

**EFFECT OF SELECTED CORPORATE GOVERNANCE CHARACTERISTICS ON  
FINANCIAL PERFORMANCE OF LISTED FIRMS IN KENYA**

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**D63/6267/2017**

**A RESEARCH PROJECT PRESENTED IN PARTIAL FULFILMENT OF THE  
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF A MASTER OF  
SCIENCE IN FINANCE OF THE UNIVERSITY OF NAIROBI**

**2020**

## DECLARATION


This project is my original work and has not been presented for a degree in any other university.

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This project has been submitted for examination with my approval as university supervisors.

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## **ACKNOWLEDGEMENT**

I would wish to acknowledge my supervisor Dr. Winnie Nyamute for her guidance in the course of the thesis. You gave your valuable time in critiquing and offering suggestion on making this document better.

I also recognise the effort of Prof. Cyrus Iraya as the moderator in this work, sir your input cannot go unappreciated.

Finally, I wish to recognise the support given by the university staff especially the library staff who were helpful during literature review of this work. Thank you all.

## **DEDICATION**

I dedicate this work to God almighty for the blessing of good health .

To my late mother Alice wangari who never lived long enough to witness the academic achievement of her son.

To my supportive family, my wife Peris Njeri, my lovely daughter Tiffany Njuguna. Thank you very much for always being there for me. Thanks for the prayers, support and love.

## **LIST OF ABBREVIATIONS AND ACRONYMS**

**ADF:** Augmented Dickey Fuller

**ANOVA:** Analysis of Variances

**CEO:** Chief Executive Officer

**CG:** Corporate Governance

**NSE:** Nairobi Securities Exchange

**ROA:** Return on Assets

**ROE:** Returns on Equity

**VIF:** Variance Inflation Factor

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## ABSTRACT

Corporate governance structures are very critical for efficient firm performance in various sectors. The study sought to establish the effect of CG on the financial performance of listed firms in Kenya. The study will be underpinned by agency theory, stakeholder theory and stewardship theory. Descriptive design was adopted by this study. Study population were all listed firms consisting of 64 firms that had floated shares at the NSE as at 31 December 2019. The study was a census of all the 64 companies. This study used secondary data retrieved from the annual reports of all the listed companies at the NSE. Data extracted was recorded on data collection sheets for each company. Data was collected for a period of five years from 2015 to 2019. Diagnostic tests were performed on the variables before regression to ensure the model for analysis is robust for the purpose of estimation and forecasting. The study specifically tested assumptions including heteroscedasticity, normality, autocorrelation, multicollinearity and unit root tests. The collected data was sorted and classified ready for use. Data will be entered into excel and exported to STATA and analyzed using descriptive and inferential statistics analysis. The researcher used multiple regression model for purpose of analysis to examine relationship between study variables. The objectives were examined at 5% significance level while employing student t test. Analysis of data were conducted at 0.05 level of significance. The p value calculated on each variable were compared with the level of significance. First, regression analysis revealed that the effect of director's remuneration on financial performance of listed firms was positive and significant. Secondly, the effect of board diversity on financial performance was positive and significant. Thirdly, the effect of board meeting frequency on financial performance was inverse and significant. Fourthly, effect of leverage on financial performance was positive but not statistically significant. Finally, the effect of firm size on financial performance was positive and significant. Study makes a number of conclusions. First, that directors who are better remunerated can focus on the in work of strategic decision making and ensuring the firms is run professionally. Secondly, female directors tends to be transparent and are better stewards of resources compared to male counter parts hence improved financial performance. Thirdly, the inverse relationship between board meeting frequency and financial performance may be explained by the fact that too many meeting may be destructive of the matter at hand. Fourthly, increased leverage means that the firm saves on the amount that would have been paid as corporate tax to the government. The savings realized means the profits of the firm is enhanced. Finally, larger firms have adequate resource base to be invested to lead to enhanced financial performance compared to smaller firms. The study finally makes the following recommendations; Management of listed firms to better remunerate the board of directors. Better remunerated board of directors would focus on their work of strategic decision making and ensuring the firms is run professionally. The study recommend to the management of the listed firms to enhance board diversity by recruiting more female directors into the board. Additionally, top management of the listed to have the right number of meeting. The firms should adopt optimal leverage where the risk of solvency is minimal and the firm still enjoys corporate tax savings given the leverage. Finally, management of listed firms to enhance their assets base through assets investment in current and non-current assets. Increased asset base through reinvestment is critical since larger firms are able to enjoy advantages accruing from economies of scale.

# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the Study

Corporate governance (CG) is a leading issue that firms must observe in the current business environment. The economic meltdown that happened around 2009 affected most economies hence making the concept and practices of CG an important segment of the management of businesses (Yu, Krause, Bell & Bruton, 2016). CG is critical in stopping professional managers from taking advantage of stockholders who are the true owners of the companies. Through CG, companies are finding ways to enhance internal controls, demark the roles of shareholders, directors, managers and other stakeholders in the companies. (Arora & Sharma, 2016). CG is interested in growing the wealth of shareholders and maximizing firm value. Through CG, professional managers can integrate their objectives and interests into the overall goals of the organization hence minimizing agency problem (Azeez, 2015).

The link subsisting between corporate governance and financial performance of companies is based on a number of theories. The current study was based on three theories including agency theory, stakeholder theory and stewardship theory. Agency was advanced by Alchian and Demsetz (1972) and developed further by Jensen and Meckling (1976).The theory states that since firms are owned by stockholders and managed by directors, agency problem may arise as the shareholders and directors pursue different interests. The second theory is Stewardship Theory proposed by Donaldson & Preston (1995). The theory proposes that managers are stewards who manages resources of the

shareholders. The main role of the manager and executives is to ensure the wealth of the shareholders is maximized through optimal use of resources. Finally, the study was based on Stakeholders Theory advanced by Hannan, and Freeman (1984). The theory states that the firms should serve the interests of array of stakeholders including stockholders, employees, government, suppliers, customers etc.

The contribution of corporate governance to performance of firms in Kenya cannot be over emphasized. CG has gained wide acceptance just like in other countries (Ekadah and Mboya, 2011). In the years 1980s and 1990s, a number of organization in Kenya including limited companies, state corporations and other institutions including listed and non listed firms. In 2006 Uchumi supermarket was delisted from NSE for poor performance that has persisted even after it was readmitted. The Kenya Meat commission also collapsed and closed in 2004. The Kenya Bus Services Limited also collapsed in 2005. Nakumat a supermarket that was once a market leader has also closed almost all its branches in Kenya. Available evidence depicts that a most of the failure incidences and in particular state corporations and Limited Companies may have been due to systematic failures by the board of directors.

### **1.1.1 Corporate Governance**

Corporate Governance (CG) are mechanisms set in place to ensure the daily operation of the business is carried out in transparent and accountable environment that aims at enhancing the wealth of shareholders and meet the interests of other stakeholders (Du Plessis, Hargovan & Harris, 2018). CG is also a set of systems by which firms are directed and controlled. CG are relations among shareholders, directors and other stakeholders in handling the powers and responsibilities of directors, the control by

majority shareholders and the interest of minority stock holders, and finally the right of employees, creditor and other stakeholders of the firm (Glinkowska & Kaczmarek, 2015). CG are systems within a firm that includes processes, policies and people that direct and control management activities to meet the needs of stockholders and other stakeholders. The goal of CG is to ensure accountability, objectivity and integrity in processes at the firm (Mang'anyi, 2011).

CG establishes processes and structures in a firm to eliminate or minimize agency problem by separating the ownership and control of a firm without necessarily causing conflict between the shareholders and the directors as the directors have interest of shareholders at heart. Bhagat & Bolton (2019) showed that the directors of the company are guided in their duties by the CG mechanisms emanates from within and outside the firms. Internal corporate mechanism comprises the participation decision-making, rights of common stockholders and independence of the professional managers while performing their function. External corporate mechanisms is associated with regulations set by the government and pressure of the various stakeholders of the firm (Francis, Hasan & Wu, 2015).

Elements of CG includes number of resolutions, board meetings frequency, ownership structure, change of CEO and board structure (Buallay, Hamdan & Zureigat, 2017).CG number of resolutions passed by the board of directors depicts the work output of the board in terms of decisions passed that are influencing performance. Board meetings frequency describes the number of times the board of directors meets in a year. Board that meets frequently within a financial year tends to be more concerned about the affairs of the company and such companies tends to perform better. Ownership structures

describes the ownership and control of a firm. Firms with majority of shares distributed to more people tends to depict better management compared with block ownership of shares by a few shareholders. Change of CEO duality depicts movement away from having the CEO occupy the position of CEO and chairperson of the board at the same time to having both CEO and chairperson to the board of directors as two independent individuals (Kigotho, 2014).

### **1.1.2 Financial Performance**

Financial performance is a measure by which a firm uses its primary assets in its line operation to generate revenues adequate to settle cost of operation and earn a profit for the stockholders (Zabri, Ahmad & Wah, 2016). Financial performance are the indicators of the financial health of a firm that enables cross firm comparison in the same industry or comparison of industries. Adopting proxies such as ROE, ROA, solvency, and liquidity may capture financial performance of an establishment and sales turn over (Rasheed & Nisar, 2018). Information generated in the financial statements are used in calculating proxies of firms financial performance. The proxies how well a firm is achieving its objectives in the industry. Firms financial performance may be measured using a conglomerate measures including benchmarking, financial ratios analysis, variance analysis or a combination of any or all of the above mentioned measures (Detthamrong, Chancharat & Vithessonthi, 2017). The improvement of financial performance of a firm is critical target for all types of businesses making firms to put in place competitive strategies for reducing costs, attracting new customers and generating sales (Akbar, et al., 2016).

Financial performance may be captured based on accounting and market based measures. Accounting measures are the most widely used methods of measuring performance including proxies such as ROA and ROE. In addition, the most widely used market based method is Tobin Q that measures the value of the firm based on book value and market price of shares (Baysinger and Butler, 1985). Return on Assets measures how best the firm is using its classes of assets in generating revenues while Return on equity captures the efficiency by which a firm utilizes its owners invested resources to generate revenues for the firm (Ciftci, et al., 2019). The financial performance of a firm is the single most important objective of a firm that other objectives work towards maintaining and expanding.

### **1.1.3 Corporate Governance and Financial Performance**

Theoretical literature has identified relationship existing between CG and financial performance. Good CG practices are critical in enhancing long-term stock returns and achieving high level of financial performance (Maranho & Leal, 2018). Elements of CG have been established to influence financial performance of firms in a positive way individually and combined. The critical elements that have been established to be influencing financial performance includes board structure, firm ownership structure, board diversity, board compensation, auditing and board meeting frequency (Liu, Qu & Haman, 2018). The chief executive officers (CEOs) are single handily responsible for the financial performance of firms by performing functions that are under their discretion. Experienced and effective CEOs can guide firms to profitability while ineffective CEOs are also responsible for loss making of a firm.



CG is responsible for directing the directors in their work to ensure they work towards enhancing shareholders value and meeting the needs of other stakeholders in the firm. The needs of shareholders and other stakeholders can only be achieved when the directors guided by CG directs the firm into long term profitability and performance (Mardnly, Mouselli & Abdulraouf, 2018). Sulaiman, Majid and Ariffin (2015) study on the impact of CG on firm performance showed that the link between performance, separation CEO and chairperson of the board posts and board independence was direct. Sajid et al (2012) on the link between capital structure and CG revealed that CG and capital structure are directly related and that risks, firm size and tangibility have inverse relationship with capital structure measure by debt ratio.

#### **1.1.4 Listed firms in Kenya**

The Nairobi Stock Exchange, as was previously known, was officially opened in the year 1953 after an approval by the London Stock Exchange that accepted to recognize it. It was later registered under the Societies Act in the year 1954 because of a voluntary stockbrokers association. The stockbrokers were conferred with the sole responsibility of developing structures for trade of securities as well as rules and regulations governing the trade in the capital market. The bourse has four main segments which are: the main investment segment, the fixed income securities segment, the alternative investment segment, and the futures and options market segment. Currently there are 67 companies listed with the NSE with a market capitalization of Kshs. 2,443.42 billion as at 12th September 2017 (NSE website, 2017).

A number of companies listed in the NSE have overall registered an improved financial performance after the 2008 financial crisis which affected most firms worldwide

including Kenya. Data from the NSE 20 share index shows an improvement from 2,400 points in the early 2009 to a recent all-time high of 5,499.64 points in 2015. The compensation of top executives, gender diversity, firm size of some of the listed companies have consequently risen in the same period with recent disclosure statements released in the year 2018 revealing that the CEOs of Sameer, Kengen, NSE, Deacons, Kenol-Kobil, Kenya Re and Sanlam all received increments in their pay from their previous year (Business daily, 2018 ).

## **1.2 Research Problem**

Through CG, firms are finding ways to enhance the mechanisms by which internal affairs of the companies can be run in transparent and accountable manners with the sole aim of maximizing the wealth of shareholders (Arora & Sharma, 2016). CG tools are very critical in helping a firm overcome agency problem that happens when the shareholders and managers of the firm are each pursuing individualistic economic goals (Azeez, 2015). The key elements of CG that have been identified to be influencing the performance of firms includes board diversity, board composition, frequency of board meetings, CEO duality, corporate governance principles among others (Liu, Qu & Haman, 2018).

Globally, Azeez (2015) evaluated the link existing between firm's performance and CG in Sri Lanka. Findings showed that board size was inversely associated with performance while separation of CEO post and chairperson of board of directors was directly related with firm performance. Prempeh and Odartei-Mills (2015) evaluated the influence of CG mechanisms on the value of the shareholders of firms that have floated their shares in stock exchange of Ghana. The study revealed that strong CG mechanisms were associated with enhanced long-term wealth of stockholders of the firm. Buallay, Hamdan

and Zureigat (2017) evaluated the causal effect relationship obtaining between CG and performance of firms that have offered their common stock in Saudi. The results revealed that board size, firm size were directly associated with firm performance. Ciftci, Tatoglu, Wood, Demirbag and Zaim (2019) examined the causal effect link existing among CG performance, internal and external mechanisms of firms. The study revealed that firms with concentrated ownership and family led tended to perform better than compatriots.

Locally, in Kenya, Opanga (2013) evaluated the causal link existing among CG elements and financial performance of insurance firms that have floated their shares in the NSE. The study revealed that CG elements including number of resolutions passed in AGMs, frequency of board meeting, board committee's number and number of board of directors were directly related with financial performance. Kigotho (2014) evaluated the causal effect link existing among CG elements and financial performance of firms that had floated shares at the NSE. The data was analyzed while employing OLS regression models with results showing a significant causal effect association between financial performance and CG. Mang'Unyi (2011) evaluated the causal link existing among ownership structure, CG and performance of commercial banks operating in Kenya. The study showed that there was a significant difference in performance between firms with different leadership structures. In addition, the research showed that CG had a significant causal effect link with financial performance. Njenga (2017) evaluated the causal link existing between CG and financial performance of commercial and service firm that have floated their shares at the NSE. The regression analysis established that board composition contributes most to the financial performance of NSE listed commercial and services firms v followed by board size and CEO duality respectively. The study

concludes that the three corporate governance practices (board size, CEO non-duality and board composition) adopted significantly influence financial performance of NSE listed commercial and services firms.

Based on the empirical literature reviewed, most studies have tended to concentrate on corporate governance aspects including board size, ownership, age diversity, CEO duality and board independence. The study established that few studies have combined director's compensation, gender diversity and board meeting attendance. Additionally, few studies have included firm size and leverage as control variables. The study therefore sought to bridge the gap in literature by finding answer to research question, what is the effect of selected CG characteristics on financial performance of listed firms in Kenya?

### **1.3 Research Objectives**

The main objective of the study was to establish the effect of selected corporate governance characteristics on financial performance of listed firm in Kenya.

- i) To establish the effect of directors' remuneration on financial performance of listed firm in Kenya.
- ii) To examine the effect of board gender diversity on financial performance of listed firm in Kenya.
- iii) To analyze the effect of board meeting attendance on financial performance of listed firm in Kenya.

#### **1.4 Value of the Study**

The study is timely and would generate information critical for purposes of theory, policy and practice. Regarding theory, the research may provide valuable information to scholars and researcher in CG and its effect on firm financial performance. It forms the basis of future research thus contributing to the existing body of knowledge by filling in the knowledge gap on CG and its effect on the financial performance. The study will in addition, identify areas of further research that can be exploited by future researchers in developing topics and niches for future studies.

The research will also be useful for policy. The study findings may be useful to the government agencies regulating the NSE towards formulating relevant corporate governance policies and acts that guide corporate governance implementation in Kenya. The government agencies like Capital Markets Authority of Kenya may gain useful information that may be useful in designing new policies in corporate governance to drive the NSE sector to the next level since the existing ones could be obsolete.

Finally, regarding practice, the study findings may be useful to the management of NSE listed firms in establishing whether CG practices being implemented improve their financial based performance and if so to what extent. The managers of NSE listed firms that wish to implement CG practices may find the study findings useful as the study findings provides insights into the best practices in CG for enhancing the firm's financial performance, thus, influencing their decision making.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

The chapter elaborates on past studies regarding the link between CG and firms financial performance. The purpose of the literature review is to establish knowledge gaps for further studies. The chapter specifically examines the theoretical review, determinants of financial performance, empirical review, summary of the literature and the conceptual framework.

### **2.2 Theoretical Review**

The theoretical review examines the theories underpinning the association CG and firms performance. The study was based on three theories including agency theory, stakeholder theory and stewardship theory.

#### **2.2.1 Agency Theory Agency**

Agency theory was founded by Alchian and Demsetz (1972) and further enhanced by Jensen and Meckling (1976). According to the theory, conflict can arise between the stockholders and managers of the firm especially when the stockholders believe the directors of the firm are not acting the best interest of the stockholders. According to the agency theory, the professional managers performing the function of running the affairs of the firm have an advantage with regards to information about the establishment better than shareholders. The managers may take that advantage of information asymmetry to pursue interests that serve them rather than that of shareholders. In turn, the managers enrich themselves as the owner's interest is ignored.

Daily et al (2003) argued directors who act as the agents of the common stockholders have the responsibility of running the affairs of the firm in the best interest of the owners, however, in most cases, the directors may pursue other interest other than the value to stockholders leading to agency problem (Padilla, 2000). Additionally, Davis, Schoorman and Donaldson (1997) held that agency problem arises when the management and ownership of the firm are separated. The principal who are the shareholders have the all-important role of electing directors, auditors and making sure that there are strong corporate mechanisms within the firm to ensure the agents act in their best interest. (Bhimani, 2008). Managers who are the agents would focus on projects that maximize their earning even if the welfare of the owners are sacrificed (Holmstrom & Milgrom, 1994).

Agency theory is relevant for the study on the relationship between CG and firms financial performance as the managers of the listed firms act as the agents of shareholders. There is conflict between management and common stockholders of the company. The shareholders elect directors to take care of their interest to handle agency problem to ensure the welfare of shareholders is taken care of hence performance improvement. The directors ensures that management employees implement policies for the welfare of shareholders through good corporate governance.

### **2.2.2 Stewardship Theory**

Davis, Schoorman and Donaldson (1997) first advanced the theory. The theory holds that managers should perform their functions with the aim of maximizing the welfare of the common stockholders. The theory explains that stewards who are the professionals managers, directors and auditors who are working for the shareholders who are charged

with the function of protecting the wealth of the common stockholders. Contrary to agency theory that focuses on individualism of the managers and shareholders in achieving their interests, stewardship theory focuses on group goals (Donaldson & Davis, 1991). The theory states that the management of the firm should integrate their goals in the overall goals of the firm such that both their goals and that of the shareholders are achieved at the same time. The theorist believed that stewards should be happy and satisfied when organization is successful since their interest have been integrated in the overall goals of the firm.

Davis, Frankforter, Vollrath and Hill (2007) criticizes agency theory since it focuses on people as economic being with individualistic goals that are conflicting with each other hence cannot be achieved at the same time. Stewardship theory on the other hand is about the integration of the needs and interest of the managers and shareholders in the overall goals of the firm (Donaldson and Davis, 1991). The theory focuses on existence of corporate structures that enables the managers to work independently such that the interests of the common stockholders and managers are achieved in the overall goals of the firm (Davis, Schoorman & Donaldson, 1997). Professional managers including the directors and other employees are expected act in a way that serves the interest of the common stockholders to protect their reputation as excellent executives in managing firm's affairs (Daily et al. 2003).

The stewardship theory underpins the current study on the association between CG and financial performance. The theory believes that agency problem in the firm can be minimized when directors and employees of the company act as stewards. The directors and managers are expected to work within the independent structures and mechanisms



provided by CG to integrate their interests with that of common stockholders into the overall objectives of the firm.

### **2.2.3 Stakeholders Theory**

The theory has a leading proponent in Freeman (1999). The theory believes that there are various groups that have an interest in the affairs of the firm including common stockholders, employees, customers, government, suppliers and other pressure groups. The firm has the responsibility of meeting the needs of the stakeholders and minimizing conflict arising from satisfying conflicting goals of the stakeholders. The theory holds that due to inherent weaknesses in the free market economy, governments are expected to regulate the operation of firms. The free market economy is characterized by monopoly activities, externalities and inefficiencies that are detrimental to the society hence the need of government intervention and social responsibility. The theory further states that it is immoral and economically inefficient for firms to focus on stockholders at the expense of other stakeholders of the firm (Alkhafaji, 1989). The theory believes that the firm should go beyond the shareholders and look at the interests and needs of other stakeholders that are traditionally considered external to the firm (Ayuso et al, 2014).

Stakeholder are individuals and groups that affect and are in turn affected by the operation of the business. The stakeholders contributes resources that act inputs into production process and act as the recipient of firms output (Watson, 2018). Stakeholder theory is both normative and descriptive nature. Normative is about moral reasonability of the business to the stakeholders while descriptive role is more economic in nature in terms of meeting the needs of the stakeholders (Donaldson & Preston, 1995). The

stakeholder theory argues that board sizes should be representative enough by accommodating various groups in the board through large board sizes.

The stakeholders theory is also applicable in the current study on the association between financial performance and CG. Stakeholder theory holds that the managers of the firms are responsible to stakeholders of the firm. The stakeholders have different interest in the firm operation. The management who also includes directors must balance the interest of the various stakeholders of the firm. The directors through good CG ensures that the interest of various stakeholders are balanced in a way to maximize the welfare of stakeholders with financial performance being one of the measure of welfare maximization.

### **2.3 Determinants of Financial Performance of Listed Firms**

A mix of both internal and external factors can affect the financial performance of a firm. The study elaborates on three factors including corporate governance, firm size and firm leverage that are critical to firm performance including:

#### **2.3.1 Corporate Governance**

The critical elements of CG that have been established to be influencing financial performance includes board structure, firm ownership structure, board diversity, board compensation, auditing and board meeting frequency (Liu, Qu & Haman, 2018). (Liu, Qu & Haman, 2018). Rajagopalan and Zhang (2009) noted that firms with strong CG mechanisms were able to attract capital from external investors better than counterparts with weak CG mechanisms. Sulaiman, Majid and Ariffin (2015) study on the impact of CG on firm performance showed that the link between performance, separation CEO and

chairperson of the board posts and board independence was direct. Sajid et al (2012) on the link between capital structure and CG revealed that CG and capital structure are directly related and that risks, firm size and tangibility have inverse relationship with capital structure measure by debt ratio.

### **2.3.2 Firm Size**

Firm size is a critical determinant of financial performance of a firm. The link existing between firm size and performance has been extensively studied in the empirical literature with findings being mixed. Studies have generally tended to establish a positive association between performance and firm size. Dang, Li and Yang (2018) noted that larger firms tend to be more efficient compared to smaller firms since they can benefit from technical economies of scale. Larger firms are in a position to get access to capital and goods market better than their smaller counterparts do (Gaur & Kesavan, 2015). Larger firms enjoy economies of scale emanating from market powers, access to resources and economies of scale making them superior in performance compared to smaller firms that are at a disadvantage (Andries & Stephan, 2019).

### **2.3.3 Firm Leverage**

Firm leverage is another factor that is also critical to the performance of firms globally. Leverage describes the extent to which the firms operations depend on debt financing. Ibhagui and Olokoyo (2018) noted that levered firms tended to enjoy high financial performance as the interest on debts are exempted from corporate taxation as compared to unlevered firms whose profits are not exempted from taxation to the extent of reliance on debts. Vithessonthi and Tongurai (2015) showed that the relationship between leverage and financial performance was direct as long as the Earnings before tax

exceeded the cost of operations. Fosu, Danso, Ahmad and Coffie (2016) revealed that the causal effect link between debts equity ratio and financial performance was significant across firms. However, some few studies have revealed that the association between debts and firm profitability was inverse and significant. Fama and French (2017) revealed that excessive usage of debts brings forth agency problem between shareholders and creditors that may impact negatively on the relationship between debts and firm profitability. Irungu et. al. (2018) also established that the relationship between firm performance and leverage was inverse.

#### **2.4 Empirical Review**

The link between financial performance and CG has been examined globally and locally. Opanga (2013) evaluated the causal link existing among financial performance and CG elements of insurance firms that have floated their shares in the NSE. Cross-sectional survey design was adopted to collect and analyze data from 2010 to 2012 from forty-five insurance companies. The study revealed that CG elements including number of resolutions passed in AGMs, frequency of board meeting and board committee's number were directly related with financial performance.

Azeez (2015) evaluated the causal effect link existing among CG mechanisms including board independence, number of directors and the separation of post of CEO and chairperson of board of directors in Sri Lanka. The CG mechanisms were regressed against performance measured by proxies such as earning per share, return on Assets and returns on equity. Secondary data was extracted from the financial statements of 100 firm for the period between 2010 and 2012. The data was analyzed using OLS regression with findings showing that firm performance and board size were inversely related.

Additionally, the study established that the separation of the post of CEO and chairperson of the board of directors had a major direct effect on firm performance. However, the study did not exhibit any significant association between board independence and performance of firms studied.

Prempeh and Odartei-Mills (2015) evaluated the causal effect link obtaining among CG elements and maximization of wealth of common stockholder among firms that had floated their shares in Ghana Stock Exchange. The study focused on three CG elements including board independence, board size and separation of post of CEO and chairperson of board of directors. The study showed that board independence and board size affected the wealth maximization in a significant way. The effect of board size was direct while that of board independent was inverse on wealth maximization. The effect of the separation of CEO post and that of chairperson of the board of directors was not significant and therefore did not influence the wealth maximization in a major way.

Kigotho (2014) evaluated the causal effect link existing among CG elements and financial performance of firms that had floated shares at the NSE. The study adopted descriptive design to collect data from 2009 to 2013 from 62 firms. The data was analyzed while employing OLS regression models with results showing a significant causal effect association between financial performance and CG. Mang'Unyi (2011) evaluated the causal link existing among performance, ownership structure and CG mechanisms among commercial banks. The study showed difference in performance between firms with different leadership structures. In addition, the research revealed that showed CG had a major causal effect link with performance proxies.

Buallay, Hamdan and Zureigat (2017) examined the relationship subsisting among CG characteristics and performance of firms that floated their shares in Saudi Arabian stock exchange. The study extracted data from the audited financial statements of the firms concerned. The study adopted OLS regression with results revealing that CG did not significantly affect performance proxied by ROA. The association between CG and performance was significant after introducing the control variable firm size. The study further revealed that the effect of board size and firm size on performance was direct and that firm size and board size was critical in explaining performance among firms.

Ciftci, Tatoglu, Wood, Demirbag and Zaim (2019) examined the link existing among firm performance, external and internal corporate structures of family businesses in Turkey. The study collected secondary data from the firms studied while adopting panel data regression model for analysis. The study revealed that firms with concentrated ownership that were family oriented in nature performed better than counterparts that had cross ownership less ownership concentration. Further, the research revealed that cross ownership distribution did not influence performance in a major way and were inversely related with performance based on accounting measures. In addition, the study revealed that having a higher number of family members on the board did not influence performance in a significant way.

Njenga (2017) evaluated the causal link existing between financial performance and CG of commercial and service firm that have floated their shares at the NSE. The data was sourced from the listed firms' published annual statements for the period 2012 to 2016. The study adopted balanced panel data regression model for the purpose of inferential analysis. The research established that board composition explained performance the

greatest followed by board size and CEO duality respectively. The study concludes that the three CG practices adopted significantly influence financial performance

Wanyama and Olweny (2013) examined the causal effect relationship subsisting among financial performance and CG characteristics of insurance firms that have floated shares at the NSE Kenya. The research used descriptive design with data being collected the insurance firms. The study revealed that financial performance and CG practices were significantly associated. The study revealed that financial performance and board size were inversely related. The relationship between firm performance and Board composition was direct. The board composition comprised of skills, experience and expertise of the board of directors being very critical. Additionally, relationship between financial performance and leverage was direct. Finally, the study revealed that separation of CEO post and chairperson of board influenced positively on performance.

Mpiana (2017) evaluated the causal effect link obtaining between financial performance and corporate scandals for firms that have offered their common stock at the NSE. Multiple case study of 5 firms under the commercial and service firms segment of NSE was of interest to the research. The study adopted secondary data collected extracted from financial statements of respective firms. Data was analyzed while adopting multivariate regression models. The study revealed that the association existing between share prices and corporate scandals were inversely related. In addition, the corporate scandals influenced sales and profitability. Finally, the research revealed that liquidity was inversely affected by corporate scandals.

Siro (2013) evaluated the association between performance and capital structure of corporates that had floated their common stock at the NSE Kenya. Causal study design was used with data being collected from sixty-one firms. The data analysis was based on regression model that was multiple in nature with hypotheses being tested at 95% confidence level. The study established that the causal effect link obtaining between financial performance and capital structure of the concerned firms was inverse. The study further showed that the causal effect link between debt ratio and performance was inverse implying that highly levered firms were at the risk of liquidation from the creditors of the firm hence additional capital injection from stockholders was recommended.

Omukaga (2017) employed descriptive research design to describe the independent variable. Explanatory research was used to describe the causal effect link between financial leverage and performance. The study revealed that Debt to Equity ratio has a highly associated with Return on Equity. The study revealed that the relationship between Debt Equity ratio and Earnings Per Share was low. In conclusion, the study found out that capital structure is made up of two major elements namely; debt and equity. However, an optimal mix of the two components of financial leverage that would be applicable to all firms remains a mirage.

## **2.5 Summary of Literature**

Opanga (2013) revealed that CG elements including number of resolutions passed in AGMs, frequency of board meeting and board committee's number were directly related with financial performance. Azeez (2015) showed that firm performance and board size were inversely related. Additionally, the study established that the separation of the post of CEO and chairperson of the board of directors had a major direct effect on firm



performance. Prempeh and Odartei-Mills (2015) showed that board independence and board size affected the wealth maximization in a significant way. Kigotho (2014) showed a significant causal effect association between financial performance and CG. Mang'Unyi (2011) showed difference in performance between firms with different leadership structures. Buallay, Hamdan and Zureigat (2017) revealed that CG did not significantly affect performance proxied by ROA. Ciftci, Tatoglu, Wood, Demirbag and Zaim (2019) revealed that firms with concentrated ownership that were family oriented in nature performed better than counterparts that had cross ownership less ownership concentration. Njenga (2017) established that board composition explained performance the greatest followed by board size and CEO duality respectively. Wanyama and Olweny (2013) revealed that financial performance and CG practices were significantly associated.

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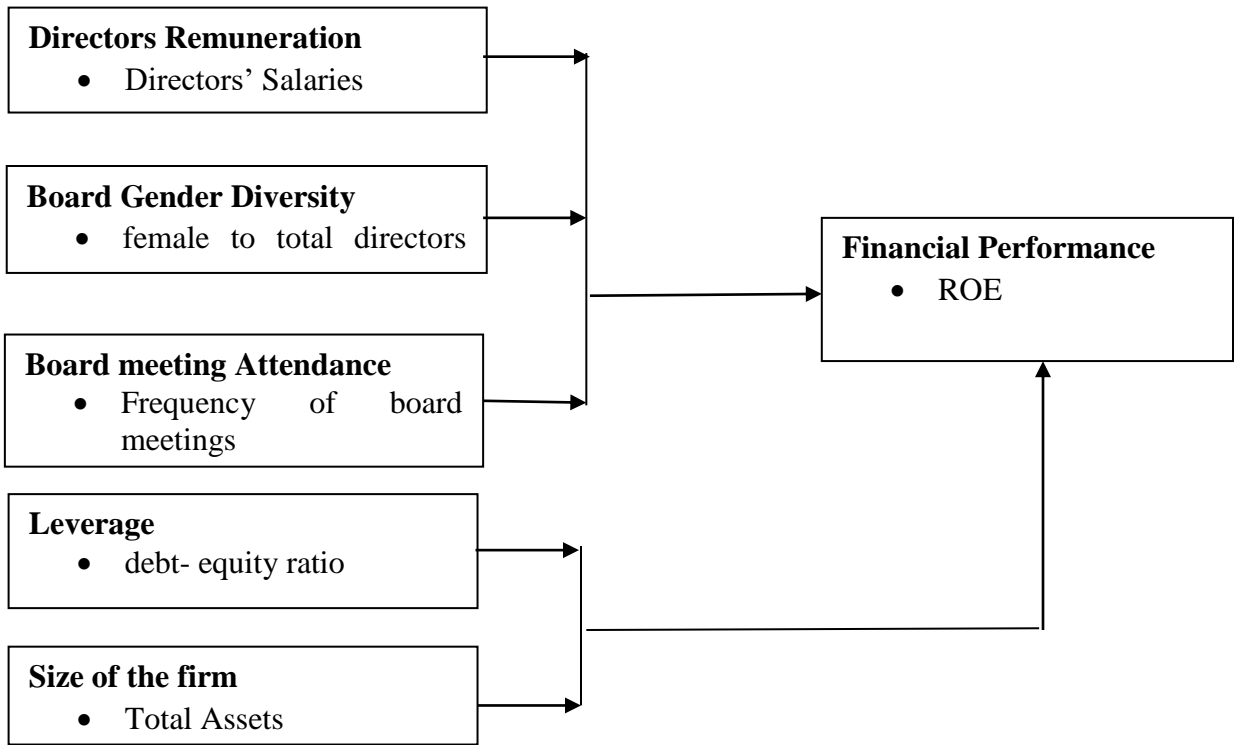
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## 2.6 Conceptual Framework

### Independent Variables



Independent Variables

Dependent Variable

Figure 2. 1: Conceptual Model

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

The chapter examines the methods that were adopted in data collection and analysis. The chapter covers the data collection procedure and analysis techniques.

### **3.2 Research Design**

Descriptive design was adopted by this study. Descriptive design studies are the studies pertaining the description and characteristics of individuals or groups while diagnostic research studies are used in the determination of the frequency for the occurrence of something or its relationship with a different thing (Kothari, 2004). Nyamweya and Obuya (2020) and Obuya and Olweny (2017) also adopted descriptive analysis for the purpose of analysis.

### **3.3 Target Population**

Study population was be all listed consist of 64 firms that have floated shares at the NSE as at 31 December 2019 ([www.nse.co.ke](http://www.nse.co.ke)). According to Mugenda and Mugenda, (2009), population are the objects, elements and people that the research is interested in and to which conclusion and generalization will be made. The target population is given in appendix ii.

### **3.4 Sample and Sampling Technique**

The study adopted census survey hence no sampling was needed. All the 64 listed firms were part of the sample. A census is a complete enumeration of all the members in the population.

### **3.5 Data Collection**

This study used secondary data retrieved from the annual reports of all the listed companies at the NSE. Data on board Gender diversity, board compensation, Board meeting frequency, Net profit after tax, total assets, equity and debts were extracted from annual financial reports of each firm. Data extracted was recorded on data collection sheets for each company. Data was collected for a period of five years from 2015 to 2019.

### **3.6 Diagnostic Test**

Diagnostic tests were performed on the variables before regression to ensure the model for analysis is robust for the purpose of estimation and forecasting. The study was specifically test assumptions including heteroscedasticity, normality, autocorrelation, multicollinearity and unit root tests.

#### **3.6.1 Normality Test**

Normality assumption of classical least squares regression explains that the residuals of the observed variables should be normally distributed such that the mean and the median are equal (Garson, 2012). The research adopted Shapiro-Wilk test to examine the existence of normality of the residuals. Normal data have p-value greater than the Shapiro Wilk significance value in the statistical test (0.05).

#### **3.6.2 Heteroscedasticity Test**

The assumption of homoscedasticity is critical in classical least squares such that the standard errors are not spurious. Gujarati (2003) noted that that data with heteroskedasticity would not have constant variance with observed values distributed

widely away from the line of best fit. The study adopted Breusch-Pagan / Cook-Weisberg test to examine the existence of heteroskedasticity. The study concluded that the observed variable lack homoscedasticity when the p-value generated is less than 0.05 level of significance. The null hypotheses is that there is no significance difference in the variance of the population and the sample would therefore be rejected.

### **3.6.3 Multicollinearity**

Multicollinearity assumption is that explanatory variables used in the multiple regression should not be highly correlated among themselves Kothari (2004). The exogenous variables depicts multicollinearity when the interrelationship amongst them is high as shown by bivariate Pearson correlation of above 0.8. Cooper and Schindler (2006) explained that high correlation leads to inflated parameter estimates that may be misleading for policy and forecasting purposes. The research adopted Variance Inflation Factor (VIF) examine the presence of multicollinearity. A VIF value greater than 10 means that multicollinearity exist in the model (Gujarati, 2003).

### **3.6.4 Serial Correlation**

Absence of serial correlation is another assumption of classical least square models. Serial correlation is said to exist especially in time series data when values of variable at the contemporaneous time is correlated with successive lagged values of the same variable Gujarati (2003). The study adopted Wooldridge Drukker test to examine the presence of autocorrelation. The study would conclude that model is not suffering from autocorrelation when the p-value is greater than 0.05 level of significance.

### 3.7 Data analysis

The collected data were sorted and classified ready for use. Data will be entered into excel and exported to STATA and analyzed using descriptive and inferential statistics analysis. The researcher adopted multiple regression model for purpose of analysis to examine relationship between study variables. The hypotheses were tested at 5% significance level while employing student t test.

#### 3.7.1 Regression Model

The model to be adopted in the study is presented in equation (1).The model was critical is establishing causal effect link existing between CG and financial performance of listed firms at the NSE.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon \dots\dots\dots(1)$$

Where:

Y = Financial performance measured by return on equity

X<sub>1</sub> = Directors remuneration measured by natural logarithm of directors salaries.

X<sub>2</sub> = Board diversity measured by ratio of female board members to total board membership.

X<sub>3</sub> = Board meeting attendance measured by natural logarithm of average frequency of board meeting attendance.

X<sub>4</sub> = Leverage measured by debt equity ratio.

$X_5$  = Firm size measured by natural logarithm of total Assets of the firm.

$\beta_0$  is the intercept term

$\beta_1$ -  $\beta_5$  is the coefficient of explanatory variables ( $X_1$   $X_2$   $X_3$   $X_4$  and  $X_5$ ) respectively

$e$ =Error term

### **3.7.2 Test of Significance**

Analysis of data were conducted at 0.05 level of significance. The p value calculated on each variable were compared with the level of significance. Any p-value less than 0.05 shows the explanatory variable has significant effect on financial performance.



## CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSIONS

### 4.1 Introduction

The chapter elaborates on the findings of the study accompanied by interpretations. The study sought to establish the influence of CG on financial performance of firms that have floated their common stock at the NSE. The analysis has adopted descriptive and inferential statistics to enable the collusion and generalization.

### 4.2 Descriptive Analysis

Descriptive analysis was performed with the goal of understanding the general nature of the data. The analysis was carried out to identify any extreme values that that deviates abnormally from the normal trend of the variables. The study adopted measures of central tendency and dispersion for the purpose of descriptive analysis as presented in table 4.1.

**Table 4. 1: Summary Descriptive Statistics**

Variables	x1	x2	x3	x4	x5	y
Mean	63,047,292	0.219579	4.261771	0.700136	87,368,225,235	0.121254
Standard l	54,518,960	0.130525	2.11563	1.17813	118,158,142,711	0.193547
Minimum	1,259,836	0	3.09861	0.000288	161,335,735	-0.6284
Maximum	339,480,000	0.4521	12.10805	5.41827	386,230,186,000	0.791104
Count	320	320	320	320	320	320

**x1= directors remuneration, x2= bard diversity, x3= board meeting attendance, x4= leverage and x5= firm size and y= Financial performance**

The table 4.1 presents the descriptive analysis where all the variables had 100 observations each given by the product of number of cross-sectional units and the number of periods targeted ( $64*5 = 320$ ). The dependent variable was financial performance while the independent variable was corporate governance (directors' remuneration, board diversity and board meeting attendance). Finally, the control variables were leverage and firm size.

The mean for directors' remuneration was Ksh. 63 million implying that firms on average paid about seventy-eight million annually as directors' remuneration. The remuneration of directors was spread around the mean with a standard deviation of Ksh 54 million. The minimum remuneration was Ksh 1.25 million showing the lowest remuneration among the firms studied in the study period. The maximum remuneration was ksh. 339 million giving the highest remuneration among the firms.

Board diversity was measured by ratio of female directors to total number of directors. The mean board diversity was .21 implying that on average, not all listed firms have achieved the third gender rule however the ratio is nearing a third. The board diversity of individual firms were distributed around the mean with a standard deviation of .13. The minimum level of board diversity was zero implying that all the members of the board were males in such firms. The maximum board diversity was .45 which about 45% of the overall being compost of females.

The mean board meeting attendance frequency was 4.2 implying that the boards of directors of most firms had about four meetings in a financial year to deliberate on firm corporate strategic issues. The board meeting were different form board committee meetings. The board meeting were distributed form the mean with a standard deviation of a 2.1. The minimum number of board meeting was 3 meeting s in a year while the maximum number of all board meeting were 12 meetings.

Leverage which was used as control variable was measured using debt equity ratio. The mean leverage was .70 implying that the long term debt were about 68.5% of the equity used in the same firms hence the firms were relatively solvent. The leverage was

distributed around the mean with a standard deviation of 1.17. The minimum leverage was zero implying that the firm had no long term debts in use in its capital structure. The maximum leverage was 5.4 implying that the long term debts were more than five times higher than the equity hence such firms were insolvent.

Firm size measured by total assets had a mean of Ksh. 87 billion. The firm size of individual firms were spread around the mean with a standard deviation of ksh. 118 billion. The minimum firm size was worth Ksh. 161 million while the largest firm size was worth ksh. 386 bilion shilling. Finally, financial performance was measured using return on equity. The mean financial performance was .1212 implying that the net profits before tax were about 12.12% of the equity of the concerned firm. The standard deviation was .1935 which is implies that the individual firm performance was spread around the mean with standard deviation of 19.3 %. The minimum financial performance was -.6284 implying that the net profit before tax was negative and the firm was in losses with a loss of about 62% of the equity of the concerned firm. The maximum firm performance was 0.7911 which is about 79% net profit before tax being of the total equity of the concerned firm.

#### **4.3 Diagnostic Tests**

Diagnostic tests were performed on the variables before regression to ensure the model for analysis is robust for the purpose of estimation and forecasting. The study specicaly tested assumptions including heteroscedasticity, normality, autocorrelation, multicollinearity and unit root tests.

### 4.3.1 Normality Test

The research adopted Shapiro-Wilk test to examine the existence of normality of the residuals. Normal data have p-value greater than the Shapiro Wilk significance value in the statistical test (0.05). The results is presented in table 4.2.

**Table 4. 2: Shapiro-Wilk test for Normality**

Variable	Obs	W	V	z	Prob>z
x1	320	0.983	3.925	3.219	0.061
x2	320	0.973	6.015	4.225	0.047
x3	320	0.928	16.183	6.555	0.05
x4	320	0.445	125.183	11.372	0.082
x5	320	0.943	12.835	6.009	0.124
y	320	0.861	31.396	8.116	0.073

**x1= directors remuneration, x2= board diversity, x3= board meeting attendance, x4= leverage and x5= firm size and y= Financial performance**

The p values for all the variables were greater than 0.05, with the exception of board diversity implying that the distribution of the study variables were normal distribution.

The ordinary least square assumption of normality was thus not met. However, normality does not mean that OLS model is suitable in isolation from other assumptions. The study therefore considered other models apart from classical least squares and settled on panels corrected standard errors (PCSEs) model.

### 4.3.2 Heteroscedasticity Test

The study adopted Breusch-Pagan / Cook-Weisberg test to examine the existence of heteroscedasticity. The study would conclude that the observed variable lack

homoscedasticity when the p-value generated is less than 0.05 level of significance. The results is presented in table 4.3.

**Table 4. 3: Breusch-Pagan / Cook-Weisberg test for heteroscedasticity**

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of y

chi2(1)      =    72.17
Prob > chi2  =    0.0000
```

The results revealed that the p-value was 0.000 which is lower than 0.05 showing that there was a significant difference in variance of the sample and that of the population hence the study reject the null hypothesis of constant variance. The study therefore concludes that the data about the variables depicted heteroscedasticity. The study therefore adopted Panel correlated Standard errors (PCSEs) toe estimate the parameters.

### 4.3.3 Multicollinearity

The research adopted Variance Inflation Factor (VIF) examine the presence of multicollinearity. A VIF value greater than 10 means that multicollinearity exist in the model (Gujarati, 2003). The results are presented in table 4.4.

**Table 4. 4: Multicolliniarity**

Variable	VIF	1/VIF
x3	1.42	0.705390
x5	1.41	0.707279
x4	1.41	0.709303
x2	1.18	0.847882
x1	1.12	0.895928
Mean VIF	1.31	

**x1= directors' remuneration, x2= bard diversity, x3= board meeting attendance, x4= leverage and x5= firm size and y= Financial performance**

The results depicted in table 4.4 showed that all the VIF values were lower than 10. The study therefore concluded that multicollinearity was not a problem therefore classical least squares regression could be adopted for estimating the parameters. However, the adoption of OLS model was rejected when other assumptions of Classical least squares were violated.

#### **4.3.4 Serial Correlation**

The study adopted Wooldridge Drukker test to examine the presence of autocorrelation. The study would conclude that model is not suffering from autocorrelation when the p-value is greater than 0.05 level of significance. Table 4.5 presents the autocorrelation test.

**Table 4. 5: Wooldridge test for Autocorrelation in Panel Data**

Wooldridge test for autocorrelation in panel data

H0: no first order autocorrelation

$F(1, 63) = 3.139$

Prob > F = 0.0081

The p-value on the Wooldridge test for autocorrelation was less than 0.05 (p-value=.0057<.05) implying that there was there was autocorrelation problem. The null hypothesis of no first order auto correlation was therefore rejected. The study therefore adopted Panel correlated standard errors (PCSEs) model for parameter estimation.

#### **4.4 Correlation Analysis**

The study adopted bivariate Pearson correlation coefficients to establish the association between corporate governance and financial performance. Table 4.6 presents the Pearson correlation coefficients for the study variables.

**Table 4. 6: Pairwise Correlations**

	x1	x2	x3	x4	x5	y
x1	1.0000					
	320					
x2	0.1733*	1.0000				
	0.0019					
	320	320				
x3	0.0591	0.2442*	1.0000			
	0.2921	0.0000				
	320	320	320			
x4	0.2148*	0.3620*	0.4138*	1.0000		
	0.0001	0.0000	0.0000			
	320	320	320	320		
x5	0.2582*	0.2001*	0.4598*	0.3825*	1.0000	
	0.0000	0.0003	0.0000	0.0000		
	320	320	320	320	320	
y	0.3174*	0.3231*	-0.0348	0.1740*	0.2832*	1.0000
	0.0000	0.0000	0.5350	0.0018	0.0000	
	320	320	320	320	320	320

**x1= directors’ remuneration, x2= board diversity, x3= board meeting attendance, x4= leverage and x5= firm size and y= Financial performance**

The relationship between director’s remuneration and financial performance was positive ( $r=.3174$ ,  $p\text{-value} = .000 < .05$ ) implying that increase in remuneration is associated with increase in financial performance of the listed firms. The correlation between board diversity and financial performance was positive ( $r = .3231$ ,  $p\text{-value} = .000 > .05$ ) implying that increase in board diversity was associated with increase in financial performance. The association between board meeting frequency and financial performance was inverse ( $r = -.0348$ ,  $p\text{-value} = .5350$ ) implying that increased number of board meetings is associated with reduced financial performance. The correlation between leverage and financial performance was positive ( $r = .1740$ ,  $p\text{-value} = .0018 > .05$ ). Finally, the

correlation between firm size and financial performance was positive ( $r = .2832$ ,  $p\text{-value} = .000 < .05$ ).

#### 4.5 Regression Analysis

Multivariate regression was adopted to establish the causal effect relationship between corporate governance and financial performance of firms that have floated their common stock at the NSE. The regression adopted panel correlated standard errors (PCSEs) to estimate the parameters. Prais-winsten panel correlated standard errors (PCSEs) model was adopted as the assumptions of the OLS model were violated. Additionally, PCSEs model was adopted since the number of panels were greater than the number of periods. Table 4.7 presents the regression results for the causal effect relationship between corporate governance and financial performance.

**Table 4. 7: Panel Correlated Standard Errors Model (PCSEs)**

```
Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable:  id                Number of obs   =      320
Time variable:  year              Number of groups =      64
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation    min =          5
                                           avg =          5
                                           max =          5

Estimated covariances =      2080      R-squared       =      0.2501
Estimated autocorrelations =      0      Wald chi2(5)    =      34.97
Estimated coefficients =      6      Prob > chi2     =      0.0000
```

y	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
x1	.0518443	.0224148	2.31	0.021	.0079121 .0957765
x2	.5560758	.2028704	2.74	0.006	.1584571 .9536945
x3	-.1456541	.0376679	-3.87	0.000	-.2194819 -.0718264
x4	.0050662	.0086657	0.58	0.559	-.0119183 .0220507
x5	.0379439	.0122546	3.10	0.002	.0139253 .0619625
_cons	-1.615634	.4115947	-3.93	0.000	-2.422344 -.8089228



**x1= directors remuneration, x2= board diversity, x3= board meeting attendance, x4= leverage and x5= firm size and y= Financial performance**

The table 4.7 showed that  $R^2$  was 0.2501 implying that the model explains 25.01 % of the variation in financial performance measured by ROE. The residual of 74.99% of the variation in financial performance of listed firms at the NSE is explained by unobserved variables that were not part of the study. Additionally, the overall P-value of the model was 0.000 which was less than the 0.05 level of significance hence implying that corporate governance (Directors remuneration, board diversity and board meeting frequency) and the control variables (leverage and firm size) have a significant effect on financial performance of listed firms at the NSE. The model was thus estimated in the equation (1).

$$Y = -1.6156 + .0518X_1 + .5560X_2 - .1456X_3 + .0050X_4 + .0379X_5 \dots\dots\dots(1)$$

The intercept ( $\beta_0$ ) term was -1.6156 giving the level of performance when the explanatory variables are held constant are held constant at zero. The effect of directors' remuneration on financial performance of listed firms was positive and significant ( $\beta_1 = .0518$ ,  $t = 2.31$  and  $p\text{-value} = .021 > .05$ ). The study also established that the causal effect relationship between board diversity and financial performance was negative and significant ( $\beta_2 = .5560$ ,  $t = 2.74$  and  $p\text{-value} = .006 < .05$ ). The effect of board meeting frequency on financial performance was inverse and significant ( $\beta_3 = -.1456$ ,  $t = -3.87$  and  $p\text{-value} = .000 < .05$ ). The effect of leverage on financial performance was positive but not statistically significant ( $\beta_4 = .0050$ ,  $t = .58$  and  $p\text{-value} = .559 > .05$ ). Finally, the effect of

firm size on financial performance was positive and significant ( $\beta_5 = .0379$ ,  $t = 3.10$  and  $p\text{-value} = .002 < .05$ ).

#### **4.6 Discussions**

The research sought to establish the causal effect relationship between director's remuneration and financial performance. The correlation analysis showed that the relationship between director's remuneration and financial performance was positive ( $r = .3174$ ,  $p\text{-value} = .000 < .05$ ) implying that increase in remuneration is associated with increase in financial performance of the listed firms. The regression analysis revealed that the effect of directors' remuneration on financial performance of listed firms was positive and significant ( $\beta_1 = .0518$ ,  $t = 2.31$  and  $p\text{-value} = .021 > .05$ ). The positive effect implies that firms paying higher remunerations were also performing better than their counterparts paying low figures. The results also show that improving remuneration by one unit leads to improved financial performance by .0518 units as captured by the coefficient of directors' remuneration. The results are in agreement with Rajagopalan and Zhang (2009) who noted that firms with strong board diversity were able to attract capital from external investors better than counterparts with weak board diversity.

Regarding the causal effect relationship between board diversity and financial performance, the correlation analysis revealed that the link between board diversity and financial performance was positive ( $r = .3231$ ,  $p\text{-value} = .000 > .05$ ) implying that increase in board diversity was accompanied by increase in financial performance. The regression analysis further showed that the effect of board diversity on financial performance was positive and significant ( $\beta_2 = .5560$ ,  $t = 2.74$  and  $p\text{-value} = .006 < .05$ ). The positive relationship implies that firms that were more gender diverse were also performing better

compared to other firms that were less gender diverse. Additionally, increasing gender diversity by one unit leads to increase in financial performance by .5560 units. Firms can thus improve their financial performance by recruiting more female directors into the board. Empirical studies support current findings. Sajid et al (2012) on the link between capital structure and CG revealed that CG and board diversity are directly related and that firm size have inverse relationship with capital structure measure by debt ratio.

The study also examined the relationship between board meeting frequency and financial performance of firms that had floated shares at the NSE. Correlation analysis revealed that the association between board meeting frequency and financial performance was inverse ( $r = -.0348$ ,  $p\text{-value} = .5350$ ) implying that increased number of board meetings is associated with reduced financial performance. Additionally, regression results showed that the effect of board meeting frequency on financial performance was inverse and significant ( $\beta_3 = -.1456$ ,  $t = -3.87$  and  $p\text{-value} = .000 < .05$ ). The findings imply that more board meetings may not be helpful given that firms that had more board meeting were not performing relatively better. The results also show that one-unit improvement in the number of board meetings led to reduced financial performance of the concerned firms by .1456 units. The results were in contract with study by Opanga (2013) who revealed that CG elements including number of resolutions passed in AGMs, frequency of board meeting and board committee's number were directly related with financial performance.

The relationship between leverage and financial performance was also interrogated in the study while employing correlation and regression analysis. The results revealed that the correlation between leverage and financial performance was ( $r = .1740$ ,  $p\text{-value} = .0018 > .05$ ). Further, regression analysis was carried out with the study establishing that

the effect of leverage on financial performance was positive but not statistically significant ( $\beta_4 = .0050$ ,  $t = .58$  and  $p\text{-value} = .559 > .05$ ). The effect was positive but not significant implying that increased leverage leads to improved financial performance. Increased leverage means that the firm saves on the amount that would have been paid as corporate tax to the government. The savings realized means the profits of the firm is enhanced. Additionally, leverage means the firm can access external funding that unlevered firm's do not get hence the funds can be invested in profitable ventures to earn more income to the firm. The parameter estimates reveal that enhanced leverage by one unit leads to improved financial performance by .0050 units. The findings are also supported by empirical literature. Wanyama and Olweny (2013) revealed that the relationship between financial performance and leverage was direct. In contrast, Siro (2013) established that the causal effect link obtaining between financial performance and capital structure of the concerned firms was inverse. Ibhagui and Olokoyo (2018) noted that levered firms tended to enjoy high financial performance as the interest on debts are exempted from corporate taxation as compared to unlevered firms whose profits are not exempted from taxation to the extent of reliance on debts.

Finally, the study revealed that the correlation between firm size and financial performance was positive ( $r = .1740$ ,  $p\text{-value} = .0018 > .05$ ). The regression analysis also revealed that the effect of firm size on financial performance was positive and significant ( $\beta_5 = .0379$ ,  $t = 3.10$  and  $p\text{-value} = .002 < .05$ ). The positive relationship means that larger firms tends to outperform smaller firms. Larger firms are able to enjoy advantages accruing from economies of scale. Additionally, larger firms have adequate resource base to be invested to lead to enhanced financial performance compared to smaller firms. The

coefficient of firm size shows that unitary improvement in firm size leads to improved financial performance by .0379 units. The findings are in agreement with study by Buallay, Hamdan and Zureigat (2017) that revealed that the effect firm size on performance was direct and that firm size was critical in explaining performance among firms. Dang, Li and Yang (2018) noted that larger firms tend to be more efficient compared to smaller firms since they can benefit from technical economies of scale.

## **CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Introduction**

The chapter presents the summary of findings, conclusions, recommendations, limitations, and areas for further studies.

### **5.2 Summary**

The study sought to examine the effect of corporate governance on financial performance among firms that have floated shares at the NSE. First, the study examined the effect of director's remuneration on financial performance of listed firms in Kenya. The correlation analysis showed that the relationship between director's remuneration and financial performance was positive implying that increase in remuneration is associated with increase in financial performance of the listed firms. The regression analysis revealed that the effect of director's remuneration on financial performance of listed firms was positive and significant. The results also show that improving remuneration by one unit leads to improved financial performance by .0518 units as captured by the coefficient of director's remuneration.

Secondly, the study examines the effect of board diversity on financial performance of firms that have listed shares at the NSE. The correlation analysis revealed that the link between board diversity and financial performance was positive implying that increase in board diversity was accompanied by increase in financial performance. The regression analysis further showed that the effect of board diversity on financial performance was positive and significant. Additionally, increasing gender diversity by one unit leads to

increase in financial performance by .5560 units. Firms can thus improve their financial performance by recruiting more female directors into the board.

Thirdly, the study examined the effect of board meeting on financial performance of listed firms at the NSE. Correlation analysis revealed that the association between board meeting frequency and financial performance was inverse. The negative correlation depicts a falling financial performance with increased board meeting frequency. Additionally, regression results showed that the effect of board meeting frequency on financial performance was inverse and significant. The results also show that one unit improvement in the number of board meetings led to reduced financial performance of the concerned firms by .1456 units.

Fourthly, the study examined the effect leverage on financial performance of listed firms at the NSE. The results revealed that the correlation between leverage and financial performance was positive. The positive relationship means that rising usage of debts is accompanied by increasing financial performance. Further, regression analysis was carried out with the study establishing that the effect of leverage on financial performance was positive but not statistically significant. The parameter estimates reveal that enhanced leverage by one unit leads to improved financial performance by .0050 units.

Finally, the study examined the effect revealed that the correlation between firm size and financial performance was positive. The rising firm size is accompanied by increasing financial performance in terms of returns to equity of the firms. The regression analysis also revealed that the effect of firm size on financial performance was positive and

significant. The coefficient of firm size shows that unitary improvement in firm size leads to improved financial performance by .0379 units.

### **5.3 Conclusion**

Based on the findings, the study makes a number of conclusions. First, the positive effect directors' remuneration implies that firms paying higher remunerations were also performing better than their counter parts paying low figures. The results also show that improving remuneration by one unit leads to improved financial performance by .0518 units as captured by the coefficient of directors remuneration. The study thus concluded that director's remuneration has a significant effect on financial performance of listed firms. Directors who are better remunerated can focus on the in work of strategic decision making and ensuring the firms is run professionally. Additionally, better director's remuneration attracts highly qualified and experienced directors that can add value to the firm in terms of insightful contributions in board deliberations. This leads to enhanced financial performance of the respective firms.

The positive relationship between board diversity and financial performance implies that firms that were more gender diverse were also performing better compared to other firms that were less gender diverse. Additionally, increasing gender diversity by one unit leads to increase in financial performance by .5560 units. Firms can thus improve their financial performance by recruiting more female directors into the board. Recruitment of female directors into the board has been known to enhance financial performance of firms. Female directors tend to be transparent and are better stewards of resources compared to male counter parts. The improved transparency in the resource management of the firm leads to enhanced financial performance of the concerned firms.



The inverse relationship between board meeting frequency and financial performance implies more board meetings may not be helpful given that firms that had more board meetings were not performing relatively better. The inverse relationship between board meeting frequency and financial performance may be explained by the fact that too many meetings may be destructive of the matter at hand. Directors deal with strategic matters that may not necessarily require so many meetings. In addition, additional meetings come at the cost of the firm that has to pay sitting allowances and other allowances. The additional cost bloats the operational cost of the firm leading to falling profitability. The results also show that one unit improvement in the number of board meetings led to reduced financial performance of the concerned firms by .1456 units.

The effect of leverage on financial performance of listed firms was positive but not significant implying that increased leverage leads to improved financial performance. Increased leverage means that the firm saves on the amount that would have been paid as corporate tax to the government. The savings realized means the profits of the firm is enhanced. Additionally, leverage means the firm can access external funding that unlevered firm's do not get hence the funds can be invested in profitable ventures to earn more income to the firm. The parameter estimates reveal that enhanced leverage by one unit leads to improved financial performance by .0050 units.

Finally, the positive relationship between firm size and financial performance means that larger firms tends to outperform smaller firms. Larger firms are able to enjoy advantages accruing from economies of scale. Additionally, larger firms have adequate resource base to be invested to lead to enhanced financial performance compared to smaller firms.

Coefficient of firm size shows that unitary improvement in firm size leads to improved financial performance by .0379 units.

#### **5.4 Recommendations**

The study results are very critical for the purpose of theory, practice and policy. The study made a number of recommendations. First, the positive effect of director's remuneration implies that firms paying higher remunerations were also performing better than their counter parts paying low figures. The study therefore recommends to management of listed firms to better remunerate the board of directors. Better remunerated board of directors would focus on their work of strategic decision making and ensuring the firms is run professionally. Additionally, better director's remuneration attracts highly qualified and experienced directors that can add value to the firm in terms of insightful contributions in board deliberations. This leads to enhanced financial performance of the respective firms.

Regarding board diversity, the causal effect relationship between board diversity and financial performance was positive implying that firms that were more gender diverse were also performing better compared to other firms that were less gender diverse. The study recommends to the management of the listed firms to enhance board diversity by recruiting more female directors into the board. Recruitment of female directors into the board has been known to enhance financial performance of firms as female directors tends to be transparent and are better stewards of resources compared to male counter parts. The improved transparency in the resource management of the firm leads to enhanced financial performance of the concerned firms.

Additionally, the relationship between board meeting frequency and financial performance was inverse implying that more board meetings may not necessarily mean improved performance. The study therefore suggests to the top management of the listed firms have the right number of meeting. The optimal number of meeting for the whole board is quarterly translating to four meeting in a year. The directors should only meet in additional days under the committees or on special occasions needing their indulgence. Having too many meeting beyond the optimal number of meetings distracting and may not necessarily lead to enhanced performance. Furthermore, directors deal with strategic matters that may not necessarily require so many meetings. In addition, additional meetings come at the cost of the firm that has to pay sitting allowances and other allowances. The additional cost bloats the operational cost of the firm leading to falling profitability.

The study also examined the effect of leverage on financial performance of listed firms finding a positive but not significant relationship. The study recommends to management of listed firms to use leverage sparingly since increased leverage does not increase performance in a significant way. The firm should adopt optimal leverage where the risk of solvency is minimal and the firm still enjoys corporate tax savings given the leverage. Increased leverage means that the firm saves on the amount that would have been paid as corporate tax to the government. The savings realized means the profits of the firm is enhanced. Additionally, leverage means the firm can access external funding that unlevered firm's do not get hence the funds can be invested in profitable ventures to earn more income to the firm.

Finally, the study examined the causal effect relationship between firm size and financial performance. The study revealed that firm size had a significant effect on financial performance implying that larger firms tends to outperform smaller firms. The study thus suggests to management of listed firms to enhance their assets base through assets investment in current and non-current assets. Increased asset base through reinvestment is critical since larger firms are able to enjoy advantages accruing from economies of scale. Additionally, larger firms have adequate resource base to be invested to lead to enhanced financial performance compared to smaller firms.

### **5.5 Limitations of the Study**

Even though, the study was adequately carried out, there are a few limitations in the study that may need improvement in future studies. First, the study used stratified random sampling method in selecting the firms to participate in the study, there are segments in the NSE that have only one firm, in those cases, the lone firms were selected for the purpose of the study. Then segments with more than one firm, firms were selected based on simple random sampling, this may generate a slightly biased sample.

The second limitation is that the study relied on secondary data only. There are aspects of corporate governance that are best captured through primary data. Therefore, the study may have omitted aspects of corporate governance that are adequately captured using both primary and secondary data. Aspects of corporate governance like corporate ethics and corporate principles need qualitative measures for their adequate measurement. Additionally, reliance on secondary data extracted from financial statement has the weakness of being prepared under the discretion of managers and even when audited, audits relies on sample of transactions and not exhaustive.

Another weakness observed with the current study is that it was limited to three corporate governance aspects including director's remuneration, board diversity and board meeting frequency. Corporate governance is a broad term that covers so many aspects hence the current study may be slightly simplistic by only concentrating on three corporate governance elements. Corporate governance study should include more aspects to ensure exhaustive coverage.

The time period for data collection could also be a limitation. The study focused on a five year period from 2015 to 2019 which may not be adequate to observe certain aspects causal effect relationship. Certain aspects of corporate governance variables takes a longer time to adjust. Aspects of board meeting frequency and board diversity may take long to adjust hence may not have been adequately examined in the five year period. Most board of directors serve for two term period extending up to ten years hence the change may not be observed in the five year period the study collected the dat.

### **5.6 Areas for Future Studies**

The study makes recommendations for future studies. First, the study used stratified random sampling method in selecting the firms to participate in the study. The study therefore suggest that future studies on the same topic should include all firms at the NSE or focus on a given segment only. A survey of all firms listed at the NSE would give overall picture of the association between corporate governance aspects covered in this study and financial performance. Then segmental studies would hence in cross comparison of results across firms.

Secondly, being that the study relied on secondary data only, there are aspects of corporate governance that may have been omitted. The study suggests that future studies on the same topic, to collect both primary and secondary data. The adoption of both primary and secondary data would ensure that aspects of corporate governance like corporate ethics and corporate principles are adequately measured. Primary data also act as a triangulation for the secondary data hence removing any bias on reliance on one source of data only.

Thirdly, being that the current study was limited to three corporate governance aspects namely director's remuneration, board diversity and board meeting frequency, there are aspects of corporate governance that may have been omitted. Given that corporate governance is a broad term that covers so many aspects, the study recommends that future studies should include more aspects of corporate governance in addition to the current aspects of corporate governance captured. This would ensure the study is exhaustive enough.

Finally, the study focused on a five year period from 2015 to 2019 which may not be adequate to observe certain aspects of causal effect relationship between corporate governance and financial performance. The study recommends that future studies on the same topic should cover a longer period of time of ten years and above. This would ensure aspects of corporate governance variables that take long to adjust are adequately covered. The time period of ten years is adequate to capture change in board meeting frequency and board diversity that take long to adjust.

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## APPENDICES

### Appendix I: Data Collection Sheet

	2014	2015	2016	2017	2018
Number of female directors					
total number of directors					
Total Assets					
Total Equity					
Directors Salary					
Average frequency of board meeting attendance					
Total long term debts					

## Appendix II: Listed Firms in Kenya

<b>AGRICULTURAL</b>
1. Eaagads Ltd Ord 1.25 AIM
2. Kakuzi Plc Ord.5.00
3. Kapchorua Tea Co. Ltd Ord Ord 5.00 AIM
4. The Limuru Tea Co. Plc Ord 20.00AIMS
5. Sasini Plc Ord 1.00
6. Williamson Tea Kenya Ltd Ord 5.00 AIM
<b>AUTOMOBILES &amp; ACCESSORIES</b>
7. Car & General (K) Ltd Ord 5.00
<b>BANKING</b>
8. ABSA Bank Kenya Plc Ord 0.50
9. BK Group Plc Ord 0.80
10. Diamond Trust Bank Kenya Ltd Ord 4.00
11. Equity Group Holdings Plc Ord 0.50
12. HF Group Plc Ord 5.00
13. I&M Holdings Plc Ord 1.00
14. KCB Group Plc Ord 1.00
15. National Bank of Kenya Ltd Ord 5.00
16. NIC Group Plc Ord 5.00
17. Stanbic Holdings Plc ord.5.00
18. Standard Chartered Bank Kenya Ltd Ord 5.00
19. The Co-operative Bank of Kenya Ltd Ord 1.00
<b>COMMERCIAL AND SERVICES</b>
20. Deacons (East Africa) Plc Ord 2.50AIMS
21. Eveready East Africa Ltd Ord.1.00
22. Express Kenya Ltd Ord 5.00 AIMS
23. Kenya Airways Ltd Ord 5.00
24. Longhorn Publishers Plc Ord 1.00AIMS
25. Nairobi Business Ventures Ltd Ord. 1.00 GEMS
26. Nation Media Group Ltd Ord. 2.50
27. Sameer Africa Plc Ord 5.00
28. Standard Group Plc Ord 5.00
29. TPS Eastern Africa Ltd Ord 1.00
30. Uchumi Supermarket Plc Ord 5.00
31. WPP Scangroup Plc Ord 1.00

<b>CONSTRUCTION &amp; ALLIED</b>
32. ARM Cement Plc Ord 1.00
33. Bamburi Cement Ltd Ord 5.00
34. Crown Paints Kenya Plc Ord 5.00
35. E.A.Cables Ltd Ord 0.50
36. E.A.Portland Cement Co. Ltd Ord 5.00
<b>ENERGY &amp; PETROLEUM</b>
37. KenGen Co. Plc Ord. 2.50
38. Kenya Power & Lighting Co Ltd Ord 2.50
39. Kenya Power & Lighting Co Ltd 4%
40. Kenya Power & Lighting Co Ltd 7%
41. Total Kenya Ltd Ord 5.00
42. Umeme Ltd Ord 0.50
<b>INSURANCE</b>
43. Britam Holdings Plc Ord 0.10
44. CIC Insurance Group Ltd ord.1.00
45. Jubilee Holdings Ltd Ord 5.00
46. Kenya Re Insurance Corporation Ltd Ord 2.50
47. Liberty Kenya Holdings Ltd Ord.1.00
48. Sanlam Kenya Plc Ord 5.00
<b>INVESTMENT</b>
49. Centum Investment Co Plc Ord 0.50
50. Home Afrika Ltd Ord 1.00
51. Kurwitu Ventures Ltd Ord 100.00
52. Olympia Capital Holdings ltd Ord 5.00
53. Trans-Century Plc Ord 0.50AIMS
<b>INVESTMENT SERVICES</b>
54. Nairobi Securities Exchange Plc Ord 4.00
<b>MANUFACTURING &amp; ALLIED</b>
55. B.O.C Kenya Plc Ord 5.00
56. British American Tobacco Kenya Plc Ord 10.00
57. Carbacid Investments Ltd Ord 1.00
58. East African Breweries Ltd Ord 2.00
59. Flame Tree Group Holdings Ltd Ord 0.825
60. Kenya Orchards Ltd Ord 5.00 AIM
61. Mumias Sugar Co. Ltd Ord 2.00

62. Unga Group Ltd Ord 5.00
<b>TELECOMMUNICATION</b>
63. Safaricom Plc Ord 0.05
<b>REAL ESTATE INVESTMENT TRUST</b>
64. STANLIB FAHARI I-REIT
<b>EXCHANGE TRADED FUNDS</b>
65. NEW GOLD ETF



### Appendix III: Raw Data

id	year	x1	x2	x3	x4	x5	y
1	2015	18.7282	0.125	1.38629	0.001849	23.0842	0.247496
1	2016	18.8248	0.125	1.38629	0.001747	23.2226	0.282664
1	2017	18.8315	0.125	1.38629	0.003172	23.1499	0.23935
1	2018	18.5785	0.133333	1.38629	0.003808	23.139	0.207424
1	2019	18.3427	0.133333	1.38629	0.093043	23.2162	0.166258
2	2015	19.0885	0.333333	1.09861	0.190716	22.8791	0.116922
2	2016	16.8808	0.333333	1.09861	0.170478	22.9424	0.089317
2	2017	17.2818	0.333333	1.09861	0.139181	23.0522	-0.00589
2	2018	17.9639	0.222222	1.38629	0.221796	23.0191	0.230643
2	2019	17.922	0.222222	1.38629	0.19438	23.0885	0.101595
3	2015	18.7208	0.444444	2.30259	5.06499	26.2076	0.304008
3	2016	18.8206	0.444444	2.30259	5.12716	26.2829	0.256016
3	2017	18.8748	0.444444	2.30259	5.15837	26.3275	0.234954
3	2018	18.7923	0.444444	2.30259	5.1649	26.5814	0.329791
3	2019	18.9157	0.333333	2.30259	5.31827	26.6286	0.342106
4	2015	19.1063	0.222222	1.94591	0.258922	25.0046	0.228693
4	2016	19.196	0.222222	1.94591	0.378106	25.0807	0.251344
4	2017	19.3014	0.4	1.38629	0.000352	25.205	0.17657
4	2018	19.1215	0.3	1.38629	0.417592	25.2906	0.061824
4	2019	18.044	0.3	1.38629	0.473153	25.3459	0.086064
5	2015	15.9309	0.3	1.79176	0.68	24.67	0.184373
5	2016	17.3101	0.3	1.79176	0.46	23.3334	-0.04051
5	2017	17.0626	0.3	1.79176	0.72	24.57	0.090008
5	2018	16.4938	0.3	1.79176	0.823594	24.685	0.104125
5	2019	16.5525	0.3	1.79176	0.658068	24.7366	0.086181
6	2015	17.635	0.333333	1.60944	0.36	21.57	0.040814
6	2016	17.7249	0.333333	1.60944	0.24	21.802	0.03939
6	2017	17.8337	0.333333	1.60944	0.51	21.79	0.051899
6	2018	17.6904	0.333333	1.60944	0.556525	21.4849	0.078705
6	2019	17.7775	0.333333	1.60944	0.541961	21.496	0.081441
7	2015	17.2963	0.2	2.3979	0.59	23.1962	-0.02362
7	2016	17.3536	0.2	2.07944	0.23	23.7648	-0.09363
7	2017	17.4873	0.2	2.30259	0.55	22.56	-0.49337
7	2018	17.5254	0.4	2.3979	0.703721	22.6109	-0.5416
7	2019	17.5639	0.4	2.3979	0.776454	22.6323	-0.44947
8	2015	18.7628	0	1.38629	0.56	22.92	0.119101
8	2016	17.2261	0	1.79176	0.67	23.3178	0.03009
8	2017	17.6313	0	1.79176	0.64	22.07	0.066201
8	2018	17.0495	0	1.79176	0.653856	23.0431	0.089832
8	2019	17.0942	0	1.38629	0.710714	23.1642	0.003229
9	2015	17.7458	0.181818	1.38629	0.35	23.0531	0.053594
9	2016	18.0265	0.181818	1.38629	0.47	23.79	0.018721
9	2017	17.3532	0.181818	1.38629	0.68	24.6129	0.045281
9	2018	18.3737	0.153846	1.38629	0.652802	26.6574	0.186637
9	2019	18.6944	0.153846	1.38629	0.639593	26.6797	0.174577
10	2015	19.2734	0.2	1.60944	0.47	23.3394	0.433333
10	2016	18.5054	0.2	1.60944	0.47	19.76	0.2
10	2017	16.4855	0.2	1.60944	0.39	22.837	0.566667
10	2018	16.5227	0.4	1.60944	0.346036	20.7099	0.506263
10	2019	16.5425	0.333333	1.60944	0.416983	20.6986	0.522305

11	2015	18.7331	0.222222	1.60944	0.28	23.79	0.301501
11	2016	17.1292	0.222222	1.60944	0.4	24.8622	0.268387
11	2017	18.4609	0.25	1.38629	0.61	26.2044	0.210463
11	2018	17.8593	0.222222	1.38629	0.63597	26.388	0.226007
11	2019	17.9356	0.222222	1.38629	0.582689	26.4768	0.239936
12	2015	17.8677	0.25	1.38629	0.41	22.1394	0.016706
12	2016	15.0179	0.25	1.38629	0.54	23.5931	0.02801
12	2017	18.4706	0.25	1.38629	0.39	22.4718	0.196464
12	2018	16.1427	0.25	1.38629	0.397555	22.5051	0.146501
12	2019	16.3377	0.25	1.38629	0.446416	22.5357	0.156403
13	2015	17.3528	0.076923	2.07944	0.21	26.5596	0.061373
13	2016	17.6272	0.153846	2.07944	0.36	26.6279	0.065342
13	2017	17.6147	0.153846	2.07944	0.36	26.6548	0.062686
13	2018	17.4097	0.153846	2.07944	0.355935	26.6617	0.061785
13	2019	17.4935	0.133333	2.07944	0.348281	26.6758	0.058457
14	2015	18.7815	0.333333	1.38629	0.59	22.14	0.291553
14	2016	17.5442	0.333333	1.38629	0.62	24.2814	0.664694
14	2017	16.1597	0.333333	1.38629	0.65	24.3433	0.147362
14	2018	18.4193	0.285714	1.38629	0.672605	24.3227	0.121399
14	2019	18.4351	0.333333	1.38629	0.713016	24.2661	0.113563
15	2015	17.2538	0.333333	2.70805	0.45	26.34	0.13425
15	2016	17.7003	0.333333	2.70805	0.38	26.2133	0.081599
15	2017	18.4948	0.333333	2.70805	0.37	26.5261	0.120894
15	2018	17.1744	0.333333	2.70805	0.396598	26.5423	0.048113
15	2019	17.4152	0.333333	2.70805	0.404764	26.5509	0.058907
16	2015	18.7342	0.428571	1.38629	0.57	25.78	0.301264
16	2016	19.4473	0.428571	1.38629	0.27	21.7409	0.477668
16	2017	19.5397	0.428571	1.38629	0.32	25.8089	0.657108
16	2018	19.5898	0.428571	1.94591	0.28789	25.8439	0.644875
16	2019	19.6429	0.428571	1.94591	0.268496	25.9832	0.631936
17	2015	17.8856	0	1.38629	0.46	26.38	0.225327
17	2016	17.8543	0	1.38629	0.38	21.91	-0.52981
17	2017	16.1683	0	1.38629	0.19	21.8118	0.147803
17	2018	17.6235	0	1.38629	0.000288	21.6741	-0.42327
17	2019	17.5189	0	1.38629	0.006298	21.1491	-0.95574
18	2015	16.7829	0.166667	1.38629	0.73	23.4772	0.088382
18	2016	17.8312	0.166667	1.38629	0.46	21.98	0.017873
18	2017	17.9882	0.166667	1.38629	0.61	22.6663	0.012849
18	2018	17.3868	0.166667	1.38629	1.75573	24.0941	-0.13416
18	2019	18.1496	0.142857	1.38629	1.72147	24.0917	0.317052
19	2015	16.7204	0.285714	1.38629	0.27	22.8518	0.0069
19	2016	17.77	0.285714	1.38629	0.26	22.85	0.081204
19	2017	17.343	0.285714	1.38629	0.31	21.35	0.019846
19	2018	17.0226	0.285714	1.38629	0.340587	23.2852	0.008318
19	2019	17.435	0.285714	1.38629	0.328659	23.4094	0.002391
20	2015	17.2999	0.333333	1.09861	0.53	23.2317	-0.02799
20	2016	18.1336	0.333333	1.79176	0.44	22.32	0.005161
20	2017	15.4863	0.333333	1.09861	0.47	23.5848	0.028451
20	2018	18.1824	0.333333	1.09861	0.499447	23.5911	0.026643
20	2019	18.2279	0.285714	1.09861	0.529526	23.5955	0.027884

21	2015	17.82925	0.119	1.319748	0.00176	21.97616	0.235616
21	2016	17.92121	0.119	1.319748	0.001663	22.10792	0.269096
21	2017	17.92759	0.119	1.319748	0.00302	22.0387	0.227861
21	2018	17.68673	0.126933	1.319748	0.003625	22.02833	0.197468
21	2019	17.46225	0.126933	1.319748	0.088577	22.10182	0.158278
22	2015	18.17225	0.317333	1.045877	0.181562	21.7809	0.11131
22	2016	16.07052	0.317333	1.045877	0.162295	21.84116	0.08503
22	2017	16.45227	0.317333	1.045877	0.1325	21.94569	-0.00561
22	2018	17.10163	0.211555	1.319748	0.21115	21.91418	0.219572
22	2019	17.06174	0.211555	1.319748	0.18505	21.98025	0.096718
23	2015	17.8222	0.423111	2.192066	4.82187	24.94964	0.289416
23	2016	17.91721	0.423111	2.192066	4.881056	25.02132	0.243727
23	2017	17.96881	0.423111	2.192066	4.910768	25.06378	0.223676
23	2018	17.89027	0.423111	2.192066	4.916985	25.30549	0.313961
23	2019	18.00775	0.317333	2.192066	5.062993	25.35043	0.325685
24	2015	18.1892	0.211555	1.852506	0.246494	23.80438	0.217716
24	2016	18.27459	0.211555	1.852506	0.359957	23.87683	0.239279
24	2017	18.37493	0.3808	1.319748	0.000335	23.99516	0.168095
24	2018	18.20367	0.2856	1.319748	0.397548	24.07665	0.058856
24	2019	17.17789	0.2856	1.319748	0.450442	24.1293	0.081933
25	2015	15.16622	0.2856	1.705756	0.64736	23.48584	0.175523
25	2016	16.47922	0.2856	1.705756	0.43792	22.2134	-0.03857
25	2017	16.2436	0.2856	1.705756	0.68544	23.39064	0.085688
25	2018	15.7021	0.2856	1.705756	0.784061	23.50012	0.099127
25	2019	15.75798	0.2856	1.705756	0.626481	23.54924	0.082044
26	2015	16.78852	0.317333	1.532187	0.34272	20.53464	0.038855
26	2016	16.8741	0.317333	1.532187	0.22848	20.7555	0.037499
26	2017	16.97768	0.317333	1.532187	0.48552	20.74408	0.049408
26	2018	16.84126	0.317333	1.532187	0.529812	20.45362	0.074927
26	2019	16.92418	0.317333	1.532187	0.515947	20.46419	0.077532
27	2015	16.46608	0.1904	2.282801	0.56168	22.08278	-0.02249
27	2016	16.52063	0.1904	1.979627	0.21896	22.62409	-0.08914
27	2017	16.64791	0.1904	2.192066	0.5236	21.47712	-0.46969
27	2018	16.68418	0.3808	2.282801	0.669942	21.52558	-0.5156
27	2019	16.72083	0.3808	2.282801	0.739184	21.54595	-0.4279
28	2015	17.86219	0	1.319748	0.53312	21.81984	0.113384
28	2016	16.39925	0	1.705756	0.63784	22.19855	0.028646
28	2017	16.785	0	1.705756	0.60928	21.01064	0.063023
28	2018	16.23112	0	1.705756	0.622471	21.93703	0.08552
28	2019	16.27368	0	1.319748	0.6766	22.05232	0.003074
29	2015	16.894	0.173091	1.319748	0.3332	21.94655	0.051021
29	2016	17.16123	0.173091	1.319748	0.44744	22.64808	0.017822
29	2017	16.52025	0.173091	1.319748	0.64736	23.43148	0.043108
29	2018	17.49176	0.146461	1.319748	0.621468	25.37784	0.177678
29	2019	17.79707	0.146461	1.319748	0.608893	25.39907	0.166197
30	2015	18.34828	0.1904	1.532187	0.44744	22.21911	0.412533
30	2016	17.61714	0.1904	1.532187	0.44744	18.81152	0.1904
30	2017	15.6942	0.1904	1.532187	0.37128	21.74082	0.539467
30	2018	15.72961	0.3808	1.532187	0.329426	19.71582	0.481962
30	2019	15.74846	0.317333	1.532187	0.396968	19.70507	0.497234

31	2015	17.83391	0.211555	1.532187	0.26656	22.64808	0.287029
31	2016	16.307	0.211555	1.532187	0.3808	23.66881	0.255504
31	2017	17.57478	0.238	1.319748	0.58072	24.94659	0.200361
31	2018	17.00205	0.211555	1.319748	0.605443	25.12138	0.215159
31	2019	17.07469	0.211555	1.319748	0.55472	25.20591	0.228419
32	2015	17.01005	0.238	1.319748	0.39032	21.07671	0.015904
32	2016	14.29704	0.238	1.319748	0.51408	22.46063	0.026666
32	2017	17.58401	0.238	1.319748	0.37128	21.39315	0.187034
32	2018	15.36785	0.238	1.319748	0.378472	21.42486	0.139469
32	2019	15.55349	0.238	1.319748	0.424988	21.45399	0.148896
33	2015	16.51987	0.073231	1.979627	0.19992	25.28474	0.058427
33	2016	16.78109	0.146461	1.979627	0.34272	25.34976	0.062206
33	2017	16.76919	0.146461	1.979627	0.34272	25.37537	0.059677
33	2018	16.57403	0.146461	1.979627	0.33885	25.38194	0.058819
33	2019	16.65381	0.126933	1.979627	0.331564	25.39536	0.055651
34	2015	17.87999	0.317333	1.319748	0.56168	21.07728	0.277558
34	2016	16.70208	0.317333	1.319748	0.59024	23.11589	0.632789
34	2017	15.38403	0.317333	1.319748	0.6188	23.17482	0.140289
34	2018	17.53517	0.272	1.319748	0.64032	23.15521	0.115572
34	2019	17.55022	0.317333	1.319748	0.678791	23.10133	0.108112
35	2015	16.42562	0.317333	2.578064	0.4284	25.07568	0.127806
35	2016	16.85069	0.317333	2.578064	0.36176	24.95506	0.077682
35	2017	17.60705	0.317333	2.578064	0.35224	25.25285	0.115091
35	2018	16.35003	0.317333	2.578064	0.377561	25.26827	0.045804
35	2019	16.57927	0.317333	2.578064	0.385335	25.27646	0.056079
36	2015	17.83496	0.408	1.319748	0.54264	24.54256	0.286803
36	2016	18.51383	0.408	1.319748	0.25704	20.69734	0.45474
36	2017	18.60179	0.408	1.319748	0.30464	24.57007	0.625567
36	2018	18.64949	0.408	1.852506	0.274071	24.60339	0.613921
36	2019	18.70004	0.408	1.852506	0.255608	24.73601	0.601603
37	2015	17.02709	0	1.319748	0.43792	25.11376	0.214511
37	2016	16.99729	0	1.319748	0.36176	20.85832	-0.50438
37	2017	15.39222	0	1.319748	0.18088	20.76483	0.140708
37	2018	16.77757	0	1.319748	0.000274	20.63374	-0.40295
37	2019	16.67799	0	1.319748	0.005996	20.13394	-0.90986
38	2015	15.97732	0.158667	1.319748	0.69496	22.35029	0.08414
38	2016	16.9753	0.158667	1.319748	0.43792	20.92496	0.017015
38	2017	17.12477	0.158667	1.319748	0.58072	21.57832	0.012232
38	2018	16.55223	0.158667	1.319748	1.671455	22.93758	-0.12772
38	2019	17.27842	0.136	1.319748	1.638839	22.9353	0.301834
39	2015	15.91782	0.272	1.319748	0.25704	21.75491	0.006569
39	2016	16.91704	0.272	1.319748	0.24752	21.7532	0.077306
39	2017	16.51054	0.272	1.319748	0.29512	20.3252	0.018893
39	2018	16.20552	0.272	1.319748	0.324239	22.16751	0.007919
39	2019	16.59812	0.272	1.319748	0.312883	22.28575	0.002276
40	2015	16.4695	0.317333	1.045877	0.50456	22.11658	-0.02665
40	2016	17.26319	0.317333	1.705756	0.41888	21.24864	0.004913
40	2017	14.74296	0.317333	1.045877	0.44744	22.45273	0.027085
40	2018	17.30964	0.317333	1.045877	0.475474	22.45873	0.025364
40	2019	17.35296	0.272	1.045877	0.504109	22.46292	0.026546

41	2015	17.82925	0.119	1.319748	0.00176	21.97616	0.235616
41	2016	17.92121	0.119	1.319748	0.001663	22.10792	0.269096
41	2017	17.92759	0.119	1.319748	0.00302	22.0387	0.227861
41	2018	17.68673	0.126933	1.319748	0.003625	22.02833	0.197468
41	2019	17.46225	0.126933	1.319748	0.088577	22.10182	0.158278
42	2015	18.17225	0.317333	1.045877	0.181562	21.7809	0.11131
42	2016	16.07052	0.317333	1.045877	0.162295	21.84116	0.08503
42	2017	16.45227	0.317333	1.045877	0.1325	21.94569	-0.00561
42	2018	17.10163	0.211555	1.319748	0.21115	21.91418	0.219572
42	2019	17.06174	0.211555	1.319748	0.18505	21.98025	0.096718
43	2015	17.8222	0.423111	2.192066	4.82187	24.94964	0.289416
43	2016	17.91721	0.423111	2.192066	4.881056	25.02132	0.243727
43	2017	17.96881	0.423111	2.192066	4.910768	25.06378	0.223676
43	2018	17.89027	0.423111	2.192066	4.916985	25.30549	0.313961
43	2019	18.00775	0.317333	2.192066	5.062993	25.35043	0.325685
44	2015	18.1892	0.211555	1.852506	0.246494	23.80438	0.217716
44	2016	18.27459	0.211555	1.852506	0.359957	23.87683	0.239279
44	2017	18.37493	0.3808	1.319748	0.000335	23.99516	0.168095
44	2018	18.20367	0.2856	1.319748	0.397548	24.07665	0.058856
44	2019	17.17789	0.2856	1.319748	0.450442	24.1293	0.081933
45	2015	15.16622	0.2856	1.705756	0.64736	23.48584	0.175523
45	2016	16.47922	0.2856	1.705756	0.43792	22.2134	-0.03857
45	2017	16.2436	0.2856	1.705756	0.68544	23.39064	0.085688
45	2018	15.7021	0.2856	1.705756	0.784061	23.50012	0.099127
45	2019	15.75798	0.2856	1.705756	0.626481	23.54924	0.082044
46	2015	16.78852	0.317333	1.532187	0.34272	20.53464	0.038855
46	2016	16.8741	0.317333	1.532187	0.22848	20.7555	0.037499
46	2017	16.97768	0.317333	1.532187	0.48552	20.74408	0.049408
46	2018	16.84126	0.317333	1.532187	0.529812	20.45362	0.074927
46	2019	16.92418	0.317333	1.532187	0.515947	20.46419	0.077532
47	2015	16.46608	0.1904	2.282801	0.56168	22.08278	-0.02249
47	2016	16.52063	0.1904	1.979627	0.21896	22.62409	-0.08914
47	2017	16.64791	0.1904	2.192066	0.5236	21.47712	-0.46969
47	2018	16.68418	0.3808	2.282801	0.669942	21.52558	-0.5156
47	2019	16.72083	0.3808	2.282801	0.739184	21.54595	-0.4279
48	2015	17.86219	0	1.319748	0.53312	21.81984	0.113384
48	2016	16.39925	0	1.705756	0.63784	22.19855	0.028646
48	2017	16.785	0	1.705756	0.60928	21.01064	0.063023
48	2018	16.23112	0	1.705756	0.622471	21.93703	0.08552
48	2019	16.27368	0	1.319748	0.6766	22.05232	0.003074
49	2015	16.894	0.173091	1.319748	0.3332	21.94655	0.051021
49	2016	17.16123	0.173091	1.319748	0.44744	22.64808	0.017822
49	2017	16.52025	0.173091	1.319748	0.64736	23.43148	0.043108
49	2018	17.49176	0.146461	1.319748	0.621468	25.37784	0.177678
49	2019	17.79707	0.146461	1.319748	0.608893	25.39907	0.166197
50	2015	18.34828	0.1904	1.532187	0.44744	22.21911	0.412533
50	2016	17.61714	0.1904	1.532187	0.44744	18.81152	0.1904
50	2017	15.6942	0.1904	1.532187	0.37128	21.74082	0.539467
50	2018	15.72961	0.3808	1.532187	0.329426	19.71582	0.481962
50	2019	15.74846	0.317333	1.532187	0.396968	19.70507	0.497234

51	2015	17.83391	0.211555	1.532187	0.26656	22.64808	0.287029
51	2016	16.307	0.211555	1.532187	0.3808	23.66881	0.255504
51	2017	17.57478	0.238	1.319748	0.58072	24.94659	0.200361
51	2018	17.00205	0.211555	1.319748	0.605443	25.12138	0.215159
51	2019	17.07469	0.211555	1.319748	0.55472	25.20591	0.228419
52	2015	17.01005	0.238	1.319748	0.39032	21.07671	0.015904
52	2016	14.29704	0.238	1.319748	0.51408	22.46063	0.026666
52	2017	17.58401	0.238	1.319748	0.37128	21.39315	0.187034
52	2018	15.36785	0.238	1.319748	0.378472	21.42486	0.139469
52	2019	15.55349	0.238	1.319748	0.424988	21.45399	0.148896
53	2015	16.51987	0.073231	1.979627	0.19992	25.28474	0.058427
53	2016	16.78109	0.146461	1.979627	0.34272	25.34976	0.062206
53	2017	16.76919	0.146461	1.979627	0.34272	25.37537	0.059677
53	2018	16.57403	0.146461	1.979627	0.33885	25.38194	0.058819
53	2019	16.65381	0.126933	1.979627	0.331564	25.39536	0.055651
54	2015	17.87999	0.317333	1.319748	0.56168	21.07728	0.277558
54	2016	16.70208	0.317333	1.319748	0.59024	23.11589	0.632789
54	2017	15.38403	0.317333	1.319748	0.6188	23.17482	0.140289
54	2018	17.53517	0.272	1.319748	0.64032	23.15521	0.115572
54	2019	17.55022	0.317333	1.319748	0.678791	23.10133	0.108112
55	2015	16.42562	0.317333	2.578064	0.4284	25.07568	0.127806
55	2016	16.85069	0.317333	2.578064	0.36176	24.95506	0.077682
55	2017	17.60705	0.317333	2.578064	0.35224	25.25285	0.115091
55	2018	16.35003	0.317333	2.578064	0.377561	25.26827	0.045804
55	2019	16.57927	0.317333	2.578064	0.385335	25.27646	0.056079
56	2015	17.83496	0.408	1.319748	0.54264	24.54256	0.286803
56	2016	18.51383	0.408	1.319748	0.25704	20.69734	0.45474
56	2017	18.60179	0.408	1.319748	0.30464	24.57007	0.625567
56	2018	18.64949	0.408	1.852506	0.274071	24.60339	0.613921
56	2019	18.70004	0.408	1.852506	0.255608	24.73601	0.601603
57	2015	17.02709	0	1.319748	0.43792	25.11376	0.214511
57	2016	16.99729	0	1.319748	0.36176	20.85832	-0.50438
57	2017	15.39222	0	1.319748	0.18088	20.76483	0.140708
57	2018	16.77757	0	1.319748	0.000274	20.63374	-0.40295
57	2019	16.67799	0	1.319748	0.005996	20.13394	-0.90986
58	2015	15.97732	0.158667	1.319748	0.69496	22.35029	0.08414
58	2016	16.9753	0.158667	1.319748	0.43792	20.92496	0.017015
58	2017	17.12477	0.158667	1.319748	0.58072	21.57832	0.012232
58	2018	16.55223	0.158667	1.319748	1.671455	22.93758	-0.12772
58	2019	17.27842	0.136	1.319748	1.638839	22.9353	0.301834
59	2015	15.91782	0.272	1.319748	0.25704	21.75491	0.006569
59	2016	16.91704	0.272	1.319748	0.24752	21.7532	0.077306
59	2017	16.51054	0.272	1.319748	0.29512	20.3252	0.018893
59	2018	16.20552	0.272	1.319748	0.324239	22.16751	0.007919
59	2019	16.59812	0.272	1.319748	0.312883	22.28575	0.002276
60	2015	16.4695	0.317333	1.045877	0.50456	22.11658	-0.02665
60	2016	17.26319	0.317333	1.705756	0.41888	21.24864	0.004913
60	2017	14.74296	0.317333	1.045877	0.44744	22.45273	0.027085
60	2018	17.30964	0.317333	1.045877	0.475474	22.45873	0.025364
60	2019	17.35296	0.272	1.045877	0.504109	22.46292	0.026546
61	2015	17.82925	0.119	1.319748	0.00176	21.97616	0.235616
61	2016	17.92121	0.119	1.319748	0.001663	22.10792	0.269096
61	2017	17.92759	0.119	1.319748	0.00302	22.0387	0.227861
61	2018	17.68673	0.126933	1.319748	0.003625	22.02833	0.197468
61	2019	17.46225	0.126933	1.319748	0.088577	22.10182	0.158278
62	2015	18.17225	0.317333	1.045877	0.181562	21.7809	0.11131
62	2016	16.07052	0.317333	1.045877	0.162295	21.84116	0.08503
62	2017	16.45227	0.317333	1.045877	0.1325	21.94569	-0.00561
62	2018	17.10163	0.211555	1.319748	0.21115	21.91418	0.219572
62	2019	17.06174	0.211555	1.319748	0.18505	21.98025	0.096718
63	2015	17.8222	0.423111	2.192066	4.82187	24.94964	0.289416
63	2016	17.91721	0.423111	2.192066	4.881056	25.02132	0.243727
63	2017	17.96881	0.423111	2.192066	4.910768	25.06378	0.223676
63	2018	17.89027	0.423111	2.192066	4.916985	25.30549	0.313961
63	2019	18.00775	0.317333	2.192066	5.062993	25.35043	0.325685
64	2015	18.1892	0.211555	1.852506	0.246494	23.80438	0.217716
64	2016	18.27459	0.211555	1.852506	0.359957	23.87683	0.239279
64	2017	18.37493	0.3808	1.319748	0.000335	23.99516	0.168095
64	2018	18.20367	0.2856	1.319748	0.397548	24.07665	0.058856
64	2019	17.17789	0.2856	1.319748	0.450442	24.1293	0.081933