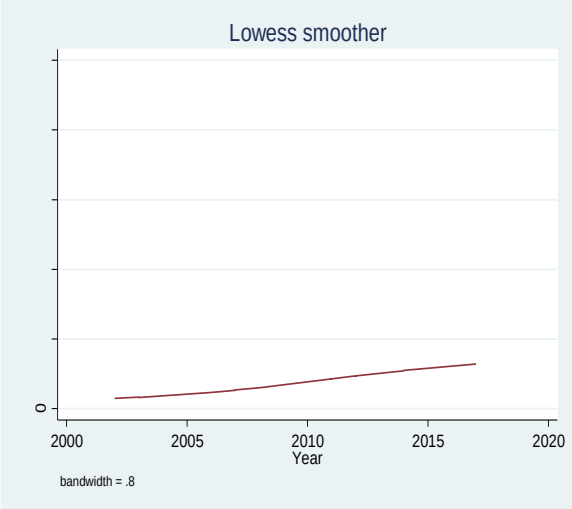
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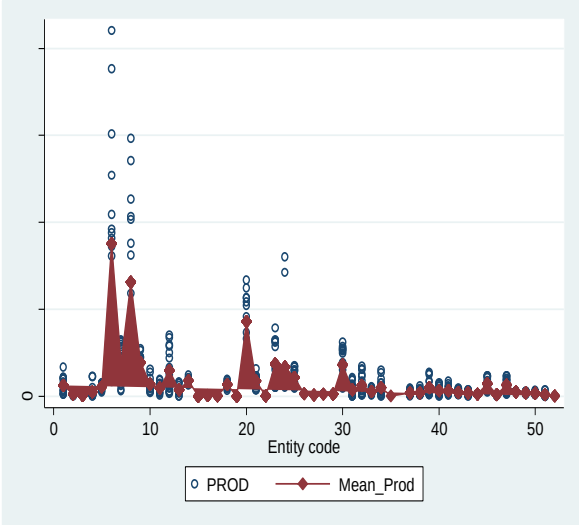
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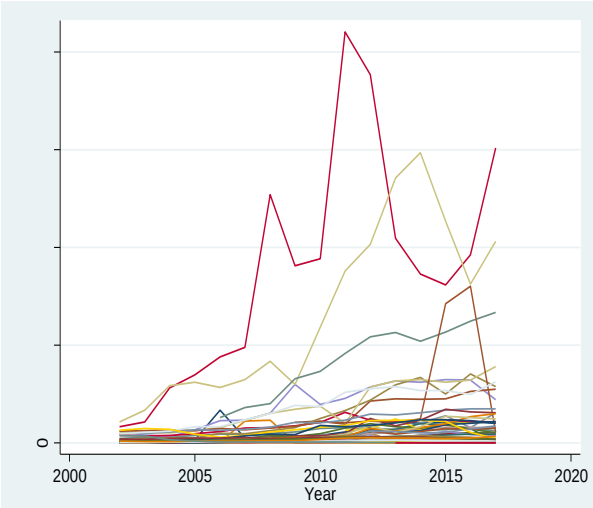
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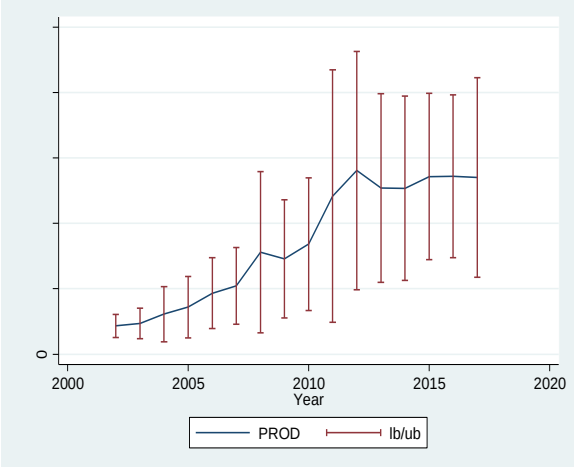
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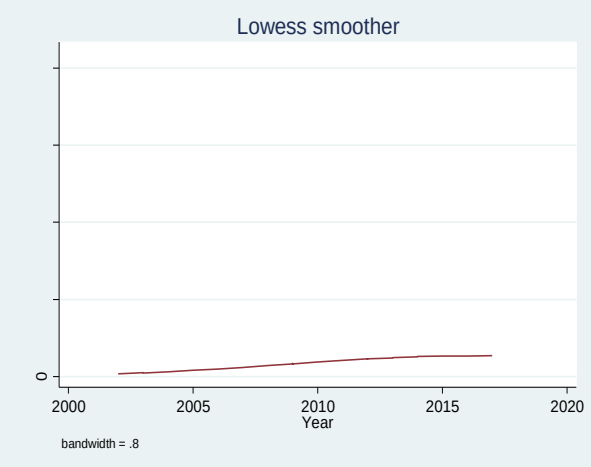
Lowess smoother
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2005
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2015
2020
Year
bandwidth = .8

Table 4. 20 Unit root test for panel stationarity for modeling REM

Fisher-type unit-root test for prod

Based on augmented Dickey-Fuller tests

Ho: All panels contain unit roots		Number of panels = 50	
Ha: Panel are stationary		Avg. number of periods = 14.16	
AR parameter: Panel-specific		Cross-sectional means removed	
Panel means: Included		ADF regressions: 2 lag	
		Statistic	**p-value**
CFO	Inverse chi-squared(90) P	178.231	0.000
	Inverse normal Z	-2.174	0.015
	Inverse logit t(229) L*	-2.867	0.002
	Modified inv. chi-squared Pm	5.532	0.000
Discretionary expenses	Inverse chi-squared(90) P	139.176	0.0007
	Inverse normal Z	-2.4555	0.007
	Inverse logit t(229) L*	-2.5278	0.0061
	Modified inv. chi-squared Pm	3.6654	0.0001
Production	Inverse chi-squared(90) P	181.556	0.000
	Inverse normal Z	-6.844	0.000
	Inverse logit t(229) L*	-6.574	0.000
	Modified inv. chi-squared Pm	6.824	0.000

Models for REM

Table 4. 21 LM-BP ACFO estimation

Var	**Sd**	**sd = sqrt(Var)**
cfota_l~d	0.038	0.194
E	0.027	0.163
U	0.008	0.091

Test: Var(u) = 0

chibar2(01) = 107.570

Prob > chibar2 = 0.0000

Table 4. 22 Hausmann test for ACFO Estimation

	(b) Fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
1/ta_lagged	76111.960	37397.330	38714.620	5800.838
salest1ta_la~d	0.051	0.039	0.012	0.006
cha~sta_lagged	0.019	0.021	-0.002	.

chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 44.54
Prob>chi2 = 0.0000

Table 4. 23 Model Assumptions of the ACFO fixed effect estimation model.

Assumption/ Purpose	Test	Test statistic	P-value	Conclusion
Non-Serial correlation	Breusch-Godfrey/Wooldridge	F (1, 49) = 6.531	0.0138	Assumption violated
Homoscedasticity	Wald	Chi2(53) = 100000	0.000	Assumption violated
Normality on e	Bera-Jarque (JB)	chi2(2) = 2.24	0.326	Not violated
Normality on u	Bera-Jarque (JB)	chi2(2) = 3500000	0.000	Assumption violated
Cross-sectional dependence	Pesaran Friedman test	Pesaran's Z = 0.801	0.305	Not violated

Table 4. 24 IGLS Model for estimating ACFO

Coefficients: generalized least squares
Panels: heteroskedastic with cross-sectional dependence
Correlation: common AR(1) coefficient for all panels (0.4200)

Estimated covariances =	50	Number of obs =	656
Estimated autocorrelations =	1	Number of groups =	50
Estimated coefficients =	4	Obs per group: min =	3
		avg =	13.12
		max =	15
		Wald chi2(3) =	67.24
		Prob > chi2 =	0.000

cfota_lagged	Coef.	Std. Err	Z	P>z	[95% Conf. Interval]	
1/ta_lagged	11140.390	8706.102	1.280	0.201	-5923.260	28204.030
salest1ta_la~d	0.047	0.007	7.270	0.000	0.035	0.060
cha~sta_lagged	0.029	0.010	2.840	0.004	0.009	0.049
_cons	0.042	0.005	9.160	0.000	0.033	0.051

Table 4. 25 LM-BP ADISX estimation

Var	**Sd**	**sd = sqrt(Var)**
cfota_l~d	0.038	0.194
E	0.027	0.163
U	0.008	0.091

Test: Var(u) = 0
chibar2(01) = 107.570
Prob > chibar2 = 0.0000

Table 4. 26: Hausman test for ADISX estimation

	(b) Fixed	**(B)** random	**(b-B)** Difference	**sqrt(diag(V_b-V_B))** S.E.
1/ta_lagged	54443.140	51339.100	3104.032	3943.131
salest1ta_~d	0.057	0.061	-0.004	0.003

chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 0.62
Prob>chi2 = 0.4312

The fixed effect model fitted for the data thus yielded non-robust biased estimates is shown in appendix 3.

Table 4. 27: Assumptions of the ADISX random effect (Swammy-Arora estimates).

Assumption/ Purpose	**Test**	**Test statistic**	**P-value**	**Conclusion**
Non-Serial correlation	Breusch-Godfrey/Wooldridge	F (1, 49) = 0.7110	0.000	Assumption violated
Homoscedasticity	Likelihood Ratio LR Test	Chi2(51) = 1093.0799	0.000	Assumption violated

Normality on e	Bera-Jarque (JB)	chi2(2) = 3.08	0.213	Not violated
Normality on u	Bera-Jarque (JB)	chi2(2) = 0.68	0.711	Not violated
Cross-sectional dependence	Pesaran Friedman test	Pesaran's Z = 3.827	0.0001	Assumption violated

Table 4. 28 IGLS Model estimation for ADISX

Coefficients: generalized least squares

Panels: heteroskedastic with cross-sectional dependence

Correlation: common AR(1) coefficient for all panels (0.7370)

Estimated covariances =	50	Number of obs =	656
Estimated autocorrelations =	1	Number of groups =	50
Estimated coefficients =	4	Obs per group: min =	3
		avg =	13.12
		max =	15
		Wald chi2(3) =	427.53
		Prob > chi2 =	0.000

disxta_lagged	Coef.	Std. Err	Z	P>z	[95% Conf.	Interval]
1/ta_lagged	62563.670	6014.748	10.400	0.000	50774.980	74352.360
salest1ta_lagged	0.038	0.002	16.290	0.000	0.033	0.042
_cons	0.054	0.002	28.850	0.000	0.050	0.058

Table 4. 29 LM-BP test for APRODUCTION estimation

Var	**sd**	**sd = sqrt(Var)**
cfota_l~d	0.038	0.194
E	0.027	0.163
U	0.008	0.091

Test: Var(u) = 0

chibar2(01) = 107.570

Prob > chibar2 = 0.000

Table 4. 30: Hausman test for APRODUCTION estimation

	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
1/ta_lagged	-139093.400	-94201.940	-44891.440	20734.500
salesta_la~d	0.879	0.870	0.009	0.012
c~sta_lagged	-0.046	-0.042	-0.004	0.007
c~dta_lagged	-0.028	-0.028	0.000	0.004

chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 4.69
Prob>chi2 = 0.0304

Table 4. 31: Assumptions of the APRODUCTION random effect (Swammy-Arora estimates).

Assumption/ Purpose	Test	Test statistic	P-value	Conclusion
Non-Serial correlation	Breusch-Godfrey/Wooldridge	F (1, 48) = 1.528	0.222	Not violated
Homoscedasticity	Wald	Chi2(50) = 7.4e+08	0.000	Assumption violated
Normality on e	Bera-Jarque (JB)	chi2(2) = 2.64	0.267	Not violated
Normality on u	Bera-Jarque (JB)	chi2(2) = 3.94	0.139	Not violated
Cross-sectional dependence	Pesaran Friedman test	Pesaran's Z = 8.000	1	Not violated

Table 4. 32: Model estimation for APRODUCTION

Coefficients: generalized least squares
Panels: heteroskedastic
Correlation: no autocorrelation

Estimated covariances	= 50	Number of obs	= 606
Estimated autocorrelations	= 0	Number of groups	= 50
Estimated coefficients	= 4	Obs per group: min	= 2
		avg	= 12.12
		max	= 14
		Wald chi2(3)	= 33558.93
		Prob > chi2	= 0.000

prodtat_lagged	Coef.	Std. Err	Z	P>z	[95% Conf. Interval]	
1/ta_lagged	-25886.950	2111.635	-12.260	0.000	-30025.680	-21748.220
Sales/ta_lagged	0.807	0.005	160.920	0.000	0.797	0.817
changeinsalesta_lagged	-0.077	0.016	-4.880	0.000	-0.107	-0.046
changeinsales_ laggedta_lagged	-0.026	0.015	-1.660	0.096	-0.056	0.005
_cons	-0.069	0.001	-72.470	0.000	-0.071	-0.067

Appendix IV-2 Independent variables measurement and descriptive analysis

Table 4. 33: Board independence by year

	Number unaffiliated		Total number		Board independence	
Year	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
2002	7.189	2.634	9.135	3.190	0.795	0.155
2003	7.486	2.704	9.270	2.874	0.803	0.107
2004	7.526	2.512	8.974	2.488	0.838	0.156
2005	7.436	2.900	9.308	3.054	0.804	0.161
2006	7.550	2.745	9.050	2.591	0.831	0.215
2007	7.610	2.607	9.366	2.861	0.828	0.254
2008	7.860	2.739	9.651	2.794	0.811	0.123
2009	7.800	2.943	9.600	2.807	0.811	0.172
2010	7.533	2.573	9.289	2.555	0.806	0.130
2011	7.638	2.600	9.064	2.549	0.853	0.246
2012	8.149	2.844	9.617	2.723	0.840	0.142
2013	7.735	2.556	9.408	2.565	0.816	0.121
2014	7.980	2.796	9.580	2.734	0.822	0.127
2015	8.140	2.949	9.620	2.702	0.834	0.166
2016	7.920	2.656	9.460	2.557	0.824	0.123
2017	7.900	2.367	9.780	2.582	0.810	0.158
Overall	7.739	2.683	9.403	2.703	0.821	0.164

Table 4. 34: Board tenure by year

Year	**Mean**	**Std. Dev.**	**Year**	**Mean**	**Std. Dev.**
2002	10.918	1.181	2010	11.276	1.166
2003	10.793	1.514	2011	11.247	1.035
2004	10.922	1.710	2012	10.654	1.434
2005	10.688	1.702	2013	10.881	1.102
2006	11.138	1.126	2014	10.889	1.176
2007	10.714	1.374	2015	10.947	1.226
2008	11.000	1.496	2016	10.732	1.542
2009	10.951	1.133	2017	10.986	1.108

Table 4. 35: CEO duality

Year	0 - No duality	1- Duality	Year	0 - No duality	1- Duality
2002	100%	0%	2002	97.78%	2.22%
2003	100%	0%	2003	97.87%	2.13%
2004	100%	0%	2004	97.87%	2.13%
2005	100%	0%	2005	100%	0%
2006	97.5%	2.5%	2006	98%	2%
2007	97.56%	2.44%	2007	98%	2%
2008	97.67%	2.33%	2008	98%	2%
2009	97.78%	2.22%	2009	98%	2%

Table 4. 36: Board size by year

Year	Mean	Std. Dev.	Year	Mean	Std. Dev.
2002	9.166	3.029	2010	9.122	2.589
2003	9.101	2.857	2011	9.411	2.486
2004	9.007	3.245	2012	9.587	2.737
2005	9.310	2.983	2013	9.483	2.593
2006	9.035	2.689	2014	9.835	2.939
2007	9.077	2.861	2015	9.550	2.687
2008	9.538	2.701	2016	9.483	2.576
2009	9.512	2.735	2017	9.392	2.954

Appendix IV-3 Narcissism measurement ad descriptive analysis

Table 4. 37:Indicators of narcissism of the CEO

Year	Ratio of official titles		Ratio of photo prominence		Ratio pronouns	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
2002	0.000	0.000	0.770	0.238	0.158	0.176
2003	0.000	0.000	0.601	0.239	0.133	0.169
2004	0.030	0.163	0.638	0.271	0.124	0.125
2005	0.032	0.161	0.699	0.270	0.123	0.154
2006	0.057	0.221	0.663	0.250	0.103	0.147
2007	0.103	0.300	0.683	0.268	0.094	0.095
2008	0.101	0.279	0.634	0.252	0.114	0.165
2009	0.107	0.276	0.683	0.252	0.112	0.122
2010	0.137	0.326	0.783	0.230	0.105	0.129
2011	0.136	0.322	0.809	0.246	0.136	0.168
2012	0.122	0.314	0.809	0.246	0.130	0.139
2013	0.115	0.307	0.837	0.242	0.119	0.097
2014	0.123	0.312	0.905	0.208	0.124	0.107
2015	0.101	0.285	0.860	0.227	0.101	0.117
2016	0.173	0.369	0.885	0.233	0.092	0.105
2017	0.161	0.351	0.910	0.225	0.112	0.123

Table 4. 38: EFA Factor model

Factor analysis/correlation	**Number of obs**	**=**	**703**
Method: principal factors	Retained factors	=	1
Rotation: (un-rotated)	Number of parameters	=	3

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	1.288	1.367	1.296	1.296
Factor2	-0.079	0.137	-0.079	1.217
Factor3	-0.215	.	-0.217	1.000

LR test: independent vs. saturated: chi2(3) = 475.34 Prob>chi2 = 0.000

Table 4. 39: Factor loadings table

Variable	Factor1	Uniqueness
Ratio_of_official titles	0.5114	0.7385
Ratio_of_phot0_prominence	0.6993	0.5109
Ratio_of_prononouns	0.7331	0.4625

Appendix IV-4 Detailed Regression models for study objectives

Table 4. 40 LM-BP; Board independence and real earning s management

Var	sd	sd = sqrt(Var)
rem	0.355	0.596
e	0.179	0.423
u	0.178	0.422

Test: Var(u) = 0

chibar2(01) = 1076.21

Prob > chibar2 = 0.0000

Table 4. 41 Hausman; Board independence and real earning s management

	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
boardindep~e	-0.223	-0.228	0.005	0.016

chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 0.12

Prob>chi2 = 0.733

Table 4. 42: Model assumptions; Board independence and real earning s management

Assumption/ Purpose	Test	Test statistic	P-value	Conclusion
Non-Serial correlation	Breusch-Godfrey/Wooldridge	F (1, 49) = 2.634	0.111	Not violated
Homoscedasticity	Wald	Chi2(52) = 2.10e+07	0.000	Assumption violated
Normality on e	Bera-Jarque (JB)	chi2(2) = 7.28	0.0262	Assumption violated
Normality on u	Bera-Jarque (JB)	chi2(2) = 48.23	0.000	Assumption violated
Cross-sectional dependence	Friedman test	Z = 3.504	1	Not violated

Table 4. 43: Integrated generalised least squares estimates; Board independence and REM

Cross-sectional time-series IGLS regression

Panels: heteroskedastic

Correlation: no autocorrelation

Estimated covariances	=	50	Number of obs	700	
Estimated autocorrelations	=	0	Number of groups	50	
Estimated coefficients	=	7	Obs per group: min	4	
			avg	14	
			max	16	
			Wald chi2(6)	4.92	
Log likelihood	= -113.1774		Prob > chi2	0.0265	

(Replications based on clustering on entity)

rem	Observed Coef.	Bootstrap Std. Err.	z	P>z	Normal-based [95% Conf.	Interval]
board independence	-0.266	0.120	-2.220	0.027	-0.501	-0.031
_cons	0.102	0.076	1.340	0.181	-0.047	0.251

Table 4. 44 LM-BP; Board tenure and real earning s management

Var	sd	sd = sqrt(Var)
rem	0.355	0.596
E	0.178	0.422
U	0.182	0.426

Test: Var(u) = 0

chibar2(01) = 1139.16

Prob > chibar2 = 0.0000

Table 4. 45 Hausman; Board tenure and real earning s management

	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
boardtenure	-0.040	-0.039	-0.001	0.001

chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B) = .51

Prob>chi2 = 0.2196

Table 4. 46: Model assumptions; Board tenure and real earning s management

Assumption/ Purpose	Test	Test statistic	P-value	Conclusion
Non-Serial correlation	Breusch-Godfrey/Wooldridge	F (1, 49) = 2.925	0.0936	Not violated
Homoscedasticity	Wald	Chi2(52) = 5.07e+06	0.000	Assumption violated

Normality on e	Bera-Jarque (JB)	chi2(2) = 5.52	0.0633	Not violated
Normality on u	Bera-Jarque (JB)	chi2(2) = 50.91	0.000	Assumption violated
Cross-sectional dependence	Friedman test	Z = 3.504	1	Not violated

Table 4. 47: Integrated generalised least squares estimates; Board tenure and REM

Cross-sectional time-series IGLS regression

Panels: heteroskedastic

Correlation: no autocorrelation

Estimated covariances	=	50	Number of obs	700
Estimated autocorrelations	=	0	Number of groups	50
Estimated coefficients	=	7	Obs per group: min	4
			avg	14
			max	16
			Wald chi2(6)	0.31
Log likelihood	= -121.8085		Prob > chi2	0.5804

(Replications based on clustering on entity)

rem	Observed Coef.	Bootstrap Std. Err.	z	P>z	Normal-based [95% Conf.	Interval]
board tenure	-0.005	0.009	-0.550	0.580	-0.021	0.012
_cons	-0.010	0.087	-0.110	0.909	-0.180	0.160

Table 4. 48 LM-BP; CEO duality and real earning s management

Var	sd	sd = sqrt(Var)
rem	0.355	0.596
E	0.180	0.424
U	0.173	0.416

Test: Var(u) = 0

chibar2(01) = 971.42

Prob > chibar2 = 0.0000

Table 4. 49 Hausman; CEO duality and real earning s management

	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
ceoduality	0.210	0.256	-0.046	0.069

chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 0.45
Prob>chi2 = 0.504

Table 4. 50: Model assumptions; CEO duality and real earning s management

Assumption/ Purpose	Test	Test statistic	P-value	Conclusion
Non-Serial correlation	Breusch-Godfrey/Wooldridge	F (1, 49) = 2.933	0.0931	Not violated
Homoscedasticity	Wald	Chi2(53) = 4.35e+06	0.000	Assumption violated
Normality on e	Bera-Jarque (JB)	chi2(2) = 8.94	0.0115	Assumption violated
Normality on u	Bera-Jarque (JB)	chi2(2) = 34.52	0.000	Assumption violated
Cross-sectional dependence	Friedman test	Z = 1.080	1	Not violated

Table 4. 51: Integrated generalised least squares estimates;m CEO duality and REM

Cross-sectional time-series IGLS regression

Panels: heteroskedastic
Correlation: no autocorrelation

Estimated covariances	=	50	Number of obs	700
Estimated autocorrelations	=	0	Number of groups	50
Estimated coefficients	=	7	Obs per group: min	4
			avg	14
			max	16
			Wald chi2(6)	4.68
Log likelihood	= -131.876		Prob > chi2	0.0304

(Replications based on clustering on entity)

	Observed	Bootstrap	Normal-based

rem	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
CEO duality	0.638	0.295	2.160	0.030	0.060	1.215
_cons	-0.067	0.008	-8.270	0.000	-0.082	-0.051

Table 4. 52: LM-BP: Board size and real earning s management

Var	sd	sd = sqrt(Var)
rem	0.355	0.596
E	0.180	0.425
U	0.162	0.402

Test: Var(u) = 0

chibar2(01) = 944.63

Prob > chibar2 = 0.000

Table 4. 53: Hausman; Board size and real earning s management

	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
boardsize	-0.003	-0.008	0.005	0.002

chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 4.30

Prob>chi2 = 0.0382

Table 4. 54: Model assumptions; Board size and real earning s management

Assumption/ Purpose	Test	Test statistic	P-value	Conclusion
Non-Serial correlation	Breusch-Godfrey/Wooldridge	F (1, 49) = 2.926	0.0935	Not violated
Homoscedasticity	Wald	Chi2(50) = 3.7e+05	0.000	Assumption violated
Normality on e	Bera-Jarque (JB)	chi2(2) = 5.26	0.0719	Assumption violated
Normality on u	Bera-Jarque (JB)	chi2(2) = 3.1e+06	0.000	Assumption violated
Cross-sectional dependence	Pesaran test	Z = 0. 356	0.722	Not violated

Table 4. 55: Integrated generalised least squares estimates; Board size and REM

Cross-sectional time-series IGLS regression

Panels: heteroskedastic
Correlation: no autocorrelation

Estimated covariances	=	50	Number of obs	700
Estimated autocorrelations	=	0	Number of groups	50
Estimated coefficients	=	7	Obs per group: min	4
			avg	14
			max	16
			Wald chi2(6)	4.64
Log likelihood	= -153.9273		Prob > chi2	0.0312

(Replications based on clustering on entity)

rem	Observed Coef.	Bootstrap Std. Err.	z	P>z	Normal-based [95% Conf.	Interval]
Board size	-0.011	0.005	-2.150	0.031	-0.020	-0.001
_cons	0.043	0.048	0.890	0.376	-0.052	0.137

Table 4. 56: swamy–arora estimates; Board structure and real earnings management

Random-effects regression		**Number of obs**	**700**
Group variable: entity code		Number of groups	50
R-sq: within	= 0.065	Obs per group: min	4
R-sq: between	= 0.163	avg	14.0
R-sq: overall	= 0.184	max	16
Adj R-sq: overall	= 0.177		
		Wald chi2(6)	57.19
corr(u_i, X) = 0 (assumed)		Prob > chi2	0.000

rem	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
boardindependence	-0.212	0.094	-2.240	0.025	-0.397	-0.026
boardtenure	-0.048	0.014	-3.420	0.001	-0.076	-0.021
ceoduality	0.252	0.176	1.430	0.152	-0.093	0.598
boardsize	-0.033	0.009	-3.570	0.000	-0.051	-0.015
logtotalassets	0.061	0.018	3.470	0.001	0.027	0.095

ROA	-0.628	0.139	-4.530	0.000	-0.899	-0.356
_cons	-0.137	0.336	-0.410	0.684	-0.795	0.521
sigma_u	0.332					
sigma_e	0.413					
rho	0.392		(fraction of variance due to u_i)			

Table 4. 57: Integrated generalised least squares estimates; Board structure and REM

Cross-sectional time-series IGLS regression

Panels: heteroskedastic

Correlation: no autocorrelation

Estimated covariances	=	50	Number of obs	700
Estimated autocorrelations	=	0	Number of groups	50
Estimated coefficients	=	7	Obs per group: min	4
Pseudo R-Square	=	0.2499	avg	14
Pseudo Adj R-Square	=	0.1995	max	16
			Wald chi2(6)	179.56
Log likelihood	= -89.29399		Prob > chi2	0.000

rem	**Coef.**	**Std. Err.**	**z**	**P>z**	**[95% Conf. Interval]**	
board independence	-0.234	0.059	-3.930	0.000	-0.350	-0.117
Board tenure	-0.019	0.007	-2.780	0.005	-0.032	-0.005
CEO duality	0.643	0.244	2.640	0.008	0.166	1.121
Board size	-0.035	0.004	-8.160	0.000	-0.043	-0.026
Log total assets	0.054	0.005	9.840	0.000	0.043	0.064
ROA	-0.726	0.102	-7.090	0.000	-0.927	-0.525
_cons	-0.240	0.102	-2.360	0.018	-0.439	-0.041

Table 4. 58: Effect of CEO Narcissism

Random-effects GLS regression

Group variable: entity code

Estimated covariances	=	50	Number of obs	700

Estimated autocorrelations	=	0	Number of groups	50	
Estimated coefficients	=	8	Obs per group: min	4	
Pseudo R-Square	=	.3612	avg	14	
Pseudo Adj R-Square	=	.3024	max	16	
			Wald chi2(7)	217.99	
Log likelihood = -76.039			Prob > chi2	0.000	

Rem	**Coef.**	**Std. Err.**	**z**	**P>z**	**[95% Conf.**	**Interval]**
boardindependence	-0.230	0.059	-3.870	0.000	-0.347	-0.114
boardtenure	-0.018	0.006	-2.810	0.005	-0.031	-0.006
Ceoduality	0.638	0.246	2.590	0.010	0.155	1.121
Boardsize	-0.032	0.004	-7.960	0.000	-0.040	-0.024
nassicismratio	0.014	0.003	5.070	0.000	0.009	0.019
logtotalassets	0.053	0.005	10.070	0.000	0.042	0.063
ROA	-0.699	0.099	-7.070	0.000	-0.893	-0.506
_cons	-0.255	0.099	-2.570	0.010	-0.450	-0.061

Table 4. 59: Likelihood ratio test; Narcissism, board independence and real earnings management

Likelihood-ratio test	**LR chi2(1)**	**=**	**-8.760**
(Assumption: M2 nested in M3)	Prob > chi2	=	1.000

Akaike's information criterion and Bayesian information criterion

Model	**Obs**	**ll(null)**	**ll(model)**	**df**	**AIC**	**BIC**
M2	700	.	-76.040	58	268.079	532.042
M3	700	.	-80.421	59	278.843	547.357

Table 4. 60: Modeating effect of Narcissism on board independence and real earnings management

Random-effects GLS regression				
Group variable: entity code				
Estimated covariances	=	50	Number of obs	700

Estimated autocorrelations	=	0	Number of groups	50
Estimated coefficients	=	9	Obs per group: min	4
Pseudo R-Square	=	.3244	avg	14
Pseudo Adj R-Square	=	.2572	max	16
			Wald chi2(8)	204.55
Log likelihood	= -80.42147		Prob > chi2	0.000

Rem	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
boardindependence	-0.280	0.063	-4.450	0.000	-0.403	-0.157
boardtenure	-0.019	0.007	-2.860	0.004	-0.032	-0.006
Ceoduality	0.615	0.238	2.590	0.010	0.149	1.082
Boardsize	-0.033	0.004	-7.940	0.000	-0.041	-0.025
nassicismratio	0.020	0.014	1.470	0.141	-0.007	0.047
c.boardindependence #c.nassicismratio	-0.012	0.023	-0.540	0.586	-0.057	0.032
logtotalassets	0.052	0.005	9.820	0.000	0.042	0.063
ROA	-0.705	0.101	-7.000	0.000	-0.903	-0.508
_cons	-0.209	0.102	-2.040	0.041	-0.409	-0.008

Table 4. 61: Likelihood ratio test; Narcissism, board tenure and real earnings management

Likelihood-ratio test	**LR chi2(1)**	**=**	**-0.80**
(Assumption: M2 nested in M4)	Prob > chi2	=	1.000

Akaike's information criterion and Bayesian information criterion

Model	Obs	ll(null)	ll(model)	df	AIC	BIC
M2	700	.	-76.040	58	268.079	532.042
M4	700	.	-76.442	59	270.883	539.397

Table 4. 62: Moderating effect of Narcissism on board tenure and real earnings management

Random-effects GLS regression

Group variable: entity code

Estimated covariances	=	50	Number of obs	700

Estimated autocorrelations	=	0	Number of groups	50
Estimated coefficients	=	9	Obs per group: min	4
Pseudo R-Square	=	.3579	avg	14
Pseudo Adj R-Square	=	.2907	max	16
			Wald chi2(8)	232.85
Log likelihood = -76.4416			Prob > chi2	0.000

Rem	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
boardindependence	-0.228	0.060	-3.820	0.000	-0.345	-0.111
boardtenure	-0.018	0.006	-2.760	0.006	-0.031	-0.005
ceoduality	0.640	0.246	2.600	0.009	0.157	1.123
Boardsize	-0.032	0.004	-7.960	0.000	-0.040	-0.024
Nassicismratio	-0.001	0.018	-0.070	0.947	-0.036	0.034
c.boardtenure#c.nassicismratio	0.001	0.002	0.900	0.369	-0.002	0.005
Logtotalassets	0.053	0.005	10.130	0.000	0.043	0.063
ROA	-0.699	0.099	-7.060	0.000	-0.894	-0.505
_cons	-0.267	0.100	-2.670	0.008	-0.462	-0.071

Table 4. 63: Likelihood-ratio test; Narcissism, CEO duality and real earnings management

Likelihood-ratio test	**LR chi2(1)**	**=**	**8.48**
(Assumption: M2 nested in M4)	Prob > chi2	=	0.0036

Akaike's information criterion and Bayesian information criterion

Model	Obs	ll(null)	ll(model)	df	AIC	BIC
M2	700	.	-76.040	58	268.079	532.042
M5	700	.	-71.800	59	261.600	530.114

Table 4. 64: Moderating effect of Narcissism, CEO duality and real earnings management

Random-effects GLS regression

Group variable: entity code

Estimated covariances	=	50	Number of obs	700
Estimated autocorrelations	=	0	Number of groups	50
Estimated coefficients	=	9	Obs per group: min	4

Pseudo R-Square	=	.3969	avg	14
Pseudo Adj R-Square	=	.3297	max	16
			Wald chi2(8)	222.89
Log likelihood	= -71.800		Prob > chi2	0.000

Rem	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
boardindependence	-0.208	0.058	-3.570	0.000	-0.323	-0.094
boardtenure	-0.019	0.006	-2.890	0.004	-0.031	-0.006
Ceoduality	0.934	0.274	3.410	0.001	0.398	1.471
Boardsize	-0.032	0.004	-8.010	0.000	-0.040	-0.024
nassicismratio	0.014	0.003	5.130	0.000	0.009	0.019
c.ceoduality#c.nassicismratio	-0.539	0.180	-2.990	0.003	-0.893	-0.185
logtotalassets	0.052	0.005	10.020	0.000	0.042	0.062
ROA	-0.686	0.098	-6.990	0.000	-0.878	-0.493
_cons	-0.257	0.099	-2.600	0.009	-0.451	-0.063

Table 4. 65: Likelihood-ratio test; Narcissism, board size and real earnings management

Likelihood-ratio test	**LR chi2(1)**	**=**	**-3.76**
(Assumption: M5 nested in M6)	Prob > chi2	=	1.0000

Akaike's information criterion and Bayesian information criterion

Model	Obs	ll(null)	ll(model)	df	AIC	BIC
M5	700	.	-71.800	59	261.600	530.114
M6	700	.	-73.678	60	267.356	540.421

Table 4. 66: Moderating effect of Narcissism on board size and real earnings management

Random-effects GLS regression

Group variable: entity code

Estimated covariances	=	50	Number of obs	700
Estimated autocorrelations	=	0	Number of groups	50
Estimated coefficients	=	10	Obs per group: min	4
Pseudo R-Square	=	.3811	avg	14
Pseudo Adj R-Square	=	.3055	max	16

				Wald chi2(9)		239.10
Log likelihood	= -73.67811			Prob > chi2		0.000
Rem	**Coef.**	**Std. Err.**	**z**	**P>z**	**[95% Conf.**	**Interval]**
boardindependence	-0.205	0.058	-3.540	0.000	-0.319	-0.092
boardtenure	-0.019	0.007	-2.890	0.004	-0.032	-0.006
Ceoduality	0.939	0.274	3.430	0.001	0.402	1.475
Boardsize	-0.033	0.004	-8.010	0.000	-0.041	-0.025
nassicismratio	0.014	0.009	1.580	0.113	-0.003	0.030
c.ceoduality#c.nassicismratio	-0.541	0.181	-2.980	0.003	-0.897	-0.186
c.boardsize#c.nassicismratio	0.000	0.001	0.150	0.879	-0.001	0.002
logtotalassets	0.053	0.005	9.930	0.000	0.042	0.063
ROA	-0.692	0.099	-6.990	0.000	-0.887	-0.498
_cons	-0.267	0.101	-2.650	0.008	-0.464	-0.070

Appendix IV-5 Other regression models fitted

CFO

GEE population-averaged	**model**			**Number of obs**	**656**
Group variable:	**Entity code**			**Number of groups**	**50**
Link:	**identity**			**Obs per group: min**	**3**
Family:	**Gaussian**			**avg**	**13.1**
Correlation:	**exchangeable**			**max**	**15**
				Wald chi2(3)	**47.150**
Scale parameter:	**0.037**			**Prob > chi2**	**0.000**

cfota_lagged	**Coef.**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
v15	33873.590	6544.165	5.180	0.000	21047.260	46699.910
salest1ta_lagged	0.036	0.010	3.660	0.000	0.017	0.056
changeinsalesta_lagged	0.021	0.013	1.610	0.108	-0.005	0.047
_cons	0.042	0.016	2.570	0.010	0.010	0.073

Fixed-effects (within) regression			**Number of obs**	=	**656**
Group variable: entity code			Number of groups	=	50
R-sq: within = 0.1522			Obs per group: min	=	3
between = 0.0238			avg	=	13.1
overall = 0.0369			max	=	15
			F(3,603)	=	36.08
corr(u_i, Xb) = -0.5957			Prob > F	=	0

cfota_lagged	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
v15	76111.960	8839.845	8.610	0.000	58751.330	93472.58
salest1ta_lagged	0.051	0.012	4.330	0.000	0.028	0.074
changeinsalesta_lagged	0.019	0.013	1.530	0.127	-0.006	0.044
_cons	0.015	0.012	1.230	0.219	-0.009	0.039
sigma_u	0.191					
sigma_e	0.163					
rho	0.578	(fraction of variance due to u_i)				

F test that all u_i=0: F(49, 603) = 5.88 Prob > F = 0.0000

Random-effects GLS regression	**Number of obs**	**656**
Group variable: entity code	Number of groups	50

R-sq: within = 0.1463				Obs per group: min		3
between = 0.0196				avg		13.1
overall = 0.0381				max		15
				Wald chi2(3)		54.320
corr(u_i, X) = 0 (assumed)				Prob > chi2		0.000
cfota_lagged	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
v15	37397.330	6670.318	5.610	0.000	24323.750	50470.920
salest1ta_lagged	0.039	0.010	3.880	0.000	0.019	0.059
changeinsalesta_lagged	0.021	0.013	1.660	0.098	-0.004	0.046
_cons	0.036	0.018	2.080	0.037	0.002	0.071
sigma_u	0.091					
sigma_e	0.163					
rho	0.236	(fraction of variance due to u_i)				

DISX

GEE population-averaged	**model**			**Number of obs**		**656**
Group variable:	Entity code			Number of groups		50
Link:	identity			Obs per group: min		3
Family:	Gaussian			avg		13.1
Correlation:	exchangeable			max		15
				Wald chi2(3)		47.150
Scale parameter:	0.037			Prob > chi2		0.000
disxta_lagged	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
v15	46494.220	10250.320	4.540	0.000	26403.970	66584.470
salest1ta_lagged	0.070	0.015	4.620	0.000	0.041	0.100
_cons	0.172	0.031	5.580	0.000	0.112	0.233

Fixed-effects (within) regression	**Number of obs**	**=**	**656**
Group variable: entity code	**Number of groups**	**=**	50
R-sq: within = 0.070	**Obs per group: min**	**=**	**3**
between = 0.068	**avg**	**=**	**13.1**
overall = 0.128	**max**	**=**	**15**

			F(3,603)		**=**	**22.850**
corr(u_i, Xb) = 0.088			**Prob > F**		**=**	**0.000**
disxta_lagged	**Coef.**	**Err. Std.**	**t**	**P>t**	**[95% Conf.**	**Interval]**
v15	54443.140	10895.050	5.000	0.000	33046.360	75839.920
salest1ta_lagged	0.057	0.014	3.950	0.000	0.029	0.085
_cons	0.158	0.015	10.640	0.000	0.129	0.187
sigma_u	0.354					
sigma_e	0.203					
rho	0.752	(fraction of variance due to u_i)				

F test that all u_i=0: F(49, 604) = 16.82 Prob > F = 0.0000

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Random-effects GLS regression		**Number of obs**	**656**
Group variable: entity code		**Number of groups**	**50**
R-sq: within = 0.0696		**Obs per group: min**	**3**
between = 0.0760		**avg**	**13.1**
overall = 0.1339		**max**	**15**
		Wald chi2(3)	**50.59**
corr(u_i, X) = 0 (assumed)		**Prob > chi2**	**0.000**

disxta_lagged	**Coef.**	**Std. Err.**	**z**	**P>z**	**[95% Conf.**	**Interval]**
v15	48944.980	9868.929	4.960	0.000	29602.230	68287.720
salest1ta_lagged	0.065	0.014	4.580	0.000	0.037	0.092
_cons	0.181	0.037	4.860	0.000	0.108	0.253
sigma_u	0.231					
sigma_e	0.203					
rho	0.563	(fraction of variance due to u_i)				

CFO

GEE population-averaged model	**Number of obs**	**606**
Group variable Entity code	**Number of groups**	50
Link: identity	**Obs per group: min**	2
Family: Gaussian	**avg**	12.1
Correlation: exchangeable	**max**	14
	Wald chi2(3)	2584.59

Scale parameter:	**0.147**			**Prob > chi2**		0.000
prodtat_lagged	**Coef.**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
v15	-94756.750	20919.690	-4.530	0.000	-135758.60	-53754.92
salesta_lagged	0.870	0.021	40.750	0.000	0.829	0.912
changeinsalesta_lagged	-0.042	0.030	-1.390	0.164	-0.101	0.017
changeinsales_laggedta_lagged	-0.028	0.032	-0.880	0.378	-0.090	0.034
_cons	-0.131	0.041	-3.240	0.001	-0.211	-0.052

Fixed-effects (within) regression		**Number of obs**	=	**606**
Group variable: entity code		**Number of groups**	=	50
R-sq: within = 0.7853		**Obs per group: mi**	=	2
between = 0.8983		**avg**	=	12.1
overall = 0.8779		**max**	=	14
		F(3,603)	=	504.880
corr(u_i, Xb) = -0.0263		**Prob > F**	=	0.000

prodtat_lagged	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf.**	**Interval]**
v15	-139093.40	29492.870	-4.720	0.000	-197025.40	-81161.39
salesta_lagged	0.879	0.025	35.450	0.000	0.831	0.928
changeinsalesta_lagged	-0.046	0.031	-1.470	0.143	-0.107	0.015
changeinsales_laggedta_lagged	-0.028	0.032	-0.860	0.392	-0.091	0.036
_cons	-0.127	0.025	-5.120	0.000	-0.176	-0.078
sigma_u	0.279					
sigma_e	0.306					
rho	0.454	(fraction of variance due to u_i)				

F test that all u_i=0: F(49, 603) = 5.88 Prob > F = 0.0000

Production

Random-effects GLS regression	**Number of obs**	**606**
Group variable: entity code	**Number of groups**	50
R-sq: within = 0.7844	**Obs per group: min**	2
between = 0.9131	**avg**	12.1
overall = 0.8795	**max**	14
	Wald chi2(3)	**54.320**
corr(u_i, X) = 0 (assumed)	**Prob > chi2**	**0.000**

prodtat_lagged	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
v15	-94201.940	20974.030	-4.490	0.000	-135310.30	-53093.60
salesta_lagged	0.870	0.021	40.530	0.000	0.828	0.912
changeinsalesta_lagged	-0.042	0.030	-1.380	0.169	-0.101	0.018
changeinsales_laggedta_lagged	-0.028	0.032	-0.870	0.382	-0.091	0.035
_cons	-0.132	0.040	-3.270	0.001	-0.211	-0.053
sigma_u	0.231					
sigma_e	0.306					
rho	0.364	(fraction of variance due to u_i)				

Appendix IV-6 Mod Graphs

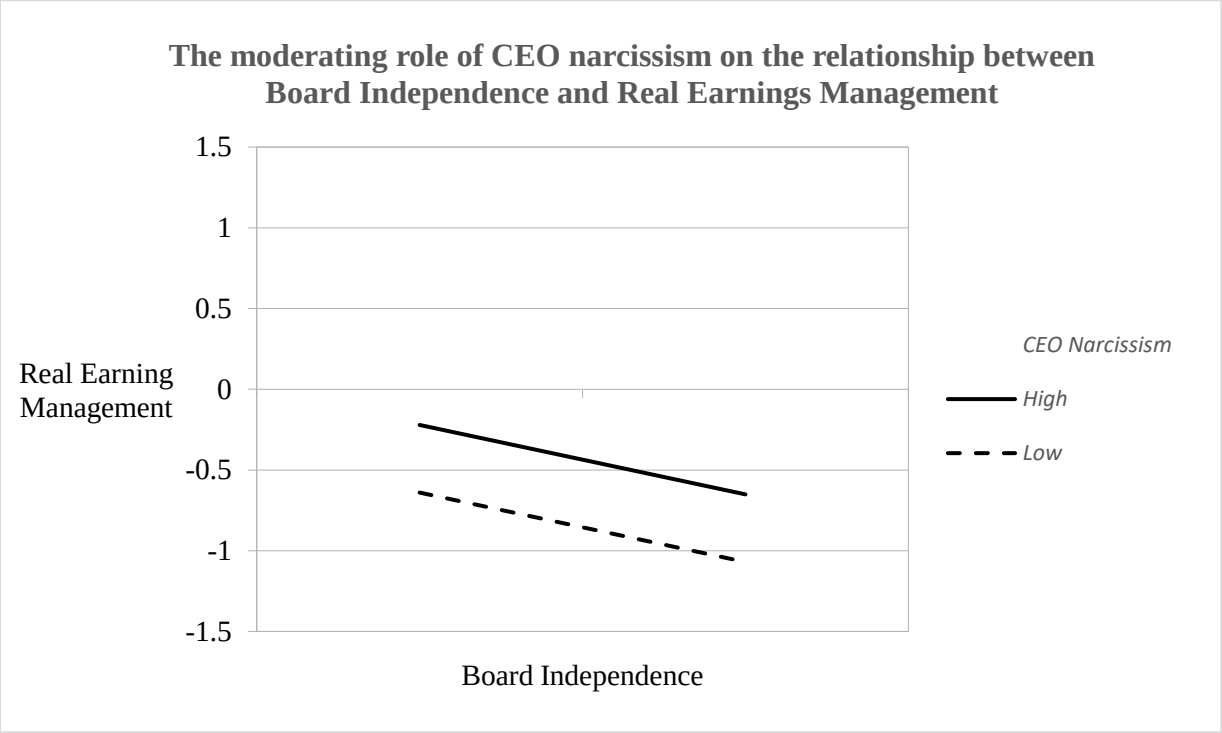

Figure 4.1: Mod graph showing the moderating effect of CEO narcissism on the relationship between Board Independence and Real earnings management

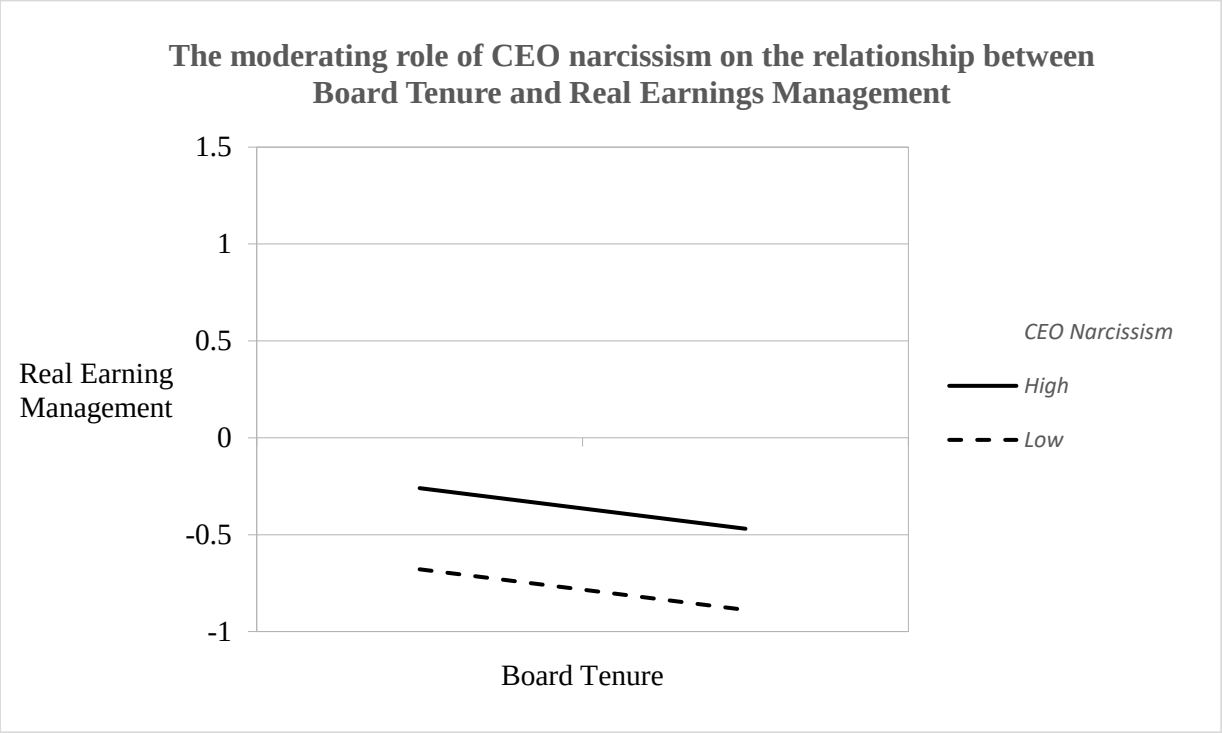

Figure 4. 2: Mod graph showing the moderating effect of CEO narcissism on the relationship between Board Tenure and Real earnings management

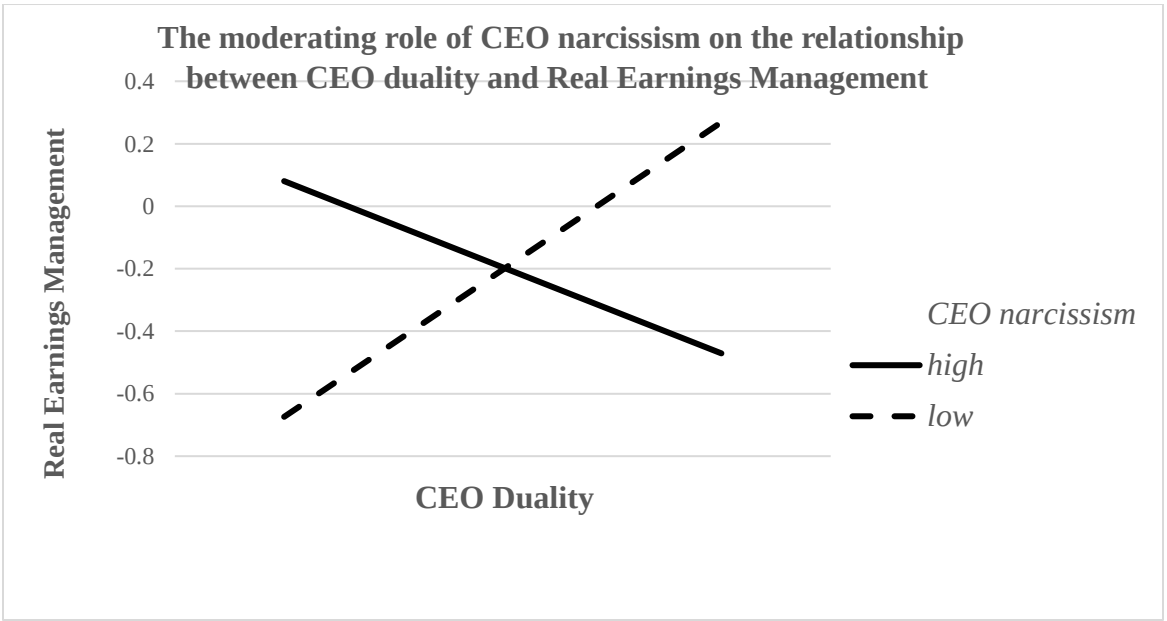

Figure 4. 3: Mod graph showing the moderating effect of CEO narcissism on the relationship between CEO duality and Real earnings management

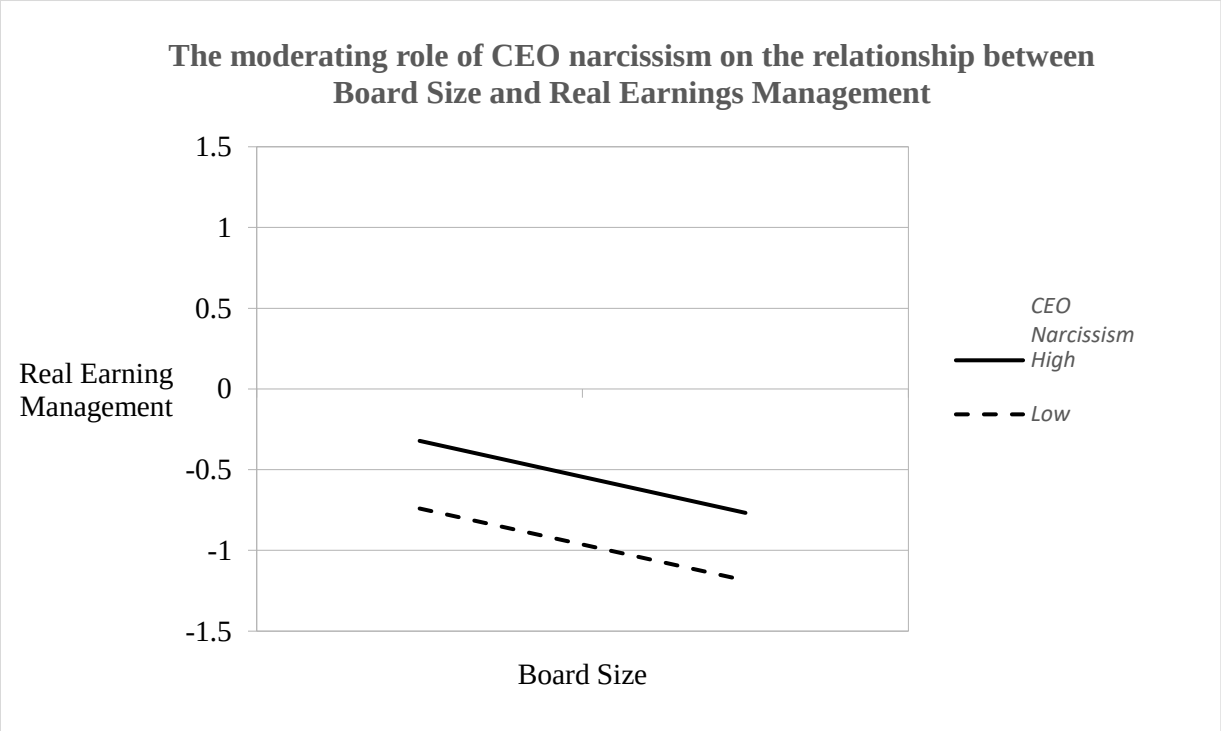

Figure 4. 4: Mod graph showing the moderating effect of CEO narcissism on the relationship between Board Size and Real earnings management

Appendix V Mahalanobis Distances (Outliers Test)

Entity code	Entity	year	Mahalanobis distance	Prob > chi2
20	Safaricom Ltd.	2006	11.043	0.051
19	Nairobi Securities Exchange Ltd	2007	10.856	0.054
46	TPS East Africa	2003	10.520	0.062
49	Nation Media Group	2013	10.409	0.064
8	Total Kenya Ltd	2016	10.391	0.065
49	Nation Media Group	2015	10.339	0.066
44	Standard group	2017	10.239	0.069
19	Nairobi Securities Exchange Ltd	2009	10.161	0.071
45	Uchumi Supermarket Ltd	2007	10.069	0.073
23	East African Breweries Ltd	2012	9.877	0.079
8	Total Kenya Ltd	2012	9.827	0.080
8	Total Kenya Ltd	2011	9.794	0.081
23	East African Breweries Ltd	2005	9.673	0.085
49	Nation Media Group Group	2005	9.528	0.090
49	Nation Media Group Group	2008	9.527	0.090
49	Nation Media Group Group	2016	9.424	0.093
52	Nairobi Bs	2017	9.336	0.096
14	Liberty Kenya Holdings Ltd	2012	9.325	0.097
42	Crown Paint	2010	9.243	0.100
37	Housing Finance	2010	9.241	0.100
5	East Africa Portland Cement Co. Ltd	2014	9.241	0.100
47	WPP Scan.G	2003	9.169	0.103
42	Crown Paint	2012	9.011	0.109
3	BOC	2002	8.984	0.110
44	Standard group	2002	8.946	0.111
42	Crown Paint	2009	8.881	0.114
21	British American Tobacco Kenya Ltd	2012	8.874	0.114
42	Crown Paint	2011	8.870	0.114
18	Trans-Century Ltd	2015	8.837	0.116
49	Nation Media Group Group	2009	8.726	0.121
20	Safaricom Ltd.	2013	8.686	0.122
32	KENYA COMMERCIAL BANK	2004	8.611	0.126
5	East Africa Portland Cement Co. Ltd	2013	8.554	0.128
29	Kakuzi Ltd	2012	8.526	0.130
19	Nairobi Securities Exchange Ltd	2013	8.477	0.132
44	Standard group	2010	8.460	0.133
49	Nation Media Group Group	2003	8.455	0.133
30	Bamburi Cement Ltd	2009	8.451	0.133

10	Britam Holdings Ltd	2014	8.402	0.135
20	Safaricom Ltd.	2007	8.357	0.138
19	Nairobi Securities Exchange Ltd	2012	8.315	0.140
30	Bamburi Cement Ltd	2002	8.304	0.140
44	Standard group	2012	8.277	0.142
22	Carbacid Investments Ltd	2006	8.272	0.142
51	Express KE	2007	8.238	0.144
27	Longhorn Publishers	2014	8.166	0.147
45	Uchumi Supermarket Ltd	2011	8.151	0.148
51	Express KE	2012	8.150	0.148
21	British American Tobacco Kenya Ltd	2013	8.097	0.151
47	WPP Scan.G	2002	8.055	0.153
18	Trans-Century Ltd	2016	7.917	0.161
22	Carbacid Investments Ltd	2011	7.847	0.165
22	Carbacid Investments Ltd	2014	7.795	0.168
15	Centum Investment Co Ltd	2008	7.793	0.168
22	Carbacid Investments Ltd	2012	7.761	0.170
1	ARM	2010	7.747	0.171
52	Nairobi Bs	2014	7.700	0.174
9	Umeme Ltd	2009	7.677	0.175
32	Kenya Commercial Bank	2003	7.677	0.175
45	Uchumi Supermarket Ltd	2012	7.643	0.177
48	Sameer Africa Ltd	2005	7.637	0.177
34	Diamond Trust Bank	2009	7.537	0.184
44	Standard group	2007	7.529	0.184
51	Express KE	2013	7.485	0.187
12	Jubilee Holdings Limited	2006	7.479	0.187
51	Express KE	2009	7.340	0.197
6	Kenol Kobil Ltd	2016	7.335	0.197
20	Safaricom Ltd.	2008	7.303	0.199
34	Diamond Trust Bank	2017	7.277	0.201
21	British American Tobacco Kenya Ltd	2017	7.273	0.201
22	Carbacid Investments Ltd	2010	7.260	0.202
48	Sameer Africa Ltd	2012	7.236	0.204
22	Carbacid Investments Ltd	2009	7.221	0.205
49	Nation Media Group Group	2004	7.171	0.208
22	Carbacid Investments Ltd	2013	7.163	0.209
7	Kenya Power and Lighting Co Ltd	2006	7.153	0.209
8	Total Kenya Ltd	2013	7.120	0.212
51	Express KE	2005	7.100	0.213
19	Nairobi Securities Exchange Ltd	2010	7.078	0.215
1	ARM	2016	7.065	0.216

13	Kenya Re Insurance	2002	6.984	0.222
3	BOC	2003	6.950	0.224
39	Cooperative Bank of Kenya	2005	6.940	0.225
20	Safaricom Ltd.	2017	6.831	0.234
22	Carbacid Investments Ltd	2017	6.772	0.238
37	Housing Finance	2008	6.763	0.239
10	Britam Holdings Ltd	2017	6.752	0.240
22	Carbacid Investments Ltd	2007	6.734	0.241
6	Kenol Kobil Ltd	2006	6.726	0.242
5	East Africa Portland Cement Co. Ltd	2004	6.693	0.245
23	East African Breweries Ltd	2014	6.646	0.248
37	Housing Finance	2009	6.646	0.248
2	Eveready East Africa East Africa	2008	6.626	0.250
23	East African Breweries Ltd	2016	6.604	0.252
16	Olympia Capital Holdings Ltd	2012	6.592	0.253
31	Equity Bank Ltd	2004	6.580	0.254
22	Carbacid Investments Ltd	2008	6.568	0.255
19	Nairobi Securities Exchange Ltd	2004	6.419	0.268
4	KenGen Company.Ltd	2014	6.358	0.273
8	Total Kenya Ltd	2008	6.357	0.273
32	KENYA COMMERCIAL BANK	2012	6.324	0.276
44	Standard group	2013	6.316	0.277
26	Flame Tree Group Holdings Ltd	2017	6.295	0.279
26	Flame Tree Group Holdings Ltd	2015	6.292	0.279
27	Longhorn Publishers	2011	6.276	0.280
51	Express KE	2014	6.261	0.282
21	British American Tobacco Kenya Ltd	2008	6.254	0.282
42	Crown Paint	2013	6.231	0.284
48	Sameer Africa Ltd	2002	6.171	0.290
6	Kenol Kobil Ltd	2008	6.156	0.291
7	Kenya Power and Lighting Co Ltd	2007	6.119	0.295
44	Standard group	2008	6.098	0.297
42	Crown Paint	2014	6.054	0.301
8	Total Kenya Ltd	2007	6.012	0.305
26	Flame Tree Group Holdings Ltd	2016	6.005	0.306
32	KENYA COMMERCIAL BANK	2002	5.973	0.309
9	Umeme Ltd	2017	5.969	0.309
20	Safaricom Ltd.	2015	5.953	0.311
19	Nairobi Securities Exchange Ltd	2014	5.951	0.311
7	Kenya Power and Lighting Co Ltd	2009	5.930	0.313
4	KenGen Company.Ltd	2013	5.915	0.315
3	BOC	2016	5.854	0.321

23	East African Breweries Ltd	2011	5.846	0.321
23	East African Breweries Ltd	2008	5.832	0.323
21	British American Tobacco Kenya Ltd	2005	5.803	0.326
11	CIC Insurance Group Ltd	2007	5.778	0.328
31	Equity Bank Ltd	2007	5.777	0.328
23	East African Breweries Ltd	2015	5.770	0.329
14	Liberty Kenya Holdings Ltd	2015	5.744	0.332
45	Uchumi Supermarket Ltd	2005	5.742	0.332
28	Deacons East Africa	2017	5.726	0.334
8	Total Kenya Ltd	2005	5.692	0.337
43	East Africa Cables Ltd	2008	5.684	0.338
29	Kakuzi Ltd	2009	5.676	0.339
8	Total Kenya Ltd	2006	5.645	0.342
21	British American Tobacco Kenya Ltd	2007	5.632	0.344
37	Housing Finance Cooperation	2004	5.631	0.344
8	Total Kenya Ltd	2004	5.563	0.351
30	Bamburi Cement Ltd	2012	5.556	0.352
22	Carbacid Investments Ltd	2015	5.556	0.352
14	Liberty Kenya Holdings Ltd	2017	5.524	0.355
43	East Africa Cables Ltd	2009	5.521	0.356
42	Crown Paint	2015	5.494	0.359
20	Safaricom Ltd.	2012	5.471	0.361
24	Mumias Sugar Company Ltd	2014	5.462	0.362
51	Express KE	2006	5.427	0.366
4	KenGen Company Ltd	2005	5.393	0.370
22	Carbacid Investments Ltd	2016	5.338	0.376
17	Home Afrika Ltd.	2014	5.334	0.376
21	British American Tobacco Kenya Ltd	2006	5.280	0.383
27	Longhorn Publishers	2015	5.243	0.387
21	British American Tobacco Kenya Ltd	2016	5.243	0.387
5	East Africa Portland Cement Co. Ltd	2008	5.237	0.388
19	Nairobi Securities Exchange Ltd	2015	5.230	0.388
44	Standard group Ltd	2014	5.206	0.391
23	East African Breweries Ltd	2003	5.199	0.392
20	Safaricom Ltd.	2016	5.133	0.400
33	Barclays Bank of Kenya	2003	5.126	0.401
32	Kenya Commercial Bank	2005	5.124	0.401
13	Kenya Re Insurance	2012	5.118	0.402
10	Britam Holdings Ltd	2013	5.097	0.404
4	KenGen Company Ltd	2004	5.090	0.405
23	East African Breweries Ltd	2006	5.088	0.405
44	Standard group	2016	5.079	0.406

29	Kakuzi	2007	5.071	0.407
44	Standard group	2015	5.044	0.411
9	Umeme Ltd	2015	5.031	0.412
26	Flame Tree Group Holdings Ltd	2013	5.026	0.413
5	East Africa Portland Cement Co. Ltd	2015	4.969	0.420
30	Bamburi Cement Ltd	2017	4.908	0.427
34	Diamond Trust Bank Ltd	2002	4.894	0.429
28	Deacons East Africa	2014	4.880	0.431
11	CIC Insurance Group Ltd	2010	4.831	0.437
16	Olympia Capital Holdings Ltd	2005	4.771	0.444
23	East African Breweries Ltd	2009	4.743	0.448
28	Deacons East Africa	2016	4.736	0.449
11	CIC Insurance Group Ltd	2008	4.682	0.456
37	Housing Finance	2003	4.676	0.457
3	BOC	2015	4.623	0.464
50	Williamson Tea	2012	4.617	0.464
13	Kenya Re Insurance	2016	4.616	0.465
43	East Africa Cables Ltd	2017	4.608	0.466
51	Express KE	2010	4.605	0.466
11	CIC Insurance Group Ltd	2011	4.587	0.468
9	Umeme Ltd	2013	4.585	0.469
32	Kenya Commercial Bank	2014	4.577	0.470
6	Kenol Kobil Ltd	2004	4.536	0.475
6	Kenol Kobil Ltd	2005	4.521	0.477
39	Cooperative Bank of Kenya	2003	4.520	0.477
8	Total Kenya Ltd	2015	4.518	0.478
23	East African Breweries Ltd	2013	4.514	0.478
21	British American Tobacco Kenya Ltd	2014	4.426	0.490
6	Kenol Kobil Ltd	2002	4.425	0.490
46	TPS East Africa	2005	4.415	0.491
5	East Africa Portland Cement Co. Ltd	2006	4.407	0.492
20	Safaricom Ltd.	2014	4.385	0.495
6	Kenol Kobil Ltd	2009	4.360	0.499
43	East Africa Cables Ltd	2005	4.357	0.499
6	Kenol Kobil Ltd	2013	4.326	0.503
21	British American Tobacco Kenya Ltd	2011	4.326	0.503
16	Olympia Capital Holdings Ltd	2017	4.286	0.509
41	Standard Chartered Bank	2016	4.276	0.510
32	Kenya Commercial Bank	2017	4.244	0.515
42	Crown Paint	2017	4.242	0.515
44	Standard group	2011	4.238	0.516
18	Trans-Century Ltd	2017	4.195	0.522

16	Olympia Capital Holdings Ltd	2014	4.155	0.527
1	ARM	2006	4.154	0.527
6	Kenol Kobil Ltd	2012	4.146	0.529
52	Nairobi Bs	2015	4.111	0.534
23	East African Breweries Ltd	2004	4.109	0.534
41	Standard Chartered Bank (Kenya)	2009	4.104	0.535
7	Kenya Power and Lighting Co Ltd	2003	4.100	0.535
33	Barclays Bank of Kenya	2015	4.096	0.536
44	Standard group	2009	4.073	0.539
48	Sameer Africa Ltd	2010	4.065	0.540
40	NIC bank	2017	4.054	0.542
19	Nairobi Securities Exchange Ltd	2011	4.046	0.543
18	Trans-Century Ltd	2012	4.007	0.548
46	TPS East Africa	2002	4.005	0.549
46	TPS East Africa	2011	4.002	0.549
13	Kenya Re Insurance	2015	3.998	0.550
50	Williamson Tea	2014	3.995	0.550
46	TPS East Africa	2015	3.960	0.555
48	Sameer Africa Ltd	2006	3.958	0.556
14	Liberty Kenya Holdings Ltd	2016	3.947	0.557
46	TPS East Africa	2009	3.933	0.559
6	Kenol Kobil Ltd	2011	3.932	0.559
30	Bamburi Cement Ltd	2008	3.931	0.559
48	Sameer Africa Ltd	2004	3.892	0.565
39	Cooperative Bank of Kenya	2017	3.880	0.567
10	Britam Holdings Ltd	2009	3.871	0.568
24	Mumias Sugar Company Ltd	2004	3.842	0.572
46	TPS East Africa	2004	3.828	0.574
32	Kenya Commercial Bank	2013	3.820	0.576
48	Sameer Africa Ltd	2003	3.809	0.577
45	Uchumi Supermarket Ltd	2015	3.806	0.578
33	Barclays Bank of Kenya	2002	3.805	0.578
49	Nation Media Group	2007	3.794	0.579
45	Uchumi Supermarket Ltd	2010	3.715	0.591
33	Barclays Bank of Kenya	2009	3.695	0.594
5	East Africa Portland Cement Co. Ltd	2010	3.683	0.596
27	Longhorn Publishers	2013	3.679	0.597
7	Kenya Power and Lighting Co Ltd	2013	3.652	0.601
20	Safaricom Ltd.	2011	3.651	0.601
51	Express KE	2016	3.646	0.601
5	East Africa Portland Cement Co. Ltd	2002	3.642	0.602
31	Equity Bank Ltd	2014	3.635	0.603

41	Standard Chartered Bank	2007	3.626	0.604
37	Housing Finance Cooperation	2016	3.605	0.608
24	Mumias Sugar Company Ltd	2012	3.584	0.611
51	Express KE	2017	3.582	0.611
41	Standard Chartered Bank	2004	3.581	0.611
51	Express KE	2008	3.573	0.612
19	Nairobi Securities Exchange Ltd	2008	3.570	0.613
4	KenGen Company Ltd	2006	3.562	0.614
48	Sameer Africa Ltdca	2017	3.512	0.622
47	WPP Scan.G	2006	3.475	0.627
40	NIC bank	2013	3.454	0.630
41	Standard Chartered Bank	2005	3.446	0.632
11	CIC Insurance Group Ltd	2015	3.445	0.632
6	Kenol Kobil Ltd	2010	3.431	0.634
5	East Africa Portland Cement Co. Ltd	2016	3.426	0.635
29	Kakuzi	2015	3.421	0.635
15	Centum Investment Co Ltd	2005	3.402	0.638
45	Uchumi Supermarket	2004	3.394	0.639
51	Express KE	2015	3.385	0.641
16	Olympia Capital Holdings Ltd	2010	3.385	0.641
49	Nation Media Group	2011	3.382	0.641
31	Equity Bank Ltd	2010	3.363	0.644
37	Housing Finance	2012	3.357	0.645
22	Carbacid Investments Ltd	2003	3.327	0.650
16	Olympia Capital Holdings Ltd	2016	3.323	0.650
22	Carbacid Investments Ltd	2002	3.320	
16	Olympia Capital Holdings Ltd	2002	3.320	0.651
8	Total Kenya Ltd	2002	3.320	0.651
49	Nation Media Group	2010	3.312	0.652
28	Deacons East Africa	2015	3.301	0.654
22	Carbacid Investments Ltd	2005	3.301	0.654
24	Mumias Sugar Company Ltd	2002	3.273	0.658
43	East Africa Cables Ltd	2015	3.264	0.659
14	Liberty Kenya Holdings Ltd	2014	3.262	0.660
20	Safaricom Ltd.	2009	3.259	0.660
49	Nation Media Group	2012	3.256	0.661
39	Cooperative Bank of Kenya	2004	3.232	0.664
20	Safaricom Ltd.	2010	3.222	0.666
22	Carbacid Investments Ltd	2004	3.221	0.666
27	Longhorn Publishers	2012	3.185	0.671
23	East African Breweries Ltd	2010	3.172	0.673
44	Standard group	2003	3.171	0.674

8	Total Kenya Ltd	2003	3.161	0.675
31	Equity Bank Ltd	2015	3.157	0.676
51	Express KE	2002	3.155	0.676
17	Home Afrika Ltd.	2011	3.154	0.676
16	Olympia Capital Holdings Ltd	2006	3.153	0.676
44	Standard group	2004	3.146	0.678
47	WPP Scan.G	2007	3.129	0.680
14	Liberty Kenya Holdings Ltd	2011	3.127	0.680
47	WPP Scan.G	2014	3.125	0.681
46	TPS East Africa	2006	3.124	0.681
30	Bamburi Cement Ltd	2013	3.117	0.682
47	WPP Scan.G	2005	3.113	0.683
3	BOC	2009	3.111	0.683
9	Umeme Ltd	2011	3.064	0.690
46	TPS East Africa	2010	3.052	0.692
25	Unga Group Ltd	2016	3.052	0.692
8	Total Kenya Ltd	2014	3.047	0.693
11	CIC Insurance Group Ltd	2013	3.042	0.693
29	Kakuzi	2011	3.031	0.695
51	Express KE	2004	3.031	0.695
52	Nairobi Bs	2016	3.030	0.695
8	Total Kenya Ltd	2009	3.023	0.696
17	Home Afrika Ltd.	2010	3.011	0.698
3	BOC	2012	3.009	0.699
44	Standard group	2005	2.987	0.702
4	KenGen Company Ltd	2015	2.966	0.705
11	CIC Insurance Group Ltd	2016	2.959	0.706
42	Crown Paint	2002	2.940	0.709
38	National Bank of Kenya	2013	2.940	0.709
6	Kenol Kobil Ltd	2017	2.935	0.710
33	Barclays Bank of Kenya	2014	2.931	0.711
26	Flame Tree Group Holdings Ltd	2014	2.931	0.711
42	Crown Paint	2016	2.930	0.711
37	Housing Finance	2005	2.928	0.711
34	Diamond Trust Bank Ltd	2016	2.920	0.712
27	Longhorn Publishers	2017	2.907	0.714
6	Kenol Kobil Ltd	2007	2.905	0.715
50	Williamson Tea	2013	2.904	0.715
32	Kenya Commercial Bank	2008	2.896	0.716
39	Cooperative Bank of Kenya	2007	2.894	0.716
41	Standard Chartered Bank	2003	2.889	0.717
45	Uchumi Supermarket Ltd	2016	2.887	0.717

9	Umeme Ltd	2012	2.886	0.718
16	Olympia Capital Holdings Ltd	2003	2.883	0.718
37	Housing Finance	2015	2.873	0.720
32	Kenya Commercial Bank	2011	2.871	0.720
7	Kenya Power and Lighting Co Ltd	2002	2.871	0.720
19	Nairobi Securities Exchange Ltd	2016	2.867	0.721
9	Umeme Ltd	2014	2.848	0.723
24	Mumias Sugar Company Ltd	2015	2.833	0.726
46	TPS East Africa	2007	2.826	0.727
16	Olympia Capital Holdings Ltd	2007	2.813	0.729
48	Sameer Africa Ltd	2015	2.807	0.730
34	Diamond Trust Bank Ltd	2010	2.807	0.730
5	East Africa Portland Cement Co. Ltd	2003	2.788	0.733
2	Eveready East Africa	2017	2.786	0.733
31	Equity Bank Ltd	2003	2.778	0.734
11	CIC Insurance Group Ltd	2017	2.777	0.734
29	Kakuzi	2010	2.771	0.735
23	East African Breweries Ltd	2007	2.738	0.740
24	Mumias Sugar Company Ltd	2003	2.735	0.741
11	CIC Insurance Group Ltd	2009	2.731	0.741
17	Home Afrika Ltd.	2016	2.729	0.742
29	Kakuzi	2005	2.716	0.744
10	Britam Holdings Ltd	2016	2.703	0.746
43	East Africa Cables Ltd	2012	2.696	0.747
45	Uchumi Supermarket Ltd	2008	2.695	0.747
7	Kenya Power and Lighting Co Ltd	2016	2.693	0.747
48	Sameer Africa Ltd	2009	2.669	0.751
48	Sameer Africa Ltd	2016	2.661	0.752
42	Crown Paint	2006	2.649	0.754
29	Kakuzi	2008	2.622	0.758
3	BOC	2004	2.617	0.759
48	Sameer Africa Ltd	2014	2.616	0.759
16	Olympia Capital Holdings Ltd	2015	2.608	0.760
47	WPP Scan.G	2012	2.602	0.761
3	BOC	2008	2.596	0.762
24	Mumias Sugar Company Ltd	2006	2.579	0.765
48	Sameer Africa Ltd	2013	2.575	0.765
3	BOC	2006	2.571	0.766
31	Equity Bank Ltd	2009	2.562	0.767
43	East Africa Cables Ltd	2003	2.544	0.770
4	KenGen Company Ltd	2009	2.531	0.772
12	Jubilee Holdings Limited	2016	2.529	0.772

12	Jubilee Holdings Limited	2003	2.526	0.773
30	Bamburi Cement Ltd	2011	2.519	0.774
17	Home Afrika Ltd.	2015	2.513	0.775
30	Bamburi Cement Ltd	2014	2.510	0.775
30	Bamburi Cement Ltd	2003	2.502	0.776
43	East Africa Cables Ltd	2004	2.498	0.777
10	Britam Holdings Ltd	2011	2.498	0.777
25	Unga Group Ltd	2013	2.497	0.777
48	Sameer Africa Ltd	2008	2.469	0.781
25	Unga Group Ltd	2012	2.467	0.782
24	Mumias Sugar Company Ltd	2005	2.458	0.783
24	Mumias Sugar Company Ltd	2016	2.449	0.784
51	Express KE	2003	2.448	0.784
9	Umeme Ltd	2010	2.442	0.785
3	BOC	2005	2.437	0.786
31	Equity Bank Ltd	2013	2.436	0.786
31	Equity Bank Ltd	2011	2.425	0.788
31	Equity Bank Ltd	2012	2.421	0.788
16	Olympia Capital Holdings Ltd	2011	2.402	0.791
25	Unga Group Ltd	2002	2.384	0.794
41	Standard Chartered Bank	2014	2.380	0.794
46	TPS East Africa	2008	2.375	0.795
24	Mumias Sugar Company Ltd	2008	2.363	0.797
41	Standard Chartered Bank	2002	2.362	0.797
44	Standard group	2006	2.327	0.802
12	Jubilee Holdings Limited	2014	2.320	0.803
48	Sameer Africa Ltd	2011	2.307	0.805
23	East African Breweries Ltd	2002	2.296	0.807
17	Home Afrika Ltd.	2009	2.295	0.807
10	Britam Holdings Ltd	2008	2.293	0.807
2	Eveready East Africa	2011	2.290	0.808
6	Kenol Kobil Ltd	2003	2.290	0.808
16	Olympia Capital Holdings Ltd	2004	2.278	0.809
10	Britam Holdings Ltd	2010	2.277	0.810
37	Housing Finance	2006	2.273	0.810
24	Mumias Sugar Company Ltd	2010	2.271	0.811
18	Trans-Century Ltd	2009	2.266	0.811
43	East Africa Cables Ltd	2011	2.264	0.812
50	Williamson Tea	2007	2.251	0.813
7	Kenya Power and Lighting Co Ltd	2005	2.250	0.814
5	East Africa Portland Cement Co. Ltd	2005	2.244	0.814
14	Liberty Kenya Holdings Ltd	2013	2.235	0.816

24	Mumias Sugar Company Ltd	2011	2.233	0.816
47	WPP Scan.G	2011	2.229	0.817
43	East Africa Cables Ltd	2013	2.229	0.817
19	Nairobi Securities Exchange Ltd	2006	2.219	0.818
30	Bamburi Cement Ltd	2007	2.218	0.818
29	Kakuzi	2003	2.215	0.819
21	British American Tobacco Kenya Ltd	2015	2.205	0.820
4	KenGen Company Ltd	2010	2.201	0.821
11	CIC Insurance Group Ltd	2012	2.199	0.821
39	Cooperative Bank of Kenya	2010	2.197	0.821
24	Mumias Sugar Company Ltd	2007	2.186	0.823
46	TPS East Africa	2017	2.186	0.823
2	Eveready East Africa	2005	2.183	0.823
24	Mumias Sugar Company Ltd	2009	2.180	0.824
43	East Africa Cables Ltd	2006	2.173	0.825
2	Eveready East Africa	2007	2.171	0.825
39	Cooperative Bank of Kenya	2009	2.167	0.826
5	East Africa Portland Cement Co. Ltd	2007	2.164	0.826
5	East Africa Portland Cement Co. Ltd	2012	2.161	0.826
34	Diamond Trust Bank Ltd	2007	2.157	0.827
39	Cooperative Bank of Kenya	2012	2.149	0.828
5	East Africa Portland Cement Co. Ltd	2009	2.147	0.829
39	Cooperative Bank of Kenya	2014	2.142	0.829
24	Mumias Sugar Company Ltd	2013	2.139	0.830
34	Daimond bank	2004	2.127	0.831
39	Cooperative Bank of Kenya	2011	2.126	0.831
31	Equity Bank Ltd	2017	2.123	0.832
39	Cooperative Bank of Kenya	2015	2.119	0.832
42	Crown Paint	2008	2.116	0.833
7	Kenya Power and Lighting Co Ltd	2004	2.105	0.834
3	BOC	2011	2.080	0.838
45	Uchumi Supermarket Ltd	2014	2.078	0.838
38	National Bank of Kenya	2007	2.078	0.838
4	KenGen Company Ltd	2016	2.069	0.839
50	Williamson Tea	2005	2.068	0.840
24	Mumias Sugar Company Ltd	2017	2.067	0.840
47	WPP Scan.G	2004	2.054	0.842
39	Cooperative Bank of Kenya	2013	2.037	0.844
45	Uchumi Supermarket Ltd	2013	2.030	0.845
12	Jubilee Holdings Limited	2015	2.014	0.847
13	Kenya Re Insurance	2005	2.012	0.848
32	Kenya Commercial Bank	2009	2.011	0.848

4	KenGen Company Ltd	2017	2.005	0.848
34	Diamond Trust Bank Ltd	2005	2.000	0.849
42	Crown Paint	2005	1.997	0.850
12	Jubilee Holdings Limited	2012	1.993	0.850
32	Kenya Commercial Bank	2007	1.986	0.851
12	Jubilee Holdings Limited	2013	1.980	0.852
30	Bamburi Cement Ltd	2015	1.972	0.853
12	Jubilee Holdings Limited	2008	1.939	0.857
30	Bamburi Cement Ltd	2005	1.937	0.858
12	Jubilee Holdings Limited	2009	1.932	0.859
12	Jubilee Holdings Limited	2010	1.931	0.859
40	NIC bank	2002	1.927	0.859
12	Jubilee Holdings Limited	2011	1.920	0.860
46	TPS East Africa	2013	1.896	0.863
39	Cooperative Bank of Kenya	2006	1.892	0.864
1	ARM	2009	1.859	0.868
15	Centum Investment Co Ltd	2014	1.851	0.869
29	Kakuzi	2017	1.836	0.871
6	Kenol Kobil Ltd	2014	1.830	0.872
19	Nairobi Securities Exchange Ltd	2017	1.827	0.873
6	Kenol Kobil Ltd	2015	1.817	0.874
49	Nation Media Group	2002	1.802	0.876
52	Nairobi Bs	2013	1.788	0.878
32	Kenya Commercial Bank	2006	1.780	0.879
31	Equity Bank Ltd	2005	1.779	0.879
50	Williamson Tea	2010	1.767	0.880
51	Express KE	2011	1.766	0.880
46	TPS East Africa	2014	1.764	0.881
23	East African Breweries Ltd	2017	1.762	0.881
45	Uchumi Supermarket Ltd	2009	1.758	0.882
21	British American Tobacco Kenya Ltd	2009	1.749	0.883
40	NIC bank	2015	1.746	0.883
38	National Bank of Kenya	2004	1.744	0.883
43	East Africa Cables Ltd	2010	1.727	0.885
2	Eveready East Africa	2006	1.724	0.886
7	Kenya Power and Lighting Co Ltd	2014	1.712	0.887
43	East Africa Cables Ltd	2002	1.704	0.888
30	Bamburi Cement Ltd	2006	1.687	0.891
40	NIC bank	2016	1.678	0.892
42	Crown Paint	2007	1.676	0.892
31	Equity Bank Ltd	2002	1.672	0.892
37	Housing Finance	2002	1.668	0.893

50	Williamson Tea	2002	1.668	0.893
50	Williamson Tea	2011	1.654	0.895
29	Kakuzi	2006	1.650	0.895
12	Jubilee Holdings Limited	2017	1.649	0.895
2	Eveready East Africa	2013	1.641	0.896
45	Uchumi Supermarket Ltd	2017	1.639	0.897
50	Williamson Tea	2006	1.639	0.897
13	Kenya Re Insurance	2009	1.624	0.898
10	Britam Holdings Ltd	2015	1.621	0.899
29	Kakuzi	2004	1.611	0.900
37	Housing Finance	2013	1.611	0.900
15	Centum Investment Co Ltd	2003	1.606	0.901
40	NIC bank	2014	1.589	0.903
1	ARM	2007	1.589	0.903
49	Nation Media Group	2006	1.586	0.903
43	East Africa Cables Ltd	2014	1.578	0.904
43	East Africa Cables Ltd	2016	1.572	0.905
50	Williamson Tea	2003	1.570	0.905
8	Total Kenya Ltd	2010	1.567	0.905
25	Unga Group Ltd	2003	1.565	0.905
43	East Africa Cables Ltd	2007	1.564	0.906
1	ARM	2017	1.554	0.907
50	Williamson Tea	2004	1.549	0.907
21	British American Tobacco Kenya Ltd	2003	1.547	0.908
50	Williamson Tea	2009	1.544	0.908
16	Olympia Capital Holdings Ltd	2013	1.540	0.908
50	Williamson Tea	2008	1.539	0.909
4	KenGen Company Ltd	2003	1.538	0.909
33	Barclays Bank of Kenya	2013	1.536	0.909
17	Home Afrika Ltd.	2017	1.523	0.910
13	Kenya Re Insurance	2003	1.521	0.911
42	Crown Paint	2003	1.518	0.911
11	CIC Insurance Group Ltd	2014	1.505	0.913
31	Equity Bank Ltd	2008	1.504	0.913
8	Total Kenya Ltd	2017	1.504	0.913
18	Trans-Century Ltd	2011	1.502	0.913
34	Diamond Trust Bank Ltd	2014	1.492	0.914
37	Housing Finance	2011	1.492	0.914
33	Barclays Bank of Kenya	2007	1.489	0.914
34	Diamond Trust Bank Ltd	2013	1.475	0.916
27	Longhorn Publishers	2016	1.465	0.917
4	KenGen Company Ltd	2011	1.464	0.917

29	Kakuzi	2016	1.464	0.917
13	Kenya Re Insurance	2014	1.463	0.917
13	Kenya Re Insurance	2017	1.457	0.918
15	Centum Investment Co Ltd	2017	1.454	0.918
4	KenGen Company Ltd	2012	1.449	0.919
39	Cooperative Bank of Kenya	2016	1.447	0.919
4	KenGen Company Ltd	2008	1.446	0.919
13	Kenya Re Insurance	2013	1.446	0.919
7	Kenya Power and Lighting Co Ltd	2011	1.428	0.921
7	Kenya Power and Lighting Co Ltd	2010	1.428	0.921
3	BOC	2010	1.427	0.921
7	Kenya Power and Lighting Co Ltd	2017	1.423	0.922
39	Cooperative Bank of Kenya	2008	1.417	0.922
29	Kakuzi	2013	1.412	0.923
3	BOC	2007	1.408	0.923
41	Standard Chartered Bank	2011	1.404	0.924
4	KenGen Company Ltd	2007	1.402	0.924
34	Diamond Trust Bank Ltd	2003	1.401	0.924
2	EVEREADY EAST AFRICA	2010	1.396	0.925
25	Unga Group Ltd	2006	1.396	0.925
17	Home Afrika Ltd.	2012	1.389	0.925
34	Diamond Trust Bank Ltd	2012	1.387	0.926
34	Diamond Trust Bank Ltd	2015	1.385	0.926
48	Sameer Africa Ltd	2007	1.384	0.926
2	Eveready East Africa	2016	1.369	0.928
25	Unga Group Ltd	2009	1.367	0.928
39	Cooperative Bank of Kenya	2002	1.346	0.930
29	Kakuzi	2014	1.346	0.930
41	Standard Chartered Bank	2017	1.342	0.931
21	British American Tobacco Kenya Ltd	2004	1.319	0.933
15	Centum Investment Co Ltd	2010	1.317	0.933
15	Centum Investment Co Ltd	2016	1.314	0.933
47	WPP Scan.G	2010	1.310	0.934
33	Barclays Bank of Kenya	2016	1.296	0.935
30	Bamburi Cement Ltd	2016	1.281	0.937
15	Centum Investment Co Ltd	2015	1.278	0.937
30	Bamburi Cement Ltd	2004	1.276	0.937
47	WPP Scan.G	2015	1.272	0.938
13	Kenya Re Insurance	2010	1.255	0.939
13	Kenya Re Insurance	2006	1.232	0.942
45	Uchumi Supermarket	2003	1.219	0.943
38	National Bank of Kenya	2017	1.218	0.943

46	TPS East Africa	2012	1.216	0.943
46	TPS East Africa	2016	1.216	0.943
7	Kenya Power and Lighting Co Ltd	2012	1.192	0.946
5	East Africa Portland Cement Co. Ltd	2011	1.191	0.946
40	NIC bank	2005	1.189	0.946
7	Kenya Power and Lighting Co Ltd	2015	1.186	0.946
12	Jubilee Holdings Limited	2007	1.172	0.948
25	Unga Group Ltd	2015	1.172	0.948
15	Centum Investment Co Ltd	2004	1.172	0.948
19	Nairobi Securities Exchange Ltd	2005	1.168	0.948
47	WPP Scan.G	2016	1.167	0.948
31	Equity Bank Ltd	2006	1.165	0.948
12	Jubilee Holdings Limited	2004	1.165	0.948
37	Housing Finance	2007	1.161	0.949
7	Kenya Power and Lighting Co Ltd	2008	1.158	0.949
25	Unga Group Ltd	2010	1.158	0.949
13	Kenya Re Insurance	2008	1.157	0.949
25	Unga Group Ltd	2014	1.156	0.949
21	British American Tobacco Kenya Ltd	2002	1.153	0.949
38	National Bank of Kenya	2015	1.151	0.949
18	Trans-Century Ltd	2013	1.150	0.950
25	Unga Group Ltd	2007	1.139	0.951
47	WPP Scan.G	2009	1.129	0.951
34	Diamond Trust Bank Ltd	2011	1.119	0.952
15	Centum Investment Co Ltd	2011	1.114	0.953
25	Unga Group Ltd	2011	1.111	0.953
18	Trans-Century Ltd	2014	1.108	0.953
10	Britam Holdings Ltd	2012	1.108	0.953
15	Centum Investment Co Ltd	2013	1.100	0.954
13	Kenya Re Insurance	2004	1.092	0.955
38	National Bank of Kenya	2016	1.092	0.955
25	Unga Group Ltd	2017	1.091	0.955
45	Uchumi Supermarket	2002	1.091	0.955
5	East Africa Portland Cement Co. Ltd	2017	1.084	0.956
25	Unga Group Ltd	2008	1.084	0.956
3	BOC	2013	1.081	0.956
13	Kenya Re Insurance	2011	1.080	0.956
15	Centum Investment Co Ltd	2007	1.076	0.956
18	Trans-Century Ltd	2010	1.067	0.957
47	WPP Scan.G	2008	1.055	0.958
13	Kenya Re Insurance	2007	1.050	0.958
37	Housing Finance	2014	1.048	0.959

17	Home Afrika Ltd.	2013	1.048	0.959
42	Crown Paint	2004	1.041	0.959
40	NIC bank	2003	1.030	0.960
15	Centum Investment Co Ltd	2002	1.007	0.962
4	KenGen Company Ltd	2002	1.007	0.962
33	Barclays Bank of Kenya	2011	0.998	0.963
47	WPP Scan.G	2013	0.984	0.964
34	Diamond Trust Bank Ltd	2008	0.983	0.964
15	Centum Investment Co Ltd	2006	0.978	0.964
3	BOC	2014	0.975	0.965
32	Kenya Commercial Bank	2016	0.973	0.965
37	Housing Finance	2017	0.968	0.965
21	British American Tobacco Kenya Ltd	2010	0.965	0.965
32	Kenya Commercial Bank	2010	0.962	0.966
1	ARM	2011	0.949	0.967
15	Centum Investment Co Ltd	2009	0.944	0.967
15	Centum Investment Co Ltd	2012	0.943	0.967
34	Diamond Trust Bank Ltd	2006	0.938	0.967
32	Kenya Commercial Bank	2015	0.907	0.970
2	Eveready East Africa	2012	0.900	0.970
25	Unga Group Ltd	2005	0.884	0.971
41	Standard Chartered Bank	2015	0.876	0.972
16	Olympia Capital Holdings Ltd	2008	0.876	0.972
50	Williamson Tea	2016	0.778	0.978
3	BOC	2017	0.766	0.979
49	Nation Media Group	2017	0.739	0.981
16	Olympia Capital Holdings Ltd	2009	0.719	0.982
50	Williamson Tea	2017	0.715	0.982
50	Williamson Tea	2015	0.706	0.983
25	Unga Group Ltd	2004	0.686	0.984
49	Nation Media Group	2014	0.643	0.986
33	Barclays Bank of Kenya	2004	0.631	0.987
41	Standard Chartered Bank	2010	0.599	0.988
9	Umeme Ltd	2016	0.594	0.988
1	ARM	2004	0.592	0.988
1	ARM	2005	0.578	0.989
40	NIC bank	2004	0.534	0.991
2	Eveready East Africa	2009	0.525	0.991
41	Standard Chartered Bank	2006	0.519	0.991
18	Trans-Century Ltd	2008	0.519	0.991
45	Uchumi Supermarket Ltd	2006	0.510	0.992
38	National Bank of Kenya	2014	0.510	0.992

12	Jubilee Holdings Limited	2002	0.506	0.992
40	NIC bank	2012	0.502	0.992
40	NIC bank	2011	0.498	0.992
40	NIC bank	2010	0.490	0.993
31	Equity	2016	0.484	0.993
47	WPP Scan.G	2017	0.483	0.993
40	NIC bank	2006	0.449	0.994
29	Kakuzi	2002	0.444	0.994
41	Standard Chartered Bank	2012	0.436	0.994
2	Eveready East Africa	2015	0.408	0.995
33	Barclays Bank of Kenya	2008	0.400	0.995
30	Bamburi Cement Ltd	2010	0.382	0.996
1	ARM	2003	0.373	0.996
2	Eveready East Africa	2014	0.372	0.996
41	Standard Chartered Bank	2008	0.357	0.996
40	NIC bank	2008	0.348	0.997
38	National Bank of Kenya	2002	0.346	0.997
40	NIC bank	2007	0.327	0.997
38	National Bank of Kenya	2003	0.320	0.997
12	Jubilee Holdings Limited	2005	0.303	0.998
40	NIC bank	2009	0.303	0.998
1	ARM	2014	0.281	0.998
38	National Bank of Kenya	2009	0.207	0.999
38	National Bank of Kenya	2010	0.199	0.999
38	National Bank of Kenya	2006	0.186	0.999
38	National Bank of Kenya	2005	0.183	0.999
38	National Bank of Kenya	2011	0.183	0.999
33	Barclays Bank of Kenya	2005	0.172	0.999
38	National Bank of Kenya	2008	0.166	0.999
38	National Bank of Kenya	2012	0.165	0.999
1	ARM	2008	0.111	1.000
33	Barclays Bank of Kenya	2012	0.036	1.000
33	Barclays Bank of Kenya	2017	0.031	1.000
33	Barclays Bank of Kenya	2006	0.014	1.000
33	Barclays Bank of Kenya	2010	0.010	1.000
1	ARM	2015	0.005	1.000
1	ARM	2012	0.001	1.000
41	Standard Chartered Bank	2013	0.000	1.000
1	ARM	2002	0.000	1.000
1	ARM	2013	0.000	1.000