

**THE EFFECT OF BOARD STRUCTURE ON EARNINGS MANAGEMENT
OF COMPANIES LISTED AT THE NAIROBI SECURITIES EXCHANGE**

BY

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DECLARATION

This research project is my original work and has not been presented for a degree in this or any other University.

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This research project has been submitted for examination with my approval as the University Supervisor

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DEDICATION

This project is dedicated to my beloved husband Elijah Gakuo who has inspired me to be strong despite of many obstacles in life, my little angels Ryan and Kimberly for their unconditional love that motivates me to set higher targets every day and finally to my parents for their understanding and for their overwhelming support morally and financially.

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ABBREVIATIONS AND ACRONYMS

B	Beta
CEO	Chief Executive Officer
CMA	Capital Markets Authority
DF	Degrees of Freedom
GAAP	Generally Accepted Accounting Principles
NSE	Nairobi Securities Exchange
STD	Standard
US	United States

ABSTRACT

Following the significant increase of corporate failures and financial scandals worldwide and collapse of once high profile companies among them Enron and WorldCom in the US, investigations in to the quality and credibility of financial reports and effectiveness of corporate governance mechanisms more precisely the board structure have been carried out. The board structure has a great influence on the performance of the company. In Kenya, corporate failures have been experienced due to weak corporate governance mechanisms within the organizations. This study sought to determine the effect of board structure on earnings management of companies listed at the Nairobi Securities Exchange. The study used a descriptive study that is intended to explain a characteristic behavior of one variable because of another variable. The population of study included 64 listed firms in Nairobi securities Exchange as at 31 December 2014. The study used secondary data. The study used a multiple regression model to establish the relationship between the board structure and earnings management. The study revealed that the size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage strongly affect earnings management among firms listed in the Nairobi securities Exchange. The study found that size of the board and board independence negatively affects earning management among firms listed in the Nairobi Securities Exchange. The study further established that size of the board, board independence; board activity, gender diversity, age diversity, ethnic diversity and financial leverage were significantly influencing the earnings management among firms listed in the Nairobi Securities Exchange. The study found that board activity, gender diversity, age diversity, ethnic diversity and financial leverage positively affect earnings management among firms listed in the Nairobi Securities Exchange.

CHAPTER ONE INTRODUCTION

1.1 Background of the Study

The recent collapse of some of the largest companies worldwide resulting partially from accounting manipulations has raised serious questions about the effectiveness of different monitoring devices presumed to protect investors' interests and control managerial opportunistic behavior. These monitoring devices include different corporate governance factors such as independent directors on corporate boards, independence of the audit committee and other factors that may affect sharing of power inside the board and, therefore, the quality of corporate governance structure and its effectiveness to protect shareholders' interests (Heninger, 2001).

Fama and Jensen (1983) argued that the role of the board of directors is to protect shareholder interests by monitoring the firm's management. An important factor that may affect the board's ability to monitor the firm's managers is its composition and the percentage of independent directors on the board. In the agency theory framework, outside directors have an incentive to avoid colluding with managers because the value of independent directors' human capital is partially determined by the effectiveness of their monitoring performance (Jensen and Meckling, 1976). If they do not adequately monitor managers, the value of their human capital as outside directors may diminish. Therefore, outside directors are widely believed to protect the interests of shareholders more effectively. Fama (1980) argues that the inclusion of outside directors as professional referees improves the likelihood the board will achieve its control function, and lowers the probability of top management colluding with other board members against the shareholders' interests.

On the other hand, it is argued that the monitoring role of independent directors will be less effective when those directors are overcommitted in terms of the number of directorships they hold in different companies because directors who hold too many directorships may not have enough time for close monitoring attention for management (Lipton and Lorsch, 1992). However, Li and Ang (2000) reported evidence that the mere number of outside directorships does not affect the director's performance in monitoring management especially in situations that require the director's expertise.

1.1.1 Board Structure

According to Richardson (2000), board structure is the composition of the board, board size, directors' ownership, number of directorships and duality status of the chairman and CEOs. Board composition concerns issues related to board independence including independence of board committees, board diversity which is firm and industry experience, functional backgrounds of board members and CEO duality. Directors can be classified as insider directors or management directors who are salaried employees. Related or affiliated outside directors are those who have a pre-existing relationship with the firm such as retired executives and Independent outside directors are directors who have no personal connections or business dealing with the firm.

Board independence refers to a corporate board that has a majority of independent outside directors. An outsider dominated board is believed to be more vigilant in monitoring actions and decision making of the management and thus may ensure earnings quality. However, an independent board may not always guarantee good corporate governance since some board members may be brought to window dress in

order to meet the regulatory requirements. Hwang and Kim (2009) argued that while a higher level of board independence may be desirable, outside directors may not be effective monitors if they are handpicked by the CEOs or if firms merely use a “box checking” approach to comply with the new regulations. Thus board independence may have an effect on earnings management.

A board that consists of directors with a diverse set of functional expertise ,industry experiences, educational qualifications, ethnic and gender mix might be better in addressing a wide range of issues affecting the firm and offering advice from different perspectives. CEO duality refers to the situation where the CEO also holds the position of the chairman of the board. Fama and Jensen (1983) argued that CEO duality may weaken the board’s governance role as a management watchdog and thereby increase agency cost because the CEO will be perceived to have great control over the firm’s decision making.

Board size is viewed as another important element in board characteristics that may have an effect on earnings management. The optimum number of board members should be appropriately determined by the whole board to ensure that there are enough members to discharge responsibilities and perform various functions. Heninger (2001) argued that smaller boards, between four to six members might be more effective since they are able to make timely strategic decisions, while larger boards are capable of monitoring the actions of top management. Large board members with varied expertise could increase the synergetic monitoring of the board in reducing the incidence of earnings management. Xie et al. (2003) found that having a larger board is associated with less earnings management.

The board of directors is responsible to oversee the actions of the management and ensure that the management presents reliable and complete financial reports by using Generally Accepted Accounting Principles. However, the applicability of accounting standards is very flexible. The management may choose an acceptable accounting method or estimate that is appropriate for the need of the organization (Rashidah, 2006).

1.1.2 Earnings Management

Barton (2001) defines earnings management as the use of accounting techniques to produce financial statements and records that paints an exaggerated positive picture of a firm's business activities and financial position. Davidson and DaDalt (2003) argues that earnings management takes advantage of the way accounting rules are applied and are legitimately flexible when firms incur expenses and recognize revenues. Healy and Wahlen (1999) argues that earnings management occurs when managers use judgment in financial reporting and in structuring transactions to change financial reports to either mislead stakeholders about the underlying economic performance of the company or otherwise influence contractual outcomes that depend on reported accounting numbers.

Earnings management can be effected through the accounting system or business transactions of the company which involves using estimates or judgments allowed by accounting regulations such as expected lives and salvage values of assets and liabilities. Moreover it can also be achieved by making changes between acceptable accounting methods for instance inventory valuation. Earnings management may impact investors by giving them false and misleading information which will have

adverse effect on their investment decisions. Capital markets use financial information to set security prices. Investors use financial information to decide whether to buy, sell or hold securities. Kam (2007) notes that market efficiency is based upon the information flow to capital markets. When the information is incorrect, it may not be possible for the markets to value securities correctly (Davidson et al., 2003).

Earnings management may obscure real performance and lessen the ability of shareholders to make informed decisions. Dechow et al. (1995) also provides evidence that managers inflate earnings prior to seasoned equity offerings. Their results are consistent with the notion that managers seek to manage pre-issue earnings in an attempt to improve investors' expectations about future performance. Earnings management was measured using discretionary accruals for firm i in year t . Discretionary accruals were used as a proxy for earnings management which were estimated by subtracting non-discretionary accruals from total accruals where all accrual variables were scaled by the lagged total assets.

1.1.3 The Relationship between Earnings Management and Board Structure

Kam (2007) maintains that the boards of director's play a key role in establishing good practices in a company. Directors are in charge of monitoring management to protect shareholders' interest. They ensure the interest of shareholders and managers are aligned. The conflict of interest between shareholders and managers will arise if managers use earnings management to obtain private gains or to reduce likelihood of dismissal when performance is poor. The board committee comprises of executive directors (inside directors) and non-executive directors (outside directors including

independent non-executive). The role of independent non-executive directors is to bring independent judgment to the Board.

The need for independent non-executive directors is to provide a check-and-balance to the activities of executive directors (Davidson and DaDalt, 2003). Independent non-executive directors are supposed to monitor management activities on behalf of shareholders. The findings of Richardson (2000) and Beasley (1996) imply that higher proportion of outside directors in the Board Committee is associated with greater confidence in the firm's financial reporting system. Earnings management is less likely to occur in companies whose board has more independent directors (Myers and Omer, 2003). Kam (2007) pointed out that outside directors do not reduce the incidence of earnings management. In addition, Rashidah and Fairuzana (2006) found that earnings management is positively related to the size of the board of directors. These evidence indicate that outside directors may lack the financial sophistication to detect earnings management or sense of ownership to the firm they monitor.

1.1.4 Nairobi Securities Exchange

The Nairobi Securities Exchange (NSE) is a market that deals with exchange of securities issued by public quoted companies and the government. The Nairobi Securities Exchange is licensed and regulated by the Capital Markets Authority (CMA). It has the mandate of providing a trading platform for listed securities and overseeing its Member Firms. There are 64 firms licensed under the NSE as at 2014 which are classified in different sectors depending on their nature of activities and operations; this is provided in Appendix I of this study. (www.nse.co.ke).

Companies listed in Nairobi Securities Exchange are required to comply with guidelines on corporate governance practices as per requirements of the Gazette Notice No.3362 of the Capital Markets Authority Act of Kenya(CAP 485A).Every quoted company is required to be headed by an effective board of directors and board committees and also other considerations like board size, board activities characterized by board meetings ,directors remuneration, appointment procedures and board independence requiring that at least one third of the directors should be independent and non-executive and of diverse background have to be put in place.

Uzun (2004) argues that if capital markets are not efficient, board assumes a pivotal role in monitoring the top managers and serves as a substitute device for market takeover. Board structure; the size and composition of the board, is the strongest predictor of firm' performance and thus value. Earnings management is likely to occur in companies with ineffective board structures. Dechow et al. (1995) defines earnings management as a strategy adopted by the management to deliberately manipulate the earnings of the company so that they match a predetermined target for the purpose of income smoothing. It involves using judgment in financial reporting and in structuring transactions in order to give misleading information about the underlying economic performance of the company. (Healy and Wahlen, 1999).It impairs with the ability of the shareholders to make informed decisions.

1.2 Research Problem

The board structure has a great influence on the performance of the company. Davidson and DaDalt (2003) argued that the board of directors is the main important monitoring tool designed to mitigate the inherent agency problems in the publicly traded firm. The board of directors oversees the actions of the management by

ensuring they produce credible financial reports through complying with the Generally Accepted Accounting Principles and thus ensuring incidences of collusion by the management to defraud the company especially through earnings management are mitigated and hence earnings quality. Jensen and Meckling (1976) argued that a company with an effective board structure is presumed to have better performance because the board of directors will ensure the managers discharge their duties in the best interest of the shareholders. Board oversight efficiency with regard to such behavior depends largely on factors such as its size, composition and independence.

In Kenya, corporate failures have been experienced due to weak corporate governance mechanisms within the organizations. According to Iraya et al.(2014) ,some of the firms in Kenya which have experienced corporate failures as a result of ineffective board structures and poor corporate governance practices as a whole include Euro Bank in 2004, the near collapses of National Bank of Kenya and Unga group, the placement of Uchumi Supermarkets under receivership in 2004 due to mismanagement and more recently board room wrangles and discovery of overseas bank accounts for siphoning company money by some directors at CMC Motors. Thus measures need to be put in place to ensure that there are no irregularities and companies adopt good corporate governance practices.

Several studies in board structure and earnings management have been undertaken internationally. Xie et al. (2003) studied the relationship between earnings management and board structure. The findings depicted that there was a significant negative relationship between earnings management and the percentage of outside directors and board committee number of meetings. Bedard et al. (2004) examined the relationship between the measures of earnings management on the independence of

audit committees. The study found a significant negative relationship between measures of earnings management and the all-independent audit committees. Barton

(2001) investigated the relationship between earnings management and board structure. The results revealed that earnings management was negatively related to board size and composition.

Locally, there are no studies on board structure and earnings management which have been undertaken. However, there is considerable number of studies on corporate governance practices and earnings management though they are not exclusive because the studies on these areas are still scanty and thus this study will increase the existing knowledge by concentrating on the board structure as a corporate governance mechanism. Bulle (2014) studied the effect of corporate governance on earnings management of companies listed at the Nairobi securities exchange. The study found that there was a statistically significant relationship between board size and earnings management. Iraya et al. (2014) investigated the effect of corporate governance practices on earnings management of companies listed at the Nairobi Securities Exchange. The study found that earnings management is negatively related to ownership concentration, board size and board independence but positively related to board activity and CEO duality.

Wangaruro (2014) studied the effect of corporate governance practices on earnings management for the listed commercial banks in Kenya. The findings depicted that

earnings management is negatively related to board size and board composition. None of the above studies has focused on the effect of board structure on earnings management of companies listed at the Nairobi Securities Exchange. This study therefore sought to find an answer to the following research question: what is the effect of board structure on earnings management of companies listed at the Nairobi Securities Exchange?

1.3 Research Objective

To determine the effect of board structure on earnings management of companies listed at the Nairobi Securities Exchange.

1.4 Value of the Study

The findings of this study will be beneficial to local and foreign investors; especially when making investment decisions. This study will provide more insights on the best companies to invest in. It will also contribute to improved understanding of how the structure of the board influences earnings management in a developing country.

The study findings might also be resourceful to the shareholders of various companies on the significance of adopting good corporate governance practices for purposes of maximizing shareholders wealth. The empirical findings from this study will be resourceful in policy setting by CMA. It might be used to provide guidance on promoting policies that uphold good corporate governance.

The study will serve as a key purpose in terms of contribution to theory. The study will help understand the importance of agency theory among other theories, its application and how it relates to the empirical findings of this study. Researchers interested in this area of study can use the findings of this study as a base for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter consists of the theoretical framework, the determinants of earnings management and the summary of the literature review.

2.2 Theoretical Framework

This section provides a critical review of theories that support the relationship existing between board structure and earnings management. The theories are: agency theory, resource dependence theory and Institutional Theory.

2.2.1 Agency Theory

This theory was postulated by Meckling and Jensen in the year 1952. Meckling and Jensen (1976) defines agency relationship as a contract in which the principal engage the other person who is the agent to perform services on his behalf which involves delegating decision making authority to the agent. According to the agency conflicts hypothesis, the ability of managers to distort information and manipulate earnings depends on the firm's degree of organizational complexity and on the potential for agency gains which may prove to be highly important.

Large firms with complex organizations and agency problems are diversified across more than one country or industry. It is largely documented that diversified firms are generally larger, that they have more complex organizational structures, have less transparent operations and that their analysis poses difficulties to investors and analysts alike. In addition, they are likely to exhibit agency conflicts and informational asymmetry problems which are considered conducive to the practice of earnings management.

It is argued that managers may seek to diversify to: increase their compensation (Jensen and Murphy, 1990), for power and prestige (Jensen, 1986), secure their position within the firm through manager-specific investments and reduce the risk of their personal investment by reducing firm risk (Amihud and Lev, 1981).

Diversification may therefore not only motivate managers to manipulate accounting figures, but may also create favorable conditions to make it difficult to detect earnings management. Thus, based on these arguments, one can think that firms operating in a single line of business and exclusively in the domestic market are likely to have less opportunity for earnings management than multi-segment firms or geographically

diversified firms or both combined. Such situations impose agency costs, due to the existence of conflicts of interest between the agents and the principals. An agency cost is part of manager's incentives to manage costs.

Empirical evidence from agency theory also reports that management has a preference for managing earnings numbers in order to benefit from the contracting process. Several studies also document evidence that the existence of information asymmetry between managers and shareholders is a necessary condition for earnings management

(Chang and Yu, 2004). This is because shareholders have less information, thus management can use its' insider position to manage reported earnings (Amihud and Lev, 2001).

2.2.2 Resource Dependency Theory

According to Pfeffer (1982), resource dependency theory proposes that actors lacking in essential resources will strive to establish relationships with others to get the resources. This theory is important to the study because it demonstrates the extent to which a firm can go to acquire resources to execute its plans in order to achieve its goals. Organizations attempt to alter their dependence relationships by minimizing their own dependence or by increasing the dependence of other organizations on them (Pfeffer and Salancik, 2003).

Organizations can be seen as coalitions alerting their structure and patterns of behavior in order to acquire and maintain the required external resource. When an organization acquires the external resources it reduces the level of organization's dependence on others and increasing the level of dependency by others. This means that the organization is able to gain a core competence over its competitors since its less dependency on others while other firms depend on it, this leads to competitive advantage (Porter, 1998).

Resource dependency theory rest on some assumptions that the organizations are assumed to be comprised of internal and external coalitions which emerge from social exchanges that are formed to influence and control behavior. The environment is assumed to contain scarce and valued resources essential to organizational survival. As such, the environment poses the problem of organizations facing uncertainty in

resource acquisition (Pfeffer and Salancik, 2003). The firm has to allocate adequate resources to ensure that the boards of directors are effective in their work.

In a bid to boost the effectiveness of the audit committee, managers of the firm are stimulated to prepare financial statements regularly to determine the amount of return generated by the firm. Resource dependency theory provides that the presence of audit committee in the board of directors is adequate to confirm the accuracy and reliability of the financial statements. This statement contradicts with the findings of Beasley (1996) who indicated that the presence of audit committee does not necessarily mean that the committee is effective in carrying out its role and that the financial statements are reliable and accurate.

2.2.3 Institutional Theory

According to North (1991) institutional theory asserts that the institutional environment can strongly influence the development of formal structures in an organization, often more profoundly than market pressures. This theory provides that those organizations that embrace change are easy to cope with the dynamics of the external environment. This theory supports the importance of audit committee for purposes of oversight of a company's reporting processes, internal controls and independent auditors. This is because the business environment of audit is characterized by risks and uncertainties and firms have to cope with these dynamics to survive in the business environment.

Audit committee is one of the essential tools that firms adopt to cope with the dynamics in the external environment. According to institutional theory, an organization consists of cultural, social and technological settings that constitute its broader institutional environment (DiMaggio & al 1983). The adoption and operation

of audit committees highly depends on the extent to which they influence and can be influenced by a multiplicity of agents (Zaman, 2002).

Following the findings of Zaman (2002), for the audit committee to function efficiently, it has to be independent and exhibit competence and professionalism in their work. The members of the audit committee should exhibit the traits of professionalism to effectively execute their work. Klein (2002) and Bryan et al. (2004) have emphasized on the importance of key traits related to the members that form the audit committee. These traits are namely: integrity and professionalism. These traits are important for the audit committee to perform its function of monitoring and control. Spira (2003) argues that the audit committee aims to defend the interest of its investors and reduce agency problems of companies characterized by information asymmetry.

2.3 Determinants of Earnings Management

There are various determinants of earnings management; this study has however discussed the following determinants as follows:

2.3.1 Firm Size

Heninger (2001) suggests that large firms face greater political costs relative to their small counterparts. Political costs refer to costs arising from direct or indirect regulation causing a heavy scrutiny by stock market. Consequently, large firms may have a greater incentive to manage earnings downward to escape from such constraints.

Myers and Omer (2003) argue that earnings management may be lower in large firms because, compared to other firms they have lower information asymmetry, stronger

governance structures and stronger external monitoring. In this case natural log of total assets is used as a proxy for the firm size but no predictions about the sign of the coefficient (Rashidah and Fairuzana, 2006).

2.3.2 Audit Quality

Jiang et al. (2008) found that higher audit quality results in lower earnings management and improved quality of earnings. After controlling for the auditor independence, tenure, and size, they find evidence that absolute discretionary accruals are lower for firms audited by Big4 auditors than firms audited by non-Big4 ones.

Uzun et al. (2004) shows that the higher the degree of the audit independence, the lower the likelihood of corporate fraud. Klein (2002) reports a decreased probability of financial misstatement when the audit committee is highly independent. To uncover the auditing quality effects on earnings management behavior; the firms should include the percentage of independent outside directors in the audit committee and postulate a negative coefficient for this variable.

2.3.3 Industry

Li and Ang (2000) found that firms operating in industries subject to high-price

volatility or strong income sensitivity such as high-technology industry manage

earnings more frequently than companies belonging to relatively stable industries.

Klein (2002) suggests that, as firms with few formal rules, new economy companies are difficult to monitor and likely to have greater opportunity to manage earnings.

This exposes most firms to high chances of manipulation that may paint untrue picture about the performance of the firm.

Cornett et al. (2007) has shown that earnings management is more expected for failing

firms than for well-performing firms. Uzun et al. (2004) indicate that poor financial

performance affect significantly the likelihood of fraud. Bedard et al. (2004) have documented negative relationship between earnings management and firm performance.

2.3.4 Financial Leverage

Jiang (2008) indicates that firm with financing needs and firms approaching debt covenant default triggers have higher levels of abnormal accruals, a higher incidence of Generally Accepted Accounting Principles (GAAP) violation and a higher likelihood of committing accounting fraud. This necessitates the need to put in place an effective board and audit committee to effectively govern the firm and build a corporate reputation to the investors.

Klein (2002) argues that debt-to-assets ratio is used to substitute for the effects of debt

covenants on earnings management. The larger the firm is leveraged, the more likely managers are to choose income decreasing. This negatively impacts on the performance of the firm since it does not reflect a true picture of the financial statements (Cornett et al., 2007).

2.4 Empirical Review

Xie et al. (2003) studied the relationship between earnings management and board size. The study did a survey and panel data for ten years was used. The study sampled 65 service firms to find out the relationship between the variables. Data was analyzed using a regression model. The findings depicted a negative relationship between earnings management and board size.

Bedard et al. (2004) examined the relationship between the measures of earnings management on the independence of audit committees in manufacturing firms. The

study did a survey of 45 manufacturing firms. Data was analyzed using descriptive statistics. The study found a negative relationship between earnings management and independence of audit committees.

Barton (2001) investigated the relationship between earnings management and board structure. The study used a cross-sectional survey and data was collected using a structured questionnaire. Data was analyzed using a regression model and the results of the analysis found that earnings management was negatively related to board size and composition.

Davidson and DaDalt (2003) investigated the relationship between earnings management and the size of the board. The study used a cross-sectional survey in a population of 100 audit firms. The study used secondary sources of data that was obtained from financial statements and records. Data was analyzed using a regression model to find a relationship between the variables. The study findings depicted that earnings management was negatively related to size of the board.

Bedard, Chtourou and Courteau (2004) surveyed 100 firms in the financial sector to examine the relationship between earnings management and the effectiveness of audit committee. The study did a descriptive survey of 100 firms in the financial sector. The study did a sample of 65 firms. The study used secondary data that was obtained for a period of ten years. Data was analyzed using a regression model and the findings observed that there was a significant relationship between earnings management and effectiveness of audit committee.

Bulle (2014) studied the effect of corporate governance on earnings management of firms listed at the Nairobi securities exchange. The study used a descriptive survey to

establish the relation between the variables. Secondary data for a period of five years was obtained from financial statements. Data analysis was done using a linear regression model. The study found that there was a negative relationship between corporate governance and earnings management of listed firms at NSE.

Iraya et al. (2014) investigated the effect of corporate governance practices on earnings management of companies listed at the Nairobi Security Exchange. The study used a descriptive study to establish the relationship between corporate governance practices and earnings management. A total of 150 company years' data observations were made for purposes of achieving the objective of the study. Secondary data for ten years was obtained from financial statements. A linear regression model was used for data analysis. The study found that earnings management is negatively related to ownership concentration, board size and board independence but positively related to board activity and CEO duality.

Wangaruro (2014) studied the effect of corporate governance practices on earnings management for the listed commercial banks in Kenya. The study used a descriptive survey to establish the relationship between the variables. The study used secondary data for five years (2009-2013). A linear regression model was used for data analyzed. The findings depicted that earnings management is negatively related to board size and board composition.

Ogoro and Nanjala (2014) investigated the effectiveness of audit committees in the public sector: a case of parastatals in Kenya. The study conducted a sampling frame of State Corporations in Kenya of 177 firms. The study tested the relationship between audit committee characteristics: multiple directorships and audit committee

tenure. It was revealed that they were statistically significant in mitigating the number of financial statement restatements.

2.5 Summary of the Literature Review

The results of various empirical studies indicate that corporate governance practices have an effect on earnings management. Previous local studies have investigated the relationship between corporate governance and earnings management. None of the above studies have investigated the relationship between board structure and earnings management for firms listed at the Nairobi securities Exchange. This study will thus be helpful to the listed companies in Kenya because they will understand the importance of effective board structures as an important monitoring device to ensuring they provide quality, credible and reliable financial reports.

This necessitated the need to investigate the relationship by seeking to find an answer to the following research question: what is the effect of board structure on earnings management for firms listed at the Nairobi Securities Exchange?

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research methodology that was used in conducting the study. The layout of this chapter consisted of the research design, population, data collection and data analysis.

3.2 Research Design

The study used a descriptive study that is intended to explain a characteristic behavior of one variable because of another variable. Kothari (2005) indicates that a descriptive survey explains the relationship between variables. This is because this study sought to establish the relationship between board structure and earnings management.

3.3 Study Population

A population is a large collection of individuals or objects that is the main focus of a scientific query. The population of study included all the listed firms in Nairobi securities Exchange as at 31 December 2014. Currently there are 64 listed firms in Nairobi Securities Exchange (www.nse.co.ke). All firms listed in the Nairobi Securities Exchange were used to carry out the study. Listed firms were appropriate for the study because they are public institutions running under strict corporate governance regulations and thus their financial reports are reliable.

3.4 Data Collection

The study used secondary data. Secondary data was obtained from annual reports of all listed companies in the NSE. Secondary data was collected from financial statements and from statement of corporate governance which includes the number of directors, proposition of executive and non-executive directors in the board, proposition of executive and non-executive directors in the audit committee and CEO

shares. The financial statements contained; net income, cash flow from operations, accounts receivables and net property, plant and equipment of all listed companies. These data covered the period from 2010 to 2014.

3.5 Data Analysis

The study used a multiple regression model to establish the relationship between the board structure and earnings management. The study sought to extend the model that was adopted by Bulle (2014). The limitation of this study is that much focus was laid on corporate governance and thus did not concentrate on variables for instance: financial leverage which is largely used by most listed firms. This is because most firms with financing needs and firms approaching debt covenant default triggers have higher levels of abnormal accruals; this exposes these firms to violation of Generally Accepted Accounting Principles (GAAP) and a higher likelihood of committing accounting fraud. Below is the regression model that was used in the current study:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + e$$

Where:

Y = Earnings Management which was measured using discretionary accruals, for Company i in year t. Discretionary accruals was used as a proxy for earnings management that was estimated by subtracting non-discretionary accruals from total accruals where all accrual variables were scaled by the lagged total assets.

Board structure was measured by the size of the board, board independence, board activity, gender diversity, age diversity and ethnic diversity.

X₁ = represents the size of the board which is the total number of executive and non-executive directors in the board; this was measured by the number of directors in the board.

X_2 = represents board independence which is the percentage of independent outside directors in the board and is usually referred to as nonexecutive directors; was measured by ratio of non-executive directors to total number of directors.

X_3 = Board activity was measured by the number of board meetings held during the year.

X_4 = Gender diversity refers to the female representation in the board; this was measured by ratio of female directors to total number of directors.

X_5 = Age diversity refers to how directors of different age groups have been mixed in the board ; this was measured by assigning 50% if the board of directors in the company are of different age groups and assigning 10% if they belong to same age group.

X_6 =Ethnic diversity refers to people of other countries or ethnic groups who do not share the same cultural or political origin; this was measured by the percentage of the number of foreigners in the board.

X_7 = financial leverage is a control variable which was measured using debt to equity ratio which is computed as follows: Total liabilities divided by stakeholders' equity.

b = slope of the regression which was used to measure the amount of the change in y associated with a unit change in x or regression constants.

B_0 is the line intercept

B_1 - B_7 is the coefficient of independent variables

X_1 X_2 X_3 X_4 X_5 X_6 and X_7 are independent variables

a = regression constants.

ϵ =Error term

3.5.1 Test of Significance

To confirm the hypothesis of the study; the study used F-test to determine the extent to which board structure contributes to earnings management. The model of coefficients of the independent variables and their P-values were also used. The tests were performed at 95% confidence level and at 5% significance level.

CHAPTER FOUR
DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the research findings on the effect of board structure on earnings management of companies listed at the Nairobi Securities Exchange. The study was conducted on a five year period where secondary data from the year 2010 to 2014 was used in the analysis. Regression analysis was used in analysis of the data.

4.2 Research Findings

In this study, a multiple regression analysis was conducted to establish the relationship and the variation between the dependent and independent variable for the model of each year of study and for the 5 year study period. The research used statistical package for social sciences (SPSS V 20) to code, enter and compute the measurements of the multiple regression.

4.2.1 Regression Analysis for Year 2010

Table 4.1: Descriptive Statistics-2010

	N	Minimum	Maximum	Mean	Std. Deviation
Earning management	58	.01	6.40	.5967	.99510
Size of the board	58	3.00	16.00	9.2759	2.33052
Board independence	58	.43	.94	.7591	.14561
Board activity	58	5.00	18.00	11.2759	2.33052
Gender diversity	58	15.84	73.87	38.1133	12.80892
Age diversity	58	.00	50.00	47.0690	10.92376
Ethnic diversity	58	.14	.31	.2531	.04857
Leverage	58	1.08	9.67	3.5195	2.44748
Valid N (listwise)	58				

Table 4.2: Model Summary-2010

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.918 ^a	.842	.817	.0193

Source; Research Findings

Adjusted R squared is the coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the above table, the study found that there was variation of 81.7 percent on earnings management due to changes in size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage at 95 percent confidence interval, this is an indication that 81.7 percent changes in earnings management could be accounted to changes in size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage. R is the correlation coefficient which shows the strength of the relationship between the dependent and the independent variable, from the findings the study found that there was a strong positive relationship between the dependent and the independent variable as shown by 0.918.

Table 4.3: Analysis of Variance -2010

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.199	7	0.457	3.940	.003 ^b
	Residual	5.800	50	0.116		
	Total	8.999	57			

Source; Research Findings

From the finding on the analysis of variance; the population parameters had a significance level of 0.03% which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance is less than 5%.

The calculated value was greater than the critical value (3.940>2.199) an indication that size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage were significantly influencing the earnings management among firms listed at the Nairobi Securities Exchange.

Table 4.4: Coefficients^a-2010

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
1 (Constant)	1.350	.435		3.103	.419
Size of the board	-.509	.109	-.402	-4.670	.017
Board independence	-.426	.124	-.431	-3.435	.031
Board activity	.179	.059	.199	3.034	.024
Gender diversity	.267	.109	.051	2.450	.004
Age diversity	.120	.047	.138	2.553	.001
Ethnic diversity	.216	.084	.114	2.571	.011
Leverage	.118	.019	.129	6.211	.004

Source; Research Finding

The established regression equation was:

$$Y = 1.350 - 0.509 X_1 - 0.426 X_2 + 0.179 X_3 + 0.267 X_4 + 0.120 X_5 + 0.216 X_6 + 0.118 X_7$$

From the above regression equation it was revealed that holding size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage to a constant zero, earnings management among firms listed in the Nairobi Securities Exchange would be at 1.350, a unit increase in size of the board would lead decrease in earnings management among firms listed in the Nairobi Securities Exchange by a factors of 0.509, a unit increase in board independence would lead to decrease in earnings management among firms listed in the Nairobi Securities Exchange by factors of 0.426, a unit increase in board activity would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.179, a unit increase in gender diversity would lead to

increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor 0.267, a unit increase in age diversity would lead to an increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.120, a unit increase in ethnic diversity would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.216 and further a unit increase in leverage would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.118.

4.2.2 Regression Analysis for Year 2011

Table 4.5: Descriptive Statistics-2011

	N	Minimum	Maximum	Mean	Std. Deviation
Earning management	58	.02	1.46	.3656	.27063
Size of the board	58	3.00	16.00	9.6897	2.44380
Board independence	58	.43	.94	.7538	.14191
Board activity	58	2.00	15.00	8.6897	2.44380
Gender diversity	58	15.84	73.87	44.5813	12.27488
Age diversity	58	10.00	50.00	28.6207	20.12664
Ethnic diversity	58	.01	.03	.0204	.00370
Leverage	58	.84	6.44	2.3691	1.25356
Valid N (listwise)	58				

Table 4.6: Model Summary-2011

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.969 ^a	.938	.908	.01362

Source : Research Findings

Adjusted R squared is the coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings

in the above table, the study found that there was variation of 90.8 percent on earnings management due to changes in size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage at 95 percent confidence interval, this is an indication that 90.8 percent changes in earnings management could be accounted to changes in size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage. R is the correlation coefficient which shows the strength of the relationship between the dependent and the independent variable, from the findings the study found that there was a strong positive relationship between the dependent and the independent variable as shown by 0.969.

Table 4.7: Analysis of Variance-2011

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.261	7	0.323	2.858	.006 ^b
	Residual	5.650	50	0.113		
	Total	7.911	57			

Source : Research Findings

From the finding on the Analysis of variance, the study found that the population parameters had a significance level of 0.06% which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance is less than 5%. The calculated value was greater than the critical value (2.858>2.199) an indication that size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage were significantly influencing the earnings management among firms listed in the Nairobi Securities Exchange.

Table 4.8: Coefficients^a-2011

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.017	0.451		2.255	.006
	Size of the board	-.387	0.131	-.267	-2.954	.005
	Board independence	-.221	0.096	-.211	-2.302	.036
	Board activity	.216	0.105	.198	2.057	.015
	Gender diversity	.112	.049	.126	2.286	.009
	Age diversity	.116	.028	-.124	4.143	.08
	Ethnic diversity	.102	.018	.164	5.667	.001
	Leverage	.088	.024	.104	3.667	.005

Source : Research Findings

From the data in the above table the established regression equation was:

$$Y = 1.017 - 0.387 X_1 - 0.221X_2 + 0.216X_3 + 0.112 X_4 + 0.116 X_5 + 0.102X_6 + 0.088 X_7$$

From the above regression equation it was revealed that holding size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage to a constant zero , earnings management among firms listed in the Nairobi Securities Exchange would be at 1.017, a unit increase in size of the board would lead to a decrease in earnings management among firm listed in the Nairobi Securities Exchange by a factor of 0.387, a unit increase in board independence would lead to decrease in earnings management among firms listed in the Nairobi Securities Exchange by factors of 0.221, a unit increase in board activity would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.216 , a unit increase in gender diversity would lead to increase in earnings management among firms listed in the Nairobi Securities

Exchange by a factor 0.116, a unit increase age diversity would lead an increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.116, a unit increase in ethnic diversity would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.102 and further a unit increase in leverage would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.088.

4.2.3 Regression Analysis for Year 2012

Table 4.9: Descriptive Statistics-2012

	N	Minimum	Maximum	Mean	Std. Deviation
Earning management	58	.00	3.29	.2925	.47193
Size of the board	58	3.00	16.00	9.4828	2.45122
Board independence	58	.40	.94	.7378	.15818
Board activity	58	4.00	17.00	10.4828	2.45122
Gender diversity	58	15.84	73.87	45.4802	12.19861
Age diversity	58	10.00	50.00	44.4828	13.91357
Ethnic diversity	58	.01	.02	.0179	.00394
Leverage	58	.02	.34	.1329	.08109
Valid N (listwise)	58				

Table 4.10: Model Summary-2012

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.984	.969 ^a	.939	.921

Source : Research Findings

Adjusted R squared is the coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the above table, the study found that there was variation of 93.9 percent on earnings management due to changes in size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage at 95

percent confidence interval, this is an indication that 93.9 percent changes in earnings management could be accounted to changes in size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage. R is the correlation coefficient which shows the strength of the relationship between the dependent and the independent variable, from the findings the study found that there was a strong positive relationship between the dependent and the independent variable as shown by 0.984.

Table 4.11: Analysis of Variance-2012

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.321	7	.903	5.102	.000 ^b
	Residual	8.850	50	.177		
	Total	15.171	57			

Source; Research Findings

From the finding on the Analysis of variance, the study found that the population parameters had a significance level of 0% which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance is less than 5%. The calculated value was greater than the critical value ($5.102 > 2.199$) an indication that size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage were significantly influencing the earnings management among firms listed in the Nairobi Securities Exchange.

Table 4.12: Coefficients^a-2012

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	Constant	1.298	.453		2.865	.006
	Size of the board	-.231	.093	-.245	-2.484	.001
	Board independence	-.281	.114	-.031	-2.465	.016
	Board activity	.237	.076	-.198	3.118	.012
	Gender diversity	.239	.045	.008	5.311	.023
	Age diversity	.231	.087	.181	2.655	.011
	Ethnic diversity	.204	.098	.230	2.082	.028
	Leverage	.162	.048	.188	3.375	.013

Source : Research Findings

From the data shown in the table above, the established regression equation was:

$$Y = 1.298 - 0.231 X_1 - 0.281 X_2 + 0.237 X_3 + 0.239 X_4 + 0.231 X_5 + 0.204 X_6 + 0.162X_7$$

From the above regression equation it was revealed that holding the size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage to a constant zero , earnings management among firms listed in the Nairobi Securities Exchange would be at 1.298, a unit increase in size of the board would lead to decrease in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.231, a unit increase in board independence would lead to decrease in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.281, a unit increase in board activity would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.237 , a unit increase in gender diversity would lead to increase in earnings management among firms listed in the Nairobi Securities

Exchange by a factor of 0.239, a unit increase in age diversity would lead to an increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.231, a unit increase in ethnic diversity would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.204 and further a unit increase in leverage would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.162.

4.2.4 Regression Analysis for Year 2013

Table 4.13: Descriptive Statistics-2013

	N	Minimum	Maximum	Mean	Std. Deviation
Earning management	58	.01	6.15	.5638	.94861
Size of the board	58	3.00	16.00	9.6552	2.68558
Board independence	58	.23	.94	.7291	.17304
Board activity	58	6.00	19.00	12.6552	2.68558
Gender diversity	58	15.84	84.12	50.0983	13.86704
Age diversity	58	10.00	50.00	43.1034	15.24155
Ethnic diversity	58	.01	.05	.0404	.00950
Leverage	58	.60	21.62	3.3507	4.18907
Valid N (listwise)	58				

Table 4.14: Model Summary-2013

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.902	.813	0.718	.21442

Adjusted R squared is the coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the above table, the study found that there was a variation of 71.8 percent on earnings management due to changes in size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage at 95

percent confidence interval, this is an indication that 71.8 percent changes in earnings management could be accounted to changes in size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage. R is the correlation coefficient which shows the strength of the relationship between the dependent and the independent variable, from the findings the study found that there was a strong positive relationship between the dependent and the independent variable as shown by 0.902.

Table 4.15: Analysis of Variance-2013

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.297	7	0.471	4.096	.001 ^b
	Residual	5.750	50	0.115		
	Total	9.047	57			

Source; Research Finding

From the finding on the Analysis of variance the study found that the population parameters had a significance level of 0.1% which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance is less than 5%. The calculated value was greater than the critical value ($4.096 > 2.199$) an indication that size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage were significantly influencing the earnings management among firms listed in the Nairobi Securities Exchange.

Table 4.16: Coefficients^a-2013

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	1.818	.831		2.188	.001
	Size of the board	-.291	.128	-.203	-2.273	.002

Board independence	-.227	.107	-.217	-2.121	.003
Board activity	.216	.101	.316	2.139	.001
Gender diversity	.297	.103	.125	2.883	.000
Age diversity	.361	.113	.122	3.195	.002
Ethnic diversity	.102	.078	.164	2.684	.017
Leverage	.135	.014	.036	9.643	.006

From the data in the above table the established regression equation was:

$$Y = 1.818 - 0.291X_1 - 0.227 X_2 + 0.216 X_3 + 0.297 X_4 + 0.361 X_5 + 0.102 X_6 + 0.135X_7$$

From the above regression equation it was revealed that holding size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage to a constant zero, earnings management among firms listed in the Nairobi Securities Exchange would be at 1.818, a unit increase in size of the board would lead to decrease in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.291, a unit increase in board independence would lead to decrease in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.227, a unit increase in board activity would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.216, a unit increase in gender diversity would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor 0.297, a unit increase age diversity would lead to an increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.361, a unit increase in ethnic diversity would lead to an increase in earnings management among firms listed in the Nairobi Securities Exchange by a factors of 0.102 and further a unit increase in leverage would lead to increase in

earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.137.

4.2.5 Regression Analysis for Year 2014

Table 4.17: Descriptive Statistics-2014

	N	Minimum	Maximum	Mean	Std. Deviation
Earning management	58	.00	4.72	.4279	.63801
Size of the board	58	3.00	16.00	9.6552	2.68558
Board independence	58	.40	.94	.7378	.15818
Board activity	58	5.00	18.00	11.6379	2.59350
Gender diversity	58	15.84	73.87	45.0404	12.05581
Age diversity	58	10.00	50.00	29.3103	20.16268
Ethnic diversity	58	.10	.24	.1847	.03953
Leverage	58	.40	4.46	1.6549	1.01858
Valid N (listwise)	58				

Table 4.18: Model Summary-2014

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.924(a)	.853	.812	.0482

Source; Research Finding

Adjusted R squared is the coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the above table, the study found that there was variation of 81.2 percent on earnings management due to changes in size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage at 95 percent confidence interval, this is an indication that 81.2 percent changes in earnings management could be accounted to changes in size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage. R is the correlation coefficient which shows the strength of the relationship between

the dependent and the independent variable , from the findings the study found that there was a strong positive relationship between the dependent and the independent variable as shown by 0.924.

Table 4.19: Analysis Of Variance-2014

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.808	7	.544	5.132	.002(a)
	Residual	5.300	50	.106		
	Total	9.108	57			

Source; Research Finding

From the finding on the Analysis of variance the study found that the population parameters had a significance level of 0.2%, this shows that the data is ideal for making a conclusion on the population's parameter as the value of significance is less than 5%. The calculated value was greater than the critical value ($5.132 > 2.199$) an indication that size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage were significantly influencing the earnings management among firms listed in the Nairobi Securities Exchange.

Table 4.20: Coefficients^a-2014

Model		Non-standardized Coefficients		Standardized Coefficients	t	Sig.
		β	Std. Error	Beta		
1	(Constant)	1.720	.316		1.587	.279
	Size of the board	-.254	.012	-.052	-4.186	.002
	Board independence	-.241	.019	-.038	-2.102	.000
	Board activity	.234	.016	.030	2.125	.021
	Gender diversity	.238	.014	.031	2.620	.018
	Age diversity	.163	.024	.057	2.625	.014

	Ethnic diversity	.198	.099	.237	-2.011	.048
	Leverage	.271	.130	.278	2.083	.040

Source; Research Finding

From the data in the above table the established regression equation was;

$$Y = 1.729 - 0.2541X_1 - 0.241 X_2 + 0.234 X_3 + 0.238 X_4 + 0.163 X_5 + 0.198 X_6 + 0.271X_7$$

From the above regression equation it was revealed that holding size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage to a constant zero , earnings management among firms listed in the Nairobi Securities Exchange would be at 1.729, a unit increase in size of the board would lead to a decrease in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.254, a unit increase in board independence would lead to decrease in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.241, a unit increase in board activity would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.234, a unit increase in gender diversity would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor 0.238, a unit increase age diversity would lead an increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.163, a unit increase in ethnic diversity would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factors of 0.198 and further a unit increase in leverage would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.271.

4.2.6 Regression Analysis for the Five Year Period

Table 4.21: Descriptive Statistics-5 Year Period

	N	Minimum	Maximum	Mean	Std. Deviation
Earning Management	290	.00	6.40	.4493	.72448
Size of the board	290	3.00	16.00	9.5517	2.51069
Board independence	290	.23	.94	.7435	.15509
Board activity	290	2.00	19.00	10.948	2.81999
Gender diversity	290	15.84	84.12	44.666	13.08274
Age diversity	290	.00	50.00	38.517	18.17470
Ethnic diversity	290	.01	.31	.1033	.10131
Leverage	290	.02	21.62	2.2054	2.58775
Valid N (listwise)	290				

Table 4.22: Model Summary-5 Year Period

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.952 ^a	.906	.879	.16099

Source : Research Findings

Adjusted R squared is the coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the above table, the study found that there was variation of 87.9 percent on earnings management due to changes in size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage at 95 percent confidence interval, this is an indication that 87.9 percent changes in earnings management could be accounted to changes in size of the board, board independence, board activity, gender diversity, age diversity ,ethnic diversity and financial leverage. R is the correlation coefficient which shows the strength of the relationship between the dependent and the independent variable , from the findings the study found that there was a strong positive relationship between the dependent and the independent variable as shown by 0.952.

Table 4.23: Analysis of Variance-5 Year Period

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	15.764	7	2.252	6.235	.000 ^b
	Residual	18.05	50	.361		
	Total	33.814	57			

Source : Research Findings

From the finding on the Analysis of variance the study found that the population parameters had a significance level of 0 % which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance is less than 5%. The calculated value was greater than the critical value ($6.235 > 2.199$) an indication that size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage were significantly influencing the earnings management among firms listed in the Nairobi Securities Exchange.

Table 4.24: Coefficients^a-5 Year Period

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.853	.733		3.890	.000
	Size of the board	-.238	-.108	.044	-2.204	.004
	Board independence	-.378	-.283	.207	-2.066	.001
	Board activity	.217	.112	.030	2.127	.003
	Gender diversity	.295	.116	.271	2.543	.014
	Age diversity	.247	.109	.051	2.266	.004
	Ethnic diversity	.218	.101	.202	2.158	.015
	Leverage	.472	.131	.505	3.603	.001

Source : Research Findings

From the data in the above table the established regression equation was:

$$Y = 2.853 - 0.238 X_1 - 0.378X_2 + 0.217 X_3 + 0.295X_4 + 0.247 X_5 + 0.218X_6 + 0.295X_7$$

From the above regression equation it was revealed that holding size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage to a constant zero, earnings management among firm listed in the Nairobi Securities Exchange would be at 2.853, a unit increase in size of the board would lead to a decrease in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.238, a unit increase in board independence would lead to a decrease in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.378, a unit increase in board activity would lead to an increase in earnings managements among firms listed in the Nairobi Securities Exchange by a factor of 0.217, a unit increase in gender diversity would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.295, a unit increase age diversity would lead to an increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.247, a unit increase in ethnic diversity would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.218 and further a unit increase in leverage would lead to increase in earnings management among firms listed in the Nairobi Securities Exchange by a factor of 0.472.

4.3 Interpretation of the Findings

From the findings above of the 57 companies listed at the NSE from year 2010 to 2014, it was revealed that the adjusted R squared range from 0.718 to 0.939. This clearly showed that there was a variation of Earnings management due to change in the Independent variables which are board structure. The study revealed that there was high variation on earnings management due to changes in size of the board, board

independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage which shows that changes in earnings management could be accounted to changes in board structure .The study revealed that there was strong relationship between earnings management and board structure variables. The study also found that size of the board, board independence; board activity, gender diversity, age diversity, ethnic diversity and financial leverage were significantly influencing the earnings management among firm listed in the Nairobi Securities Exchange. The study also found that there was negative relationship between earnings management and size of the board and board independence and there was positive relationship between earnings management and board activity, gender diversity, age diversity, ethnic diversity and financial leverage.

These findings agree with previous studies done for instance Xie et al. (2003) and Davidson and Dalt (2003) found a negative relationship between earnings management and board size. Bedard et al. (2004) found that there was negative relationship between earnings management and independence of audit committees. Barton (2001) also found that earnings management was negatively related to board size and composition. Iraya et al. (2014) revealed that earnings management is negatively related to ownership concentration, board size and board independence but positively related to board activity and CEO duality and finally Wangaruro (2014) depicted that earnings management is negatively related to board size and board composition.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

From the analysis and data collected the following discussions, conclusions and recommendation were made. The responses were based on the objectives of the study which was to establish the effect of board structure on earnings management of companies listed at the Nairobi Securities Exchange.

5.2 Summary

The objective of the study was to determine the effect of board structure on earnings management of companies listed at the Nairobi Securities Exchange. The study was conducted on a 5 year period where secondary data from the period of 2010 to 2014 was used in the analysis. Regression analysis was used in analysis of the data. The study had sought to to determine the effect of board structure on earnings management of companies listed at the Nairobi Securities Exchange.

The study revealed high variation on earnings management due to changes in board structure variables which are size of the board, board independence, board activity, gender diversity, age diversity, ethnic diversity and financial leverage. The study revealed that there was strong relationship between earnings management and board structure and that board structure variables were significantly influencing earnings management among firms listed in the Nairobi Securities Exchange. The study also found that there was positive relationship between earnings management and board activity, gender diversity, age diversity, ethnic diversity and financial leverage and there was also negative relationship between earnings management and board size and board independence.

5.3 Conclusion

In general, this study concludes that firms with effective board structure are unlikely to have higher incidences of earnings management. Although not all board structure variables support the stated hypotheses, the study has achieved its objective by identifying the attributes that answer the research question.

From the findings it was revealed that board structure affects earnings management. Further conclusions were that a unit increase in board size will cause a decrease in earnings management, a unit increase in board independence will lead to a decrease in earnings management, a unit increase in board activity will lead to an increase in earnings management, a unit increase in gender diversity, age diversity and ethnic diversity will lead to an increase in earnings management and a unit increase in financial leverage will further lead to an increase in earnings management.

Thus the study concludes that the board size and board independence negatively affect earnings management among firms listed in the Nairobi Securities Exchange and that board activity, gender diversity, age diversity, ethnic diversity and financial leverage positively affect earnings management among firms listed in the Nairobi Securities Exchange.

5.4 Recommendations for Policy

From the findings the study recommends that there is need for firms listed at the Nairobi Securities Exchange to have effective board structures. There is need to re-examine the criteria used in selection of directors in the companies and ensure that corporate boards are more independent, ensure that the board is well diversified in

terms of gender, age and ethnic groupings and there is appropriate board size. This will reduce incidences of earnings management and will ensure that the directors are accountable to the shareholders with a ripple effect of improving investor confidence.

The study recommends that there is need for the management of firms listed at the Nairobi Securities Exchange to enhance their earnings quality through various aspects of board structure as the study found that the size of the board, board independence, board activity, gender diversity, age diversity and ethnic diversity significantly influence earnings management among firms listed in the Nairobi Securities Exchange.

5.5 Limitations of the Study

The study was limited to to determine the effect of board structure on earnings management of companies listed at the Nairobi Securities Exchange. The study was limited to 64 companies Listed in the Nairobi Securities Exchange. The study was limited to secondary data, which was collected from Nairobi Securities Exchange and company financial reports. This data was used as obtained and the researcher had no means of independently verifying the validity of the data which was assumed to be accurate for the purpose of the study. The study findings are, therefore, partly subject to the validity of the secondary data used.

The study was able to collect data from 57 companies listed in the Nairobi Securities Exchange that were in operation for the last five years. The study was limited to a five year period starting from 2010 to 2014; however a longer duration of the study would have captured periods of various economic significances such as booms and

recessions. This may have probably given a longer time focus hence given a broader dimension to the problem.

5.6 Areas for Further Research

This study sought to determine the effect of board structure on earnings management of companies listed at the Nairobi Securities Exchange. The study recommends that an in-depth study should be done on the effect of board structure on the earnings management of companies listed at the Nairobi Securities Exchange. The study recommends that a study should be done on the effect of board structure on financial performance of companies listed at the Nairobi Securities Exchange. The study also recommends that a study should be done on the determinants of earnings management of companies listed at the Nairobi Securities Exchange.

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APPENDICES

Appendix I: Firms listed at NSE

1. A.Baumann & Co Ltd
2. ARM Cement Ltd
3. B.O.C Kenya Ltd
4. Bamburi Cement Ltd
5. Barclays Bank of Kenya Ltd
6. British American Tobacco Kenya Ltd
7. British-American Investments Co.(Kenya) Ltd
8. Car & General (K) Ltd
9. Carbacid Investments Ltd
10. Centum Investment Co Ltd
11. CFC Stanbic of Kenya Holdings Ltd
12. CIC Insurance Group Ltd
13. Crown Paints Kenya Ltd
14. Diamond Trust Bank Kenya Ltd
15. E.A.Cables Ltd
16. E.A.Portland Cement Co. Ltd
17. Eaagads Ltd
18. East African Breweries Ltd
19. Equity Bank Ltd
20. Eveready East Africa Ltd
21. Express Kenya Ltd
22. Flame Tree Group Holdings Ltd Ord 0.825
23. Home Afrika Ltd
24. Housing Finance Co.Kenya Ltd
25. Hutchings Biemer Ltd
26. I&M Holdings Ltd
27. Jubilee Holdings Ltd
28. Kakuzi Ltd
29. Kapchorua Tea Co. Ltd
30. KenGen Co. Ltd
31. KenolKobil Ltd
32. Kenya Airways Ltd
33. Kenya Commercial Bank Ltd
34. Kenya Orchards Ltd
35. Kenya Power & Lighting Co Ltd
36. Kenya Power & Lighting Ltd 4% Pref 20.00
37. Kenya Power & Lighting Ltd 7% Pref 20.00
38. Kenya Re Insurance Corporation Ltd
39. Liberty Kenya Holdings Ltd
40. Longhorn Kenya Ltd
41. Marshalls (E.A.) Ltd
42. Mumias Sugar Co. Ltd
43. Nairobi Securities Exchange Ltd Ord 4.00
44. Nation Media Group Ltd

45. National Bank of Kenya Ltd
46. NIC Bank Ltd
47. Olympia Capital Holdings Ltd
48. Pan Africa Insurance Holdings Ltd
49. Rea Vipingo Plantations Ltd
50. Safaricom Ltd
51. Sameer Africa Ltd
52. Sasini Ltd
53. Scangroup Ltd
54. Standard Chartered Bank Kenya Ltd
55. Standard Group Ltd
56. The Co-operative Bank of Kenya Ltd
57. The Limuru Tea Co. Ltd
58. Total Kenya Ltd
59. TPS Eastern Africa Ltd
60. Trans-Century Ltd
61. Uchumi Supermarket Ltd
62. Umeme Ltd
63. Unga Group Ltd
64. Williamson Tea Kenya Ltd

Appendix II : Data**Earnings management**

	EM 2010	EM 2011	EM 2012	EM2013	EM2014
1	0.34006	0.65636	0.08083	0.32646	0.20365
2	0.13649	0.1656	0.17436	0.13103	0.1527
3	6.40139	1.46252	3.29136	6.14533	4.71835
4	2.43214	0.54703	0.026294	2.33485	1.18057
5	0.35114	0.40146	0.000942	0.33709	0.16902
6	0.17904	0.27014	0.136	0.17188	0.15394
7	1.59212	0.136	0.136	1.52843	0.83222
8	0.12495	0.41262	0.00777	0.11995	0.06386
9	0.43009	0.0905	0.000632	0.41289	0.20676
10	0.33251	0.19863	0.00181	0.31921	0.16051
11	0.12212	0.22539	0.0085	0.11724	0.06287
12	1.74191	0.24542	0.04924	1.67223	0.86074
13	2.48229	0.86135	0.1214	2.30853	1.21497
14	0.37271	0.07808	0.00746	0.34662	0.17704
15	1.15669	0.40735	0.02366	1.07572	0.54969
16	0.04527	0.37768	0.000552	0.0421	0.02133
17	0.72014	0.02345	0.052688	0.66973	0.36121
18	0.23842	0.51664	0.00695	0.22173	0.11434
19	0.99141	1.02064	0.023623	0.92201	0.47282
20	0.136	0.136	0.136	0.12648	0.13124
21	0.46146	0.56889	0.01704	0.42916	0.2231
22	1.09333	0.27511	0.10161	1.01679	0.5592
23	0.69092	0.63925	0.100022	0.64256	0.37129
24	0.569	0.48195	0.04296	0.52917	0.28606
25	0.82431	0.22994	0.04888	0.76661	0.40774
26	0.61085	0.33278	0.00662	0.56809	0.28736
27	0.00752	0.39368	0.000325	0.007	0.00366
28	0.84418	0.03946	0.06949	0.78509	0.42729
29	0.73075	0.02419	0.05294	0.6796	0.36627
30	0.38426	0.02407	0.00487	0.35736	0.18111
31	0.47779	0.02585	0.02312	0.44434	0.23373
32	0.02881	0.13062	4.36E+05	0.02679	218000
33	2.89358	1.10438	0.344652	2.69103	1.51784
34	0.89795	0.9533	0.06781	0.83509	0.45145
35	0.12749	0.4676	0.02674	0.11857	0.07265
36	0.15669	0.15163	0.000601	0.14572	0.07316

37	0.10361	0.31747	0.011386	0.09636	0.05387
38	0.33181	0.32455	0.373152	0.31854	0.34585
39	0.30485	0.32116	0.386587	0.29266	0.33962
40	0.27789	0.31777	0.400022	0.26678	0.3334
41	0.25093	0.31438	0.41346	0.2409	0.32718
42	0.22397	0.31098	0.426902	0.21502	0.32096
43	0.19702	0.30759	0.44034	0.18913	0.31474
44	0.17006	0.3042	0.453777	0.16325	0.30852
45	0.1431	0.30081	0.467215	0.13737	0.30229
46	0.11614	0.29742	0.480652	0.11149	0.29607
47	0.08918	0.29402	0.49409	0.08561	0.28985
48	0.20456	0.33931	0.55263	0.19637	0.3745
49	0.18686	0.33905	0.569113	0.17939	0.37425
50	0.16917	0.33879	0.585595	0.16241	0.374
51	0.15148	0.33853	0.602078	0.14542	0.37375
52	0.13379	0.33828	0.61856	0.12442	0.37149
53	0.1161	0.33802	0.635043	0.10797	0.37151
54	0.09841	0.33776	0.651525	0.09152	0.37152
55	0.08072	0.3375	0.668008	0.07507	0.37154
56	0.06302	0.33724	0.68449	0.05861	0.37155
57	0.04533	0.33699	0.700973	0.04216	0.37157
58	0.02764	0.33673	0.717455	0.02571	0.37158

Gender diversity

Year	2010	2011	2012	2013	2014
1	26.06	26.06	20.06	18.06	23.06
2	52	52	52	52	52
3	41.84	41.84	41.84	41.84	41.84
4	51.46	51.46	51.46	51.46	51.46
5	32.5	32.5	32.5	32.5	32.5
6	68.25	68.25	68.25	68.25	68.25
7	65.57	65.57	65.57	65.57	65.57
8	57.24	57.24	57.24	57.24	57.24
9	68.5	68.5	68.5	68.5	68.5
10	41.41	41.41	41.41	41.41	41.41
11	17.32	17.32	17.32	17.32	17.32
12	24.45	24.45	24.45	24.45	24.45
13	24.85	24.85	24.85	24.85	24.85
14	17.75	17.64	17.63	17.55	17.635

15	48.05	48.05	48.05	48.05	48.05
16	15.84	15.84	15.84	15.84	15.84
17	73.87	73.87	73.87	73.87	73.87
18	64.56	64.56	64.56	64.56	64.56
19	24.9	60.43	60.43	84.12	60.43
20	26	26	26	26	26
21	44.66	44.66	44.66	44.66	44.66
22	25.87	29.08	29.08	31.22	29.08
23	69.22	69.03	69.03	68.9	69.03
24	39.56	44.53	45.05	48.54	44.79
25	39.29	44.54	45.13	48.82	44.835
26	39.03	44.56	45.21	49.11	44.885
27	38.77	44.57	45.28	49.39	44.925
28	38.51	44.58	45.36	49.67	44.97
29	38.24	44.59	45.44	49.96	45.015
30	37.98	44.61	45.52	50.24	45.065
31	37.72	44.62	45.6	50.52	45.11
32	37.46	44.63	45.68	50.81	45.155
33	37.2	44.65	45.75	51.09	45.2
34	36.93	44.66	45.83	51.37	45.245
35	36.67	44.67	45.91	51.66	45.29
36	36.41	44.68	45.99	51.94	45.335
37	36.15	44.7	46.07	52.22	45.385
38	35.88	44.71	46.14	52.51	45.425
39	35.62	44.72	46.22	52.79	45.47
40	35.36	44.74	46.3	53.07	45.52
41	35.1	44.75	46.38	53.36	45.565
42	34.83	44.76	46.46	53.64	45.61
43	34.57	44.78	46.53	53.92	45.655
44	34.31	44.79	46.61	54.21	45.7
45	34.05	44.8	46.69	54.49	45.745
46	33.79	44.81	46.77	54.77	45.79
47	33.52	44.83	46.85	55.06	45.84
48	33.26	44.84	46.93	55.34	45.885
49	33	44.85	47	55.62	45.925
50	32.74	44.87	47.08	55.91	45.975
51	32.47	44.88	47.16	56.19	46.02
52	32.21	44.89	47.24	56.47	46.065
53	31.95	44.9	47.32	56.76	46.11
54	31.69	44.92	47.39	57.04	46.155
55	31.43	44.93	47.47	57.32	46.2

56	31.16	44.94	47.55	57.61	46.245
57	30.9	44.96	47.63	57.89	46.295
58	30.64	44.97	47.71	58.17	46.34

Age diversity

Year	2010	2011	2012	2013	2014
1	50	50	50	50	10
2	50	10	50	50	50
3	50	10	50	50	50
4	50	50	50	50	10
5	50	10	50	50	50
6	50	50	10	10	10
7	50	10	50	50	50
8	50	50	50	50	10
9	50	10	50	50	50
10	50	10	50	50	50
11	10	10	10	10	10
12	50	10	10	10	10
13	50	50	50	50	10
14	50	10	50	50	10
15	50	50	50	50	10
16	10	10	50	50	50
17	1-	10	50	50	10
18	50	10	50	50	50
19	50	50	50	50	10
20	50	10	50	50	50
21	50	50	50	50	10
22	50	10	50	50	50
23	50	50	50	50	10
24	50	10	50	50	50
25	50	50	50	50	10
26	50	10	50	50	50
27	50	50	50	50	10
28	50	10	50	50	50
29	50	50	50	50	10
30	50	10	50	50	50
31	50	50	50	50	10
32	50	10	50	50	50

33	50	50	50	50	10
34	50	50	50	50	50
35	50	50	10	10	10
36	50	10	50	50	50
37	50	50	50	10	10
38	50	10	10	50	50
39	50	50	50	50	10
40	50	10	50	50	50
41	50	50	50	50	10
42	50	10	50	50	50
43	50	50	50	50	10
44	50	10	50	50	50
45	10	10	10	10	10
46	50	10	50	50	50
47	50	50	50	50	10
48	50	10	50	50	50
49	50	50	10	10	10
50	50	10	50	50	50
51	50	50	50	50	10
52	50	10	50	50	50
53	50	50	50	50	10
54	50	10	50	10	50
55	50	10	10	10	10
56	50	50	50	50	50
57	50	50	50	10	10
58	50	50	50	50	50

Size of the Board

	2010	2011	2012	2013	2014
1	6	6	6	6	6
2	3	3	3	3	3
3	9	9	9	9	9
4	7	7	7	7	7
5	7	7	7	7	7
6	8	8	8	8	8
7	8	8	8	8	8
8	7	7	7	7	7
9	8	10	10	11	11
10	7	10	10	12	12

11	10	10	9	9	9
12	12	14	14	15	15
13	7	7	7	7	7
14	11	11	11	11	11
15	10	10	10	10	10
16	10	10	10	10	10
17	10	10	10	10	10
18	12	12	12	12	12
19	9	9	9	9	9
20	11	12	11	11	11
21	16	16	16	16	16
22	7	7	7	7	7
23	8	8	6	5	5
24	12	12	11	11	11
25	8	8	8	8	8
26	8	8	8	8	8
27	7	7	7	7	7
28	8	10	10	11	11
29	7	10	10	12	12
30	10	10	9	9	9
31	12	14	14	15	15
32	7	7	7	7	7
33	11	11	11	11	11
34	10	10	10	10	10
35	10	10	10	10	10
36	10	10	10	10	10
37	12	12	12	12	12
38	9	9	9	9	9
39	11	12	11	11	11
40	16	16	16	16	16
41	7	7	7	7	7
42	8	8	6	5	5
43	12	12	11	11	11
44	8	8	8	8	8
45	8	8	8	8	8
46	7	7	7	7	7
47	8	10	10	11	11
48	7	10	10	12	12
49	10	10	9	9	9
50	12	14	14	15	15
51	7	7	7	7	7
52	11	11	11	11	11

53	10	10	10	10	10
54	10	10	10	10	10
55	10	10	10	10	10
56	12	12	12	12	12
57	9	9	9	9	9
58	11	12	11	11	11

Board Independence

	2010	2011	2012	2013	2014
1	0.67	0.67	0.67	0.67	0.67
2	0.67	0.67	0.67	0.67	0.67
3	0.89	0.89	0.89	0.89	0.89
4	0.43	0.43	0.43	0.43	0.43
5	0.71	0.71	0.71	0.71	0.71
6	0.88	0.88	0.88	0.88	0.88
7	0.88	0.88	0.88	0.88	0.88
8	0.86	0.86	0.86	0.86	0.86
9	0.63	0.7	0.6	0.61	0.6
10	0.86	0.8	0.4	0.23	0.4
11	0.9	0.9	0.89	0.89	0.89
12	0.83	0.79	0.71	0.66	0.71
13	0.86	0.86	0.86	0.86	0.86
14	0.82	0.82	0.82	0.82	0.82
15	0.7	0.7	0.7	0.7	0.7
16	0.8	0.8	0.8	0.8	0.8
17	0.5	0.5	0.5	0.5	0.5
18	0.92	0.92	0.92	0.92	0.92
19	0.89	0.89	0.89	0.89	0.89
20	0.82	0.75	0.82	0.8	0.82
21	0.94	0.94	0.94	0.94	0.94
22	0.71	0.71	0.71	0.71	0.71
23	0.5	0.5	0.5	0.5	0.5
24	0.67	0.67	0.67	0.67	0.67
25	0.67	0.67	0.67	0.67	0.67
26	0.89	0.89	0.89	0.89	0.89
27	0.43	0.43	0.43	0.43	0.43
28	0.71	0.71	0.71	0.71	0.71
29	0.88	0.88	0.88	0.88	0.88
30	0.88	0.88	0.88	0.88	0.88

31	0.86	0.86	0.86	0.86	0.86
32	0.63	0.7	0.6	0.61	0.6
33	0.86	0.8	0.4	0.23	0.4
34	0.9	0.9	0.89	0.89	0.89
35	0.83	0.79	0.71	0.66	0.71
36	0.86	0.86	0.86	0.86	0.86
37	0.82	0.82	0.82	0.82	0.82
38	0.7	0.7	0.7	0.7	0.7
39	0.8	0.8	0.8	0.8	0.8
40	0.5	0.5	0.5	0.5	0.5
41	0.92	0.92	0.92	0.92	0.92
42	0.89	0.89	0.89	0.89	0.89
43	0.82	0.75	0.82	0.8	0.82
44	0.94	0.94	0.94	0.94	0.94
45	0.71	0.71	0.71	0.71	0.71
46	0.5	0.5	0.5	0.5	0.5
47	0.73	0.72	0.73	0.72	0.73
48	0.72	0.71	0.72	0.72	0.72
49	0.72	0.7	0.72	0.71	0.72
50	0.89	0.89	0.89	0.89	0.89
51	0.82	0.75	0.82	0.8	0.82
52	0.94	0.94	0.94	0.94	0.94
53	0.71	0.71	0.71	0.71	0.71
54	0.5	0.5	0.5	0.5	0.5
55	0.67	0.67	0.67	0.67	0.67
56	0.67	0.67	0.67	0.67	0.67
57	0.89	0.89	0.89	0.89	0.89
58	0.43	0.43	0.43	0.43	0.43

Board activity

	2010	2011	2012	2013	2014
1	8	5	7	9	8
2	5	2	4	6	5
3	11	8	10	12	11
4	9	6	8	10	9
5	9	6	8	10	9
6	10	7	9	11	10
7	10	7	9	11	10
8	9	6	8	10	9

9	10	9	11	14	13
10	9	9	11	15	13
11	12	9	10	12	11
12	14	13	15	18	17
13	9	6	8	10	9
14	13	10	12	14	13
15	12	9	11	13	12
16	12	9	11	13	12
17	12	9	11	13	12
18	14	11	13	15	14
19	11	8	10	12	11
20	13	11	12	14	13
21	18	15	17	19	18
22	9	6	8	10	9
23	10	7	7	8	8
24	14	11	12	14	13
25	10	7	9	11	10
26	10	7	9	11	10
27	9	6	8	10	9
28	10	9	11	14	13
29	9	9	11	15	13
30	12	9	10	12	11
31	14	13	15	18	17
32	9	6	8	10	9
33	13	10	12	14	13
34	12	9	11	13	12
35	12	9	11	13	12
36	12	9	11	13	12
37	14	11	13	15	14
38	11	8	10	12	11
39	13	11	12	14	13
40	18	15	17	19	18
41	9	6	8	10	9
42	10	7	7	8	8
43	14	11	12	14	13
44	10	7	9	11	10
45	10	7	9	11	10
46	9	6	8	10	9
47	10	9	11	14	13

48	9	9	11	15	13
49	12	9	10	12	11
50	14	13	15	18	17
51	9	6	8	10	9
52	13	10	12	14	13
53	12	9	11	13	12
54	12	9	11	13	12
55	12	9	11	13	12
56	14	11	13	15	14
57	11	8	10	12	11
58	13	11	12	14	13

Ethnic diversity

	2010	2011	2012	2013	2014
1	0.223	0.018	0.016	0.037	0.168
2	0.223	0.018	0.016	0.037	0.168
3	0.297	0.024	0.022	0.049	0.223
4	0.143	0.012	0.010	0.024	0.108
5	0.237	0.019	0.017	0.039	0.178
6	0.293	0.024	0.021	0.049	0.220
7	0.293	0.024	0.021	0.049	0.220
8	0.287	0.023	0.021	0.048	0.215
9	0.210	0.019	0.015	0.034	0.150
10	0.287	0.022	0.010	0.013	0.100
11	0.300	0.024	0.022	0.049	0.223
12	0.277	0.021	0.017	0.037	0.178
13	0.287	0.023	0.021	0.048	0.215
14	0.273	0.022	0.020	0.046	0.205
15	0.233	0.019	0.017	0.039	0.175
16	0.267	0.022	0.020	0.044	0.200
17	0.167	0.014	0.012	0.028	0.125
18	0.307	0.025	0.022	0.051	0.230
19	0.297	0.024	0.022	0.049	0.223
20	0.273	0.020	0.020	0.044	0.205
21	0.313	0.025	0.023	0.052	0.235
22	0.237	0.019	0.017	0.039	0.178
23	0.167	0.014	0.012	0.028	0.125
24	0.223	0.018	0.016	0.037	0.168

25	0.223	0.018	0.016	0.037	0.168
26	0.297	0.024	0.022	0.049	0.223
27	0.143	0.012	0.010	0.024	0.108
28	0.237	0.019	0.017	0.039	0.178
29	0.293	0.024	0.021	0.049	0.220
30	0.293	0.024	0.021	0.049	0.220
31	0.287	0.023	0.021	0.048	0.215
32	0.210	0.019	0.015	0.034	0.150
33	0.287	0.022	0.010	0.013	0.100
34	0.300	0.024	0.022	0.049	0.223
35	0.277	0.021	0.017	0.037	0.178
36	0.287	0.023	0.021	0.048	0.215
37	0.273	0.022	0.020	0.046	0.205
38	0.233	0.019	0.017	0.039	0.175
39	0.267	0.022	0.020	0.044	0.200
40	0.167	0.014	0.012	0.028	0.125
41	0.307	0.025	0.022	0.051	0.230
42	0.297	0.024	0.022	0.049	0.223
43	0.273	0.020	0.020	0.044	0.205
44	0.313	0.025	0.023	0.052	0.235
45	0.237	0.019	0.017	0.039	0.178
46	0.167	0.014	0.012	0.028	0.125
47	0.243	0.019	0.018	0.040	0.183
48	0.240	0.019	0.018	0.040	0.180
49	0.240	0.019	0.018	0.039	0.180
50	0.297	0.024	0.022	0.049	0.223
51	0.273	0.020	0.020	0.044	0.205
52	0.313	0.025	0.023	0.052	0.235
53	0.237	0.019	0.017	0.039	0.178
54	0.167	0.014	0.012	0.028	0.125
55	0.223	0.018	0.016	0.037	0.168
56	0.223	0.018	0.016	0.037	0.168
57	0.297	0.024	0.022	0.049	0.223
58	0.143	0.012	0.010	0.024	0.108

Financial Leverage

	2010	2011	2012	2013	2014
1	3.342	4.577	0.027	2.054	0.972
2	5.387	2.782	0.114	1.768	0.898
3	1.773	1.078	0.144	1.108	0.565
4	2.140	2.209	0.018	3.449	0.464
5	9.670	2.270	0.126	1.006	1.311
6	1.620	1.594	0.094	16.539	1.296
7	7.310	2.546	0.077	1.074	2.571
8	9.350	1.440	0.034	1.732	1.263
9	6.317	2.036	0.272	1.355	0.658
10	2.897	1.954	0.187	1.672	2.553
11	1.518	4.086	0.091	1.653	0.843
12	2.337	1.192	0.138	2.872	1.569
13	2.776	4.458	0.263	0.601	0.397
14	4.544	1.853	0.221	2.353	1.256
15	4.960	1.604	0.215	2.459	0.395
16	6.136	4.327	0.092	2.160	1.355
17	1.177	6.438	0.186	1.549	0.901
18	2.307	1.832	0.124	4.977	2.580
19	5.173	5.442	0.342	1.749	2.802
20	1.753	1.891	0.053	0.845	1.478
21	2.270	1.048	0.124	14.697	0.816
22	1.594	1.732	0.072	4.086	4.086
23	2.546	1.721	0.101	1.192	1.192
24	1.440	1.954	0.049	4.458	4.458

25	2.036	1.079	0.217	1.853	1.853
26	1.954	2.553	0.236	1.604	1.604
27	1.079	0.843	0.081	1.397	1.397
28	4.076	1.079	0.091	2.383	2.383
29	2.632	4.076	0.202	2.361	1.192
30	3.581	1.604	0.225	1.954	4.458
31	1.594	1.397	0.072	1.079	1.853
32	2.546	2.383	0.101	4.076	1.604
33	1.440	1.192	0.049	2.632	1.397
34	2.036	4.458	0.217	3.581	2.383
35	1.954	1.594	0.236	4.327	2.361
36	1.079	2.546	0.081	6.438	1.954
37	4.076	1.440	0.091	1.832	1.079
38	4.274	3.087	0.275	2.140	3.581
39	3.087	1.697	0.059	9.670	4.327
40	1.697	4.086	0.061	21.620	1.006
41	2.160	1.954	0.055	1.594	1.604
42	7.310	2.546	0.077	1.074	2.571
43	9.350	1.440	0.034	1.732	1.263
44	6.317	2.036	0.272	1.355	0.658
45	2.897	1.954	0.187	1.672	2.553
46	1.518	4.086	0.091	1.653	0.844
47	2.337	1.192	0.138	2.872	1.569
48	2.776	4.458	0.263	0.601	0.397
49	9.350	1.440	0.034	1.732	1.263

50	6.317	2.036	0.272	1.355	0.658
51	2.897	1.954	0.187	1.672	2.553
52	1.518	4.086	0.091	1.653	0.843
53	2.337	1.192	0.138	2.872	1.569
54	2.140	2.209	0.018	3.449	0.464
55	9.670	2.270	0.126	1.006	1.311
56	1.620	1.594	0.094	16.539	1.296
57	1.594	1.397	0.072	1.079	1.853
58	2.546	2.383	0.101	4.076	1.604