CORPORATE GOVERNANCE, SOCIAL INVESTMENT, INFORMATION TECHNOLOGY INVESTMENT AND FINANCIAL PERFORMANCE OF COMPANIES LISTED AT THE NAIROBI SECURITIES EXCHANGE

BY

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DECLARATION

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

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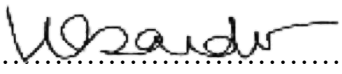
Signature……  …… Date……April, 13th 2022……

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DEDICATION

This work is dedicated to all people of goodwill who believe in education and the pursuit of knowledge and are inspired by hard work, forethought and merit. Foremost among them is my late mother who inspired me early on in my life and lived to see the fruits of her effort. She always remains in my heart for her efforts and determination that was never in vain.

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ABBREVIATIONS AND ACRONYMS

CEO	-	Chief Executive Officer
CFP	-	Corporate Financial Performance
CG	-	Corporate Governance
CMA	-	Capital Markets Authority
CSI	-	Corporate Social Investment
DGF	-	Deloitte Governance Framework
EPS	-	Earnings per Share
ERP	-	Enterprise Resource Planning Systems
FFP	-	Firm Financial Performance
FP	-	Financial Performance
GRI	-	Global Reporting Initiative
ICT	-	Information Communication Technology
IS	-	Information System
IT	-	Information Technology
ITI	-	Information Technology Investment
NSE	-	Nairobi Securities Exchange
PABC	-	Pan African Banking Corporation
SD	-	Standard Deviation
ROA	-	Return on Asset
ROE	-	Return on Equity
TCT	-	Transaction Cost Theory
USA	-	United States of America
UK	-	United Kingdom
VIF	-	Variance Inflation Factor

ABSTRACT

Corporate governance has been an agenda for code of governance for many years. Emerging trend in business risks are environmental representing a significant shift from 2010 when nearly all top risks were either social or economic, rekindling a series of studies on possible causes of business failure with corporate governance at the center of it. The main objective of the study was to determine the effect of corporate social investment and information technology investment on the relationship between corporate governance and financial performance of companies listed at the Nairobi Securities Exchange (NSE). The study population was the 64 companies listed at the NSE. Quantitative secondary data for the years 2010 to 2019 was extracted from the companies' websites. The data was subjected to panel data diagnostic tests to determine the appropriateness of the data prior to analysis using parametric tests. The diagnostic tests carried out were normality, multicollinearity, panel unit root, heteroscedasticity and serial correlation tests. The study used Pearson correlation and multiple linear regression analysis in conjunction with Baron and Kenny (1986) model for analysis. The study found a positive significant relationship between corporate governance and Firm Financial Performance (FFP). Moreover, the findings revealed that Corporate Social Investment (CSI) is a significant predictor of FFP but it does not moderate the relationship between corporate governance and firm financial performance. The findings also provide evidence that information technology investment is not a significant predictor of firm financial performance and that it has no intervening effect on the relationship between corporate governance and firm financial performance. The model as whole provides evidence to the conclusion that corporate governance, corporate social investment and investment in information technology have a significant positive effect on financial performance of firms quoted at the NSE. The findings provide collaborative evidence to prior studies by affirming that CSI on its own improves the companies' profitability; knowledge that can be used by the company management to rescue companies from collapsing. As a contribution to theory, the findings reveal that stakeholder theory compliments agency theory by first building the brand of the company, which in itself is in the interest of shareholders that agency theory advocates. Secondly, agency theory's theoretical assumptions overlook the diverse identities of stakeholders, that is the other groups' interests and how these groups affect firm financial performance. As a contribution to policy and practice the findings will assist the management to reconsider areas to invest in as far as CSI is concerned by focusing more to those CSI attributes that matter as well as strategically investing in information technology. Regulators like NSE and Capital Market Authority may use the study findings in their supervisory role. The findings are limited to the attributes used in the study. Further research can be initiated by using different attributes for corporate social investment and information technology investment to test both intervening and moderating effect on the relationship between corporate governance and firm financial performance. This study used financial performance hence similar study could use company performance rather than limiting it to financial performance to widen scope for better collaboration.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The corporate failure that continues to be witnessed to the present has shaken the faith of investors in the financial arena and the current corporate governance practices (PABC, 2002). A common United States of America (USA) Conference Board's Commission on Public Trust and Private Enterprise (2003) states that the corporate failure suggest that the compact among shareholders, boards, and management remarkably weakened and now diminishing the trust of the public and investors on the corporate governance system and that it has begun to negatively impact Corporate Governance (CG).

To restore public and investors trust in the way public listed corporates are managed and as much as corporate governance, theoretically, has a direct positive influence on firm financial performance, there is evidence that suggests moderating and intervening effect of Corporate Social Investment (CSI) and Information Technology Investment (ITI) respectively to the relationship between corporate governance and Firm Financial Performance (FFP). Global Reporting Initiative (GRI) (2012) states that CSI practices are brand building that may eventually lead to ultimate loyalty from old and prospective customers so an environment with a healthy consumer base creates profits therefore listed companies that invest into CSI initiatives are promoting an equitable and successful future in the nation. On the other hand, as corporate governance engages to leverage on information technology investment, Gupta, Yash, and Toni (1996) research on ITI proposes the use of ITI to garner efficiency and effectiveness as a corporate governance strategy towards better firm financial performance.

Corporate governance requires to be appreciated within the context of the larger institutional domains Aoki (2001) and firms should engage in structures of their environment (Fligsten & Freeland,1995). It is upon this that Streeck (2002) posits that social relations are important means of analysis than ontological actors that are separated from social and cultural context and frozen in space. In light of this, the applicable theories in this research are agency, as the main anchoring theory, stakeholder theory and transaction cost theory of information technology.

Berle and Means (1932) propelled the agency theory in their study aimed at drawing the distinction between equity and giving direction in modern corporations. The research acknowledged that the principal-agent model is the basis of any discussion on the topic of corporate governance arising from the reports on Private Property and Modern Corporation. That said, the research holds the view that the era of agency theory with its limited focus to owner agent relationship could be over since that time business was being conducted in a vacuum when the world was not a global village and linked as it is today. This study entailed to expand the slogan purpose of business is business to include theories such as transactional cost theory, to cater for the benefits of the linked world and stakeholder theory to aid in factual analysis on the effect of perceived other groups on the firm's financial performance.

Kenneth and Jane (2017) express transaction cost theory of information technology as body corporates seek to gain effectiveness on transaction costs, much as they do on production cost. Stakeholder theory emerged in the mid-1980s and opines that firm managers have a chain of relationship to serve and that this chain of networks is vital in addition to "owner manager employee" associations as per the agency theory. Wicks and Harrison (2015) stakeholder theory brings in the angle of public interest in this study of corporate governance to align with corporate social investment.

The effect of 2000 recession followed by 2007 and 2008 financial crisis did not only heighten the scholarly studies on corporate governance but also caused it to be an agenda for code of corporate governance. Globally, concern was on how organizations were managed and controlled. Code of Corporate Governance (CCG) (2004) study, on corporate governance for publicly listed corporates is important given that public listed companies are evaluated by the public and many conclusions can be drawn due to the risks involved including adverse publicity associated with governance failures and stakeholder relations. Porter and Kramer (2011) state that firms across the globe are facing urge for transparency, regulatory changes and increasing stakeholder expectations on corporate responsibility. They further argue that corporate scandals and environmental catastrophes such as the Exxon Valdez oil spill and Samarco mining tragedy have not only affected and ruined large and blue chip companies but also eroded public trust in investing in publicly listed body corporates.

World Bank (2000) states that countries with working corporate governance systems are not only attractive for prosperity of domestic companies but also good location for foreign investors that leads to economic growth. The 2018 World Economic Forum Global Risks Report shows that a bigger percentage of emerging trends in business risks are environmental representing a big shift from 2010 when nearly all top risks were either social or economic, rekindling a series of studies on possible causes of business failure with corporate governance at the center of it.

1.1.1 Corporate Governance

Corporate Governance is the management of firms through the directors in order to bring integrity, transparency and accountability by the management (Jayashree, 2006). Wilson (2006) describes CG as the process through which corporations are held to account, directed and controlled to create effective leadership for corporations to ensure delivery on their societal obligation as the societies'

wealth creating organs. Shleifer and Vishny (1997) understand CG as a way in which corporations financiers are guaranteed of reaping return on investment.

Committee of Sponsoring Organization (COSO) (1992) post public exposure version, states that the numerous financial scandals that hit financial institutions and investors at large did contribute to the appreciation of the most important role of the governance of firms. Since the last update of Principles of Corporate Governance in 2012 by the business roundtable, the environment in which public companies operate worldwide has become multifaceted for companies and investors alike. The business roundtable in its 2012 update states that the additional regulatory requirement levied on public companies in recent years have added extra costs as well as made it very difficult to manage and oversee corporations' business. The operational new challenges as well as the rigidity arising from regulatory perspectives causes need to review and update principles of corporate governance.

Although business roundtable 2012 argues that these principles are meant to guide both current practical and future effective corporate governance practices, it clarifies that all businesses are not the same be it from ownership structures, investors and or from regulatory perspective. Business roundtable concludes that since there is no tailor made approach to corporate governance that may suite all the companies, there is no need to attempt to offer or advocate for particular option and would rather leave it to the considered judgment of boards, management of companies and shareholders. This study interprets this to mean, each country and or body corporate may see these principles as a guide in developing the processes and practices that are suitable to the needs and circumstances hence more research on corporate governance.

Capital Markets Authority (CMA) (2002) in the Kenya gazette notice N° 3362, outlined a structure on corporate governance practices to publicly quoted firms in Kenya. While issuing the guidelines, CMA (2002) cited corporate governance as the framework for directing and managing body corporate affairs towards victory and corporate accountability. CMA (2002) encouraged publicly quoted forms in Kenya to practice corporate governance to achieve shareholders' objective as well as uphold the well-being of non-direct stakeholders such as employees, suppliers, the government and the community within which the company is operating.

The importance of corporate governance is further drawn from Zhuang (1999) study in which he examined equity composition as an internal governance method by arguing that ownership structure is critical factor in streamlining the corporate governance system of anybody corporate. This is attributed to tact that it establishes the source of agency problem by bringing to the fore the source of the conflict by identifying whether the conflict emanates between controlling and minority shareholders or managers and shareholders. Arguably, corporate governance is a means of managing an organization as would be distinguished by the organization structure and it is practiced at the board of director's level.

Kurkure (2006) in his study of elements of excellency in corporate governance and its formation states that the principle of corporate governance emanated from antiquity. Historical records reveal that corporate governance can be traced back to medieval days where tribal groups dominated. The main role of tribal communities was to supervise the undertakings of the tribe as well as monitor the behaviors of tribal members to ensure compliance with tribal norms. Kurkure (2006) further focuses on historical development of corporate governance by stating that in the Roman Empire, for instance, specific corporate bodies including municipal bodies were advanced

to increase transparency in management of public affairs. The emergence of governance in religion was prompted by the changes and manifestation of Christianity and Islam mainly in the Muslim region of Middle East. This was the beginning of corporate governance that has since extended to managing body corporates for financial gain.

Financial dimension of organization activities and performance is over focused on profits with little attention given to non-financial performance and no attention for social involvement by organizations performance such as corporate governance (Taylor, 2009). Corporate governance seeks to increase the accountability of a firm and to mitigate major failures before occurrence. Companies such as Enron failed as a result of malpractice in corporate governance leading to the bankruptcy of most of its employees and shareholders. The reinforcement of corporate governance has now become a global concern in a bid to enhance the accountability and corporate transparency of the shareholder (Solomon, 2007).

The bedrock of adequate governance program is substantive risk management as per Deloitte's Risk Intelligent Enterprise Model. In the back of this study, Deloitte Governance Framework (DGF) (2020) is not out of the box or a simple fit all approach, and is likely to evolve over time. The stakeholders responsible for the risk, in reference to DGF is summarized in this study as directors, executive management and the business units and augmenting functions as the base where the ownership lies and risk activities occur.

In deciding how CG is operationalized the researcher considered four board attributes borrowed from DGF that can help define the directors' effectiveness and put the framework into action. The four board attributes are effective skills and knowledge, necessary process, adequate information and behavior that can support and reinforce strong oversight. The foregoing attributes can be used

to help identify the board's strengths and opportunities for improvement within each of the governance elements.

In line with DGF, corporate governance can be operationalized by checking the composition of directors who are not executive as a ration of the summation of total directors and whether top management doubles as the board members. Board size in this case refers to the board members, board diversity as in thought and action as well as gender, ethnicity and generation. Board independence means the presence of the directors within the board with no association between the company and the directors that would impair the directors' independent judgement. Board qualification and skills, board of director's appointment and corporate financial reporting framework are also considered. The study used board size, board gender and independent directors to measure CG as per (Manini & Abdillahi, 2015).

1.1.2 Corporate Social Investment

CSI is defined as companies publicly investing in their environment, social and governance measures (Ballou, Landes, & Heitger, 2006). GRI (2012) defines CSI as publicly released documents detailing the environmental, social and a company's governance. Gallo and Christensen (2011) describe CSI as a corporate agenda that constitutes both financial and non-financial goals such as protection of the environment, social responsibility, shareholder commitment, and poverty alleviation.

The stake on the corporate social investment concept as well as the literature on CSI and its practices increased in the last two decades as per Fortune 1000 where most of the corporates publish social responsibility reports that include CSI. The companies' management understands the importance of the CSI practices and knows its effect on the Corporate Financial Performance

(CFP), hence they have started implementation of CSI guidelines into corporates' business strategies (Porter & Kramer, 2002).

Company managers, research bodies and scholars are engaged in determining the one gaining from the other, as well as the one that could be persistent in so far as the costs of the CSI practices and the extent to which companies are engaged in dealing with societal issues (Tsoutsoura, 2004). Levy (1999) considers philanthropy and social effect as the body corporates heart and soul hence key consideration on matters corporation failure.

Under the circumstance and based on empirical literature reviewed, this study visualizes that companies seem to have, for far too long, relied on crude business analytical methods that only consider direct investment with its subsequent occasioned income. The companies have continued to operate under the long-held slogan that the main purpose of business is to make profits, which in this case is a short-term view. The study postulates that by companies getting interested in the society and associating with it to participate and assist, is a long-term view. There is clear need to expand the purpose of business through scholarly literature to not only sustain the business but if the society is to consistently prosper and grow.

The report of the UN Secretary General Kofi Annan (2002) states that the phenomenon of CSI is rooted in the relationship between the state, businesses, and employees hence a social partnership. Based on the foregoing definitions, CSI is an organizations' responsibility to publicly invest and report on the effects of its activities and decisions on the environment and society.

Ghozali and Chariri (2007) support the same view, and further state that CSI has witnessed rapid growth in previous years as more companies aspire to become more sustainable and that companies need to report their sustainability measures since these reports have an impact on the value of the

firm. Furthermore, investment in environmental and social, and their disclosure practices can be perceived as corporate accountability to the public to explain environmental and social impacts caused by the company's influence both in the bad and good effects.

The study constituted the following CSI attributes; under economic activities, companies invested in projects such as online banking, green industry, renewable energy, or waste management. Directly or indirectly, companies invested in energy, waste disposal and water supply. Under social activities, companies invested in projects such as infrastructure, schools, and churches, all of which were used to measure CSI as recommended by (GRI, 2012).

1.1.3 Information Technology Investment

Johnson (2005) describes information technology investment as the automation of processes, controls and production of information by use of computers, software and ancillary equipment. Gupta et al. (1996) define ITI as application and processing of data, the advancement and use of procedures, software, hardware, telecommunications, firmware and internet related to information technology. Ullah, Algarni and Kholsa (2018) define ITI as a formalization of planning, control, integration and organization of Information Technology (IT) functions and suggest that Information System (IS) that functions well in companies with higher maturity levels might have advanced to strategic IS having evolved from data processing orientation.

Information Technology investment on firms has been widely discussed in many studies such as Lunardi, Becker, Macada and Dolci (2014), Ko and Fink (2010) and reported mixed results on financial firm performance. In this study, the contribution of ITI from the perspective of financial firm performance has been systematically pursued singly and in combination of CG and CSI

variables in the study to reveal in what facet of financial firm performance and under what circumstances ITI plays a significant role.

Ullah et al. (2018) argue that ITI existed so long as people have been in existence. The bone of contention being that people communicated through technology available at that point in time. As companies undergo remarkable changes in terms of leverage on information technology investment, Gupta et al. (1996) research on ITI proposes the use of managerial practices with respect to planning, organizing, and control characteristics of information systems as the key variables to depict the companies' progress.

ITI can be operationalized by examining companies' investment in hardware, software, and infrastructure. Hardware includes servers, desktops, laptops and related computer accessories. Software refers to operating systems, databases and Enterprise Resource Planning (ERP) systems that run off the hardware while infrastructure is cabled network and Wi-Fi to provide wide area network and or local area network usually in the form of intranet and extranet. However, from the literature reviewed, there exists evidence that many firms concerned with the fall of technology, get involved in ITI without deriving any benefits (Nolan, 1994). The research adopted Gupta et al. (1996) three criteria to measure information technology investment projects of firms quoted at the Nairobi Securities Exchange (NSE); Investment in hardware, software and infrastructure.

1.1.4 Firm Financial Performance

Hingorani and Ramanathan (1973) define financial performance as the causal relationship between the firm's financial position and profitability through a process of selection, relation and evaluation of the financial statements. Pandey (2015) has it that the techniques used to evaluate the firm's limitations and potential of the association among financial statements is called financial

performance analysis. Financial performance is the causal relationship among the different financial factors in the business entity as depicted by a single statement and examination of business trends (Arora, 2016).

Cochran and Wood (1984) have it that company financial performance can be categorized into the return to the investors and the accounting return (profit). The categorization has not been debated in literature hence conclusion that the lack of such research has led to a misunderstanding on how to measure the phenomenon. On the other hand, Gasparetto (2004) emphasizes that company financial performance is information which accounting institutions should show responsibility. Orlitzky, Rynes and Schmidt (2003) in their literature review, conclude that company financial performance can be seen in three ways. The first being the level of business efficiency via accounting measures, the second is the market measures reflecting satisfaction by shareholders and the third being surveys with estimated financial performance.

Seemingly, current researchers use the definition of firm financial performance to mean measurement of company's equity owners satisfaction, estimates of financial performance, effectiveness as in meeting the objective and efficiency as in cost saving. Since companies' main goal is to reward equity holders, the FFP as Gasparetto (2004) believes, means measures like market value, return to shareholders and profitability.

Prasad and Ahmed (2011), argue that every firm's shareholder and investor are concerned with the companies' financial health. They maintain that different studies have been carried out in the last three decades to establish the financial position with the aid of different financial ratios through application of statistical analysis tools. Firms must understand the trend in their performance in order to analyze, come up with solutions and develop plans aimed at their operational efficiency.

To gauge financial performance, Owiredu and Kwakye (2020) used Return on Asset (ROA) and Return on Equity (ROE), but Earnings Per Share (EPS) and return on sales are also other measure of FFP. The study utilized EPS to measure financial performance as used by (Kapoor & Sandhu, 2010). It is calculated by taking net income, subtract dividends and divide by the weighted average shares outstanding,

1.1.5 Companies Listed at the Nairobi Securities Exchange

Nairobi Securities Exchange, founded in 1954, is a Kenyan leading African Exchange that has been in existence for six decades involved in listing equity and debt securities. The NSE avails trading facility to all investors interested to invest in Kenya and Africa's economy at large. NSE operates under the control of the Capital Markets Authority of Kenya (NSE, 2018).

To be listed, companies from various market segments such as main investments, alternative investments, fixed income securities and growth enterprises must comply with CMA Reg 3, (2) listed companies regulation of CG practices for public quoted firms in Kenya (NSE, 2018). It is stated in CMA quarter one 2019 statistical bulletin that there are 64 companies listed at the NSE as at 29th March, 2019, of which 12, in particular Uchumi Supermarkets, Kenya Power, Mumias Sugar Company, Trans Century and National Bank risk being delisted from the NSE due to poor performance and corporate governance challenges.

Financial base begins with good CG, board composition, experienced directors and management. Majorly, this paper explored the effect of CG as gauged by the size of the Board and its diversity. The model described by Jensen and Ruback (1984) formed the basis of the study assumptions. The study measured the demographic and rational diversity by the proportion of board constitution of firms quoted at the NSE to test the impact of the board composition and its diversity.

NSE (2018) reports a launch of acceleration and incubation program to provide firms with avenue to develop their businesses for impactful and agile sustainable business models. Through this acceleration initiative, NSE hosts selected Kenyan firms to enhance their brand recognition, visibility, capital market understanding and access, provide expert advisory services as well as road map for firm sustainability. The program is run with an aim to enable corporates realize their strengths, weaknesses, opportunities, and threats. The program is intended to unlock growth potential through a structured program that places special focus on improved corporates business model and includes preparation to stage listing at the NSE in compliance with corporate governance regulations.

1.2 Research Problem

Corporate governance, corporate social investment, and information technology investment are significant concepts in financial performance of companies. Acknowledging this, CMA 3(2) requires that for a company to be listed at the NSE, it must comply with corporate governance practices. Taylor (2009) states that the importance of corporate governance increased in the latest few years, mainly due to the global financial crisis that busted in 2007 to 2008. Kashyap, Rajan, and Stein (2008) argue that the concept of corporate governance has a wide connotation that includes responsibility for the information presented in the financial statements and full transparency on the financial results. Theoretically, company financial performance is influenced by corporate governance to meet the stakeholders' needs, corporate social investment to satisfy stakeholders' interest and information technology investment to achieve efficiency and effectiveness. Bharadwaj (2000) examined the role of information technology in increasing transparency and concluded that IT enhances the companies' financial performance. This study looks at how corporate governance has been part of the foundation of companies' crisis and how

such effect is moderated by corporate social investment with intervention of information technology investment.

According to the CMA quarter one statistical bulletin (2019), at least 12 companies risk being delisted from the NSE due to poor financial performance. It states that fifteen out of the 64 companies that traded on the NSE reported losses in 2016 while in 2015, 13 companies reported losses. The CMA 3(2) corporate governance concept requires that for a company to qualify for NSE listing, it must comply with corporate governance practices. The companies' delisting from NSE, posting of losses or reduced earnings in unclear circumstances could mean that the economy is doing less than expected which raises the question on whether corporate governance principles and practices are complied with by the companies listed at the NSE. The media coverage of supposedly expected economic recession in 2020 cannot be underestimated. On the global market, New York Times 6th November, 2018 reports former USA Federal Reserve Chairman, Greenspan (2013), on the allegation of corporate breach of trust and legality, conclude that such allegations could undermine the very basis on which the world's greatest financial markets thrive. Greenspan (2013) queries why economists failed to see the cause of the economic crisis and believes that economic forecasters treated humans as rational decision makers and concludes by terming it a functional fiction that no longer seems to function. To date, companies are still experiencing poor financial performance despite many research findings that followed the year 2000 financial crisis, leading the researcher to question what has not been discovered to fix the deteriorating financial performance of companies across the globe.

Mansur and Tangl (2018) studied the effect of CG on financial performance of listed companies in Amman Stock Exchange and found that ownership structure has the highest effect on the financial performance and there was a positive correlation between firm financial performance and

foreign ownership. More collaborative studies that consider the would-be effect of Corporate Social Investment and Information Technology Investment are necessary for wider integrative literature. Kapoor and Sadhu (2010) studied the impact of CSI on financial performance of Indian firms and found a significant effect of corporate social investment on ROA. The study did not consider the effect of corporate governance which this study incorporates. Bitler (2001) surveyed the association between ICT investment and financial performance of firms in the USA and found increased financial performance in firms that adopted ITI compared to those that did not. To the contrary, Tam (1998) found that IT failed to improve business performance for some firms while others show marked improvement. However, this research does not consider variables in strategic choices that can have intervening or moderating effect on financial performance hence more research is needed to collaborate the contradiction.

Manini and Abdillahi (2015) explored the effect of board gender diversity on the profitability of banks. Using multiple regression analysis, they concluded that board gender diversity has a negligible impact on bank performance. This research was based only on board diversity giving rise to a conceptual gap. Mangantar (2019) analyzed the influence of corporate governance and corporate social responsibility on the financial performance of banks listed at the Indonesian Stock Exchange. Using explanatory research design and multiple regression analysis, the study showed that CG has no effect on FP; CSI has no effect on FP and jointly CG and CSI have a positive effect on FP. The study concluded that good corporate governance in conjunction with social responsibility investment improves the FP of banks listed at the Indonesian Stock Exchange. The Machdar (2019) study sought to ascertain the effect of CG and CSI as well as investigate influence of CG on FP of the companies quoted in the Indonesian Stock Exchange from 2011 to 2017. The study used a sampling of 36 out of 45 companies for the survey. The findings revealed that

corporate governance does not affect CSI in Indonesia and that CG affects FP. It was also established that CSI does not mediate the association between CG and FP. The research utilized content analysis that can easily yield to interpretational errors as well as being subjective hence a methodological gap.

Omoro, Kinyua, and Okiro (2014) studied the association between sustained growth and investment in corporate social activities for commercial banks in Kenya and established that investment in social activities positively influenced the sustained growth of the banks. Kobuthi et al. (2018) survey on the effect of corporate governance on performance of firms listed at the NSE found that combined corporate governance attributes had an effect on firm performance than individual governance attributes. Anyanzwa (2018) reports on companies listed at the NSE such as National Bank and Transcentury struggling with negative working capital and concludes that their declining financial performance, poor corporate governance and the rapid decline of their share prices is a threat to the economic development. Ongore, K'Obonyo, Ogutu and Bosire (2015) examined forty-six firms quoted at the NSE in 2011 and found that independent board members had a negligible impact on the FP while board size and FP had a strong correlation. The study focused only on the board structure hence creating a conceptual gap and the focus on banks leads to a contextual gap. This thesis therefore sought to fill the research gaps identified by answering the question: What is the effect of Corporate Social Investment and Information Technology Investment on the relationship between Corporate Governance and Financial Performance of companies listed at the NSE?

1.3 Research Objectives

The general objective of the study was to determine the effect of Corporate Social Investment and Information Technology Investment on the relationship between Corporate Governance and Financial Performance of companies listed at the NSE. The specific objectives were to:

i) Establish the effect of corporate governance on financial performance of companies listed at the NSE.
ii) Investigate how corporate social investment affects the relationship between corporate governance and financial performance of companies listed at the NSE.
iii) Determine the effect of information technology investment on relationship between corporate governance and financial performance of companies listed at the NSE.
iv) Determine the joint effect of corporate governance, corporate social investment and information technology investment on financial performance of companies listed at the NSE.

1.4 Value of the Study

The study findings add value to knowledge, policy, practice and the conflicting agency, stakeholder and transaction cost theories by empirically analyzing the interaction effect of CG corporate social investment and ITI on FFP. In general, the study underpins the importance of CSI and investment in information technology as panacea to increase in firm financial performance in the long term.

In terms of knowledge, the study adduces empirical evidence in support of direct link between CG and FFP. The study also adds to knowledge that whereas corporate social investment and information technology investment do not have intervening nor moderate the association between CG and FFP, they are independent predictors of firm financial performance.

This study's findings aid the policy makers such as CMA and NSE to understand and improve ways through which CG influences firm financial performance. The study helps CMA and NSE develop guidelines to aid listed and not listed companies at the NSE improve their corporate governance by incorporating corporate social investment and information technology investment for betterment of firm financial performance. In practice, the study reveals that size, gender and board independence positively influence the association between CG and FFP. By virtue of findings of this study, corporate governors should have a reason to believe that investing in corporate social activities such as economic activities, environmental friendly and social activities, and as much as the initial cost invested in CSI outweighs benefits, later CSI can create value for the company. It does so by enhancing the future prospects of the nation concerning equity and prosperity as a long-term view with a replica effect of the brand building of the respective company.

More value is realized by the study's contribution to theory in conflict resolution that exists among agency, transaction cost and stakeholder theory that advance contradictory propositions on the effects of the interaction of CG, corporate social investment and information technology investment on firm financial performance. Whereas agency theory pertains shareholders who are the principals or owners of the companies, employ and or contract agents to work as they protect the interest of the owner by safe guarding the assets of the company as they report to the managing board in charge of corporate governance, it ignores other stakeholders. The findings in this study show that rather conflict, stakeholder theory compliments agency theory. It compliments by building the brand of the company, which in itself is in the best interest of the shareholders that agency theory advocates. Investment in information technology is thought to be an extra cost that

eats into shareholders return, to the contrary the study finds ITI as a predictor of firm financial performance based on the argument and benefits of transaction cost theory.

This research identified a number of opportunities for future research in particular makes suggestions for improved research paradigms in corporate governance, corporate social investment, and information technology investment on firm financial performance. Moreover, this study has also assisted in extension of existing research and new or emerging lines of research.

1.5 Organization of the Thesis

The thesis has six chapters in the order of introduction, review of literature, survey methodology and descriptive data analysis, test of hypothesis and discussion study findings and finally summarizes the results then conclusions and recommendations. Chapter one deals with the four study variables: corporate governance, information technology investment, corporate social investment and FFP. A contextual discussion of companies listed at NSE is provided leading to research problem, research objectives and research questions. The section ends with the value of the study narrative.

Chapter two discusses the theories in the study. The theories are agency, stakeholder and transaction cost theory. The empirical literature review and its summary are presented and discussed resulting research gaps identification. The chapter ends with the presentation of a conceptual framework, model and hypotheses tested.

The third section presents the research methodology, research philosophy, population, the design of the research, data collection and diagnostic tests used. The chapter concludes with a tabulation of operationalization of the study, measurement tool and data analysis model.

Chapter four provides descriptive data analysis findings. The descriptive statistics used are minima, maxima, mean, standard deviation, heteroscedasticity, multicollinearity, auto and serial correlation, homoscedasticity of the panel data unit root and finally correlation analysis.

Chapter five entails testing of hypothesis and the research findings. The hypothesis tested the direct relationship between CG and FP of companies quoted at the NSE, the intervening effect of CSI on the association between CG and FFP, and the moderating effect of information technology investment on the relationship between CG and companies FP. Finally, the chapter concludes with testing the joint effect of CG, corporate social investment, information technology investment, on companies' financial performance as listed at the NSE. The sixth chapter raps up the study by presenting summary and conclusions. The chapter finally ends by articulating the study's contribution to policy, knowledge, practice, limitation of the study, theory and suggestions thereof.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covers the theories as well as review of the previous studies that relate to the interaction of CG, corporate social investment, information technology investment, and their effect on FFP. The theories covered are agency, stakeholder and transaction cost theory of IT. Under empirical review, both foreign and local studies on the interaction of variables are discussed.

2.2 Theoretical Review

This chapter reviews agency theory, stakeholder theory and transaction cost theory of IT as fundamental theories underlying corporate governance. The study is anchored on the agency theory.

2.2.1 Agency Theory

This study is focused on the influence of corporate governance in increasing shareholders' wealth with agency theory being the anchoring theory due to its advocacy of shareholders' wealth. Mitnick and Ross (1973) are the first scholars to introduce the agency theory. Mitnick (2006) advanced the notion that institutions are natured around agency relationships and face agency issues on a daily basis while Ross developed the economic theory of agency and opined that agency theory originated from economic theory. The principal is the owner of the business who contracts the agent to manage the business on behalf of the principal. The agent may not work in the best interest of the principal hence conflict. The principal can invoke the agency theory to either change the rules under which the agent works, or develop incentives to motivate the agent to work in the best interest of the principal. The principal's main interest is to create wealth. Wicks and Harrison (2015) stakeholder theory state that a firm that follows stakeholder theory is likely to generate

higher profits while Ciborra (1981) concludes that ITI lowers the cost of transacting business hence more profits. The contents of agency theory, stakeholder theory and transaction cost theory suggest that corporate governance, corporate social investment and information technology investment are intertwined towards financial performance of companies.

Panda and Leepsa (2017) state that any debate on matters related to corporate governance emanates from the principal-agent theory from the classical perspective on the private property and modern establishment and that modern firm is managed by agents who cannot be accountable to dispersed shareholders. Two key challenges namely contrary selection and moral hazards confront the principals and thus the agents (managers) must be given the right incentives to decide in a palatable manner in the interest of the shareholders.

Panda and Leepsa (2017) argue that shareholders to some extent also the principals or owners of the companies, employ and or contract the agents to execute tasks. In this regard, the management team of the company is the agent in charge of company operations and are expected to safe guard the assets of the company as they report to the board of directors in charge of corporate governance. However, the agent may resort to opportunistic behavior, self-interest and lack of alignment with the aspirations of the principal desire of corporate governance and the agent's pursuits leading to variance of internal controls within various companies. They conclude that agency theory can be used to explore the design of incentives appropriately to consider the interests that motivate the agent to act. Corporate governance can invoke agency theory by changing the rules under which the agent operates to restore the principal's interests. This study is focused on the influence of corporate governance in increasing shareholders' wealth with agency theory being the anchoring theory due to its advocacy of shareholders' wealth.

2.2.2 Stakeholder Theory

The study investigated how corporate social investment, by satisfying third party company stakeholders' interest, moderates the relationship between CG and FFP. Borrowing from Wicks and Harison (2015), the study sort to understand the other groups' interest and how these groups affected the operation results of companies listed at NSE in their process of strategic decision making within stakeholder theory's assumptions.

Freeman (1984) proposed stakeholder theory that has been used to underpin many studies by scholars to understand the theory's effect on business environment. Nevertheless, stakeholder theory is a topic in the academic viewed to lack definite and reliable conceptual definitions, implementable constructs and measurement capabilities (Emerson, Alves & Raposo, 2011).

The stakeholder theory argues that an entities' responsibility is to consolidate other entities' interests in addition to the firm's shareholder's interest. The aim is to understand the other groups' interests and how these groups affect the operational results in the process of strategic decision making (Wicks & Harrison, 2015). Stakeholders are classified into two main categories. The primary stakeholders are contractually involved with the firm while the secondary entities are those that exhibit formal contracts with the firm such as the customers, suppliers, employees, environment and the government. The operational activities and objectives of the firms are influenced by each group thus influencing the firms' success or failure (Emerson et al., 2011).

Wicks and Harrison (2015) stakeholder theory has heightened in importance as the effect of business failures on community have become more evident and that it is believed that a firm that follows stakeholder theory is likely to generate higher revenues. They further state that stakeholder theory provides alternative decision making in a firm, a decision grounded in moral and ethical

principles. In furtherance of corporate governance, Wicks and Harrison (2015) argue that the management can under CSI, adopt the concept of stakeholder theory as an ulterior strategic motivation to effectively manage corporate responsibility and concludes that encompassing different stakeholders, the firm can form relationships based on trust, which result in long-term profits. Going by Wicks and Harrison (2015) argument, stakeholder theory is used in this study to understand the other groups' interest and how these groups affected the operation results of companies listed at the NSE in their process of strategic decision making within stakeholder theory's assumptions.

2.2.3 Transaction Cost Theory

Ciborra (1981) is the first scholar to suggest Transaction Cost Theory (TCT) as a methodology to design computer-based information system and that TCT can be used to explain scholarly thoughts that had initially been used to analyze the usefulness of IT on organizations. TCT brings out the economic transactional multifaceted activities such as the use of IT to support markets, coherent agents' action and the idea of mediating technologies. Ciborra (1981) concludes that IT has the ability to lower the costs of transacting. However, Ko and Fink (2010) caution that IT is not yet fully developed field hence additional work on theoretical and practical aspect of IT is necessary before certain conclusion can be made.

Information technology investment influences the quality and the cost of acquiring information so much so that the firms shrink in size because IT reduces transaction cost being the cost incurred when a company buys on the market place what it cannot produce by itself. According to TCT, companies seek to economize on transaction costs in the same way they economize on cost of production and that is thought to enable companies to find low-cost supplies online world over (Kenneth & Jane, 2017).

The management of a firm can, under primary focus of IT governance, steward IT resources such as information to create information asymmetry among various stakeholders as envisaged under stakeholder theory to highlight the firm's CSI activities as a strategy to create brand loyalty, which may result in long-term profits. Transaction cost theory is applicable to this study as posited by Kenneth and Jane (2017) explanation that companies invest in IT so as to shrink transaction costs and subsequently reduce the cost of transaction by shifting the transaction cost curve inward that leads to revenue growth without blowing up size, or revenue accompanied by shrinking size.

2.3 Empirical Literature Review

Covered under empirical literature review are both foreign and local studies on the interaction of CG, corporate social investment, information technology investment and their effect on FFP.

2.3.1 Corporate Governance and Firm Financial Performance

Koji, Bishnu and Tram (2020) studied the association between CG and FFP of quoted enterprises in the Japanese manufacturing sector. The study covered 1412 firms from Bloomberg between the time frame 2014 and 2018. The study shows that board size increases the success of non-family enterprises compared to family firms. The study also reveals that family firms perform better if run by the kingpins compared to that of family businesses managed by the founder. Study concentrated on companies' family and non-family firms that are not obligated to practice corporate governance. In any case private companies, be it family or non-family are mostly managed by the owners unlike public listed body corporates that are managed by the agents on behalf of the equity owners thus creating a contextual gap for more research.

Owiredu and Kwakye (2020) researched on the impact of CG on banks FP in Ghana. Data was retrieved from published annual reports of 10 out of 30 banks for the period 2007-2016. Using random effect model, the study established a significant positive association between board size and FP as measured by ROE and ROA of Ghanaian banks. The research also revealed positive but insignificant relationship between board independence, institutional ownerships and banks financial performance using ROE and ROA as a measure of FP of the 10 sampled Ghanaian banks. The research supports the argument that corporate governance practices increase banks FP. The study was performed on a sample of 10 banks in Ghana. Such a sample may not provide enough data to warrant enough representation hence a methodological gap.

Kefiyalew and Dagnachew (2020) explored CG and its effects on FP of designated private owned banks in Ethiopia. The research used corporate governance as independent variable with board size, board meetings, board qualification, presence of outside director and board gender as the attributes. Regression analysis based on random effect model analyzed the data retrieved from annual reports for the period 2010 to 2018 in conjunction with primary data using structured open-ended questionnaire was collected from sampled banks. Board qualification, audit committee size, board meeting and female directors revealed positive and significant association with ROA. The study also found board size to have a negative and statistically negligible association with ROA and recommended a moderate board size for private commercial banks that should hold meetings for the future fate of banks. The study was selectively on privately owned banks yielding to specific or unique findings of privately owned banks. This study fills the contextual gap by looking at all companies listed at NSE.

Kyere and Ausloos (2020) delved into the impact of CG on FP of non-financial quoted firms of the UK. Underpinning the base of the study conceptual framework is agency and stewardship theory. Five CG attributes and two FP indicators that is ROA and Tobin's Q, leveraged on cross-sectional regression technique. Researching on 252 companies quoted on London Stock Exchange in 2014, the study shows a negative nexus, but in some occasions, CG aspects have no impact on FP and deduce that selecting the correct CG practices boosts the operation of companies. The study period is one year, which may not be sufficient to give a general trend. There is need for similar study covering more than one year to breach the methodological gap.

Kirandoo (2019) analyzed the interrelationship between firm financial performance and CG. Using board size, ownership and Chief Executive Officer (CEO) duality as attributes of corporate governance, collected secondary data from a sample of United Kingdom (UK) firms. The regression analysis revealed a link between corporate governance attributes of CEO, board size and ownership with the financial performance and concluded that there is a direct connection between CG and increasing profitability of the UK firms. The study also showed that CG helps the 100 UK firms under study to perform better hence more profitable. The study was conducted in UK a developed economy that may not hold in third world countries given that corporate governance of a developed country such as UK cannot be equated to developing country like Kenya. Corporate governance in developing countries is not yet as enforced by regulatory authorities as is the case in the developed world hence contextual gap.

Kobuthi et al. (2018) formulated corporate governance rating as per the questionnaires' distributed to 56 CEO's and company secretaries and used corporate governance index score for the different organizations to understand the effect of CG on FP of firms quoted at the NSE. Using annual reports for 2015, through a survey, found that corporate governance constructs had influenced FP

greatly than individual attributes of CG such as board operation and control, disclosure, ethics and social responsibilities. The study concluded that corporations could improve their performance by specifically implementing those measures of good CG that matter. However, the findings failed to expound on and or site those attributes of corporate governance that matter besides the study is broad. This study collated various attributes to their relevant variables to allow combined effect to bridge conceptual gap and ease of regression to minimize methodological gap.

Ongore et al. (2015) examined the forty-six firms quoted at the NSE in 2011 and used board composition to measure CG. The investigation adopted multiple regression analysis to analyze panel data and using return on earnings, found that independent board members had a negligible impact on the FP while board size and FP had a strong correlation. Regarding outside directors, their findings were different from the long-term traditional perspective that outsiders accrue better board performance. The scrutiny only focused on three board attributes for their effect on the firm's performance. While the traits examined are vital, to close conceptual gap other diverse variables like the qualifications of the director, and gender can be explored for collaboration.

Manini and Abdillahi (2015) explored the effect of corporate governance attributes that is audit committee, board gender diversity and on the profitability of the banks and used ROA as the test for financial performance as per the annual reports of the 42 Kenyan banks for the year 2014. Using multiple regression, discovered board diversity in terms of gender and audit committee size have a negligible impact on bank growth and that board composition negatively influences FP. The findings of this research were based on two measures. To narrow the conceptual gap more research using other CG measures such as board size and board independence is necessary to collaborate the prior research findings.

Simpson and Gleason (1999) on banking firms investigated the board size, board structure and CEO duality governance elements in the USA. Financial distress surrogates and control variables were extracted from SNL Bank Digest year 1993. Upon sampling 287 banking firms, a lower likelihood of financial distress was noted in banks with CEO duality. The study relied on single source published information yet companies may have structures and process in place that they do not comment on in their reports and this may lead to presentation of less favorable view of the company than is usually the case. Moreover, the study was conducted in USA, a developed market hence the findings may not necessarily apply to developing world due to conceptual gap.

2.3.2 Corporate Governance, Corporate Social Investment and Firm Financial Performance

Machdar (2019) analysed mediation effect of CSI on the link between CG and CFP in Indonesia. The study sort to ascertain the effect of CG on CSI as well as investigate the influence of CG on CFP on the companies quoted in the Indonesian Stock Exchange from 2011-2017. The study used a sampling of 36 out of 45 companies for the survey. The research revealed that corporate governance does not affect CSI in Indonesia and that corporate governance affects financial performance. It was also established that CSI does not mediate the association between CG and CFP. The research utilized content analysis that can easily yield to interpretative errors as well as being subjective. This study utilizes variables recommended by GRI to estimate the standard model of CSI.

Mangantar (2019) analyzed the influence of CG and corporate social investment on the FP of banks listed at the Indonesian Stock Exchange. Using explanatory research design collected data from the samples banks annual financial reports from 2012 to 2016 and subjected the data to multiple regression analysis. The study showed that CG has insignificant statistical effect on FP. Corporate social investment has no significant effect on FP using ROA as a measure. Jointly, CG

and CSI have a positive effect on increase in FP. The study concluded that good corporate governance, in conjunction with social responsibility, improves the FP of banks listed at the Indonesian Stock Exchange and that the governance attributes are key in improving financial performance. The study findings add to the conflicting view of the various literatures reviewed that calls for more collaborative research on the subject of CSI as a moderator, intervener or predictor when considering the relation between CG and FFP.

Chung and Wei (2017) researched on how combined effect of CG and CSI affect companies' financial performance after the financial tsunami. The study investigated 50 Taiwanese electronic companies listed at the Taiwan Composite Stock Exchange over the period 2009 to 2014. Using secondary data collected from Taiwan economic journal and wealth magazine, CSR awards found that CG and FFP has a significant relationship. ROA and return on earnings effect on shareholding ratio and CSI is supported empirically. The study concluded that while CSI activities cost firms time and money, benefits in engaging in ITI are reflected in firms' financial performance. The study was based on one single industry and restricted the information that the journals contained. There is room for similar study that should extract the information from the companies' website and or stock exchange data base for all industries to bridge the contextual gap.

Dakito (2017) explored the association between CSI and FP of banks in Ethiopia using multivariate econometric model as determined by corporate governance. The firm's annual reports and donation for philanthropy were used as corporate social investment activities' measures. They found a negligible association between financial contribution for CSI initiatives and FP. They opined that one could not draw much conclusion since improvement is still expected from companies in Ethiopia to engage in CSI properly after discovering that most of the Ethiopian

business firms were in the lower layer of profitability. The findings in this study call for more research to identify the most explanatory measurement techniques.

Kobo and Ngwakwe (2017) researched relationship between CG and CSI amongst CSI firms in Johannesburg Stock Exchange. CSI data was picked from the firm's published reports of philanthropy activities and website between the timeframe 2011 and 2015. Panel data was analyzed using ordinary least square. The regression results showed positive relation between the SRI firm's social investment and share price but no significant relationship with ROE. The study concluded that whilst CSI may boost stock prices, it is not a guarantee that it would result in higher profits that can engender more ROE within a short period. In addition, Kobo and Ngwakwe (2017) stated that the findings from the empirical literature reviewed, show inconclusiveness in research between CSI and financial firm performance. Various factors like time covered and methods used to collect data can lead to conflicting findings hence further research to analyze the relationship between CSI and FFP with varied time frame, new sample of firms and different statistical tools of analysis are necessary.

Muhammad, Bushra, and Ramia (2017) investigated the effect of CSI on the interaction between CG and bank's financial performance in Pakistan and Bangladesh by collecting the data from a sample of 27 annual reports of banks between 2010 and 2015. The data was collected on the basis of disclosure of donation, health, environment protection and social welfare as the measure of CSI while EPS and ROA as the determinants of the bank's profitability. Using regression analysis, a significant positive correlation impact on the nexus between CSI and the FP of the bank was found. There is still room for more research using CSI measures such as policies and companies' investment in environmentally friendly projects to bridge the conceptual gap.

Jamal et al. (2015) studied the influence of CG and CSI on FP with the mediating variable being efficiency. The research for the period 2009-2012 sampled 297 companies listed at Indonesia Stock Exchange. Using quantitative approach, the study showed that CG had no impact on FP. In contrast, the findings established that CSI has positive influence on financial performance. The study emphasized on efficiency to gauge FP. This study considers other FP measures such as earnings per share with emphasis on both efficiency and effectiveness to collaborate previous research findings.

Mahrani and Soewarno (2014) studied influence of the attributes of CG and corporate social investment on FP of companies quoted at the Indonesian Stock Exchange by collecting the data for the period 2014. Using partial least square method on Warp PLS 5.0 software, found partial mediation of CSI when regressed on the relation between CG and FP. The research is anchored on a single year 2014 period, which could not have enough data to predict the actual implication of corporate social investment on firm financial performance, as it is thought CSI is an investment that relates to brand building and creation of a good corporate image within the society.

Omoro, Kinyua, and Okiro (2014) researched on the association between CG, FFP and corporate social investment for Kenyan commercial banks by undertaking a survey on all Kenyan commercial banks. The researchers established that investment in CSI was positively correlated with sustained growth of the banks. There are other variables like ITI that would affect the growth of commercial banks that may require more research to bridge conceptual gap.

Jo and Harjoto (2012) examined the effect of association between CG and CSI on firm financial performance. The survey was from Lydenberg and Dominics (KLD) stats database for the period 1993 to 2004 that includes about 3000 companies in the USA containing various CSI

characteristics. The study found that CSI does not affect CG while CG positively affects companies' CSI activities. In addition, after endogeneity bias correction, the study showed that CSI positively influences CFP, this in support of the conflict- resolution between agency and stakeholder theory, but not the CSI over investment argument as contained in agency theory. Furthermore, the study reveals that companies' CSI involvement with community, diversity, employees and environment provides a significant positive effect on FFP. The study was based on 1993 to 2004 data. Times have changed such that a study based on more recent data is desirable.

A study by Kapoor and Sandhu (2010) looked into the impact of CSI on corporate financial performance of Indian firms in line with corporate governance of the firms. Annual reports and websites were analyzed using content analysis and found a significant effect of CSI on ROA but insignificant impact on growth. Corporate governance being a means of managing an organization as would be distinguished by the organization structure and it is practiced at the board of director's level, should have been incorporated in the findings. In that regard, the study creates a conceptual gap by failing to report the effect of CG on financial performance as well as the joint effect of CG and CSI on financial performance of Indian firms.

2.3.3 Corporate Governance, Information Technology Investment and Firm Financial Performance

Nwala, Nneka, Abubakar, Onibiyo, and Rotimi (2020) evaluated the impact of investment in IT on the association between CG and FP of insurance firms quoted at the Nigeria Security Market by taking a sample of 16 insurance companies data from the websites annual financial reports and accounts for the year 2012 to 2018. Using Hausman specification test random effect regression, the results first showed the investment in IT attributes such as hardware, software and infrastructure have a direct positive and significant impact on FP of insurance firms quoted at the

Nigeria Security Market. Second, that investment in IT improved FP of insurance companies listed at Nigerian Security Market and that such investment does not erode profitability. This was a study on insurance companies whose use of IT is quite different from that of other companies say in the manufacturing industry hence more research is required beyond insurance companies. Theoretically, corporate governance causes ITI which comes at a cost that eats into profits hence conclusion that investment in IT does not erode profits may not be conclusive. There is still room for more study to test the intervention effect of ITI on CG and financial performance of the firm.

Nurulfajri (2018) researched on the effect of ITI on the association between CG and FFP. The study used 68 samples of manufacturing firms quoted at the Indonesian Stock Exchange between the time frame 2013 and 2016. Using multiple linear regression, the study found that ITI influences financial firm performance but had no relationship with board size. The study used board size as the only measure of CG leaving out other corporate governance attribute, an omission that may not necessarily give conclusive results. This study used board size, board gender and independent directors. Whereas the study found ITI to influence firm financial performance, it was selectively based on manufacturing sector that mainly use ITI to minimize production cost. Trading and distribution firms source and deal in numerous products from various manufacturers making the business reliance on information technology a complex hence need for more study cutting across all industries to establish the effect of ITI across board.

Muawanah and Gunadi (2018) analyzed the effect of ITI on the nexus between CG and FP of a firm measured by return on assets. Two ITI attributes, that is company ITI expenses and the level of the firm managing ITI, were used. Data obtained from annual reports of banks quoted at the Indonesia Stock Exchange between the time frame 2011 and 2013. The researcher used multiple linear regression model. The findings reveal that corporate governance embraced ITI with

subsequent improved financial performance. The study's finding allude that good CG structures are appropriate for according direction and monitoring on ITI leads to better firm financial performance. The study covered three years which may not be enough for companies to have started getting ITI benefits. This study's 10-year period supplements the findings.

Mahboub (2018) collected secondary data from annual reports of 50 Lebanese banks for the time span 2009 to 2016 to study the effect of ITI on the association of corporate governance and Lebanese banks' financial performance. Using Multivariate model, the study showed that ITI positively affect FP of Lebanese banks. Lebanese banking model may not be used to generalize the study findings. In any case, ITI use cuts across the wider global industry hence more study on the effect of use of ITI to improve financial firm performance is necessary in support of this study due to the contextual gap that arose.

Harelimana (2017) conducted a case study in Rwanda on the effect of ITI on the association of CG and financial performance of Reseau Microfinance Ltd from 2011-2015. Descriptive survey based on purposive and simple random sampling techniques for a total sample size of 132 was used to collect data that was analyzed. The study showed that ICT positively and directly influences FP as well as financial efficiency, productivity and on portfolio quality. The study findings may not be seen to be conclusive as simple regression method was used. In this case, increase in ICT usage and increase in financial performance under simple regression may easily be coincidental. More research using other methods such as Pearson Coefficient of Correlation is necessary in support of the study.

Ho, Wu and Xu (2011) investigated the effect of CG, on the relation between ITI and FFP in the Taiwanese electronics sector. Collected secondary data for the period 2001to 2005 from Taiwanese information industry, financial report consolidated by Taiwan Economic Journal and TEJ' Corporate Database. Using multiple linear regression model, found that ITI positively moderates the association between CG and FP of the firm. In addition, the greater the foreign equity the more ITI positively moderates firm financial performance relation, meaning that foreign investors embrace IT skills to facilitate firms benefit from IT deployment. Further research with more CG attributes beyond foreign ownership is necessary to collaborate the findings.

Adekunle (2003), by way of descriptive and regression analysis sought to unravel the impact of ICT on four big commercial banks' profitability in relation with CG in South Africa. Using ROA, measured annual data over the span of 1990-2012 and concluded that the banks' profitability is affected by both ICT investment and ICT cost efficiency and stressed that cost effective in ICT investment has more impact on bank performance than that of ICT investment. Similarly, existing evidence shows that many firms whose corporate governance lie behind the technology curve indulge in high IT investments but derive fewer benefits from IT (Nolan, 1994). The inference of these results underlines the need for more research on optimal use of ICT resources as opposed to embarking on more investments, which the researcher took cognizance of in the study to fill the conceptual gap.

Bitler (2001) surveyed corporate governance and the association between ICT investments and the FFP in the USA and found a major difference in performance between firms that adopt ICT and those that do not. Using investment in IT as a measure to correlate IT to firm performance, given that firms do not necessarily realize IT benefits the same year that investment occurred, creates a

research gap. Moreover, Banker, Kauffman, and Morey (1990) found that no direct link exists between IT and the performance of the company.

Bharadwaj (2000) coined the concept of IT as an indicator of firm capabilities and empirically explored the link between IT capability and FP. Firm specific IT resources as determined by corporate governance include IT resources such as IT-enabled intangibles and IT infrastructure. The study used IT rankings of sample constituting all firms listed in the USA that were classified as IT leaders in the years 1991 to 1994. The results depict that companies with high IT capability registered higher performance as shown by the different performance indicators. The study used external rankings of IT leaders as a proxy of superior IT capability. There is need for similar study with the control sample that includes non IT leaders for comparison.

2.3.4 Corporate Governance, Corporate Social Investment, Information Technology Investment, and Firm Financial Performance

Matama (2008) undertook study on effect of ITI on the relationship between CG on FFP of four selected banks in Uganda, and concluded that all the dimensions of financial disclosure, transparency and trust had positive relationship in the selected banks. The study found a general positive link hence need for more specific research for collaboration. Moreover, Matama (2008) revelation that dependent variables of interest are firm financial performance variations to the extent that corporate governance becomes an institutional factor steering sustainability, empirical studies have yet to give conclusive evidence thus creating a conceptual gap that can be bridged by incorporation of more dependent variables such as corporate social investment.

Lin (2007) explored the major and interactive impacts of ICT capabilities on five measures of firm performance in relation to corporate governance by undertaking a cross-sectional survey of 155 banking companies in the USA and found that ICT capability directly contributes to increase in the banking firm's FFP. The study is based on empirical evidence on the banking industry in the USA that is a mature economy, hence difficult for developing world to rely on such findings. Similar study is required in the developing countries that are still in the initial stages of embracing ITI in bid to improve efficiency and effectiveness in the banks to close the contextual research gap.

2.4 Summary of Previous Studies and Research Gaps

Table 2.1 summarizes the review of the previous studies and research gaps arising from empirical literature review on interaction of CG, CSI, ITI, and their effect on firm financial performance.

Table 2.1 Summary of Literature and Knowledge Gaps

Author	Context and Focus of the Study	Methodology	Key Results	Research Gaps	Current Study
Owieredu & Kwakye (2020)	Surveyed the effect of CG attributes on banks FP in Ghana.	Survey	The study found board size to positively affect FFP of Ghanaian banks. The study revealed insignificant connection between board independence, equity owners and Banks' FP measured ROA and return on equity of the banks in Ghana.	Study conducted on banks in Ghana. Such a sample may not provide enough data to warrant representation.	This study is on the entire population of the firms quoted at the NSE.
Kefiyalew & Dagnachew (2020)	How CG affects financial performance of sampled private owned commercial banks in Ethiopia.	Survey	The presence of liquidity ratio, educational qualification, chief executive compensation, board meetings held by the board, audit committee size, female directors was found to be a positive and significant association with	The study was selectively on privately owned banks yielding to specific or unique findings of privately owned banks.	Is based on public listed companies that allows a study on a wider industry spectrum.

Author	Context and Focus of the Study	Methodology	Key Results	Research Gaps	Current Study
			ROA. The study also found board size to have a negative and statistically insignificant association ROA.		
Koji et al., (2020)	Relationship between CG and FP of publicly quoted family and non-family businesses in the Japanese manufacturing sector.	Survey	Study showed that family firms performed better than non-family businesses and that board size enhance the performance of non-family entities.	Study concentrated on companies owned by families and as much as corporate governance was a consideration it diluted its efficacy in study.	Uses CG as the independent variable hence at the center of the study.
Nwala at al. (2020)	Evaluated the effect of investment in ICT on the association between CG and FFP of insurance firms quoted at Nigeria Stock Exchange.	Survey	The results showed first that investment in ICT attributes such as hardware, software and infrastructure have significant impact on FP of insurance companies listed at Nigeria Stock Exchange. Second that investment in ICT improved FP of insurance companies listed at	This was a study on insurance companies whose use of ICT is quite different from that of other companies say in the manufacturing industry hence more research is required beyond insurance companies.	Conducted on companies listed at the NSE that represents the entire industry.

Author	Context and Focus of the Study	Methodology	Key Results	Research Gaps	Current Study
			Nigerian Stock Exchange and that such investment does not erode profitability.		
Kyere & Ausloos (2020)	Impact of CG on FP of non-financial quoted firms in the UK.	Survey	The study shows a negative correlation, but also sometimes no impact, of CG attributes impact on FP.	The study period is one year which may not be sufficient to give a general trend.	Based on 10 years data.
Machdar (2019)	Moderation effect of CSI on the association between CG and CFP in Indonesia.	Survey	The study revealed that CG does not affect CSI and that CG affects FP. It was also established that CSI does not mediate the relationship between CG and CFP.	The study utilized content analysis method which can easily yield to interpretative errors as well as being subjective.	The study utilizes variables recommended by GRI to estimate the standard mode of CSI.
Mangantar (2019)	Analyzed the influence of CG and CSI on the FP of banks quoted at the Indonesian Stock Exchange.	Survey	The research showed that CG has insignificant statistical effect on FP. CSI does not moderate FP using ROA as a measure. Jointly CG and	The study findings add to the conflicting view of the various literature reviewed that calls for more collaborative research on the subject of CSI as either a moderator, intervener or	Tested intervening as well as the moderating effect of CSI in order to identify its effect on study variables.

Author	Context and Focus of the Study	Methodology	Key Results	Research Gaps	Current Study
			social responsibility have a positive effect on increase in FP.	predictor as a way to understand better the relation between CG and FFP.	
Kirandoo (2019)	Impact of CG on the profitability and the FP of the organization.	Survey	Found a link between CG attributes of CEO, board size and ownership with the FFP.	The study was UK developed economy that may not hold in third world countries.	Gives third world findings.
Nurulfajri (2018)	Effect of ITI on the association between CG and FFP of firms quoted at the Indonesian Stock Exchange.	Survey	The study showed that ITI influences FFP but had no relationship with board size.	The study used a single corporate governance attribute which may not necessarily give conclusive results. Whereas the study found ITI to influence firm financial performance, it was selectively based on manufacturing sector hence need for more study cutting across all industries.	This study used board size, board gender, and independent directors as attributes of CG across all the companies listed at the NSE.
Muawanah & Gunadi (2018)	Analyzed the influence of CG regarding the effectiveness of ITI on company's performance in	Survey	The study found that CG improves adoption of ITI which in turn improves firm financial performance.	The study covered three years which may not be enough for companies to have started getting ITI benefits.	This study covers 10 years period.

Author	Context and Focus of the Study	Methodology	Key Results	Research Gaps	Current Study
	Indonesia Stock Exchange.				
Mahboub (2018)	Effect of investment in ICT on association of CG and Lebanese banks' FP.	Survey	The research revealed that investment in ICT positively affects FP of Lebanese banks.	Lebanese banking model may not be used to generalize the study findings. In any case ICT use cuts across the wider perceptron global industry hence more study on the effect of use of ICT to improve FFP is necessary in support of this study.	This study cut across use of ITI in all industries listed at the NSE.
Kobuthi et al. (2018)	Effect of CG on FP of firms listed at NSE.	Survey	Found combined corporate governance attributes had effect on firm performance than individual governance attributes.	The study is broad and touches on entire firm performance and is non-directional.	This study collates various attributes to their relevant variables so as to allow combined effect and ease of regression.
Chung & Wei (2017)	Effect of CG and CSI on company FP after the financial tsunami of Taiwanese electronic companies listed at the Taiwan	Survey	The study found CG and firm financial performance has statistically significant relationship. The idea that ROA and	There is room for similar study that should extract the information from companies' website and or stock exchange data for all industries.	This study bridges the research gap given that it uses the entire population of the firms quoted at the NSE.

Author	Context and Focus of the Study	Methodology	Key Results	Research Gaps	Current Study
	composite stock exchange.		ROE affect shareholding ratio and CSI is supported empirically.		
Kobo & Ngwakwe (2017)	Researched on the association between CG and FFP to determine the effect of CSI intervention thereof in Johannesburg Stock Exchange.	Survey	The regression showed positive correlation between SRI firms' and share price but no significant relationship with ROE.	Further research to analyse the relationship between CSI and FFP with varied time frames, new sample of firms and alternative techniques of analysis beyond least square approach are necessary.	Collected 10 years data to capture the impact of CSI in matters of image and brand building.
Dakito (2017)	The relationship between CSI and FP of banks in Ethiopia as determined by CG.	Mixed research	The study reveals no significant association between financial contribution for FP and CSI activities.	The findings are indifferent from prior literature reviewed hence more research for collaboration.	The researcher will use compliance, investments and policies to measure CSI.
Muhammad et al. (2017)	Effect of CSI on the interaction between CG and FP of banks in Pakistan and Bangladesh.	Content analysis	They found a significant positive correlation impact between CSI and banks' performance.	There is stillroom for more research using CSI measures such as policies and companies investing in environmentally friendly projects.	Researcher will use economic activities, environmental projects, and social projects to measure CSI and EPS to measure firm financial performance.

Author	Context and Focus of the Study	Methodology	Key Results	Research Gaps	Current Study
Harelimana (2017)	Impact of ICT on the association between CG and FP of Reseau Interdiocesain de Microfinance in Rwanda.	Case study	The study showed that ICT positively impacts on financial sustainability and profitability as well as financial efficiency, productivity and on portfolio quality.	More research using other methods such as Pearson coefficient of correlation is necessary in support of the study.	Study used Baron and Kenny model and Pearson coefficient to test hypothesis.
Jamal et al. (2015)	Influence of CG and CSI on FP with efficiency as mediating variable on Indonesia Stock Exchange.	Survey	The study showed that CG did not have effect on FP. In contrast the study revealed that CSI has positive influence on FP.	Considering other financial performance measures such as EPS to collaborate research is necessary.	This study used EPS to measure financial performance.
Manini & Abdillahi (2015)	Impact of CG mechanisms on 42 Kenyan banks' profitability.	Survey	Found that CG measured by audit committee size and board gender diversity have a negligible impact on bank profitability and that a financial performance is negatively influenced by board size performance.	Though findings are consistent with previous researches, there is still a gap for moderating and intervening effects of CG mechanisms such as ITI and CSI.	The study will test the individual as well as combined effect of CG, CSI and ITI on FP of firms quoted at the NSE.

Author	Context and Focus of the Study	Methodology	Key Results	Research Gaps	Current Study
Ongore et al. (2015)	How board composition affects FP of forty six firms quoted at the NSE.	Survey	Found that other than gender diversity other attributes of CG had insignificant effect on financial performance while board size had an inverse association with financial performance.	The survey concentrated on three board characteristics on performance ignoring other variables including board qualification that could be found to impact financial firm performance.	The study will in addition use board qualification to measure CG.
Mahrani & Soewarno (2014)	Researched on the effect of CG and CSI on FP of firms quoted at the Indonesian Stock Exchange.	Survey	Found that CSI does not fully mediate the bond between CG and FP.	The study is based on a single year 2014 period which may not have enough data to predict the actual effect CSI on FFP, as it is thought CSI is an investment that relates to brand building and creation of a good corporate image within the society.	Used 10 years data from 2010 to 2019.
Adekunle (2014)	Impact of ICT on bank's profitability in relation with CG in South Africa.	Comparative analysis	Concluded that the bank's performance is affected by ICT investment and the cost efficiency of the ICT activities.	This implies that companies should endeavor to engage in strategic ITI.	To bridge the contextual gap, the study was on ITI.

Author	Context and Focus of the Study	Methodology	Key Results	Research Gaps	Current Study
Omoro et al. (2014)	Effect of CSI on the association between CG and FFP in Kenyan commercial banks.	Survey	Found that CSI positively affect banks' FP.	There are other factors that would affect the posting of profits by commercial banks beyond investment in corporate social investment.	This study contextually brings in other variables CG and ITI that are perceived to have a role in the growth of companies.
Jo & Harjoto (2012)	Effects of association between CG and CSI on FP of 3000 companies in the USA.	Survey	The study found that CSI does not affect the association between CG and CFP. After correction of endogeneity bias, the study reveals that CSI directly and positively influences CFP.	The study was based on 1993- 2004 data. A study based on more recent data is desirable.	This study is based on 2010- 2019 data.
Ho et al. (2011)	Researched on the impact of ITI on the relation between CG and FFP in the Taiwanese electronics industry.	Survey	Found that ITI positively moderates the interaction of CG and FFP.	Further research with more CG attributes beyond foreign ownership is necessary to collaborate the findings.	This study used board size, board gender, and independent directors as attributes of CG.
Kapoor & Sandhu (2010)	Impact of CSI on corporate financial	Content Analysis	Found significant effect on sustainability and	Content analysis describes what exists but may not reveal the	This methodological gap that will be

Author	Context and Focus of the Study	Methodology	Key Results	Research Gaps	Current Study
	performance in line with CG of firms in India.		financial performance but negligible in growth.	fundamental motives for the observed phenomenon.	bridged by the study based on secondary data.
Matama (2008)	Link between CG and FFP of four banks in Uganda.	Survey	Concluded that CG has a direct positive association with FP of banks.	Found a general positive link between various attributes such as transparency and disclosure a finding that calls for more specific research for collaboration.	The study examines effect of four variables that is CG, CSI and ITI on FP of firms quoted at the NSE.
Lin (2007)	Interactive effect of ICT capability on firm performance measures.	Survey	Indicted that ICT capability makes contribution to the overall value creation for companies' performance.	Research is anchored on empirical findings of the banking in the USA that is a mature economy so may not apply on third world.	Study is in the developing country Kenya.
Bitler (2001)	Surveyed CG and association between ITI and FP of small firms in the USA.	Survey	Revealed difference in performance between companies that adopted ICT and those that did not.	Using IT investment as a measure to correlate IT to firm performance, given that firms do not necessarily realize IT benefits the same year that investment occurred, creates a research gap.	This study will ride on the transaction cost theory to determine the intervening effect of ITI on companies' performance.
Bharadwaj (2000)	Studied the connection	Matched group	Found that firms with high IT	The study used external rankings of IT leaders as	There is need for similar study with

Author	Context and Focus of the Study	Methodology	Key Results	Research Gaps	Current Study
	between IT capability and all USA IT leaders firm's performance as determined by CG.		capability are positively correlated with high firm performance.	a proxy of superior IT capability.	the control sample that includes non IT leaders for comparison.
Simpson & Gleason (1999)	Board composition effect on FP of banks in the USA.	Survey	Found a higher likelihood of better financial performance on CEO duality.	Study relied on single source published information missing out on information that may have been published elsewhere or not published at all hence less favorable view of the company than could be the case.	To bridge the gap, the study will rely on secondary data that shall be obtained at the NSE regarding the companies under study.

Source: Researcher 2022

2.5 Conceptual Framework and Research Hypotheses

2.5.1 Conceptual Framework

Conceptual framework represents the expected relationship among the variables. Hypothesis one shows the expected positive impact of managing a company in a fair, efficient, and transparent manner on financial performance. Hypothesis two shows positive moderation effect of CSI on the link between CG and FFP as a result of expected increase in profit due to brand building and stakeholder loyalty. Hypothesis three is when CG introduces ITI that in turn injects in efficiency and effectiveness in firm operations and subsequent information asymmetry that positively increases the impact of CG on FFP. Theoretically, hypothesis four shows the combined result of the interaction of CG, CSI, and ITI on FP of firms quoted at the NSE as per the following Figure 2.1.

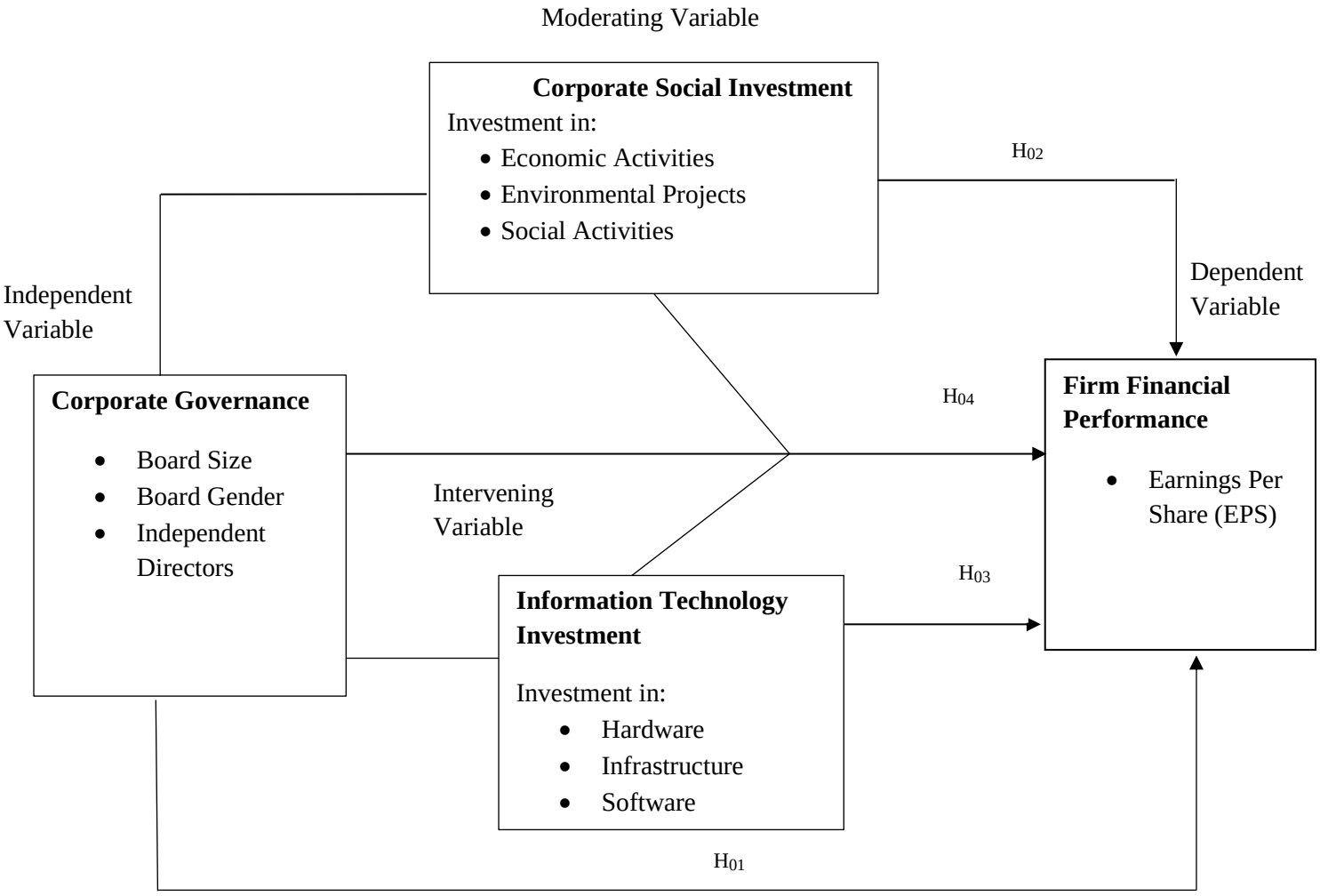


Figure 2.1 Conceptual Model

2.5.2 Research Hypotheses

H_{01}: There is no relationship between corporate governance and financial performance of companies listed at the NSE.

H_{02}: The relationship between corporate governance and financial performance of companies listed at the NSE is not moderated by corporate social investment.

H_{03}: There is no intervening effect of information technology investment on the relationship between corporate governance and financial performance of companies listed at the NSE.

H_{04}: The joint effect of corporate governance, corporate social investment, and information technology investment on financial performance of companies listed at the NSE is not significant

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The previous section reviewed literature that focused on CG, corporate social investment, ITI and financial performance of corporates in the context of the conceptual framework. Chapter three of this thesis is about research methodology. The chapter briefly discusses available research philosophy followed by a detailed discussion of natural scientists philosophical approach that underpins the study findings. The chapter touches on the population of the study then finally data collection techniques and analysis.

3.2 Research Philosophy

Saunders, Thornhill and Lewis (2009), clarify that philosophical approaches inform the decision of the researcher as to why a particular approach, be it ontology, axiology or epistemology should be taken and why, as illustrated in the research questions. This study adopted a positivistic approach since it relied on evidence and statistics to determine the relationship among variables.

Epistemology is concerned with acceptable knowledge of a specific field of study classified into positivism, interpretivism and realism in the research philosophy domain. The natural scientists' philosophical approach is portrayed in positivism since the work of natural scientist is anchored on observable social system. Research strategy is analyzed based on the hypothesis development and on data collection. Hypotheses are tried and approved and can be employed for further studies. Another attribute of this ideology that makes it suitable for this study is that a highly structured methodology is followed by the positivist researcher so as to foster the hypothesis. Moreover, positivism works on measurable observations upon which statistical analysis is derived.

3.3 Research Design

This research used descriptive design to investigate the relationship among corporate governance, corporate social investment, ITI and FP of 47 out of the 64 companies listed at the NSE. The 17 companies were left out due to either missing data or outliers that had the potential to distort the findings even within unbalanced panel data environment. Cooper and Schindler (2014) explain that descriptive research can describe data with its characteristics in a population or phenomenon being studied and that the design allows the classification of phenomena as factual as well as enable the researcher to study the elements in the population or sample as is without alteration.

As stated by Zikmund, Babin, Carr and Griffin (2013) the magnitude of the research problem determines the type of design to be used. The researcher chose descriptive design being the one that most suites the study due to its ability to aid in focusing on describing independent variables. The design involves collection followed by analysis of data so as to describe a phenomenon as is where is. Cooper and Schindler (2014) argue that this design saves time as well as makes it possible to obtain current and factual information, in this case, from the NSE database, companies' websites, financial and annual reports. However, confidentiality, human error and bias are the main weaknesses of descriptive research.

3.4 Population

The study's population is 64 companies quoted at the NSE as at 29th March, 2019 as attached in appendix two. The 64 companies are diverse in their practice of CG with some mature in ITI while others are still in inception stage. Moreover, not all of the 64 companies indulge in CSI and because they are not many, all provided data was regrouped and classified based on similar characteristics for level comparison.

3.5 Data Collection

The study used quantitative secondary data. According to Creswell (2002), the quantitative research entails collecting, analyzing, interpreting, and writing reports on the study. Quantitative data for the year 2010 to 2019 was collected. The ten-year period was adequate to bring out the effect of brand building due to CSI and ITI projects that take long to settle before the companies start realizing efficiency and effectiveness. The annual reports for the ten-year period were extracted from the companies' websites. The data collection form was divided into four sections A to D. Section A contained the information regarding measures of corporate governance, section B information on measures of corporate social investment, section C information on measures of information technology investment and section D measures of financial performance.

3.6 Diagnostic Tests

Panel data models can have one or two-way error components. The econometric models in the panel data have assumptions that include homoscedasticity, normality, auto- correlation, linear relationship and no or little multicollinearity. In this regard, it is important that diagnostic tests are performed on the data for independence test to ascertain little or no autocorrelation in the data. Before hypothesis testing, the data was subjected to panel data diagnostic tests to determine the appropriateness of the data prior to further analysis using parametric tests. The tests carried out were normality, multicollinearity, panel unit root, heteroscedasticity and serial correlation tests. Whenever any violation of these assumptions was detected, corrective measures were applied.

3.6.1 Normality Tests

To apply statistical tools on the data, it is required to be normally distributed to avoid violation of this requirement. The study used Shapiro - Wilk Normality test to ascertain if data is normally distributed. The null-hypothesis of this test is that the data is normally distributed (Shapiro & Wilk,

1965). Therefore, if the p value falls below 0.05, it will be a confirmation that the data is non-normally distributed hence the null hypothesis is rejected. Alternatively, should the p value be greater than 0.05, then the null hypothesis is accepted meaning that the data is normally distributed.

3.6.2 Serial Correlation Test

Wooldridge (2000) explains serial correlation as linear panel data models that causes consistency in the regression coefficients estimates but not very efficient. In that process, it quite seldom leads to underestimation of the standard errors which makes hypothesis testing un attainable. Hence, the Wooldridge test panel data autocorrelation was implemented to detect this phenomenon. In case of violation, correlation structure was used.

3.6.3 Heteroscedasticity Test

The tests show that there is only the appearance of heteroscedasticity so that the robust standard errors are added to the models to correct this problem (Miles, Huberman, & Saldana, 2014). Breusch-Pagan test for heteroscedasticity was used. The p-value 0.0000 meant significant hence null hypothesis was rejected and in turn accept hypothesis meaning variance is not homogenous. Therefore, the dataset had heteroskedastic variances. To correct this violation during model estimation, heteroscedasticity-robust standard error was used.

3.6.4 Multicollinearity Test

Multicollinearity implies high correlation within the independent variables. Tolerance and Variance Inflation Factor (VIF) indices were used to test the presence of multicollinearity. A value of VIF >10 alludes that multicollinearity is present thus violation of the assumption. In addition, correlation analysis was undertaken. The correlation matrix helps to ascertain whether multicollinearity exists between the independent variables before carrying further analysis using

regression. Multicollinearity is said to exist in case of high correlation between the independent variables (r=0.9 and above). Multicollinearity leads to a poor regression model (Keller & Warrack, 2000). If data is found to have multicollinearity, can either drop one of the variables or use statistical software STATA to correct.

3.6.5 Panel-Data Unit-Root Test

To determine stationary data, panel unit root test using statistical software STATA was applied on the study variables. A panel unit root test evaluates whether a time series construct is non-stationary and has a unit root (Bierens,2001). The null hypothesis states that unit root exists while the alternative hypothesis is either trend or stationarity. In case panel unit root is violated, the Harris- Tzavalis unit toot test is used.

Table 3.1 Diagnostic Tests

Test	Method	How it will be achieved	Cures of Violation
Normality Test	Shapiro-Wilk Normality Test	The null hypothesis for this test is that the data are normally distributed. The Prob < z value; Shapiro- Francia test statistics "W" and medium value of the index "V" indicate whether data is normally distributed. V>1 indicate normality.	Any violation detected; corrective measures were applied using data transformation.
Heteroskedasticity Test	Breusch-Pagan Test	Heteroscedasticity exists if chi-square statistic is statistically significant (<0.05).	To correct violation during model estimation, robust option was used to obtain heteroscedasticity robust standard error.
Linearity Test	Scatter Plot	The associations of independent and dependent variable should be linear.	If assumption is breached, the linear regression will

Test	Method	How it will be achieved	Cures of Violation
		Determined by a big ware- shaped curve.	introduce straight line in the data that is not linear.
Serial Correlation Test	Wooldridge test for autocorrelation in panel data was used.	Wooldridge (2000) explains serial correlation as linear panel data models that causes consistency in the regression coefficients estimates but not very efficient. In that process, it quite seldom leads to underestimation of the standard errors which makes hypothesis testing un attainable Prob>F Autocorrelation was implemented to detect this phenomenon. In case of violation, correlation structure was used.	Data log transformations square root or inverse
Multicollinearity Test	VIF and tolerance indices	Multicollinearity prevails when there exists high correlation among the independent variables, VIF<10. Tolerance, defined as 1/VIF, is used to evaluate the extent of collinearity.	Variable with highest VIF>10 will be excluded from further analysis.
Panel-Data Unit-Root Test	Fisher - ADF unit root test	The test was evaluated against their associated p-values at the conventional 5% statistical significance level.	Harris- Tzavalis unit root test is used.
Stationarity Tests	Augmented-Dickey Fuller test	Exists if Inverse normal Z statistic is significant (p<005).	To correct for this violation of OLS cardinal requirement, first difference of the variables was used, Data log transformation square root or inverse.

Source: Researcher 2022

3.7 Operationalization of the Study Variables

Sekaran (2003) states that operationalizing is to describe a concept such that it is measurable. This is done by observing the dimensions, properties or facets designated by the concept. The variables corporate governance, corporate social investment, ITI and firm financial performance were operationalized as depicted in the following table.

Table 3.2 Operationalization of the Study Variables

Variable	Indicator	Measurement	Scale	Source of Data	Comparable Study
Corporate Governance	Board Size	Annual report disclosures for items pertaining to board size were used.	Ratio	Annual reports	Kefiyalew & Dagnachew (2020)
	Board Gender	Annual report disclosures for items pertaining to board gender were used. If number of female directors is disclosed then a composite ratio of female directors against total number of directors computed.	Ratio	Annual reports	Ongore et al. (2015)
	Independent Directors	Annual report disclosures for items pertaining to independent directors were used. If independent directors are present then the number of independent directors/total number of directors is computed.	Ratio	Annual reports	Ongore et al. (2015)
		Annual report disclosures for items pertaining to investment in	Ratio		

Variable	Indicator	Measurement	Scale	Source of Data	Comparable Study
Corporate Social Investment	Economic Activities	green industry and renewable energy were extracted.		Annual reports	Machdar (2019)
	Environmental Projects	Annual report disclosures for items pertaining to environmental friendly investments like energy efficiency and clean water supply were extracted.	Ratio	Annual reports.	Machdar (2019)
	Social Activities	Annual report disclosures for items pertaining to investment in social activities such as infrastructure, schools and churches were extracted.	Ratio	Annual reports	Machdar (2019)
Information Technology Investment	Hardware Investment	Annual financial report disclosures for items pertaining to investment in hardware were extracted and composite ratio of hardware value to total assets was computed.	Ratio	Annual reports	Gupta et al. (1996)
	Infrastructure Investment	Annual financial report disclosures for items pertaining to investment in infrastructure were extracted and composite ratio of infrastructure value to total assets was computed.	Ratio	Annual reports	Gupta et al. (1996)
	Software Investment	Annual financial report disclosures for items pertaining to investment in software were extracted and composite ratio of	Ratio	Annual reports	Gupta et al. (1996)

Variable	Indicator	Measurement	Scale	Source of Data	Comparable Study
		software value to total assets was computed.			
Financial Performance	Earnings Per Share	EPS is a parameter that describes the companies' share earnings in correspondence to weighted average common outstanding shares. EPS ratio of net income less the expected dividends over weighted average of common shares outstanding was used.	Ratio	Annual reports.	Muhammad et al. (2017)

Source: Researcher 2022

3.8 Data Analysis

After collection of the data from the annual reports, the data was decoded, regrouped, tabulated, condensed and displayed for easy analysis and interpretation of findings (Bryman, 2014). The data was coded and summarized into relevant research objective then condensed for ease of display and analysis. The study adopted descriptive statistics to quantify features of the variable using mean, median, standard deviation and percentage as used by (Manini & Abdillahi, 2015).

3.8.1 Corporate Governance and Firm Financial Performance

Corporate governance is the independent variable for the study with the following attributes; Board size, board gender and independent directors. Pearson correlation analysis including the adjusted coefficient of determination R^2 regression analysis and goodness of fit test were performed and if the F- test yielded a significant level less than 1% then null hypothesis was rejected. The study used multiple regression model for the relationship between CG and FP of companies. The regression model tested hypothesis one of the study as shown below.

$$FP_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 BG_{it} + \beta_3 ID_{it} + \varepsilon_i \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{(3.1)}$$

Financial performance (FP_{it}) was measured by earnings per share. EPS figures were extracted from annual reports on the companies' websites.

Where:

FP_{it} = Financial performance attribute EPS.

β_0 Regression constant or intercept

β_i Regression coefficient of variable i

it Entity time

BS_{it} Board Size

BG_{it} Board Gender

ID_{it} Independent Directors

$\boldsymbol{\varepsilon_i}$ Random error to account for unexplained variations.

3.8.2 Corporate Governance, Corporate Social Investment and Firm Financial Performance

Corporate social investment is the moderating variable for the study with the following attributes: Economic activities, environmental projects and social activities. Pearson correlation analysis including the adjusted coefficient of determination R^2, goodness of fit test and multiple regression analysis as per Baron and Kenny (1986) was performed. Pearson correlation coefficient significance was computed and a relationship existed if F test was statistically significant. Using Baron and Kenny (1986) model, multiple regression models were used to measure the moderating effect of corporate social investment on the association between CG and FFP. The following regression model was used to test the moderation effect of hypothesis two of the study.

$$FP_{it} = \beta_0 + \beta_1 CG_{it} + \beta_2 (CSI)_{it} + \beta_3 (CG * CSI)_{it} + \boldsymbol{\varepsilon_i} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{(3.2)}$$

Where:

FP_{it} ,β_0, β_1, CG_{it} and $\boldsymbol{\varepsilon_i}$ as explained in 3.8.1

CSI Composite ratio of corporate social investment that is geometric mean of the attributes of corporate social investment.

3.8.3 Corporate Governance, Information Technology Investment, and Firm Financial Performance

Information technology investment is the intervening variable for the study with the following attribute; hardware, infrastructure and software. Pearson correlation analysis including the adjusted coefficient of determination R^2, goodness of fit test and multiple regression analysis as per Baron and Kenny (1986) and goodness of fit tests was performed. Pearson correlation coefficient significance was computed and intervention happened if regression coefficient of the intervening variable is statistically significant. Four steps were used to test the intervening effect of information technology investment on association between CG and FP of companies in accordance with Baron and Kenny (1986) model. In the first step, regression analysis was performed to examine the association between FFP and CG while ignoring information technology investment intervention effect. The regression equation utilized to test the model was as follows;

$$FP_{it} = \beta_0 + \beta_1 CG_{it} + \boldsymbol{\varepsilon_i} \quad \text{..... (3.3)}$$

Where:

FP_{it}, β_0, β_1, CG_{it} and $\boldsymbol{\varepsilon_i}$ as explained in 3.8.1

Step two regression analysis was performed to test the relation that existed between ITI and CG while ignoring FP. The following regression model was used to test the intervention effect.

$$ITI_{it} = \beta_0 + \beta_1 CG_{it} + \boldsymbol{\varepsilon_i} \quad \text{..... 3.4)}$$

Where:

$\beta_0, \beta_1, CG_{it}$ and $\boldsymbol{\varepsilon_i}$ as explained in 3.8.1

ITI The composite ratio of information technology investment that was computed as a geometric mean of the attributes of information technology investment.

Step three to analyze the intervention effect of the association between ITI and financial performance of firms while ignoring CG. The following regression model was used.

$$FP_{it} = \beta_0 + \beta_1, ITI_{it} + \boldsymbol{\varepsilon_i} \quad \textbf{(3.5)}$$

Where:

$FP_{it}, \beta_0, \beta_1, CG_{it}$ and $\boldsymbol{\varepsilon_i}$ as explained in 3.8.1

ITI As explained in step two above.

Step four was to conduct a regression analysis to assess the association between FP of firms, corporate social investment and CG. Regression model below was used.

$$FP_{it} = \beta_0 + \beta_1 CG_{it} + \beta_2 ITI_{it} + \boldsymbol{\varepsilon_i} \quad \textbf{(3.6)}$$

Where:

$FP_{it}, \beta_0, \beta_1, CG_{it}$ and $\boldsymbol{\varepsilon_i}$ as explained in 3.8.1

ITI_{it} As explained in step two above.

3.8.4 Corporate Governance, Corporate Social Investment, Information Technology Investment and Firm Financial Performance

Model Specification

The last objective investigated the combined effect of CG, corporate social investment and information technology investment on companies listed at the NSE. Random effects model regression coefficient was used and Wald Chi- Square statistic and R^2 value computed.

The following model was used to test the combined effect of the four variables.

$$FP_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 BG_{it} + \beta_3 ID_{it} + \beta_4 ECO_{it} + \beta_5 ENV_{it} + \beta_6 SOC_{it} + \beta_7 HW_{it} + \beta_8 INF_{it} + \beta_9 SW_{it} + \boldsymbol{\varepsilon_i} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{(3.7)}$$

Where:

FP_{it}, β_0, β_1, BS_{it}, BG_{it}, ID_{it}, ECO_{it}, ENV_{it}, SOC_{it}, HW_{it}, INF_{it}, SW_{it}, it and $\boldsymbol{\varepsilon_i}$ as explained in 3.8.2, 3.8.3 and 3.8.4.

β_0 = Intercepts, $\beta_1 - \beta_9 =$ coefficient of independent variable while $\boldsymbol{\varepsilon}_i$ is the error term.

Table 3.3: Summary of Objectives, Hypothesis, Analytical Model, Interpretation of Results and Comparable Study.

Objective	**Hypothesis**	**Analytical Model (s)**	**Interpretation of the results**
To establish the effect of corporate governance on financial performance of firms quoted at the NSE	**H_{01}:** There is no relationship between corporate governance and FP of companies listed at the NSE.	• Wald Chi-Square statistic • Pearson correlation analysis • R^2 • Goodness of fit test $FP_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 BG_{it} + \beta_3 ID_{it} + \varepsilon_i$ **…. (3.1)**	If the Wald Chi-Square statistic found significant, null hypothesis was rejected.
To investigate how corporate social investment affect the relationship between corporate governance and FP of companies listed at the NSE	**H_{02}:** The relationship between corporate governance and financial performance of companies listed at the NSE is not moderated by corporate social investment.	• Wald Chi-Square statistic • Pearson correlation analysis • R^2 • Multiple regression analysis as per Baron and Kenny (1986) • Goodness of fit test $FP_{it} = \beta_0 + \beta_1 CG_{it} + \beta_2 (CSI)_{it} + \beta_3 (CG * CSI)_{it} + \boldsymbol{\varepsilon}_i$……**(3.2)**	If the Wald Chi-Square statistic is significant, then the null hypothesis was rejected. Pearson correlation coefficient significance.
To determine the effect of information technology investment on relationship between corporate governance and financial performance of companies listed at	**H_{03}:** There is no intervening effect of information technology investment on the relationship between corporate governance and	• Wald Chi-Square statistic • Pearson correlation analysis • R^2 • Regression analysis as per Baron and Kenny (1986) approach • Goodness of fit tests	Pearson correlation coefficient significant Intervention happens if regression coefficient of the intervening variable is

Objective	**Hypothesis**	**Analytical Model (s)**	**Interpretation of the results**
the Nairobi Securities Exchange	financial performance of companies listed at the NSE.	FP_{it}= β_0+β_1 CG_{it}…….**(3.3)** ITI_{it}= β_0+ $\beta_1 CG_{it}$+ $\boldsymbol{\varepsilon}_i$…….**(3.4)** FP_{it} = β_0 + β_1, ITI_{it} + $\boldsymbol{\varepsilon}_i$ …… **(3.5)** FP_{it}= β_0 + $\beta_1 CG_{it}$ + β_2 ITI_{it} + $\boldsymbol{\varepsilon}_i$…….**(3.6)**	Statistically significant.
To determine the joint effect of corporate governance, corporate social investment and information technology investment on financial performance of companies listed at the Nairobi Securities Exchange	**H_{04}:** The joint effect of corporate governance, corporate social investment, and information technology investment on financial performance of companies listed at the NSE is not significant	Wald Chi-Square statistic • Pearson correlation analysis • Multiple regression • Goodness of fit tests FP_{it}= β_0+ $\beta_1 BS_{it}$ + $\beta_2 BG_{it}$ +$\beta_3 ID_{it}$ + $\beta_4 ECO_{it}$ + $\beta_5 ENV_{it}$ + β_6 SOC_{it} + $\beta_7 HW_{it}$ + β_8 INF_{it} + β_9 SW_{it} + $\boldsymbol{\varepsilon}_i$ …… **(3.7)**	If the Wald – chi square test and R^2 are statistically significant then null hypothesis was rejected.

Source: Researcher 2022

CHAPTER FOUR

DESCRIPTIVE DATA ANALYSIS AND RESULTS

4.1 Introduction

This chapter provides data analysis, findings and interpretation of the study results. The study objective is to determine the effect of CG, corporate social investment and information technology investment on financial performance of firms quoted at the NSE. Panel data methodology which entails utilization of both time-series and cross-sectional components of the data was used (Wooldridge, 2000). Panel data analysis accommodates greater variability, larger sample size, less collinearity, a higher degree of freedom, provides for heterogeneity of cross-sections and improved efficiency in comparison to time-series (Wooldridge, 2000).

Secondary data extracted from the NSE database, companies' websites, financial and annual reports for 10 years, from 2010 to 2019 was utilized in the study. The data was analyzed using STATA software to test the hypothesis of the study.

4.2 Response Rate

The study was based on 74.6% of the entire population with 47 companies' data extracted, out of the 64 targeted. The 17 companies were excluded due to either missing data or outliers that had the potential to distort the findings even within unbalanced panel data environment.

4.3 Descriptive Statistics

Descriptive statistics was performed using statistical techniques in conjunction with frequencies, percentages, means as well as standard deviation to summarize the variables of the study.

4.3.1 Corporate Governance

Table 4.1 shows descriptive statistics for CG attributes namely board size, board gender and independent directors. This table depicts mean, standard deviation, minima, maxima and the observations recorded for the period between 2010 to 2019. The standard deviation reflects the degree of dispersion of the variables from the mean.

Study findings in Table 4.1 shows that the board size of companies listed at the NSE ranges between 4 and 16 members and independent directors' number ranges between zero and 13. On average 3 directors were independent (mean = 2.93). The maximum number of female directors was nine.

Table 4.1

Descriptive Statistics for Corporate Governance Attributes: Board Size, Board Gender and Independent Directors

Variable	Obs	Mean	SD	Min	Max
Board Size (BS)	463	8.81	2.26	4	16
Board Gender (BG)	463	1.72	1.30	0	9
Independent Directors (ID)	463	2.93	2.74	0	13

Source: Research Data

Table 4.2 presents frequency distribution of number of female directors for the period 2010 to 2019. Female directors had nine as the highest number during the study time frame. The investigation also reveals that 27.43% of the observations of board gender attribute indicated there was one female director while 23.97% of the observations of board gender attribute showed that there were two female directors. The table further indicates during the study period, 19.44% of the

observations of board gender attribute were 3 female directors, 7.99% of the observations indicated that there were 4 female directors and 20.09% of the observation had no female directors. From the statistics we can infer that on average there is at least one female director in each of the companies listed at the NSE.

Table 4.2

Number of Female Directors (Observations=463)

Number of Female Directors	Frequency	Percentage (%)
0	93	20.09
1	127	27.43
2	111	23.97
3	90	19.44
4	37	7.99
5	4	0.86
9	1	0.22

Source: Research Data

Table 4.3 shows that companies with 4 to 6 directors in the board has 6 female directors out of 463 total observations representing 14% female in the board while companies with 7 to 11 had 350 of 463 representing 76% whereas companies with board members between 12 to 16 had 47 female directors representing 10%.

Table 4.3

Cross Tabulation: Total Directors * Total Female Directors (Observations=463)

Number of Directors	Number of Female Directors							Total
	0	1	2	3	4	5	9	
4	3	1	0	0	0	0	0	4
5	12	16	0	0	0	0	0	28
6	16	12	3	2	1	0	0	34
7	49	18	12	3	2	0	0	84
8	6	21	17	17	5	2	0	68
9	4	24	27	12	4	1	1	73
10	1	13	13	12	6	1	0	46
11	1	10	23	33	12	0	0	79
12	1	10	10	4	5	0	0	30
13	0	2	2	1	0	0	0	5
14	0	0	2	2	1	0	0	5
15	0	0	2	1	1	0	0	4
16	0	0	0	3	0	0	0	3
Total	**93**	**127**	**111**	**90**	**37**	**4**	**1**	**463**

Source: Research Data

Table 4.4 presents frequency distribution of the number of directors for the period 2010 to 2019. The maximum number of directors was sixteen (16) at the time the survey was conducted. This study also reveals that 18.14% of the observations of board size showed that there were 7 directors with a frequency of 84. While 0.86% of the observations of board size attribute showed that the minimum number of directors was 4 while 0.65% showed that the maximum number of directors was 16 with a frequency of 3. The table further indicates during the study period, 17.06 % of the observations of board size attribute showed that there were 11 directors with a frequency of 79.

Table 4.4

Number of Directors (Observations=463)

Number of Directors	Frequency	Percentage (%)
4	4	0.86
5	28	6.05
6	34	7.34
7	84	18.14
8	68	14.69
9	73	15.77
10	46	9.94
11	79	17.06
12	30	6.48
13	5	1.08
14	5	1.08
15	4	0.86
16	3	0.65
Total	463	100

Source: Research Data

4.3.2 Corporate Social Investment

Table 4.5 presents summary of descriptive statistics for corporate social investment attributes and that is economic activities, social activities and environmental projects. The data covers 47 firms quoted at the NSE between the timeframe 2010 to 2019. Table 4.5 reports the mean, Standard Deviation (SD), minima, maxima and the observation count.

Table 4.5

Descriptive Statistics for Corporate Social Investment Attributes: Economic Activities, Social Activities and Environmental Projects in Kshs ('000)

Variable	Obs	Mean	SD	Min	Max
ECO	463	210.85	2,617.58	0	40,200
SOC	463	94,804.11	406,748.50	0	2,875,000
ENV	463	389.05	2,237.01	0	25,000

Source: Research Data

Where:

ECO is investment in economic activities

SOC is investment in social activities

ENV is investment in environmental projects

The findings in table 4.5 indicate that the maximum amount of money (Kshs) invested in social activities was Kshs. 2.875 billion for the period between 2010 to 2019. Investment in economic activities (M=210.85, SD=2,617.58) was low compared to investment in social activities (M=94,804.11, SD=406,748.50). The maximum amount of money in Kshs. invested in economic activities was Kshs. 40.2 million for the period between 2010 to 2019 while the maximum amount of money invested in environmental projects was Kshs. 25 million for the period between 2010 to 2019. The SD shows dispersion level of the variables and as shown above, the SD is greater than the mean an indication that the data has extreme values (outliers) and observations with zero values. These are all indicators that the data might not be normal. Further analysis to remove outliers and to ensure the data is normal was done to make it suitable for further analysis.

Table 4.6 presents detailed descriptive statistics for corporate social investment attributes that is economic activities, social activities and environmental projects. The data covers 47 firms quoted at the NSE for the period between 2010 to 2019. The table below reports the mean, standard deviation, minima, maxima, and the number of observations.

Table 4.6

Descriptive Statistics for Corporate Social Investment Attributes: Economic Activities, Social Activities and Environmental Projects (Observations=463) in Kshs. ('000)

Variable	Obs	Mean	SD	Min	Max
ECO_GI	463	89.90	1,869.28	0	40,200
ECO_RE	463	120.95	1838.28	0	28000
SOC_INFRA	463	0	0	0	0
SOC_SCH	463	3599.13	19861.65	0	215000
SOC_Churches	463	270.95	5548.78	0	119300
SOC_Health	463	919.41	6033.33	0	84000
SOC_Others	463	91399.96	407015.40	0	2875000
ENV_EE	463	78.62	983.60	0	16950
ENV_WMGT	463	146.29	1090.06	0	15000
ENV_AE	463	0	0	0	0
ENV_RRP	463	9.72	209.13	0	4500
ENV_CWS	463	154.43	1676.09	0	25000

Source: Research Data

Where:

ECO_GI is investment in economic activities specifically green industry projects.

ECO_RE is investment in economic activities specifically renewable energy projects.

SOC_INFRA is investment in social activities specifically infrastructure projects.

SOC_School is investment in social activities specifically school projects.

SOC_Churches is investment in social activities specifically church projects.

SOC_Health is investment in social activities specifically health projects.

SOC_Others is investment in other social activities.

ENV_EE is investment in environmental projects specifically energy efficient projects.

ENV_WMGT is investment in environmental projects specifically water management projects.

ENV_AE is investment in environmental projects specifically alternative energy projects.

ENV_RRP is investment in environmental projects specifically recycling and recyclable projects.

ENV_CWS is investment in environmental projects specifically clean water supply projects.

Table 4.6 indicates that the maximum amount of money invested in social activity projects of Kshs. 2.875 billion for the period between 2010 to 2019 was specifically investment in other social activities (M=89.90, SD=1869.28) was in green industry projects while (M=120.95, SD=1838.28) was in renewable energy. The study also shows that there was zero investment in infrastructure and alternative energy. The investment of Kshs. 2.15 billion was in schools (M=3,599.13, SD=19,861.65) compared to investment in church projects of Kshs. 11.93 billion (M=270.95, SD=5548.78) and very low investment in health projects of Kshs. 84 million (M= 919.41, SD= 6033.33) social activity projects (M=94804.11, SD=406748.50). The maximum amount of money in Kenya shillings invested in economic activity projects was Kshs. 40.2 million for the period between 2010 to 2019 while the maximum amount of money invested in environmental projects was Kenya shillings 25 million for the period between 2010 to 2019. The SD highlights the dispersion level of the variables and as shown above, the SD is greater than the mean an indication

that the data has extreme values (outliers) and observations with zero values. These are all indicators that the data might not be normal. Further analysis to remove outliers and to ensure the data is normal was done to make it suitable for further analysis.

4.3.3 Information Technology Investment

Table 4.7 presents the summary of descriptive statistics for information technology investment attributes that is investment in hardware, software and infrastructure in Kenya Shillings ('000). The data covers 47 firms quoted at the NSE for the period between 2010 to 2019. Table 4.7 depicts the mean, standard deviation, minima, maxima and the observation count.

Table 4.7

Descriptive Statistics for Total Assets and Information Technology Investment in Kenya Shillings (000'000'000)

Variable	Obs	Mean	SD	Min	Max
TA	463	301	2,470	0.01	24,900
HW	463	0.39	1.54	0	13.90
INF	463	1.60	10.9	0	84.90
SW	463	48.50	425	0	4,760

Source: Research Data

4.3.4 Firm Financial Performance

Earnings per share was used as the proxy for firm financial performance.

Table 4.8

Descriptive Statistics for Firm Financial Performance based on Earnings Per Share in Kenya Shillings ('000)

Variable	Obs	Mean	Std. Dev.	Min	Max
FP	463	-161.91	4151.71	-88714.90	10248.18

Source: Research Data

Table 4.9

Summary of Descriptive Statistics

Variable/ Measure	Obs	Mean	SD	Min	Max
Corporate Governance					
Board Size	463	8.81	2.26	4	16
Board Gender	463	1.72	1.30	0	9
Independent Directors	463	2.93	2.74	0	13
Corporate Social Investment					
Economic Activities	463	210.85	2617.575	0	40200
Social Activities	463	94804.11	406748.5	0	2875000
Environmental Projects	463	389.05	2237.008	0	25000
Information Technology Investment					
Total Assets	463	301	2,470	0.01	24,900
Hardware Investment	463	0.39	1.54	0	13.90
Infrastructure Investment	463	1.60	10.9	0	84.90
Software Investment	463	48.50	425	0	4,760
Firm Financial Performance					
Earnings Per Share	463	-161.911	4151.712	-88714.9	10248.18

Source: Research Data

4.4 Diagnostic Tests

Prior to undertaking hypothesis testing, panel data tests were conducted for suitability of the data prior to further analysis using parametric tests. The tests carried out were; normality, multicollinearity, panel unit root, heteroscedasticity and serial correlation tests. If any violation of these assumptions was detected, necessary correction measures were applied.

4.4.1 Normality Test

Normally distributed data was tested using a number of statistical analysis tools. Violation of this requirement may lead to inaccurate hypothesis tests due to exaggerated test statistics. There are two main methods of assessing normality: graphically and numerically. The study used Shapiro - Wilk Normality test to ascertain that the population is normally distributed. If any violation of these assumptions was detected, necessary corrective measures were applied. Recommended approaches include data transformation.

4.4.1.1 Shapiro-Wilk Normality Test for the Independent Variables

The null-hypothesis of this test is that the data is normally distributed (Shapiro & Wilk, 1965). Thus, if the $p < 0.05$, then the null hypothesis is rejected meaning there is evidence that the data tested are not normally distributed. Conversely, if the $p > 0.05$, then the null hypothesis is accepted meaning that the data are normally distributed.

The values of test statistics (W') are reported in Table 4.10 together with values of V' which both indicate whether the data is normally distributed.

Table 4.10

Shapiro-Wilk Normality Test for FP, CG, CSI and ITI (Observations=463)

Variable	Obs	W	V	z	Prob>z
CG	463	0.98141	5.835	4.225	0.00001
CSI	463	0.93355	20.859	7.277	0.00000
ITI	463	0.8123	58.92	9.764	0.00000
FFP	463	0.02858	304.93	13.702	0.00000

Source: Research Data

Where:

CG is corporate governance

CSI is corporate social investment

ITI is investment in information technology

FFP is firm financial performance

The output in table 4.10 indicate that the study variables reported p-values less than 0.05 and therefore, we can reject the hypothesis that the variables, Corporate Governance, Corporate Social Investment, ITI and Firm Financial Performance are not normally distributed.

4.4.1.2 Shapiro-Wilk Normality Test for Corporate Governance

The results in Table 4.11 indicate that corporate governance attributes (BS, BG and ID) reported p-values less than 0.05 and therefore we can reject the hypothesis and conclude that the variables BS, BG and ID are not normally distributed.

Table 4.11

Shapiro-Wilk Normality Test for Corporate Governance Attributes: Board Size, Board Gender and Independent Directors

Variable	Obs	W	V	z	Prob>z
BS	463	0.98899	3.456	2.971	0.00148
FEM_DIR	463	0.97217	8.735	5.192	0
IND_DIR	463	0.96487	11.026	5.75	0

Source: Research Data

Where:

BS is total number of directors (board size)

BG is total number of female directors (board gender)

ID is total number of independent directors (total number of independent directors)

Figure 4.1: Histogram of Board Size

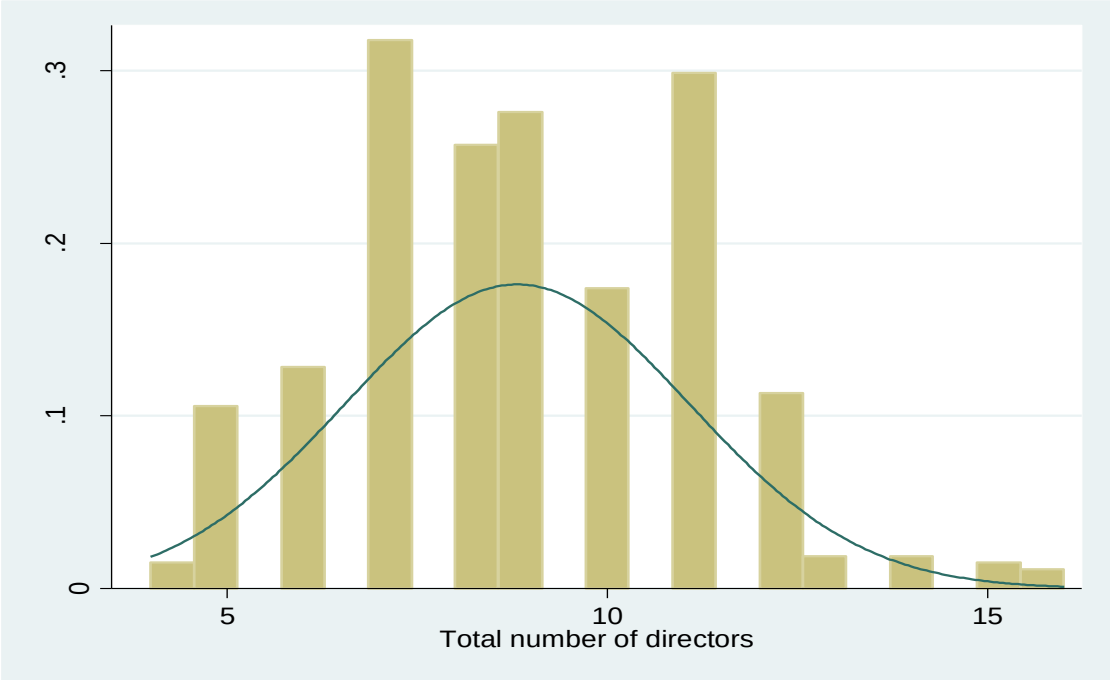
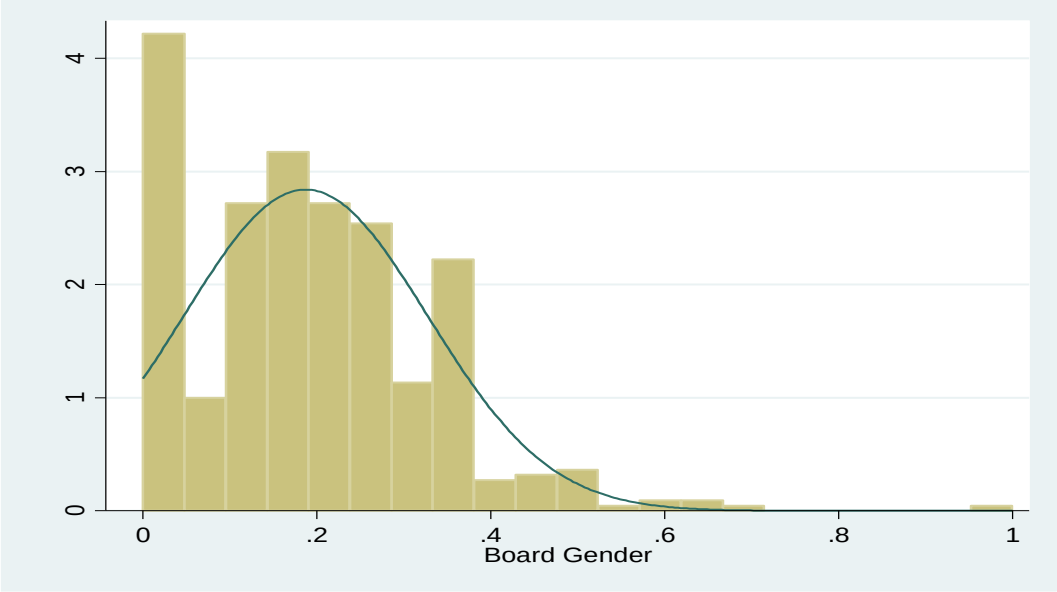


Figure 4.2: Histogram of Board Gender



4.4.1.3 Shapiro-Wilk Normality Test for Corporate Social Investment

Table 4.12 shows Shapiro-Wilk normality test for corporate social investment. ECO, SOC and ENV reported p-values less than 0.05 hence rejection of the null hypothesis. The variables are not normally distributed.

Table 4.12

Shapiro-Wilk Normality Test for Corporate Social Investment (Observations=463)

Variable	Obs	W	V	z	Prob>z
ECO	463	0.51942	150.856	12.017	0.00000
SOC	463	0.25496	233.87	13.067	0.00000
ENV	463	0.62267	118.444	11.437	0.00000

Source: Research Data

4.4.1.4 Shapiro-Wilk Normality Test for Information Technology Investment

Table 4.13 shows Shapiro-Wilk normality test for information technology investment. HW and SW reported p-values less than 0.05 and therefore the null hypothesis of this test was rejected. The rejection meant that the data was not normally distributed.

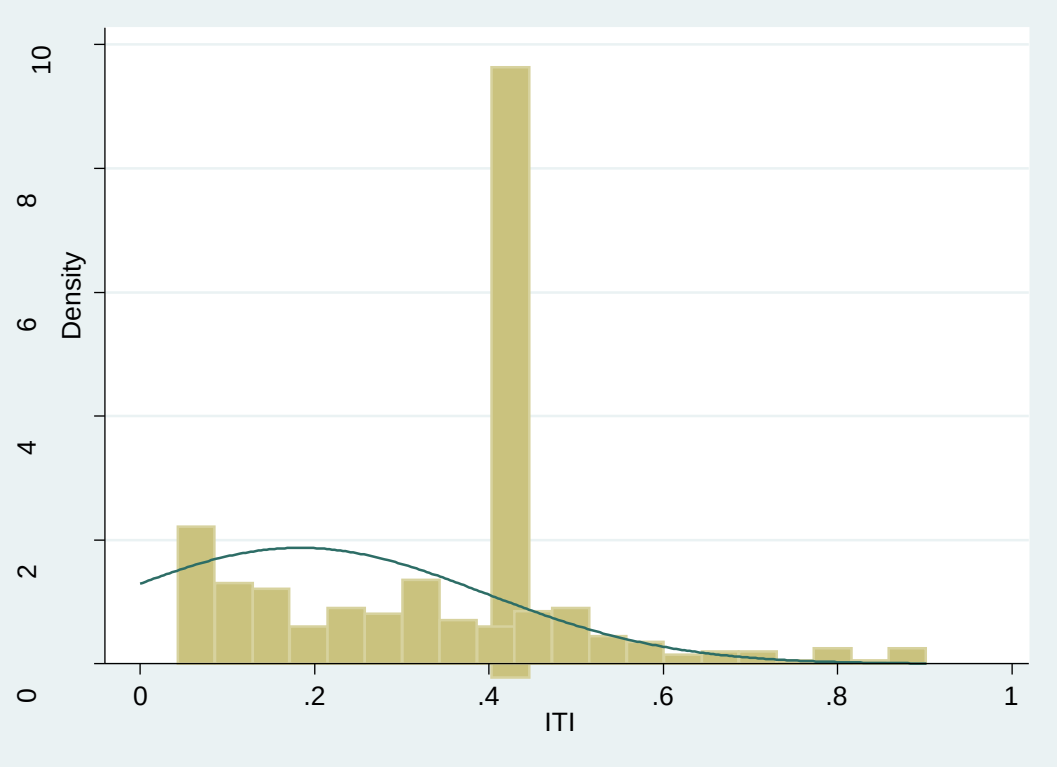
Table 4.13

Results of Shapiro-Wilk Normality Test for Information Technology Investment (Observations=463)

Variable	Obs	W	V	z	Prob>z
HW	463	0.33405	209.042	12.798	0
SW	463	0.09174	285.104	13.541	0

Source: Research Data

Figure 4.3: Histogram of Information Technology Investment



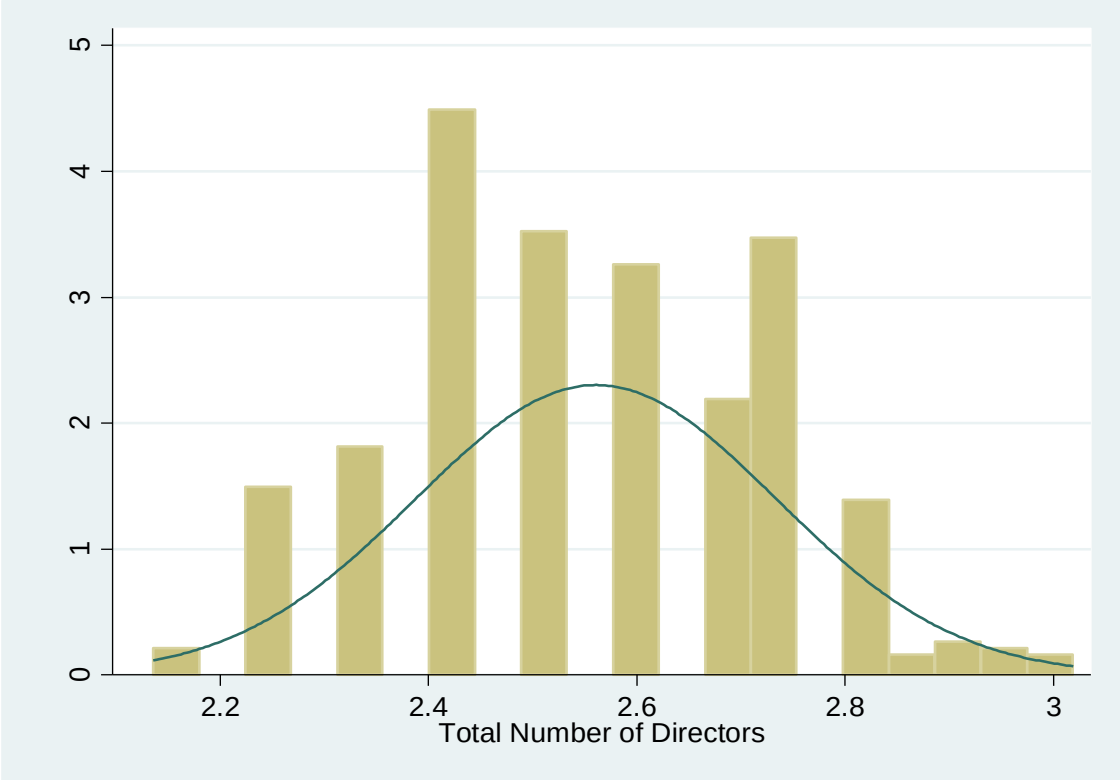
4.4.1.5 Outliers

Outlier is data that differs or significantly exhibits characteristics that are outside the normal distribution of the data set within which it belongs (Maddala, 1992). These special data points may be errors or some kind of abnormality. An outlier can cause serious problems in statistical analysis. To address this, outliers were excluded from the data set before further analysis. Statistical techniques available in the statistical software STATA were used to detect outliers in the research data, dropping the identified ones and the Shapiro-Francia normality test was repeated. Only 424 observations of 47 companies listed at the NSE were retained for further analysis.

4.4.1.6 Data Transformation

Statistical techniques available in the statistical software STATA for transforming non-normal data were used to normalize the non-normal data. In spite of the application of transformation methods, the normality of some of the variables could still not be achieved hence the central limit theorem was used.

Figure 4.4: Histogram of Board Size



4.4.1.7 Central Limit Theorem

The goal of the thesis is to use parametric tests hence the assumption that central theorem applies. This central limit theorem assumes that sampling distribution shape approaches normality with increase of the sample size (N). Therefore, since the study sample is large (N = 424), Wooldridge

(2000) recommends that in such a case asymptotic normality is accepted, with the understanding that the power of the model greatly diminishes.

4.4.2 Panel-Data Unit-Root Test

To determine whether data is stationary, panel unit root test using statistical software STATA was applied on the study variables. A panel unit root test evaluates whether a time series construct is non-stationary and has a unit root (Bierens,2001). The null hypothesis states that unit root exists while the alternative hypothesis is either trend or stationarity. In case panel unit root is violated, the Harris- Tzavalis unit root test is used. In general, p-value of less than 5% implies that we reject the null hypothesis signaling existence of unit root.

The study utilized the Fisher - ADF unit root because it is suitable for unbalanced panel data. The test was evaluated against their associated p-values at the alpha 5% statistical significance level. The test null hypothesis is that all panels are stationery and the alternative hypothesis of one panel is stationary. Choi (2001) preliminary results reveal inverse normal Z statistic creates an equilibrium status in size and power and recommends its practical application.

As shown in Table 4.14, results of the inverse normal Z statistic, null hypothesis that all the panels data were stationary was rejected for all the study variables at level p-values being less than 0.005.

Table 4.14

Panel Unit Root Test Results

Variable	Inverse normal Z statistic (*Z*)		p-value
FP	*Z*	-5.7522	0.0000
CG	Z	-0.9589	0.0288
CSI	Z	-5.6858	0.0000
ITI	Z	-1.3316	0.0215
DIR	Z	-2.1480	0.0159
BG	Z	1.5482	0.0392
ID	Z	-1.8971	0.0289
ECO	Z	-2.2575	0.0120
SOC	Z	-3.0527	0.0011
ENV	Z	-3.5389	0.0002
HW	Z	3.7776	0.0199
SW	Z	3.3193	0.0317

Source: Research Data

4.4.3 Hausman Specification Test: Fixed/Random Effects Model Estimation

Hausman test was used to assess suitability of the fixed random effect for the dataset. This involved estimating both models in particular order, starting with fixed effects model against the alternative hypothesis appropriate random effects model is at 5% confidence level. Based on Hausman test chi-square and corresponding p-value, null hypothesis is accepted or rejected. The Hausman test was proposed by Hausman (1978) as a test statistic for endogeneity in comparison to fixed and random effects of coefficient estimates.

4.5 Relationship between Corporate Governance and Financial Performance of Companies Listed at the NSE

First objective was to establish the effect of CG on FP of firms quoted at the NSE. The following hypothesis was formulated.

H_{01}: There is no relationship between CG and FP of companies listed at the NSE.

4.5.1 Multicollinearity

Panel multicollinearity test was conducted. Multicollinearity occurs if independent variables are highly correlated. The general principle states that, VIF<10. A variable that has VIF values exceeding 10 requires further scrutiny. Tolerance, defined as 1/VIF, is used to evaluate the level of collinearity. Collinearity means that two variables have close linear combinations of each other (Alin, 2010).

Based on the results of table 4.15, VIF < 10 and the mean VIF is 1.34, an indication that there was no presence of multicollinearity. This means that the variables for panel data regression analysis are suitable.

Table 4.15

Multicollinearity Test Results (Mean VIF=1.34)

Variable	VIF	1/VIF (Tolerance)
BS	1.49	0.671136
BG	1.43	0.699166
ID	1.09	0.917924

Source: Research Data

4.5.2 Homoscedasticity

One of the key assumptions given for type ordinary list squares is the homogeneity when variance among residuals arises. It is heteroscedastic if the variance given by the residuals is not constant. Breusch-Pagan test for heteroscedasticity was used to test the data. The null hypothesis suggests the presence of constant variance which means data is homoscedastic (Knaub, 2007). The significant p-value 0.0000 occasioned rejection of the null hypothesis. The alternative hypothesis variance is not homogenous was accepted. Therefore, the dataset has heteroskedastic variances. To correct this violation during model estimation and in order to obtain heteroscedasticity-robust standard errors, robust option was used.

Table 4.16

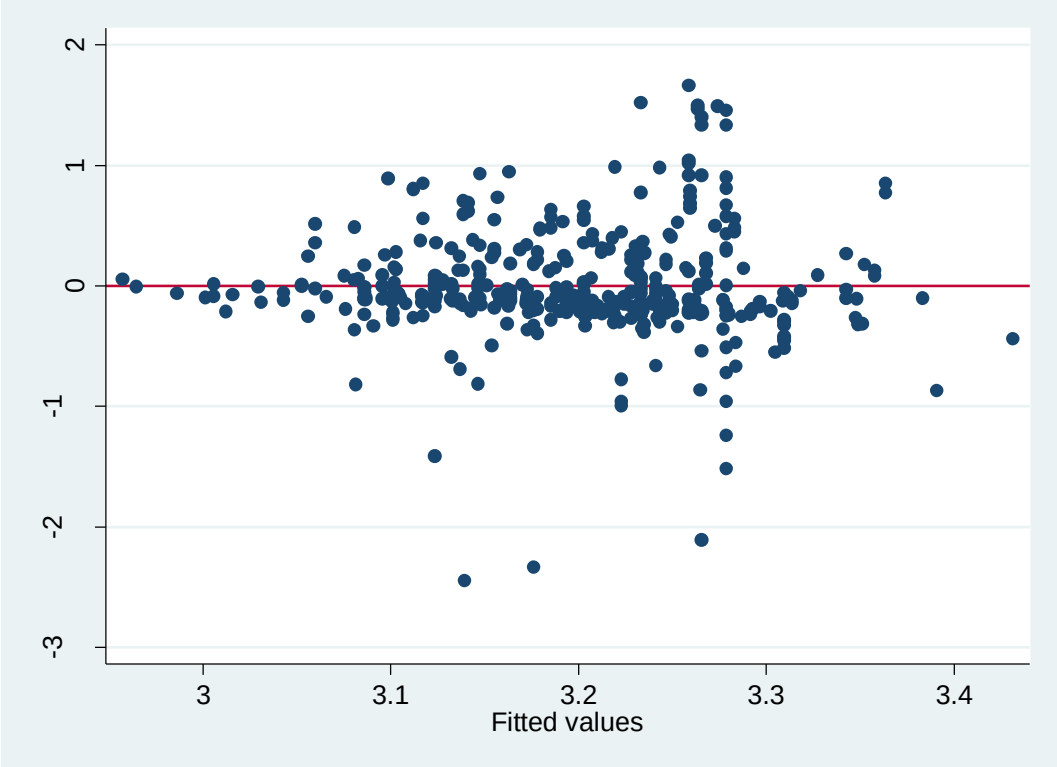
Breusch-Pagan Test

Statistic	p-value
21.17	0.0000

Source: Research Data

The null hypothesis is homoscedasticity (or constant variance).

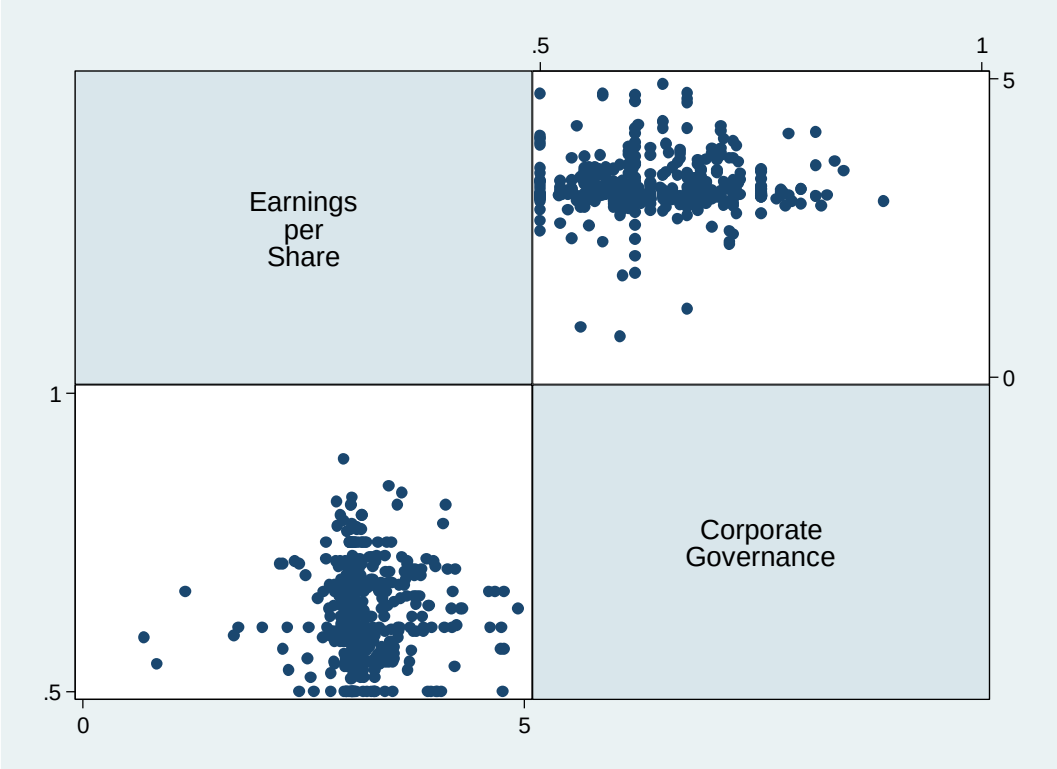
Figure 4.5: Residuals versus Predicted Values Plot



4.5.3 Linearity

The associations between the dependent and the independent variable ought to be linear. This preposition is referred to as linearity. Once the assumption is contravened, the linear regression introduces a straight line into data which doesn't follow a straight line. We therefore need to produce a scatter plot for dependent and independent variables to test for nonlinearity for instance a curved band or a big – ware shaped curve.

Figure 4.6: Scatterplot of Firm Financial Performance (EPS) and CG



As shown in figure 4.6, there prevails a fairly linear association between FFP and CG

4.5.4 Serial Correlation Test

To test autocorrelation panel data Wooldridge was used. The null hypothesis no serial correlation. Serial correlation makes coefficients standard errors smaller than actual and in addition with higher R-squared (Wooldridge, 2002). A significant test statistic shows existence of serial correlation. Wooldridge test in table 4.17 indicate that the problem of autocorrelation is not present.

Table 4.17

Wooldridge Test for Autocorrelation

Test statistic	Prob > F
1.375	0.2468

Source: Research Data

Null Hypothesis: There is no serial correlation

4.6 Relationship between Corporate Governance, Corporate Social Investment and Financial Performance of Companies Listed at the NSE

Objective two of the study was to investigate the effect of corporate social investment on the relationship between CG and financial performance of firms quoted at the NSE. Panel regression analysis was utilized to test the hypothesized relationship. The following hypothesis was formulated.

H_{02}: The relationship between CG and FP of companies listed at the NSE is not moderated by corporate social investment.

4.6.1 Multicollinearity

Panel multicollinearity test was conducted. As a rule of thumb, VIF<10. Based on the results of Table 4.18 and Table 4.19, VIF < 10, an indication that the independent variable, the moderator and interaction term (CG*CSI) were not highly correlated, hence no existence of multicollinearity.

Table 4.18

Multicollinearity Test Results for Model 1a (Dependent Variable: FFP, Predictors: CG, CSI). Mean VIF=1.08

Variable	VIF	1/VIF
CG	1.08	0.926414
CSI	1.08	0.926414

Source: Research Data

Table 4.19

Multicollinearity Test Results for Model 1b (Dependent Variable: FFP, Predictors: CG, CSI and Interaction Term). (Mean VIF=1.07)

Variable	VIF	1/VIF
CG	1.1	0.905009
CSI	1.08	0.926394
CG*CSI (Interaction term)	1.03	0.975481

Source: Research Data

4.6.2 Homoscedasticity

Breusch-Pagan test for heteroscedasticity was used. The null hypothesis suggests the presence of constant variance which means data is homoscedastic (Knaub, 2007). The non-significant p-value of 0.4143 led to acceptance of the hypothesis with subsequent rejection of the alternative hypothesis that the variance is not homogenous.

Table 4.20

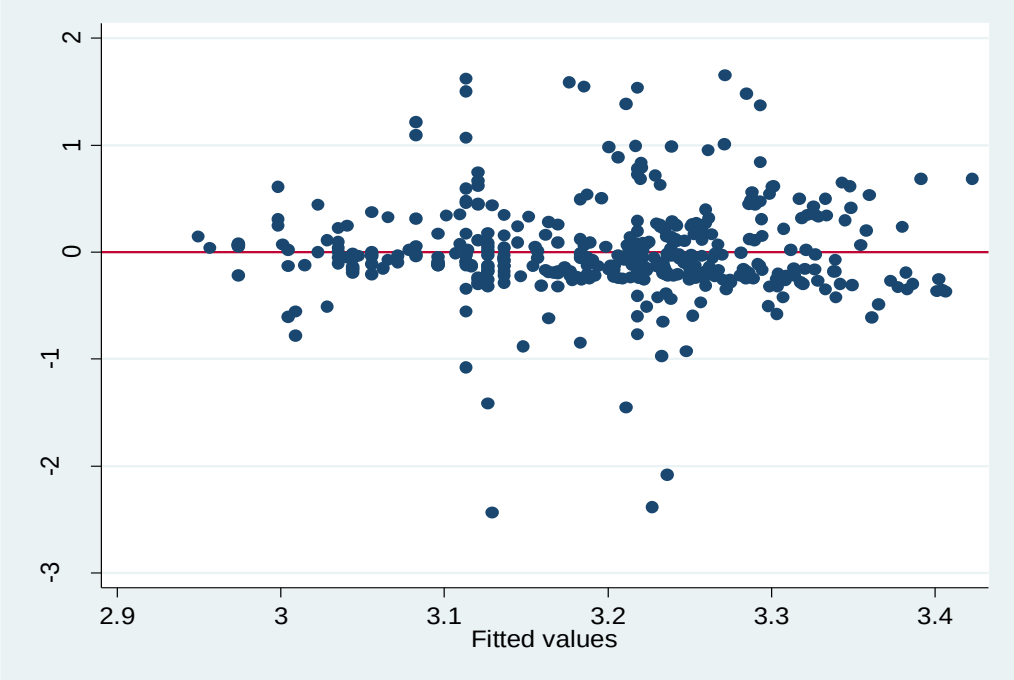
Breusch-Pagan Test

Model	Statistic	p-value
Model 1a	0.04	0.8452
Model 1b	0.67	0.4143

Source: Research Data

The null hypothesis is homoscedasticity (or constant variance).

Figure 4.7: Residuals versus Predicted Value Plot (Model 1b)



4.6.3 Linearity

The associations between the dependent and the independent variable ought to be linear. This preposition is referred to as linearity. Once the assumption is contravened, the linear regression introduces a straight line into data which doesn't follow a straight line. We therefore need to

produce a scatter plot for dependent and independent variables to test for nonlinearity for instance, a curved band.

Figure 4.8: Scatterplot of Financial Performance (EPS), CG and CSI

As shown in Figure 4.8 there exist a fairly linear relationship between financial performance, CG and CSI.

4.6.4 Serial Correlation Test

Autocorrelation in panel data Wooldridge test was used. The null hypothesis is no serial correlation. Serial correlation was detected by a significant test statistic. Results of Wooldridge test Table 4.21 indicate that the problem of autocorrelation is not present.

Table 4.21

Wooldridge Test for Autocorrelation

Model	Test statistic	Prob > F
Model 1a	1.250	0.2693
Model 1b	1.279	0.2638

Source: Research Data

Null Hypothesis: There is no serial correlation

4.7 Relationship between Corporate Governance, Information Technology Investment and Financial Performance of Companies Listed at the NSE

The third study objective sought to determine the mediation effect of information technology investment on the relationship between CG and financial performance of firms quoted at the NSE. The following hypothesis was tested:

H_{03}: There is no intervening effect of information technology investment on the relationship between CG and FP of companies listed at the NSE.

4.7.1 Multicollinearity

Based on the results of Table 4.22 VIF < 10 and the mean VIF is 1.01, an indication that the independent variables were not strongly correlated, hence no multicollinearity.

Table 4.22

Multicollinearity Test Results for Model (Dependent Variable: FP, Predictors: CG, ITI). Mean VIF=1.01

Variable	VIF	1/VIF
CG	1.01	0.993531
ITI	1.01	0.993531

Source: Research Data

4.7.2 Homoscedasticity

To test for heteroscedasticity, Breusch-Pagan test was used. The null hypothesis suggests the presence of constant variance which means data is homoscedastic.

Table 4.23

Breusch-Pagan Test (Dependent Variable: FP, Predictors: CG, ITI).

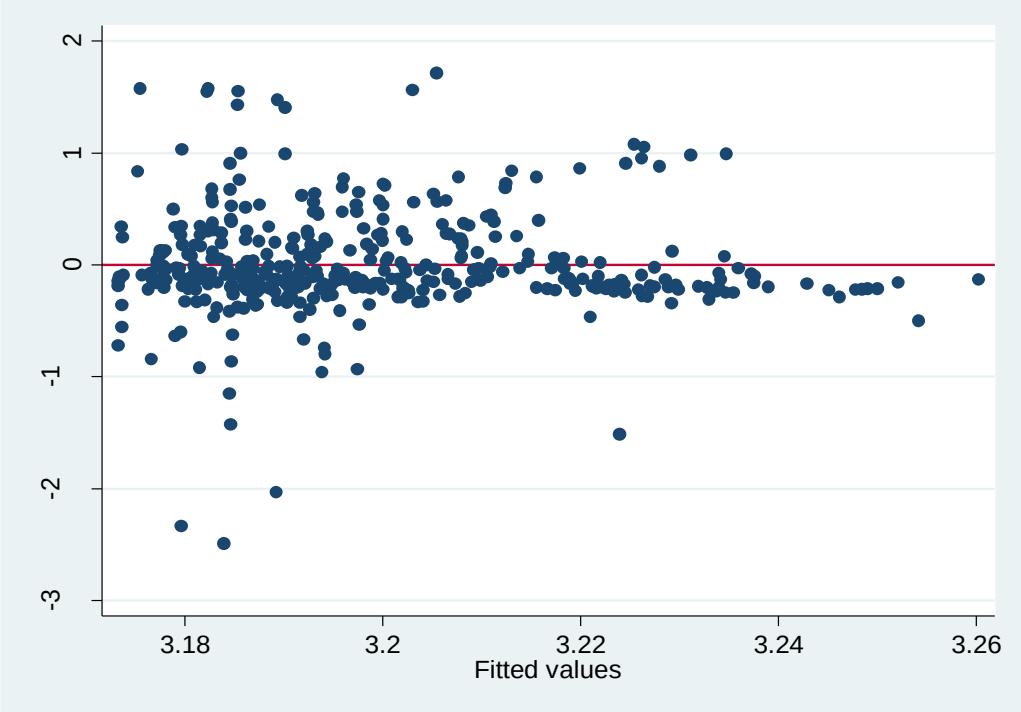
Statistic	p-value
10.91	0.0010

Source: Research Data

The null hypothesis is homoscedasticity (or constant variance).

The significant p-value 0.0000 occasioned rejection of the null hypothesis. The alternative hypothesis variance is not homogenous was accepted. Therefore, the dataset has heteroskedastic variances. To correct this violation during model estimation and in order to obtain heteroscedasticity-robust standard errors, robust option was used.

Figure 4.9: Residuals versus Predicted Values Plot



4.7.3 Serial Correlation Test

Autocorrelation in panel data Wooldridge test was used. The null hypothesis states that no serial correlation. A significant statistical test shows existence of serial correlation. Results of Wooldridge test indicate that the problem of autocorrelation is not present.

Table 4.24

Wooldridge Test for Autocorrelation (Dependent Variable: FP, Predictors: CG, ITI).

Test statistic	**Prob > F**
1.295	0.2609

Source: Research Data

Null Hypothesis: There is no serial correlation

4.7.4 Regression Models

The mediating effect was assessed using the approach advanced by Baron and Kenny (1986). The following regression models were assessed.

Table 4.25

Mediating Effect Estimation Models

Model	Dependent Variable	Independent variable(s)
Model 1 – step1	FFP	CG
Model 2 – step 2	ITI	CG
Model 3 – step 3	FFP	ITI
Model 4 – Step 4	FFP	CG, ITI

Source: Research Data

Independent variable: CG, intervening variable: ITI

4.8 The Joint Effect of Corporate Governance, Corporate Social Investment, and Information Technology Investment on Financial Performance of Companies Listed at the NSE is Not Statistically Significant

Fourth objective was to investigate the combined effect of CG, corporate social investment, and information technology investment on FP of companies quoted at the NSE. Panel regression analysis was applied to evaluate the hypothesized relationship. The following hypothesis was formulated.

H_{04}: The joint effect of CG, corporate social investment, and information technology investment on FP of companies quoted at the NSE is not statistically significant.

4.8.1 Multicollinearity

Panel multicollinearity test was conducted. Multicollinearity occurs if independent variables are highly correlated. The general principle states that, VIF<10. A variable that has VIF values exceeding 10 requires further scrutiny. Tolerance, defined as 1/VIF, is used to evaluate the level of collinearity. Collinearity means that two variables have close linear combinations of each other (Alin, 2010).

Based on the results of Table 4.26, VIF < 10 and the mean VIF is 1.20, an indication that the independent variables were not strongly correlated, hence no multicollinearity.

Table 4.26

Multicollinearity Test Results (Mean VIF=1.20)

Variable	VIF	1/VIF
BG	1.57	0.63892
BS	1.56	0.641697
SOC	1.14	0.87767
ID	1.13	0.881684
SW	1.1	0.908509
HW	1.05	0.948032
ENV	1.02	0.977377
ECO	1.01	0.987055

Source: Research Data

4.8.2 Homoscedasticity

One of the key assumptions given for type ordinary list squares is the homogeneity when variance among residuals arises. It is heteroscedastic if the variance given by the residuals is not constant. Breusch-Pagan test for heteroscedasticity was used to test the data. The null hypothesis suggests the presence of constant variance which means data is homoscedastic (Knaub, 2007). Breusch-Pegan test table 4.27 below shows results of p-value 0.0000 which is significant and therefore we reject the null hypothesis and fail to reject the alternative hypothesis that the variance lacks homogeneity. To correct this violation during model estimation, 'robust' was selected upon which heteroscedasticity standard errors were attained.

Table 4.27

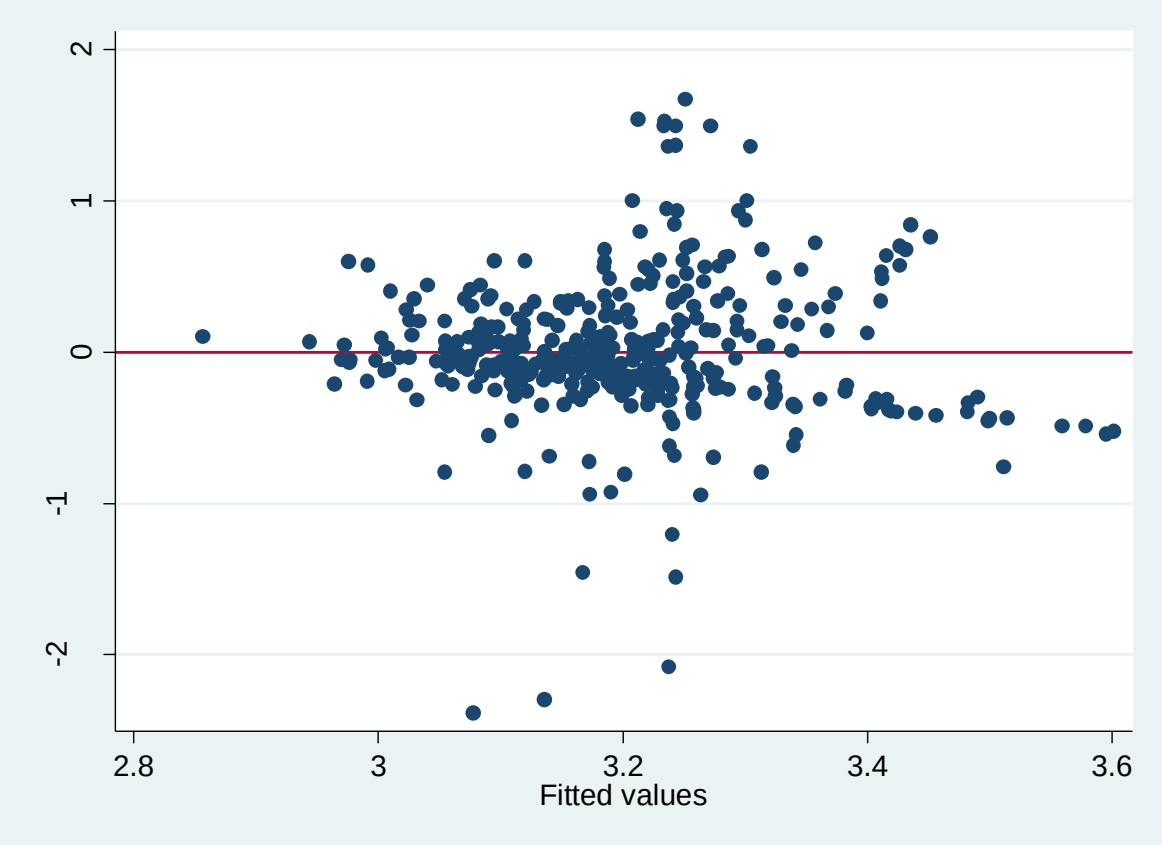
Breusch-Pagan Test

Statistic	p-value
17.60	0.0000

Source: Research Data

The null hypothesis is homoscedasticity (or constant variance).

Figure 4.10: Plot of Residuals versus Predicted Values



4.8.3 Linearity

The associations between the dependent and the independent variable ought to be linear. This preposition is referred to as linearity. Once the assumption is contravened, the linear regression introduces a straight line into data which doesn't follow a straight line. We therefore need to produce a scatter plot for dependent and independent variables to test for nonlinearity for instance a curved band.

Figure 4.11: Scatterplot of Firm Financial Performance (Earnings per share), Corporate Governance and Information Technology Investment

As shown in Figure 4.11 there exist a fairly linear relationship between FFP, CG and ITI

4.8.4 Serial Correlation Test

Wooldridge test was used. The null hypothesis that there exists no serial correlation as a result of Wooldridge test in table 4.28 finds no presence of autocorrelation problem.

Table 4.28

Wooldridge Test for Autocorrelation

Test statistic	Prob > F
1.277	0.2641

Source: Research Data

Null Hypothesis: There is no serial correlation

4.9 Correlation Analysis

Performed Pearson product moment correlation was used to determine whether there were significant associations between the study variables: Financial performance, corporate governance, corporate social investment and information technology investment. In this research, Pearson product moment correlation was used to explore relationships between the predictors, specifically to assess both the direction and strength. The correlation matrix also used to determine whether multicollinearity exists between the predictor variables before carrying further parametric tests. Multicollinearity exists when there is high correlation among the independent variables (Gujarati, 2009). If any of the independent variables were highly correlated, they were removed from the model before further tests.

4.9.1 Correlation between Financial Performance, Corporate Governance Attributes, Corporate Social Investment and Information Technology Investment

The correlation matrix below in Table 4.29 shows that there is a very weak, positive and statistically significant association between FFP and corporate social investment (r=0.1744*, p<0.05). This is an indication that an improvement in FP was correlated with an increment in CSI. The relationship between CFP and information technology investment is very weak, positive and non-statistically significant (r =0.0351, p<0.05). The relationship between firm financial

performance and corporate governance (r=0.0189, p<0.05) shows a very weak, positive and statistically significant association meaning that increase in FFP was positively correlated with corporate governance.

Calculation of Pearson correlation coefficient was calculated to determine the association between information technology investment and corporate social investment. Results of this study indicated a weak, positive and statistically significant correlation between ITI and CSI (*r*=0.1482*, p<0.05). This is an indication that increase in information technology investment is correlated with increase in corporate social investment. Similarly, the association between CG and corporate social investment was positive, weak and statistically significant (*r*=0.2713*, p<0.05). While the association between corporate governance and ITI was positively very weak and statistically significant (r=0.0804, p<0.05) an indication that increase in ITI is correlated with increase in corporate governance.

Table 4.29

Pearson Product Moment Correlations between Firm Financial Performance, Corporate Social Investment and Investment in Information Technology

Variable	FP	CG	CSI	ITI
FP	1			
CG	0.0189	1		
CSI	0.1744*	0.2713*	1	
ITI	0.0351	0.0804	0.1482*	1

*. Significant Correlation at 0.05 level.

Source: Research Data

Where;

FP is Financial Performance measured using Earnings per Share

CSI is the Corporate Social Investment

ITI is Information Technology Investment measured as ratio IT investment to Total Assets

CG is Corporate Governance

Table 4.30

Pearson Product Moment Correlations between Firm Financial Performance and Corporate Governance Attributes

Variable	FP	BG	BS	ID
FP	1			
BG	-0.0914	1		
BS	0.048	0.5462*	1	
ID	0.0863	0.2009*	0.2808*	1

Source: Research Data

*. Significant correlation at 0.05 level.

Where;

FP is financial performance measured using earnings per share

BG is the total number of female directors

BS is the total number of directors

ID is number of independent directors

4.9.2 Pearson Product-Moment Correlations between Firm Financial Performance, Corporate Social Investment, Information Technology Investment and Corporate Governance Attributes

The correlation matrix in Table 4.31 shows that there is a very weak, positive and statistically significant relationship between FFP, CSI, ITI and CG attributes. Results of this study indicate weak, positive and statistically significant correlation between SOC with investment in HW (0.4397*, $p<0.05$), investment in SW (0.2353*, $p<0.05$) BG (0.2516*, $p<0.05$), BS (0.2645*, $p<0.05$). This means that increase in investment in social activities has a correlation with increase in investment in activities such as hardware and software. Similarly, increase in investment in SOC has correlation with board gender, board size and independent directors.

Table 4.31

Pearson Product Moment Correlations between Firm Financial Performance, Corporate Social Investment, Investment in Information Technology and Corporate Governance Attributes

Variable	FP	ECO	SOC	ENV	HW	SW	BG	BS	ID
FP	1								
ECO	0.0032	1							
SOC	0.1480*	0.0431	1						
ENV	0.0304	0.033	-0.0257	1					
HW	0.0101	0.1118*	0.4397*	-0.0244	1				
SW	-0.009	-0.0081	0.2353*	0.1190*	-0.0257	1			
BG	-0.0914	0.0515	0.2516*	0.0865	-0.0384	0.0679	1		
BS	0.048	0.0877	0.2645*	0.1279*	0.1782*	0.0998*	0.5462*	1	
ID	0.0863	0.0162	0.2504*	0.0366	-0.0028	0.2187*	0.2009*	0.2808*	1

*. Significant correlation at 0.05 level.

Source: Research Data

Where:

FP is financial performance

ECO is investment in economic activities

SOC is investment in social activities

ENV is investment in environmental projects and activities

HW is investment in IT hardware

SW is investment in IT software

BG is board gender

BS is board size

ID is board independence

CHAPTER FIVE

HYPOTHESES TESTING AND DISCUSSIONS OF FINDING

5.1 Introduction

This section presents the results of the null hypotheses in the study and the explanations thereof. Null hypothesis is in the order of the first being the effect of CG on FP of companies listed at the NSE. Second tested is the moderating effect of corporate social investment on the link between CG and FP of companies quoted at the NSE. The third null hypothesis tested the intervening effect of information technology investment on the association between CG and FP of companies listed at the NSE. Final null hypothesis tested the combined effect of CG, corporate social investment and information technology investment on FP of firms quoted at the NSE. Results of random effects regression and hypothesis testing are presented. Finally, deliberations on the findings based on the hypothesis are presented in the chapter.

5.2 Hypothesis Testing

After conducting the panel data diagnostic tests and taking necessary remedial actions to correct any violation of the cardinal ordinary least squares requirement identified, the study proceeded to hypothesis tests. Panel regression analysis was conducted at 95% confidence level to test hypothesized relationships. A panel data set integrates several entities which can be subjected to several trials at different time frames.

Panel regression analysis was deemed necessary to capture both cross sectional and longitudinal dimensions. The study sought to investigate the relationship between CG attributes, corporate social investment, investment in information technology and FP of firms quoted at the NSE. Secondary panel data contained in firms' annual reports and financial statements for the periods

between 2010 to 2019 was used. The panel dataset is unbalanced, covers 47 corporation quoted at the NSE and 424 study observations for the period 2010 to 2019.

5.3 Relationship between Corporate Governance and Financial Performance of Companies Listed at the NSE

First objective was to establish the effect of CG on FP of firms quoted at the NSE. The following hypothesis was formulated.

H_{01}: There is no relationship between corporate governance and financial performance of companies listed at the NSE.

5.3.1 Hausman Specification Test

The Hausman specification test used revealed that random effects model was the preferred model to fixed effect (Green, 2008). The test ascertains whether there exists some relation between unique errors (u_i) and the regressors. Null hypothesis being that they are not. Table 5.1 below shows the results of Hausman test. Since p-value>0.005, random effects model will be used.

Table 5.1

Hausman Test to Choose Fixed or Random Effect

Chi-square statistic	P-Value
1.96	0.5808

Source: Research Data

Null Hypothesis: The appropriate model is Random effects.

5.3.2 Random Effect Model

The study examined the association between CG and FP of firms quoted at the NSE. Results of Hausman test in Table 5.4 indicated that a random effects model was suitable. The results of panel

regression analysis are shown in Table 5.5. Random Effect Model was run with the robust option to ensure that the covariance estimator can handle heteroscedasticity of unknown form.

Table 5.2

Random Effect Model, Dependent Variable:FP, Predictors: BS,BG and ID

	(1)
VARIABLES	Model 1
BS	0.309**
	(0.131)
BG	-0.190**
	(0.0780)
ID	0.00124
	(0.00640)
Constant	2.658***
	(0.321)
Observations	424
R-Squared	0.0232
Wald chi2 (3)	10.11
Prob > chi2	0.0176
Number of FIRM_ID	48

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Research Data

The results in Table 5.2 provides information about model regression coefficients showing a significant effect of both BS (β= 0.309, p<0.05) and BG (β=-0.190, p<0.05) on financial performance for the random effect model which also reveals that the association between FP and BG is negative and statistically significant.

The value of Wald Chi-Square statistic (Wald chi2 (3)) is 10.11 and p-value is 0.0176. The Wald test tested the hypothesis that one of the predictors' regression coefficient had value not equal to zero (Phillips & Park, 1988). The results from the Wald Chi-Square test reveal that all the predictors' of regression coefficients taken jointly are significant. R-squared (R^2) was 0.0232

which suggests that board size, board gender and board independence account for 2.32% of the variance in firm financial performance.

Hypothesis one (H_{01}) examined the association between financial performance (dependent variable) and corporate governance attributes in firms quoted at the NSE by suggesting that there is no significant association between CG and FP of firms quoted at the NSE. Results of this study indicate that both board size (β= 0.309, $p<0.05$) and board gender (β=-0.190, $p<0.05$) have a significant effect on financial performance of companies listed at the NSE. The findings show that 2.32% of the variance in FP of firms quoted at the NSE is accounted for by the three CG attributes namely BS, board gender and board independence. The results from the Wald Chi-Square test indicate, as a whole, the model is significant. The hypothesis was therefore rejected, meaning there is significant positive association between CG and FP of firms quoted at the NSE.

The prediction equation,

$$FP_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 BG_{it} + \beta_3 ID_{it} + u_{it}$$

Where;

FP_{it}= Financial performance, BS_{it} = Board size, BG_{it} = Board Gender and ID_{it} = Board independence:

$$FP_{it} = 2.658 + 0.309 BS_{it} - 0.190\, BG_{it} + 0.00124 ID_{it} + u_{it}$$

5.4 Corporate Governance, Corporate Social Investment and Firm Financial Performance

The second objective of the study was to investigate how corporate social investment affect the association between CG and FP of firms quoted at the NSE. Panel regression analysis was utilized to test the hypothesized relationship. The following hypothesis was formulated.

H_{02}: The relationship between CG and FP of companies listed at the NSE is not moderated by corporate social investment.

5.4.1 Regression Model

Table 5.3

Moderating Effect Estimation Models - Dependent Variable: FP, Independent Variable: CG, and Corporate Social Investment (Moderator)

Model	Corporate Governance (Predictor/IV)	Corporate social Investment (Moderator)	Interaction Term
Model 1a	CG	CSI	-
Model 1b	CG	CSI	CG*CSI

Source: Research Data

5.4.2 Hausman Specification Test

To decide between random or fixed effects, Hausman test was leveraged whereby the null hypothesis that the ideal model is random effects verse the alternative hypothesis of the fixed effects (Green, 2008). Table 5.4 shows the results of Hausman test. Since p-value>0.05, random effects model will be used.

Table 5.4

Hausman Test to Choose Fixed or Random Effect

Model	Chi-square statistic	P-Value
Model 1a	1.22	0.5440
Model 1b	5.11	0.1636

Source: Research Data

Null Hypothesis: The appropriate model is Random effects.

5.4.3 Regression Analysis

The moderating effect of corporate social investment on the relationship between CG and FP of firms quoted at the NSE was calculated using the technique proposed by Baron and Kenny (1986). Baron and Kenny (1986) discussed steps for testing moderating effect as follows.

Step1: Estimated relationship between dependent variable, moderator and independent variable (model 1a) using panel regression analysis guided by Hausman test and expected a statistically significant model.

Step 2: An interaction term was computed as centered independent variable multiplied by centered moderator. Centering was achieved by subtracting mean from a variable. This estimated relationship between dependent variable, independent variable, the moderator and the interaction term (model 1b) to determine and check whether the moderator variable altered the strength of the causal relationship.

5.4.4 Moderating Effect Estimation Models

Random effect model was run with the robust option to ensure that the covariance estimator can handle heteroscedasticity of unknown form.

In step 1 (model 1a), the random effect model estimator was used to estimate how corporate social investment affect the relationship between corporate governance and financial performance of companies listed at the NSE.

The results in Table 5.5 of the Wald Chi-Square test indicate that model 1a as a whole (all the predictors' regression coefficients taken jointly) is significant (p-value<0.05). Furthermore, CSI (β= 0.0117, p<0.1) is significant predictor of FFP. Corporate governance is not significant predictor of FFP (β= -0.296, p>0.05) R^2 was 0.0280 which suggests that corporate governance (independent variable) and CSI (moderator) jointly account for 2.8% of the variance in firm financial performance (dependent variable).

Table 5.5

Panel Random–Effects Regression Results, Dependent Variable: FFP, Predictors: Corporate Governance (CG), Corporate Social Investment (CSI) and Interaction Term (CG*CSI)

	(1)	(2)
VARIABLES	Model 1a	Model 1b
CG	-0.296	-0.293
	(0.189)	(0.208)
CSI	0.0117*	0.0118*
	(0.00678)	(0.00668)
CG*CSI		-0.00108
		(0.0556)
Constant	3.305***	3.303***
	(0.160)	(0.170)
Observations	424	424
Number of FIRM_ID	48	48
R-Squared	0.0280	0.0280
Wald chi2(2)	9.85	9.90
Prob > chi2	0.0073	0.0194

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Research Data

In step 2 (model 1b), the interaction term (CG*CSI) was introduced in the panel regression model. Random effect model was run to estimate the relationship between CG (independent variable), corporate social investment (moderator), interaction term and the dependent variable (FFP). The Wald Chi-Square test results in Table 5.8 indicate that all the predictors' regression coefficients taken jointly are statistically significant (p-value<0.05). Furthermore, corporate social investment (β= 0.0118, p<0.1) is a significant predictor of firm financial performance.

The interaction term (CG*CSI) was not statistically significant (p>0.05). R-squared was 0.0280 which suggests that corporate governance (independent variable), corporate social investment (moderator) and the interaction term (CG*CSI) combined are responsible for 2.8% of the variance in FFP (dependent variable). Since the R^2 did not change after introducing interaction term in the RE model and the interaction term was not statistically significant, we therefore conclude that corporate social investment does no moderate the relationship between CG and firm financial performance. This study reveals that CSI is a significant predictor of FFP but it does not moderate the relationship between CG and FFP.

The prediction equation

$$FP_{it} = \beta_0 + \beta_1 CG_{it} + \beta_2 (CSI)_{it} + \beta_3 (CG * CSI)_{it} + u_{it}$$

Where;

FP_{it}= Financial performance, CG_{it} = Corporate governance, CSI_{it} = Corporate social investment and $CG * CSI$ is the interaction term.

$$FP_{it} = 3.305 - 0.296 CG_{it} + 0.0117 CSI_{it} - 0.00108 (CG * CSI)_{it} + u_{it}$$

5.5 Corporate Governance, Information Technology Investment, and Firm Financial Performance

The third objective is to determine the mediation effect of information technology investment on the association between CG and FP of firms quoted at the NSE. The following hypothesis was tested:

H_{03}: There is no intervening effect of information technology investment on the relationship between CG and FP of firms quoted at the NSE.

The intervening effect was assessed using the technique suggested by Baron and Kenny (1986). Baron and Kenny (1986) proposed a model for testing mediation has four steps for testing the intervening effect of an intervening variable on the association between the dependent and independent variable.

Panel regression was performed in step one to evaluate the association between FFP and CG ignoring the information technology investment (intervening variable).

In step 2 of the mediation model, panel regression analysis was undertaken to evaluate the association between information technology investment and corporate governance ignoring firm financial performance.

In step 3 of the mediation model, regression analysis was carried out to examine the association between information technology investment (mediator) and firm financial performance (dependent variables) disregarding the corporate governance. In step four of the mediation model, panel regression analysis was undertaken to examine the association between firm financial performance, disregarding information technology investment (intervening variables) and corporate governance.

Intervention arises if the following four conditions are met in each of the steps of the mediation model according to Baron and Kenny (1986). Where independent variable has a significant impact on the dependent variable in the first regression model as well as a significant impact on the mediator in the second regression model. Thirdly, in the model, the intervener should significantly influence the dependent variable. In the fourth equation, the independent and mediator variables are introduced as predictors. The model should generally be statistically significant.

Absolute mediation is said to exist if independent variable does not impact dependent variable upon the control of the mediator variable and all these conditions are controlled. On the other hand, mediation occurs when the power of the independent variable on the dependent variable ceases once mediator is controlled.

5.5.1 Hausman Specification Test

Hausman test was used to choose random effect model as the preferred to fixed effects model.

Table 5.6

Random–Effects Regression Results, Dependent Variable: Firm Financial Performance, Predictor: Corporate Governance

	(1)
VARIABLES	Model 1
CG	-0.239
	(0.203)
Constant	3.338***
	(0.145)
Observations	424
Number of FIRM_ID	48
R-Squared	0.0004
Wald chi2(1)	1.40
Prob > chi2	0.2373

Robust std errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Research Data

In step 1, panel Random Effect Model was run to estimate the association between firm financial performance and CG while disregarding the mediator variable. The results of panel regression results are presented in Table 5.6. The results of Wald Chi-Square test indicate that the model as a whole was not significant. The model regression coefficient of corporate governance (β= -0.239, p>0.05) was also not statistically significant. Meaning CG does not predict FFP.

Table 5.7

Random–Effects Regression Results, Dependent Variable: Information Technology Investment, Predictor: Corporate Governance

	(1)
VARIABLES	Model 1
CG	0.124
	(0.115)
Constant	0.0816
	(0.0764)
Observations	424
Number of FIRM_ID	48
R-Squared	0.0065
Wald chi2(1)	1.16
Prob > chi2	0.2820

Robust std errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Research Data

Step 2 regression analysis examined the association between information technology investment and corporate governance ignoring firm financial performance. As per Table 5.7 regression results was not statistically significant. The panel regression model showed that R^2 was 0.0065. CG explained 0.65% of the variance in information technology investment. The model regression

coefficient of corporate governance (β= 0.124, p>0.05) was insignificant. Wald Chi-Square test indicated that the model as a whole was not significant.

In step 3, using regression analysis, the association between information technology investment (intervening variable) and firm financial performance (dependent variable) was examined disregarding CG. Wald Chi-Square test, in Table 5.8 indicate that the model as a whole was not statistically significant. The model regression coefficient of information technology investment (β= -0.00626, p>0.05) was not statistically significant.

Table 5.8

Panel Random–Effects Regression Results, Dependent Variable: Firm Financial Performance, Predictor: Information Technology Investment

	(1)
VARIABLES	Model 1
ITI	-0.00626
	(0.127)
Constant	3.189***
	(0.0472)
Observations	424
Number of FIRM_ID	48
R-Squared	0.0012
Wald chi2(1)	0.00
Prob > chi2	0.9607

Robust std errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Research Data

In step 4 of the mediation model, panel regression analysis evaluated the association between FFP, information technology investment and CG. The Wald Chi-Square test results presented in Table 5.9 indicate that the model as a whole was not statistically significant. Results of this study show that corporate governance (β= -0.241, p>0.05) is not a significant predicator of firm financial performance. The model regression coefficient of ITI (β= 0.00428, p>0.05) was also not statistically significant.

Table 5.9

Panel Random–Effects Regression Results, Dependent Variable: Firm Financial Performance, Predictors: Corporate Governance and Information Technology Investment

	(1)
VARIABLES	Model 1
CG	-0.241
	(0.199)
ITI	0.00428
	(0.123)
Constant	3.339***
	(0.147)
Observations	424
Number of FIRM_ID	48
R-Squared	0.0003
Wald chi2(2)	1.53
Prob > chi2	0.4649

Robust std errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Research Data

5.5.2 Direct Effect

Panel regression analysis was used to test if the independent variable is correlated with the dependent variable (step 1 of the mediation model). This is necessary to establish if there is an

effect that may be intervened. The whole model, as found by Wald Chi-Square, is not statistically significant.

5.5.3 Intervention Model

To establish if the information technology investment intervenes the relationship that exists between CG and FFP, the model should be statistically significant in step1 of the intervention model meaning the effect of ITI on firm financial performance controlling for intervention should be statistically significant. However, study results have indicated that the relationship is insignificant. Furthermore, the causal variable (corporate governance) should be correlated with the intervener and the relationship should be statistically significant (step 2 of the intervention model).

Study results showed the model was not statistically significant (p>.05). In step 3 of the intervening test, the relationship between the intervener and the dependent variable should be significant. Study results indicate that ITI not a significant predictor of FFP. The relationship between financial performance, ITI and corporate governance was also not statistically significant. It is therefore, evident that ITI has no intervening effect on the association between CG and firm financial performance.

Predicted equation

$FP_{it} = \beta_0 + \beta_1 CG_{it} + \beta_2 ITI_{it} + u_{it}$

Where;

FP_{it} = Financial performance, CG_{it}= Corporate governance, ITI_{it}= information technology investment.

$FP_{it} = 3.339 - 0.241CG_{it} + 0.00428ITI_{it} + u_{it}$

5.6 Corporate Governance, Corporate Social Investment, Information Technology Investment and Firm Financial Performance

The last objective of the research was to investigate the joint effect of CG, corporate social investment, and information technology investment on FP of firms quoted at the NSE. Panel regression analysis was utilized to test the hypothesized relationship. The following hypothesis was formulated.

H_{04}: The joint effect of CG, corporate social investment, and information technology investment on FP of firms quoted at the NSE is not statistically significant.

5.6.1 Hausman Specification Test

To deliberate between fixed/random effects model, Hausman test was utilized on null hypothesis that the ideal model is random effects verses alternative fixed effects model (Green, 2008). Table 5.10 shows the results of Hausman test. Since p-value>0.005, random effects model will be used.

Table 5.10

Hausman Test to Choose Fixed or Random Effect

Chi-square statistic	P-Value
1.57	0.9048

Null Hypothesis: The appropriate model is Random effects.
Source: Research Data

5.6.2 Random Effect Model

The study examined the joint effect of attributes of corporate governance, corporate social investment, and information technology investment on FP of firms listed at the NSE. Results of

Hausman test selected random effects model as appropriate (Table 5.10). The findings of panel regression analysis are shown in Table 5.11. Random Effect Model was run with the robust option to ensure that the covariance estimator can handle heteroscedasticity of unknown form.

Table 5.11

Random Effect Model, Dependent Variable: FP, Predictors: BS, BG, ID, ECO, ENV, SOC, HW and SW

	(1)
VARIABLES	Model 1
BS	0.258*
	(0.143)
BG	-0.198***
	(0.0762)
ID	0.00103
	(0.00679)
ECO	3.40e-06*
	(1.87e-06)
ENV	2.05e-06
	(3.15e-06)
SOC	1.41e-06*
	(8.36e-07)
HW	0.255
	(0.360)
SW	-0.0722
	(0.0900)
Constant	2.765***
	(0.353)
Observations	424
Number of FIRM_ID	48
R^2	0.0548
Wald chi2 (8)	19.43
Prob > chi2	0.0127

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Research Data

Table 5.11 provides information about model regression coefficients. Random effects model results show that BS (β= 0.258, p<0.1), BG (β= -0.198, p<0.01), ECO (β= 3.40e-06, p<0.1), SOC (β= 1.41e-06, p<0.1) have a significant impact on FP of corporates quoted at the NSE. The random effects model shows that the relationship between FP, ID, ENV, HW and SW is not statistically significant as depicted in Table 5.11.

The value of Wald Chi-Square statistic (Wald chi2 (8)) is 19.43 and p-value is 0.0127. The Wald Chi-Square results indicate that all the predictors' regression coefficients taken jointly are significant. R-squared was 0.0548 which suggests that BS, BG, ID, INV, ECO, SOC, HW and SW account for 5.48% of the variance in firm financial performance.

Hypothesis four (H_{04}) examined the relationship between CG, corporate social investment, and information technology investment on FP of firms quoted at the NSE by suggesting that the joint effect of corporate governance, corporate social investment, and information technology investment on FP of firms quoted at the NSE is statistically insignificant. Results of this study indicate that board size, board gender, investment in economic activities and projects (ECO), investment in social activities and projects (SOC) all have significant effect on FP of firms quoted at the NSE. The random effect model further indicates that 5.48% of the deviation in listed firm's financial performance is accounted for by corporate governance, corporate social investment, and information technology investment attributes.

The whole model, as found by Wald Chi-Square, is statistically significant. The hypothesis was therefore rejected meaning that the joint effect of CG, corporate social investment and information technology investment on FP of corporations listed at the NSE is statistically significant.

The prediction equation:

FP_{it}= β_0+ $\beta_1 BS_{it}$ + $\beta_2 BG_{it}$ +$\beta_3 ID_{it}$ + $\beta_4 ECO_{it}$ + $\beta_5 ENV_{it}$ + β_6 SOC_{it} + $\beta_7 HW_{it}$ + β_8 INF_{it} + β_9 SW_{it} +u_{it}

FP_{it} = β_0+ $\beta_1 BS_{it}$+$\beta_2 BG_{it}$+$\beta_4 ID_{it}$ + $\beta_5 ECO_{it}$ + $\beta_6 ENV_{it}$+ β7 SOC_{it}+$\beta_8 HW_{it}$+ β_{10} SW_{it}+$\boldsymbol{\varepsilon}_i$

FP_{it} = 2.765 + 0.258BS_{it} − 0.198BG_{it} + 0.00103ID_{it}+3.40e−06ECO_{it}+2.05e-06ENV_{it}+1.41e-06SOC_{it} + 0.255HW_{it} − 0.0722SW_{it} + $\boldsymbol{\varepsilon}_i$

5.7.3 Relationship between Corporate Governance, Corporate social Investment and Information Technology Investment on Firm Financial Performance

The study further examined the joint effect of composite scores of corporate governance corporate social investment and information technology investment on FP of firms quoted at the NSE. Hausman test results allude that a random effects framework was suitable as per Table 5.12. Panel regression analysis in Table 5.12 are the results. RE model was run with the robust option to ensure that the covariance estimator can handle heteroscedasticity of unknown form.

Table 5.12

Random Effect Model, Dependent Variable: FFP, Predictors: BS, BG, ID, CSI and ITI

VARIABLES	(1) Model 1
BS	0.219
	(0.141)
BG	-0.225***
	(0.0757)
ID	0.00109
	(0.00679)
CSI	0.0124*
	(0.00747)
ITI	0.0230
	(0.0259)
Constant	2.922***
	(0.371)
Observations	424
Number of FIRM_ID	48
R-Squared	0.0619
Wald chi2 (5)	19.61
Prob > chi2	0.0015

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Research Data

Table 5.12 provides information about model regression coefficients. The results of the random effects model indicate that BS (β= 0.219, p<0.1), BG (β= -0.225, p<0.01), ID (β= 0.00109, p<0.1), CSI (β= 1.0124, p<0.1), ITI (β= -0.0259 p<0.1 have a significant impact on FP of institutions quoted at the NSE. The random effects model shows that the nexus between FP, BG ID, and ITI is statistically insignificant as presented in Table 5.12.

The value of Wald Chi-Square statistic (Wald chi2 (8)) is 19.61 and p-value is 0.0015. This means that all the predictors' regression coefficients taken jointly are significant. R-squared was 0.0619 which suggests that board size, board gender, board independence, CSI and ITI account for 6.19% of the variance in firm financial performance.

Hypothesis four (H_{04}) analyzed the relationship between CG, corporate social investment, and information technology investment on FP of firms quoted at the NSE by suggesting that the joint effect of CG, corporate social investment, and information technology investment on FP of firms quoted at the NSE is statistically insignificant. Results of this study indicate that board size, board gender, independent directors, corporate social investment and investment in information technology have a significant impact on FP of corporations quoted at the NSE. The random effect model further indicates that 6.19% of the changes in financial performance of firms quoted at the NSE are accounted for by corporate governance, corporate social investment, and information technology investment attributes.

The whole model, as found by Wald Chi-Square, is statistically significant. The hypothesis was therefore rejected meaning that the joint effect of CG, corporate social investment and information technology investment on FP of firms listed at NSE is statistically significant.

The prediction equation:

$FP_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 BG_{it} + \beta_3 ID_{it} + \beta_4 CSI_{it} + \beta_5 ITI_{it} + u_{it}$

BQ was constant for all study observations and was therefore omitted during analysis.

$FP_{it} = 2.922 + 0.219BS_{it} - 0.225BG_{it} + 0.00109ID_{it} + 0.0124CSI_{it} + 0.0230ITI_{it} + \boldsymbol{\varepsilon}_i$

5.7 Discussion of Findings

The general objective of the study was to determine the relationship among corporate governance, corporate social investment, information technology investment and financial performance of companies listed at the NSE. This section discusses and summarises the findings within the context of the research hypothesis.

5.7.1 Relationship between Corporate Governance and Financial Performance of Companies Listed at the NSE

Hypothesis one (H_{01}) examined the association between financial performance (dependent variable) and corporate governance attributes in firms quoted at the NSE by suggesting that there is no significant association between CG and FP of firms quoted at the NSE. Study results indicate the link between FP and BG is negatively significant hence a research gap based on the works of previous studies that found the role of women on the board improves decision making quality and FP of the firm (Bathula, 2008). Whereas board gender composition is important, the presence of female gender on the board does not improve companies' operation and FFP unless they are competent. The researcher holds the view that whether gender diversity helps improve firm's financial performance, factors like experience, education and assertiveness of female directors are key (Manini & Abdillahi, 2015).

The relationship between FFP and BS is positively significant. These study findings show that unit increase in the board size leads to increase on the FFP. Ongore et al. (2015) found the same. The study finding is inconsistent with Cheng, Evans and Nagarajan (2008) who established no significant association between BS and FFP and concluded that board size increase in number does not increase in firm financial performance. Andres and Valelado (2008) argument that a large board is more appropriate to a small size due to possibility of specialization that causes effective advising and monitoring functions is not supported by this study's findings. Moreover, Shakir (2008) states that BS does not portray its effectiveness.

Board independence has no significant influence on firm financial performance (β= 0.00124, p>0.05). From the study findings, a board member's independence is not a predictor of FP of firms quoted at the NSE. The findings are supported by Nicholson and Kiel (2007) who claimed inside directors have deeper understanding about the firm than outsiders. In similar argument, Brennan (2006) concludes that independent directors are from outside and visit the company occasionally thus they lack inside information which inhibits such directors the inside information that in turn reduces their competence to perform their duties.

5.7.2 Corporate Governance, Corporate Social Investment and Firm Financial Performance

The second hypothesis of the study was to investigate how corporate social investment affect the association between CG and FP of firms quoted at the NSE. This study reveals that CSI is a significant predictor of FFP but it doesn't moderate the relationship between CG and FFP. This study finding is consistent with Muhammad et al. (2017) who found a positive interaction of CSI on FFP meaning investing in corporate social development brings long term value to the firm. As a limitation of their study, Muhammad et al. (2017) state their paper presents a contextual gap as it was conducted in Australia, a reason their results may be inconsistent across other nations due to varying codes of corporate governance among countries.

Machdar (2019) established that CSI does not mediate the association between CG and CFP. The research utilized content analysis that can easily yield to interpretative errors as well as being subjective. Whereas this study utilized variables recommended by GRI to estimate the standard model of CSI still found the same results as (Machdar, 2019). Similar finding to this research is that of Muhammad et al. (2017) who found that CSI is a predictor of FP of the bank and recommended that there is still room for more research using CSI measures such as policies and

companies' investment in environmentally friendly projects. An attribute included to measure CSI in this research.

5.7.3 Corporate Governance, Information Technology Investment, and Firm Financial Performance

The third hypothesis was to determine the mediation effect of information technology investment on the association between CG and FP of firms quoted at the NSE. Study results indicate that ITI was not a significant predictor of FFP. The relationship between financial performance, ITI and corporate governance was also not statistically significant.

It is therefore, evident that ITI has no intervening effect on the association between CG and firm financial performance. This differs from the finding of Muawanah and Gunadi (2018) that ICT capability contributes to the overall value creation for companies' performance. They also argued that besides these promising influences of IT adoption on the organization, further research indicates discrepancies of the impact on firm financial performance. Sabherwal and Jeyaraj (2015) state that even a broader investigation which studied relationship between ITI and FFP revealed contradictory evidence. They showed that variables, measurements and data involved in a study might affect the results.

Concluding from this study model, different levels of CG's adoption of IT may differently impact firm financial performance. Similarly, existing evidence shows that many firms that lie behind the technology curve indulge in high IT investments but derive fewer benefits from IT (Nolan, 1994). Inference of these results underlines the need for more research on optimal use of IT resources as opposed to embarking on more investments and supports this study's view on strategic driven IT investment.

5.7.4 Corporate Governance, Corporate Social Investment, Information Technology Investment and Firm Financial Performance

The last hypothesis of the research was to investigate the joint effect of CG, corporate social investment, and information technology investment on FP of firms quoted at the NSE with H_{04} suggesting that the combined effect of CG, corporate social investment, and information technology investment on FP of firms quoted at the NSE is not statistically significant.

Results of this study indicate that board size, board gender, investment in economic activities and projects (ECO), investment in social activities and projects (SOC) all have a significant effect on FP of firms quoted at the NSE. The random effect model further indicates that 5.48% of the deviation in listed firm's financial performance is accounted for by corporate governance, corporate social investment, and information technology investment attributes.

The whole model, as found by Wald Chi-Square, is statistically significant. The hypothesis was therefore rejected meaning that the joint effect of CG, corporate social investment and information technology investment on FP of corporations listed at the NSE is statistically significant.

Hypothesis four (H_{04}) analysed the relationship among CG, corporate social investment, and information technology investment on FP of firms quoted at the NSE by suggesting that the joint effect of CG, corporate social investment, and information technology investment on FP of firms quoted at the NSE is statistically insignificant. Results of this study indicate that corporate governance, corporate social investment and investment in information technology have a significant impact on FP of corporations quoted at the NSE. The random effect model further indicated that corporate governance, corporate social investment, and information technology investment account for 6.19% of the changes in financial performance of firms quoted at the NSE.

Matama (2008) study found similar results that is a general positive link among CG, ITI and financial performance of four selected banks in Uganda and argued that corporate governance is an institutional factor steering sustainability. Levy (1999) assertion that philanthropy and social effect are the body corporates' heart and soul due to brand building is acknowledged by this study finding. Finally, this study upholds the argument by Nwala et al. (2020) that corporate social investment and information technology investment do not erode profitability.

Table 5.13

Summary of Tests of Study Findings, Study Hypotheses, Interpretation and Implications

Objective	**Hypothesis**	**Statistical Tests/ Study Findings**	**Interpretation and Implication**
To establish the effect of CG on FP of firms quoted at the NSE	**H_{01}**: There is no significant relationship between CG and FP of firms quoted at the NSE.	Panel regression analysis was utilized. The survey established a significant association	The hypothesis was rejected meaning existence of a significant association between CG and performance.
To investigate how corporate social investment affect the association between CG and FP of firms quoted at the NSE	**H_{02}:** The relationship between CG and FP of firms listed at the NSE is not moderated by corporate social investment.	Panel regression analysis was utilized. The research established a not statistically significant relationship but showed CSI as a predictor of FFP when CG is ignored	The findings of hypothesis two conclude that corporate social investment does not moderate the association that exist between CG and financial performance. Further when CSI is considered on its own predicts FFP.
To determine the effect of information technology investment on the association between CG and financial performance of firms quoted at the NSE	**H_{03}:** There is no intervening effect of ITI on the relationship between CG and FP of companies listed the NSE.	Panel regression analysis was used. The study establishes a not statistically significant relationship but revealed that ITI on its own is a predictor of FFP.	The findings fail to reject hypothesis three that ITI does not intervene on the association amid CG and FP of firms quoted at the NSE but ITI is a predictor of FFP on its own.
To determine the joint effect of CG, corporate social investment and information technology investment on FP of corporates listed at the NSE.	**H_{04}**: The joint effect of corporate governance, corporate social investment, and information technology investment on FP of corporates listed at the NSE is not significant	Panel regression analysis was used. The findings show that the model as whole was significant.	Hypothesis four was rejected hence affirmation of positive relationship among corporate governance, corporate social investment and information technology investment on firm financial performance

Source: Researcher 2022

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The study had four hypotheses tested to achieve the objectives. Chapter six summarizes the study findings from the tested hypotheses, conclusions from the results and the study contribution to knowledge, practice and policy. The suggestions for future research and limitation of the study are stated.

6.2 Summary of Findings

The study's main objective was to determine the relationship among corporate governance, corporate social investment, information technology investment and financial performance of companies listed at NSE. Corporate governance alone does not explain the variability in the firm's performance, which by inference, stakeholder theory as argued by Freeman (1984) and transaction cost theory Ciborra (1981) infer those other factors including investment in corporate social activities and information technology respectively influence the relationship. The findings of this study give conflicting results on the nature and strength of relationships.

Correlation results reveal a very weak and positively significant association between firm financial performance and corporate social investment, (r=0.1744*, p<0.05) meaning that an improvement in company financial performance is correlated with increase in corporate social investment. The relationship between firm financial performance and ITI is very weak, positive and non-statistically significant (r =0.0351, p<0.05), meaning that changes in firm financial performance were not correlated with changes in ITI.

The relationship between firm financial performance and CG shows a very weak, positive and statistically significant association ($r=0.0189$, $p<0.05$) meaning that an improvement in company financial performance is positively correlated with corporate governance.

A Pearson product-moment correlation coefficient conducted on the study variables indicated a weak and positively significant association between information technology investment and corporate social investment ($r=0.1482$*, $p<0.05$). This means that increase in information technology investment is correlated with increase in corporate social investment. Similarly, the association between corporate governance and corporate social investment was positively weak and statistically significant ($r=0.2713$*, $p<0.05$), hence supporting the view that increase in CSI has a positive correlation with CG. The association between CG and ITI was positively very weak and statistically significant ($r=0.0804$, $p<0.05$), an indication that increase in ITI is correlated with increase in corporate governance.

Objective one was to establish the impact of CG on FP of firms quoted at the NSE with hypothesis one (H_{01}) suggesting that there is no significant association between CG and FP of firms quoted at the NSE. Results of this study indicate that 2.32% of the variance in listed firm's FP at the NSE is accounted for by the three CG attributes board size, independent directors and board gender with the model as a whole being statistically significant hence rejection of the hypothesis. This means that there is significant association between CG and listed companies' FP. Owieredu and Kwakye (2020) found progressive relationship between size of the board and FP of Ghanaian banks. This is consistent with this study that shows the relationship between FFP and BS as positive and significant meaning that any increase in the board size results in increased financial performance.

The second objective is to investigate how corporate social investment affect the association between CG and listed companies' FP with hypothesis two suggesting that the association between CG and FP of firms quoted at the NSE is not moderated by corporate social investment. The conclusion is that CSI does not moderate the association amid CG and FFP known that the interaction term (CG*CSI) was not statistically significant (r^2 =0.0280, p>0.05). Mangantar (2019) also found that CSI has no significant moderating effect on the same variables. The findings are inconsistent with Muhammad et al. (2017) found positive moderating effect of CSI on the association between CG and banks' financial performance but disclaimed that finding of negative impact may be that initial investment in CSI outweigh costs but futuristically CSI can create value for the company. Further, the results reveal that CSI is a direct significant predictor of FFP (β =0.0118, p<0.1).

The third study objective sought to ascertain the mediation effect of information technology investment on the association between CG and FP of firms quoted at the NSE. Hypothesis three claimed no intervening effect of information technology investment on the relationship between CG and FP of companies listed at the NSE. The results are that the relationship is not statistically significant (β =0.00626, p>0.05) meaning that ITI has no intervening effect on the association between CG and FP. This differs from the finding of Muawanah and Gunadi (2018) who revealed that ITI makes positive intervening contribution on the association between CG and FFP and argue that this promising influence of IT adoption on the organization, further research indicates discrepancies of the impact on FP. This study finding underlines the need for more research on optimal use of ICT resources as opposed to embarking on more investments that are not strategically driven. Other findings are that ITI, ignoring the impact of CG, is a predictor of CFP as also found by (Mahboub, 2018).

The study's last objective was to investigate the combined effect of CG, CSI and information technology investment on FP of firms quoted at the NSE. With H_{04} being that the combined effect of CG, corporate social investment, and information technology investment on FP of firms quoted at the NSE, is statistically insignificant. Results of this study indicate that board size, board gender, independent directors, corporate social investment and investment in information technology have a significant effect on FP of firms quoted at the NSE leading to rejection of the hypothesis. The study provides evidence indicating that corporate governance, corporate social investment, and information technology investment account for 6.19% of the changes in financial performance of companies listed at NSE. This finding is unique to this study. There are no comparative studies in the literature reviewed so far that has the four variables combined that is corporate governance as independent variable, corporate social investment as moderating variable, information technology investment as intervening variable and firm financial performance as dependent variable in a single study.

6.3 Conclusions

The conclusion is that CG affects firm financial performance. Whereas corporate social investment has no moderating effect, it is a predictor of FFP. ITI has no intervening effect on the relationship between CG and FFP nor, on its own, a predictor of FFP. Corporate governance, corporate social investment and information technology investment jointly positively affect FFP.

The study concludes that CSI does not intervene the relationship between CG and FFP. Whereas CG, in isolation has significant effect on FFP, when intervened by CSI, the effect becomes weak and insignificant but CSI on its own positively predicts FFP. The implication of this finding, therefore a recommendation, is that as much as companies engaging in CSI may not necessarily

find CSI as a moderator, CSI on its own is a significant predictor of financial performance. GRI (2012) states that CSI processes have a positive brand building image that gunners loyalty from new and existing clients so an environment without a healthy consumer preferences, no profits will be recorded hence firms that invest into CSI initiatives are promoting a prosperous future in the economy.

The study concludes that ITI does not significantly intervene the relationship of CG and FFP. The study, further, reveals that ITI is not a significant predictor of FFP. Mahboub (2018) found the same. Similarly, existing evidence shows that many firms that lie behind the technology curve indulge in high IT investments but derive fewer benefits from ITI (Nolan, 1994). The inference of these results, and thus these study findings too, underlines the need for more research on optimal use of ICT resources as opposed to embarking on more investments. Based on this study findings, the researcher recommends a strategic driven IT investment.

Overly, the study finds that the joint effect of CG, CSI and ITI on FFP is significant. The study reveals that board size, board gender, investment in economic activities and projects, investment in social activities and projects all have significant effect on FFP. Meaning that corporate governance, corporate social investment and ITI joint attributes have a positive significant effect on FFP. The joint effect of CG, CSI and ITI on performance of companies listed at NSE is consistent with the contents of agency theory, stakeholder theory and transaction cost theory which suggest that corporate governance, corporate social investment and information technology investment are intertwined towards financial performance of companies.

Companies are therefore encouraged, in their corporate governance to strategically consider CSI and ITI for overall improvement in FFP.

6.4 Contribution of the Study

The study's empirical evidence make contribution to the knowledge, policy, practice and theory on the relationship among CG, CSI, ITI and FFP. The study creates need to relook at transaction cost theory by developing more fields hence additional work to match theoretical formulation to practice. The study's specific contribution to knowledge, policy and theory is discussed below.

6.4.1 Contribution to Knowledge

The study's findings contribute to existing literature on the relationship among CG, CSI, ITI and FFP. First the study adduces evidence that there is a direct link amidst CG and FFP. The study also adds to knowledge that whereas corporate social investment and information technology investment do not respectively have moderating nor intervening effect on the association between CG and FP of the company, they are independent predictors of firm financial performance.

Secondly, the study evaluated the consequence of CSI on the link between CG and FFP and found that CSI is a predictor of FFP but not a moderator. Nguyen and Nguyen (2020) also found that CSI has a significant influence on FFP. Other previous study findings have not only been inconclusive but also contradictory, for instance Mangantar (2019) found that CSI effect on the FFP is insignificant. The researcher argues that use of Baron and Kenny (1986) model in the analysis adds more impetus considering that the model only gives results when its three steps are strictly observed before a mediation occurs making the findings of this study more profound in the evaluation of moderating effect. The study gives collaborative evidence to prior studies by firming that CSI on its own improves the companies' profitability, knowledge that can be used by the company management to rescue companies from collapse.

Finally, the study provides evidence that the combined effect of CG, corporate social investment and information technology investment on quoted firm's FP is positively statistically significant. Considering the argument that the business of business is business hence philanthropic activities have no place at the board of directors' table while ITI eats into the companies' profit has been disapproved by this finding. Company governors can understand from this that philanthropic activities, as much as are at a cost, create a conducive environment for business via brand building that leads to increased sales. Though investment in IT can be a heavy cost to a business entity, this study shows that company managers can use ITI in combination with CG and CSI to improve financial performance of companies.

6.4.2 Contribution to Policy and Practice

The study's findings aid the board of directors, company management, investors and regulators in decision making. The effect of CG on FFP as found in this study has implication to the governance of a company in as far as the composition of the board of director's impacts companies in financial performance. This is particularly so now given that positive and significant link exists between CG and FFP. Boards that are properly constituted as per the CG attributes used in this study and within the study findings may result in effective CG that propels agents' interest to those of the principal (stakeholders).

The study also assists the management to link the effect of management investment decision to FFP. In this regard, the management may have to reconsider areas to invest in as far as CSI is concerned by focusing more to those CSI attributes that matter as well as strategically invest in IT. Regulators like NSE and CMA may use the study findings in their supervisory role. In particular, NSE may use the study findings to aid in revision of NSE's rules and guidelines in terms of registration and deregistration of the companies.

6.4.3 Contribution to Theory

This study relied on a positivistic approach since it relied on evidence and statistics to determine the relationship among variables. The finding contributes to theory by outlining the relationship among variables. The study provides evidence suggesting that CSI is a predictor of FFP. This means that by companies engaging in philanthropic activities, increases company's profits hence shareholder wealth which agency theory advocates for. The company's environmental performance improves efficiency and effectiveness through a reduction of resource costs, energy and costs associated with amenability with environmental legislation, and business operations costs (Lister, 2018). Amran, Azlan, Lim, Ling and Sofri (2007) posit that the interests of shareholders and agents (managers) who make decisions about CSI are conflicting and opposed. The study finding as a contribution to theory is indifferent to Amran et al. (2007), by implying that rather conflict, stakeholder theory compliments agency theory by first building the brand of the company, which in itself is in the interest of shareholders that agency theory advocates. Moreover, stakeholder theory assumptions encompass the various identities of stakeholders, that is, third parties' interests and the study reveals how these third party interests positively affect company's profitability and return to the equity owners.

6.5 Limitation of the Study

The study had its limitation but as much as mitigation were made towards it, admittedly it was never possible to eliminate all of them. The study used secondary data extracted from NSE annual reports. These being reports for other purpose not meant for research, any shortcomings in the data reported could have affected the reliability of the study findings. This was eliminated by careful extraction of only complete and relevant data to the research.

The study used limited attributes for each of the four study variables. This therefore means that the findings have limitation as far as the attributes used in the study. The four variables have other attributes that may have been missed out in this study yet their effect could have had additional influence on the study findings.

Few companies listed at the NSE did not classify, in particular, ITI attributes in order of hardware, software and infrastructure instead clumped such expenditure in other categories of non current assets while other companies reported on corporate social investment without disclosing the expenditure. Where efforts to identify and extract such data failed, the companies were excluded from the research due to either incomplete or no data.

6.6 Suggestions for Further Study

The limitations sighted in this study give rise to numerous suggestions for future study. Further research can be initiated by using different attributes for CSI and ITI to test both intervening and moderating effect on the relationship of CG and FFP. Secondly, this study used financial performance. Similar study could use company performance rather than limit it to FP to widen scope for better collaboration. In any case the study could not include all the study variables though the attributes used for each variable provided adequate data to achieve the study objectives. This study focused on companies listed at the NSE. Similar studies can look at both public and private companies including State Corporation. Finally, a limited sample of only firms quoted at the NSE may restrict the generalization of the results not to include non-listed companies at NSE.

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APPENDICES

Appendix 1: Data Collection Form

Section A: Corporate Governance

Year	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Board Size	**Total**									
Total number of directors										
Board Gender										
Total number of directors										
Total number of female directors										
Independent Directors										
Total number of independent directors										

Section B: Corporate Social Investment

Investment In Kenya Shillings										
Activities and Projects	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Economic Activities										
Green industry										
Renewable energy										
Social Activities										
Infrastructure										
Schools										
Churches										
Others										
Environmental Projects										
Energy efficiency										
Waste management										
Alternative energy										
Recycling and recyclable products										
Clean water supply										

Section C: Information Technology Investment

Companies	Total Investments In Kenya Shillings																																					
	Total Assets										Hardware Investment									Infrastructure Investment										Software Investment									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
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Section D: Financial Performance

Companies	Earnings Per Share									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
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Appendix 2: Population

a) List of the 47 studied companies listed at the Nairobi Securities Exchange

Agricultural

1. Kapchorua Tea Kenya Plc
2. Williamson Tea Kenya Plc
3. Sasini Plc

Automobiles & Accessories

4. Car & General (K) Ltd

Banking

5. Barclays Bank of Kenya Ltd
6. BK Group Plc
7. Diamond Trust Bank Kenya Ltd
8. Equity Group Holdings Plc
9. HF Group Plc
10. I&M Holdings Plc
11. KCB Group Plc
12. National Bank of Kenya Ltd
13. NIC Group Plc
14. Stanbic Holdings PLC
15. Standard Chartered Bank Kenya Ltd
16. The Co-operative Bank of Kenya Ltd

Commercial and Services

17. Eveready East Africa Ltd
18. Express Kenya Ltd
19. Kenya Airways Ltd
20. Nation Media Group Plc
21. Sameer Africa Plc
22. Standard Group Plc
23. WPP Scangroup Plc

Construction & Allied

24. Bamburi Cement Ltd

25. Crown Paints Kenya Plc

26. E.A.Cables Ltd

27. E.A.Portland Cement Co. Ltd

Energy & Petroleum

28. KenGen Co. Plc

29. Kenya Power & Lighting Co Ltd

30. Total Kenya Ltd

Insurance

31. Britam Holdings Plc

32. CIC Insurance Group Ltd

33. Jubilee Holdings Ltd

34. Kenya Re Insurance Corporation Ltd

35. Liberty Kenya Holdings Ltd Ord. 1.00

36. Sanlam Kenya Plc

Investment

37. Centum Investment Co Plc

38. Home Afrika Ltd

39. Olympia Capital Holdings Ltd

40. Trans-Century Plc

Investment Services

41. Nairobi Securities Exchange Plc

Manufacturing & Allied

42. B.O.C Kenya Plc

43. Carbacid Investments Plc

44. East African Breweries Ltd

45. Mumias Sugar Co. Ltd

46. Unga Group Ltd

Telecommunication

47. Safaricom Plc

b) List of the 17 excluded companies listed at the Nairobi Securities Exchange

1. Eaagads Ltd.
2. Kakuzi Plc.
3. The Limuru Tea Co. Plc
4. Rea Vipingo Plantations
5. Deacons (East Africa) Plc.
6. Longhorn Publishers Plc.
7. Nairobi Business Ventures Ltd.
8. TPS Eastern Africa Ltd.
9. Uchumi Supermarket Plc.
10. Athi River Mining Plc.
11. Umeme Ltd.
12. Kurwitu Ventures Ltd.
13. British American Tobacco Kenya Plc.
14. Flame Tree Group Holdings Ltd.
15. Kenya Orchards Ltd.
16. Stanlib Fahari I-Reit.
17. New Gold Issuer (RP) Ltd.