CORPORATE GOVERNANCE AND STOCK MARKET LIQUIDITY OF FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

DAVID MAGAKI BICHANGA

DOCTOR OF PHILOSOPHY

(Finance)

JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY

2022

Corporate Governance and Stock Market Liquidity of Firms Listed at the Nairobi Securities Exchange

David Magaki Bichanga

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in Finance of the Jomo Kenyatta University of Agriculture and Technology

2022

DECLARATION

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

Signature…… Date……

David Magaki Bichanga

This thesis has been submitted for examination with our approval as the university Supervisors:

Signature…… Date……

Prof. Florence Memba, PhD

JKUAT, Kenya

Signature…… Date……

Dr. Agnes Njeru, PhD

JKUAT, Kenya

DEDICATION

This thesis is dedicated to my loving Dad Johnson Bichanga and my dear wife Veronica for their inspiration and excellent support in my research work.

To my sons Braiden, Aiden and daughter Naden to whom a role model I wish to be.

ACKNOWLEDGEMENT

I would like to thank my supervisors: Prof. Florence Memba and Dr. Agnes Njeru for their guidance and excellent support during my research work. They always devoted their valuable time endlessly and their prompt and valuable suggestions.

I feel deeply indebted to my lecturers and colleagues for their constant encouragement, advice and wonderful support. Special thanks to: Prof. Willy Muturi, Dr. Joshua Wepukhulu, Dr. Julius Miroga, Dr. Thomas Mose, Dr. Tobias Olweny, Dr. Walter Okibo and Dr. Oluoch Oluoch.

My sincere appreciation to my wife Veronica, my sons Braiden and Aiden and daughter Naden for their prayers, encouragement, excellent support and understanding during my studies.

Lastly, my gratitude to my father Johnson Bichanga Okero and my mother Teresa Nyasuguta Mageto who left no stone unturned to educate me and for their unlimited love and support.

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
ASX	Australian Stock Exchange
BCCI	Bank of Credit and Commerce International
BDEP	Independence of Directors
BE	Board Effectiveness
BS	Board Structure
BSEN	Seniority of Directors
CBK	Central Bank of Kenya
CEO	Chief Executive Officer
CMA	Capital Market Authority
FRC	Financial Reporting Council
GFC	Global Financial Crisis
GOK	Government of Kenya
ILLIQ	Illiquidity
IMF	International Monetary Fund
IoDSA	Instigation of the Institute of Directors of Southern Africa
ISS	Institutional Shareholders' Service
JB	Jarque Bera
KRA	Kenya Revenue Authority
LR	Liquidity Ratio
NSE	Nairobi Securities Exchange
OECD	Organization for Economic Cooperation and Development
PPI	Polly Peck International
RDT	Resource Dependency Theory
REIT	Real Estate Investment Trust
RRA	Russell Reynolds Associates
TWQS	Time Weighted Quoted Spread
UK	United Kingdom
USA	United States of America
VIF	Variance Inflation Factor

DEFINITION OF TERMS

Board Effectiveness	The extent to which boards of directors are able to fulfill their duties and responsibilities (Adams, Hermalin & Weisbach, 2010).
Board Size	Computed as the total number of directors on the board of management concerned with how the firms are directed, administrated and controlled (Nicholson, Belen & Marta, 2016).
Board Structure	Refers to the balance of power, affiliations and positions of board members (Solomon, 2013).
Breadth	A measure used to show numerous and large orders that only have a minimal price impact when transacted (Sarr & Lybek, 2002).
Corporate Governance	The process through which shareholders induce the management to act in their best interest by providing a degree of investors' confidence that is necessary for the firms and capital market to function effectively and efficiently (Rezaee, 2009).
Depth	The firms' ability to buy and sell large amount of assets in the market in shortest time possible and without affecting the prices (Kahuthu, 2017).
Firm Size	This refers to important, fundamental firm characteristic as measured by total assets, sales, profits, market value and number of employees (Dang, Li & Yang, 2018).
Illiquidity	The measure of the daily price impact of the order flow (Amihud, 2002).
Independent of Directors	The ability to influence board deliberations and control top management decisions as the trustees of shareholders (Financial Reporting Council, 2012).
Seniority of Directors	The privileged status attained by length of continuous service in a given position in a company or state of being

	senior (The Merriam Webster's Collegiate Dictionary, 1993).
Stock Market Liquidity	The ability to trade large size quickly at low cost when you want to trade (Harris, 2000).
Tightness	The cost of turning around a position over a short period of time. The ability to buy and sell an asset at about the same price at the same time (Rico, 2004).
Trading Time	The speed at which orders are executed and settled at the prevailing price (Sarr & Lybek, 2002).

ABSTRACT

Better corporate governance monitoring practices enable firms to trade large size quickly at low cost. Stock market liquidity is an important aspect in the well – functioning of the security markets. The general objective of the study was to investigate corporate governance and stock market liquidity of firms listed at the Nairobi Securities Exchange. The specific objectives of the study were; to evaluate the influence of board effectiveness on stock market liquidity of firms listed at the Nairobi Securities Exchange, to establish the influence of independence of directors on stock market liquidity of firms listed at the Nairobi Securities Exchange, to identify the influence of board structure on stock market liquidity of firms listed at the Nairobi Securities Exchange, to determine the influence of seniority of directors on stock market liquidity of firms listed at the Nairobi Securities Exchange and to ascertain the influence of firm size on the relationship between corporate governance and stock market liquidity of firms listed at the Nairobi Securities Exchange. A survey was conducted on 68 firms listed at the Nairobi Securities Exchange for a period spinning from 2016 to 2020. The study used secondary data obtained from the Nairobi Securities Exchange and the published annual financial reports. Data analysis was primarily done using descriptive statistics. The descriptive statistics; mean, median, minimum, maximum and standard deviation were used. Further, correlation and regression analysis within the panel data framework were used. Data was subjected to diagnostic tests with Eviews 7 being the main statistical tool of analysis. Board effectiveness had positive and significant influence on stock market liquidity of firms listed at the Nairobi Securities Exchange when quoted spread was used as measure but no significant influence when measured by turnover, illiquidity and liquidity ratio. Independence of directors had no significant influence on stock market liquidity. Board structure had negative and significant influence on stock market liquidity when measured by turnover but no significant influence when measured by quoted spread, illiquidity and liquidity ratio. Seniority of directors had negative and significant influence on stock market liquidity when measured by quoted spread and liquidity ratio but no significant influence when turnover and illiquidity were used. Firm size was found to have no significant influence on the relationship between corporate governance and stock market liquidity of firms listed at the Nairobi Securities Exchange. The findings further indicated that of the four stock market liquidity measures of quoted spread, turnover, illiquidity and liquidity ratio, illiquidity was the best measure of stock market liquidity. The study recommended that firm managers, investors and regulators should monitor internal governance mechanisms more closely in order to understand the causes of the firms' inability to trade large size quickly at a low cost.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Corporate governance and stock market liquidity has received enormous attention in finance and economic literature in recent years. There has been considerable interest in the corporate governance practices of modern corporations' particularly since the collapse of large US firms such Enron Corporation and WorldCom (Majdi & Aymen, 2013; Sidhu & Kaur, 2019). This attention has been motivated by financial scandals that rocked the US economy in early and late 2000 and Asian financial crisis of late 90s (Klein, 2009). Despite a number of studies having been undertaken on the subject, there is still much debate on the influence of corporate governance on stock market liquidity of listed firms. The argument has been advanced time and again that improved corporate governance of any corporate entity influenced the firm's ability to respond to external factors that have some bearing on its stock market liquidity. In this regard, it has been noted that well governed firms largely have the ability to trade large volumes quickly at low cost (Ali, Liu, Su, 2017).

The academic debate on the costs and benefits of corporate governance arising from securities regulation around the world has been controversial (Chen, Lee & Liao, 2007; Christensen, Hail & Leuz, 2014; Ali *et al*., 2017). Christensen *et al.*, also indicated that existing theories suggests that securities regulations may be beneficial to capital markets. They lead to improved stock market liquidity and lower the cost of capital. Black, Carvalho and Gorga (2012) noted that relatively little is known about the corporate governance practice of firms in emerging markets and the governance practices vary depending on firm and country characteristics. The debate whether securities regulation is beneficial or not is persistent given mixed and controversial evidence. The regulatory influence depends on other factors among them implementation, enforcement and prior conditions.

The subject matter of efficient corporate governance has dominated the policy agenda in developed economies of U.S.A, Europe, Canada and Australia for some

time especially among very large firms. Subsequently, the concept is gradually warming itself to the top of policy agenda in the developing nations (Elewechi, 2007). Corporate governance is assumed to influence stock market liquidity through the channel of financial transparency and information reporting. Specifically, the efficiency corporate governance imposes more monitoring on managers and therefore, prevents opportunistic managers from concealing and distorting information. Thus, corporate governance improves financial transparency of firms and mitigates information asymmetry between insiders (managers/directors, employees) and outsiders (investors, suppliers, customers, financial providers, government, public, trade union and any interest groups). It has been found that when information asymmetry is less severe, traders face less adverse selection problems thus improved stock market liquidity of well governed firms (Glosten & Milgram, 1985; Beekes, Brown & Zhang, 2014).

Stock market liquidity has become a world – wide concern, in particular since the recent global financial crisis (GFC) and continues to be a prominent area of research in market microstructure literature. The proposition that internal corporate governance is related to stock market liquidity is not original to this study. Handa and Schwartz (1996) noted that a perfectly liquid market, any amount of a given security can promptly be converted to cash or vice versa at no cost. In a less than perfect world, a liquid market is one where the transaction costs associated with this conversion are minimal (Harris, 2000). Investors require compensation not only for the risks they bear but also for transaction costs they incur when trading their shares (Amihud & Mendelson, 1986).

A liquidity market is important to both developed and developing economies, as a highly liquid market means efficient allocation and a tool for economic growth. Wang (2013) argued that liquidity is a critical pre- condition for financial market growth and development. One of the issues that have been investigated in terms of stock market liquidity is corporate governance, in that effective corporate governance is crucial for enhancing the investors' confidence. Effective corporate governance serves to protect the shareholders' rights by mitigating perverse insider behavior of management (Chung, Elder & Kim, 2010). The firms and markets with effective

corporate governance prove to be the successful. The systematic and planned security markets pull more investing players and maximized transactions thus maximizing stock market liquidity.

According to International Monetary Fund (2015), stock market liquidity is the ability to rapidly execute sizable securities transactions at a low cost and with a limited price impact. Liquidity generally denotes the ability to trade large quantities quickly, at a low cost and without moving the price. Liquidity is a market characterized by the ability to buy and sell securities with relative ease. These descriptions encompass a number of dimensions; this includes time, quantity and price. Time looks at how long it takes to liquidate a position, whereas quantity looks at how large positions can be liquidated. Price is how high discount on the fair value has to be accepted at liquidating. Investors often incur transaction costs and suffer from possible future price reduction if they want to liquidate their position quickly. The ease with which financial instruments can be trade is of crucial importance to investors (Crockett, 2008).

Prior stock market liquidity studies (Wang, 2013 and Ali *et al*., 2017) have not relied on one single proxy of stock market liquidity. Because each proxy captures a different dimension and have their own limitations (Goyenko, Holden, & Trzcinka, 2009). The studies on corporate governance and stock market liquidity so far have not pay attention to the selection of the liquidity dimensions as a critical part. Chung, *et al*., (2010) included trading cost and price impact, measured through high frequency quote – based data. On the other hand, Prommin, Jumreornong and Jiraporn (2014) included price impact and immediacy, calculated through low frequency volume – based data.

Empirically, there are three aspects of stock market liquidity investigated; these are tightness, trading time and price impact. Other dimension of stock market liquidity is resiliency. Tightness is the ability to buy and sell an asset about the same price at the same time where, trading time is the speed at which orders are executed and settled at the prevailing price. Price impact was investigated by the use of depth and breadth. Depth was considered to be the firm's ability to buy and sell large amount of assets

in the market in the shortness time possible and without affecting the price (Kahuthu, 2017). Breadth as the ability to measure numerous and large orders that only have a minimal price impact when transacted (Sarr & Lybek, 2002).

The study was motived by the following reasons: first, the existing literature provides evidence from developed economies, where the degree of the firms' stock markets are highly effective, better financial reporting systems, investors and shareholders are well protected, with proper regulatory settings and judicial systems. In addition, stock markets are well developed with a variety of institutional characteristics, ownership is highly detached and is no or minimum expropriation risk (Prommin *et al*., 2014; Beekes *et al*., 2014 & Ali *et al.*, 2017). Since developing economies stock markets are not well planned, protected and have high transaction costs demand more attention. Second, stock market liquidity is important for shareholders, investors and firms, so it is very crucial to explore the background of stock market liquidity at the Nairobi Securities Exchange.

Better corporate governance practices are helpful for mitigating information asymmetry between managers and investors (Ali *et al.*, 2017). A decrease information asymmetry risks ultimately increases stock market liquidity (Berglund, 2020). Also, less information asymmetry reduces expected costs relating to trading with an adverse selection that makes trading in these securities more attractive; therefore, stock market liquidity increases. Further, corporate governance policies if not effectively implemented stock market liquidity decreases. The efficient functioning of capital market depends on quality, reliability and transparency of financial information disseminated to the security markets. This information flow influences stock market liquidity and results in informed trading, reduces information asymmetry and improves stock market liquidity (Chung *et al*., 2010). Thus, adopting corporate governance standards helps in mitigating information asymmetry which alleviates information-based trading and improves stock market liquidity.

Firms with poor corporate governance are expected to incur greater agency costs and greater asymmetric information risk. The providers of liquidity will extend the equity spreads of firms that reflect poor corporate governance. Effective and best practices

of corporate governance may limit information asymmetry and enhance the firms' stock market liquidity. Prommin *et al*., (2014) argued that with increased governance quality, stock market liquidity was considerably enhanced. Investors rely heavily on the trust worthiness and accuracy of corporate information to provide liquidity to the capital markets. Firms that adopt poor corporate governance practices are usually associated with the low level of financial and operational transparency. They have low quality of information disclosure, which implies great information asymmetry and impairs stock market liquidity (Tang & Wang, 2011).

1.1.1 Global Perspective

New York Stock Exchange listed firms' exhibit higher stock market liquidity due improved corporate governance best practices. The U.S.A enacted legislation requirements rather than rely on self-regulation or voluntary corporate governance Codes (Aguilera & Cuervo - Cazurra, 2009). Corporate governance came as a result of the regulatory response to corporate failure and scandals (Holmstrom & Kaplan, 2003). The Sarbanes – Oxley Public Company Accounting Reform and Investors Protection Act of 2002 (hereafter referred to as "the Sarbanes – Oxley Act"), was enacted in response to the collapse of several large US companies. The legislation required important changes to corporate governance practice (Chhaochharia & Grinstein, 2007). In particular the Sarbanes – Oxley Act focused on board effectiveness, the integrity of financial reporting, executive remuneration, internal controls and independent audit (Coates, 2007).

According to Clacssens and Yurtoglu (2013), stock market liquidity of well governed European firms performed better than poorly governed firms. Adopting corporate governance best practices improves competitiveness and leads to; improved access to external financing, lower cost capital, improved operational performance, increased firm valuation, improved share performance, improved firm reputation and reduced risk of corporate crises and scandals. Transparent disclosure enables stakeholders to gain an informed and accurate view of the firm and the way it does its business. The significant role of efficient corporate governance has been widely acknowledged by

the investors and regulators, particularly after the collapse of several large corporations and low stock market liquidity among the listed firms.

The first corporate governance guidelines were introduced by Cadbury Report in the UK in 1992 and currently, most of the developed and developing nations have introduced the guidelines on best practices and its implementation to monitor the corporate players. Further, international organizations and associations such as organization for Economic Co-operations and Development (OECD) and Common Wealth Association have also provided the corporate governance guidelines. This indicates how the corporate governance best practices plays significant role on the firms' success (Abdussalam, 2009). The adoption of corporate governance code in UK and Australia was voluntary. The London Stock Exchange and the Australia Stock Exchange have adopted comply explains approach for corporate governance regulation. The Securities Exchange outlines the rulers for all listed firms.

The governance code seeks active engagement on issues of corporate governance best practices by listed firms. The Cadbury Committee in the UK was established in the aftermath of large corporate failures, such as Polly Peck International (PPI), Bank of Credit and Commerce International (BCCI) and Maxwell Communications (Dedman, 2002). The Cadbury committee released its final report "Financial Aspect of Corporate Governance" (hereafter referred to as "the Cadbury Report"). The report proposed best practice of corporate governance standards. The result of the Cadbury report was the introduction of the UK Corporate Governance Code (originally called "the Combined Code") in 1992, applicable to all the listed firms (FRC, 2012).

In Australia, listed firms are required to disclose in the annual report the extent of their adoption of ASX recommendations and provide explanation for any non - adoption. The rationale for comply or explain approach enables firms to implement corporate governance best practices that are relevant to their circumstances and prevailing situation (FRC, 2014). The Australian Code of corporate practices and conduct was introduced in 1991. It was developed through collaboration of the Australian Business Council, the Australian Institute of Company Directors, the

Australian Society of Certified Practicesing Accountants and the Institute of Chartered Accountants (Bosch, 2002). Its development was part as a response to the substantial governance failures that became evident following the collapse of several large corporations in the late 1980s. The Code of corporate practices and conduct was voluntary and had set out principles and guidelines on board structure and directors conduct (Bosch, 2002).

Poor governance standards have negatively impacted stock market liquidity and the economy; a case in point is the financial crisis of the East Asian countries. Due to the fact that sole proprietors and the greatest shareholders dominate control in Asia, corporations have a tendency of following the insider model (Mankins & Rogers, 2015). In Asia, the wearing down of shareholder confidence was found to one of the aspects that worsened the financial crisis. Cubbin and Leech (2016) and Punch (2016) indicated that the wearing down of shareholder's confidence in Malaysia was as a result of the state's poor governance principles without transparency.

According to Goswami (2003), corporate governance movement began in India due to some corporate scandals that came to the forefront during the first phase of economic liberalization in 1991. Bank executives, brokers and even politicians came under the scanner. The stock market was shut down for an extended period. Investors and brokers panicked due to low stock market liquidity. This led to the first step towards corporate governance in India when Securities and Exchange Board of India (SEBI) was created. The Securities and Exchange Board of India was created to protect the interest of investors in the securities markets and to regulate the stock markets. The concept of corporate governance has gained significance in India with advent of the companies Act 2013, along with other laws, has put in place strict provisions on governance and penal consequences for nor – compliance with these provisions (Rusty, Anthony & Melissa, 2019). As a result of this enhanced liability, companies have been taking measures to create a robust compliance system.

1.1.2 Regional Perspective

Sub – Saharan Africa stock markets are generally small and with the notable exception of South Africa and the three Northern African countries of Egypt,

Morocco and Tunisia accounting for about 10.78% of the continents market capitalization (Ntim, Lindop, Osei, & Thomas, 2013). The corporate governance concept is well – developed in South Africa since the establishment of the King committee on corporate governance in 1992, at the instigation of the Institute of Directors of Southern Africa (IoDSA) and the release of the first King Report in 1994 (Armstrong & Davis, 2005). The successive King Code of Governance Principles issued in 2002 and 2009 set international standards of best practice in corporate governance by bringing in the four key concepts of stakeholders' inclusivity, information technology, governance and integrated reporting based on the central values of responsible leadership and ethical governance (Ntim *et al*., 2013).

Despite of these, before 1992, South Africa corporate governance best practices lagged behind international norms. Ntim *et al*., (2013) indicated that a number of high - profile corporate failures were experienced in South Africa during the late 1990s including the collapse of the Macmed, Leisurenet and some of the Nedbank companies, which were attributed mainly to lack of efficient corporate governance best practices. The promulgation of the new companies Act of 2008 substantially influence how business were to be conducted in South Africa give its legislative impact (Chan, Tang & Tam, 2012).

In East Africa the Nairobi Securities Exchange market capitalization rose by 40% in 2010, exceeding the Ksh1 trillion, with average annual return of 36% based on the NSE 20 share index. As a result, the Nairobi Securities Exchange was among the best performing equity markets in the East African region after the Ugandan Securities Exchange, which recorded an index return of 53% (NSE, 2017). Equity turnover and share volume recorded 190% and 127% respectively, as market capitalization rose by 40% compared to 2009. This impressive performance was attributed to improved business confidence, due to the adoption of corporate governance best practice and improved stock market liquidity. For instance, foreign investors' stock turnover reached a historical of Ksh50 billion high or 46% of total annual turnover, with a Ksh15 billion net foreign portfolio inflow with high stock market liquidity (Mule, Mukras & Oginda, 2013).

1.1.3 Kenyan Perspective

According to Capital Market Authority (2016), the NSE has experienced period of high and low returns on shareholders wealth since it was constituted in 1954. Despite of the prevailing political environment, security, economic stability and inventors' confidence, stock market liquidity has not been stable. Even though the NSE was generally considered highly liquid market and more active in terms of trade in East Africa and the Sub – Saharan Africa. The ability to trade large size quickly at low cost is still considered as a major challenge. The Capital Market Authority (2002) introduced the corporate governance Guidelines in responses to growing importance of corporate governance issues. The guidelines were in recognition of the role of corporate governance in corporate performance, capital formation, and maximization of shareholders' wealth and enable firms to trade large size quickly at low cost.

The corporate governance guidelines were developed taking into consideration of the work which has been undertaken extensively by several jurisdictions. This was done through many task forces and committees including but not limited to the UK, Malaysia, South Africa, Organization for Economic Corporation and Development (OECD) and the Commonwealth Association for Corporate Governance. The adoption of the corporate governance guidelines in Kenya was not motivated by any corporate failures and financial scandal. The guidelines are a carbon copy of the Hong Kong, Singapore, and Malaysian Code of corporate governance which are replications of the United Kingdom's Combined Code. Kenya adopted non – statutory guidelines and implemented the "comply or explain" enforcement paradigm. No effort was made to align them with local circumstances and institutions (Gakeri, 2013).

Corporate governance guidelines encourage listed firms to embrace the culture of accountability which focus on responsiveness to the interest of investors. Publicly held firms are required to make reports to the Capital Market Authority on their compliance and non – compliance. Since 2004, the CMA has posted compliance statistics in its annual reports. Capital Market Authority (2009) reported that average compliance stood at 84%. The listed firms at the NSE have implemented the

corporate governance guidelines out of necessity not by choice and no studies undertaken to ascertain their appropriateness (Gakeri, 2013). Ongore and K'obonyo (2011) identified a number of problems relating corporate governance. The problems range from errors, mistakes and fraud. These problems are influenced by a range of factors include, concentrated ownership, weak incentives and poor protection of minority shareholders and weak information standards.

Manyuru (2005) demonstrated that corruption in Kenya has attracted lively debates in many legal and business sectors which have reduced the investors' confidence. Capital Market Authority (2016), the performance of 20 best performing listed firms reduced by 21.5 points or 0.62% to 3462.60 between 2010 and 2016 despite of the introduction of corporate governance guidelines of 2002. Ongore and K'obonyo (2011) suggested that the increasing number of corporate failures. Financial scandals have been caused by incompetence, fraud and mismanagement with low stock market liquidity. The collapse of Euro Bank in 2004, the placement of Uchumi Supermarket under receivership in 2004 due to mismanagement, the near collapses of Unga group, National Bank of Kenya and more recently board room wrangles at CMC motors, Imperial Bank scandals and money siphoned from Chase Bank are excellent examples (Madiavale, 2011; Central Bank of Kenya, 2017).

Nairobi Securities Exchange deals in shares and stocks since 1920's when the country was still a British colony. The Nairobi Securities Exchange market marked the first day of automated trading in government bonds through the Automated Trading System in November, 2009. The automated trading in government bonds marked an important step in the efforts by Nairobi Securities Exchange and central bank of Kenya towards creating depth in the capital market by proving the necessary stock market liquidity (NSE, 2017). Nairobi Securities Exchange is smaller in size, has low stock market liquidity and high volatility with regards to price and returns. Over the recent years, stock market liquidity at the NSE has been increasing with the bid ask spread decreasing and trading volumes increasing in the last 10 years (CMA, 2016).

1.2 Statement of the Problem

Investors wish to trade large size quickly at low cost when they want to trade. They want a situation where everyone is aware and informed of transaction costs and how the costs be reduced to enable them trade large size quickly at low cost. This can be achieved by getting the stock market liquidity dimensions that can accurately measure and value securities. The derivation of accurate pricing dimensions is what some academics and practitioners have been striving to achieve in the stock securities. As stock market liquidity is not directly observable and has several dimensions, it is clear that it cannot be captured by a single dimension (Sarr & Lybek, 2002; Prommin *et al*., 2014; Ali *et al*., 2017).

Arising from high profile corporate failures and inability of firms listed at the NSE to trade large size quickly at low cost when they want to trade, the credibility of the existing corporate governance monitoring mechanisms has been put to question. There are several studies on the influence of corporate governance on stock market liquidity. Some studies shows that corporate governance has direct influence on stock market liquidity (Chung *et al*., 2010; Prommin *et al*., 2014; Karmani, Ajina & Boussada, 2015; Ali *et al.*, 2017; Berglurd, 2020) while some studies have explored the indirect influence of corporate governance on stock market liquidity (Chen, Lee & Liao, 2007). The previous studies (Oyoga, 2010; Marcia, 2013 and Sakwa, 2015) on corporate governance and stock liquidity were inconclusive with no common consensus reached. While most studies have focused on the relationship between corporate governance and firm performance in general, few studies have focused on the influence of corporate governance on stock market liquidity of firms listed at the Nairobi Securities Exchange.

Madiavale (2011) demonstrated that even though there was awareness and existence of corporate governance mechanisms in Kenya, there was need to strengthen the corporate governance monitoring practices to enable firms to trade large size quickly at low cost. The firms' inability to trade large size quickly at low cost is nothing but the consequence of poor shareholders protection. Despite of impressive performance of the Capital Market Authority by providing corporate governance guidelines 2002,

listed firms at the NSE are still characterized by inability to trade large size quickly at low cost. This has adversely affected trading resulting to some firms listed at the Nairobi Securities Exchange being delisted from trading. From the ongoing it can be realized that if the problem of firms' inability to trade large size quickly at low cost is not addressed low stock performance is likely to persist. The purpose of this study was therefore, to investigate the influence of corporate governance on stock market liquidity of firms listed at the Nairobi Securities Exchange.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of the study was to investigate corporate governance and stock market liquidity of firms listed at the Nairobi Securities Exchange.

1.3.2 Specific Objectives

The study focused on the following specific objectives:

1. To evaluate the influence of board effectiveness on stock market liquidity of firms listed at the Nairobi Securities Exchange.
2. To establish the influence of independence of directors on stock market liquidity of firms listed at the Nairobi Securities Exchange.
3. To identify the influence of board structure on stock market liquidity of firms listed at the Nairobi Securities Exchange.
4. To determine the influence of seniority of directors on stock market liquidity of firms listed at the Nairobi Securities Exchange.
5. To ascertain the influence of firm size on the relationship between corporate governance and stock market liquidity of firms listed at the Nairobi Securities Exchange.

1.4 Hypotheses

To investigate how each of the independent variables influenced the dependent variable, the study sought to test the following null hypotheses.

H_{O1}: There is no significant influence of board effectiveness on stock market liquidity of firms listed at the Nairobi Securities Exchange.

H_{O2}: There is no significant influence of independence of directors on stock market liquidity of firms listed at the Nairobi Securities Exchange.

H_{O3}: There is no significant influence of board structure on stock market liquidity of firms listed at the Nairobi Securities Exchange.

H_{O4}: There is no significant influence of seniority of directors on stock market liquidity of firms listed at the Nairobi Securities Exchange.

H_{O5}: The relationship between corporate governance and stock market liquidity of firms listed at the Nairobi Securities Exchange is not significantly influenced by firm size.

1.5 Significance of the Study

The study focused on the understanding of the influence of corporate governance on stock market liquidity of firms listed at the Nairobi Securities Exchange. The findings were to provide important corporate governance indicators useful to regulators, investors, and firms managers in formulating better policies and making informed decisions to enable them to trade large size quickly at low cost. Given that corporate governance is instrumental in improving stock market liquidity at the Nairobi Securities Exchange, regulators and investors may wish to monitor the corporate mechanisms more closely in order to come up with sound trading strategies. This section presents the importance of the study findings to policymakers, firm managers, investors, The Kenya revenue authority, general public and to the academic researchers.

1.5.1 Policymakers

The study findings will be useful to policymakers, regulators and all decision makers at all levels; first to know how improved corporate governance plays a bigger role in shaping the market operations and how they can reduce the transaction costs. The policymakers may pursue economic reforms that influence corporate governance to save the investors from scandals and collapse of their firms as a result of high transaction costs. Hence need to test the influence of corporate governance reforms. Secondly, the findings will provide general governance indicators useful in formulating policies and making informed decisions aimed at cost reduction. The regulars and policymakers will also be able to understand the politics behind corporate governance of firms listed at the NSE. This will assist them to improve on areas that are, negatively influenced with a view of reducing the transaction costs. The regulars and policymakers will gain more information on the effectiveness of corporate governance. The study findings will enable them to make informed decisions and, in a way, to foster stock market liquidity performance.

1.5.2 Investors

First, the study findings will help the investors to know which internal corporate governance mechanisms should be in place aimed at lowering transaction costs before the potential investors make investment decisions. Secondly, the findings will enable investors to select stocks and construct portfolios with best corporate governance practices. Third, the study findings will enable the investors to know which stocks are likely to be traded quickly, in large volumes and at low costs.

1.5.3 Firm Managers

The study findings will be of great importance to the firm managers listed at the Nairobi Securities Exchange as it will provide a benchmark of improved corporate governance aimed at reduced transaction costs. The firm managers can use the knowledge from the study to identify the various aspects of improved governance, reduce financial and operation costs at the Nairobi Securities Exchange. The study will help them to identify the corporate governance best practices and how to

integrate them in their firms. The better corporate governance monitoring mechanisms will help firm managers to know how to protect shareholders' wealth by trading large sizes quickly at a low cost.

1.5.4 KRA and the General Public

The Kenya Revenue Authority (KRA) will benefit from the findings of the study by understanding the reasons behind the poor corporate governance that negatively influence stock market liquidity thus reduces tax revenue collection. The study findings will assist KRA to minimize tax evasion through streamlined channels of financial transparency, information reporting and increase tax compliance rates among the listed firms at the NSE. The general public comprise of the community at large including; the men, women, youth, children and the elderly. The study findings will enable them to identify the corporate governance best practices that will improve decision making, increase investor confidence and reduce transaction costs of listed firms at the Nairobi Securities Exchange. Leading to the creation of employment opportunities for the community at large, supporting the welfare of the local community, create a culture of savings and making investments. The study findings will also enable community to better understand the challenges faced by listed firms such as the inability to trade large size quickly at low cost.

1.5.5 Academic Researchers

The findings of the study will be of great importance as it adds knowledge to the existing work by other academic researchers on influence of corporate governance on stock market liquidity from the Kenyan perspective. The study findings will further serve as a data base for future reference for academic researchers.

1.6 Scope of the Study

The study was to investigate the influence of corporate governance on stock market liquidity of firms listed at the Nairobi Securities Exchange. The study covered the period spanning January 2016 to December 2020. Nairobi Securities Exchange (2017), report there were 68 listed firms at the NSE categorized into the following

segments; Agriculture, Automobiles and Accessories, Banking, Commercial and Services, Construction and Allied, Energy and Petroleum, Insurance, Investment, Investment Services, Manufacturing and Allied, Telecommunication and Technology, Real Estate Investment, Trust and Exchange Traded Fund. The study was confined to the four corporate governance internal mechanisms of board effectiveness, independence of directors, board structure and seniority of directors.

The choice of January 2016 as the starting point of the study was informed by the fact that this was after the introduction and implementation of Corporate Governance Guidelines of 2002 by CMA, introduction of Automated trading systems, changes of accounting system to International Financial Reporting Standards, conversion of the Nairobi Securities Exchange from company limited by guarantee to company limited by shares and the Nairobi Securities Exchange becoming a member of Financial Information Service Division in 2015 (Capital Market Authority, 2016).

1.7 Limitations of the Study

Corporate governance in Developing Nations is not as good as that of Developed Countries. Empirical research in the Developing Nations is insufficient and has the comparison limitation. The study was limited in terms of scope; it covered Nairobi Securities Exchange, the only security market operating in Kenya. Accessibility and measurability had an influence on the choice of corporate governance variables that were adopted in the study taking into account the difficulty of modeling some of these variables. The study limited itself to the following key variables of; board effectiveness, independence of directors, board structure, seniority of directors and firm size as the moderating variable. The findings of the study were thus generalized to the Kenyan local context. The study mainly depended on secondary data which were subject to limitation of the reported results by Nairobi Securities Exchange and listed firms' annual financial reports, which the study did not have control over. The study had insufficient financial resources; lack of funding limited the scope of the study. The funds were sourced from the family and friends. However, these limitations did not impair the study results.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter entails a preamble on the theoretical framework, conceptual framework, empirical literature, knowledge gaps and chapter summary. The first section focuses on the theoretical framework where it presents four theories used in the study: Agency Theory, Stewardship Theory, Resources Dependency Theory and Transaction cost Theory. The next section illustrates the conceptual framework, followed by empirical literature, critique of existing literature, outlines the research gaps and final section crowns the chapter with a chapter summary.

2.2 Theoretical Review

This section a critical review of the theories on corporate governance was undertaken leading to the selection of the appropriate theoretical framework adopted for this study. A critique of the chosen theoretical framework used in the study was then presented and then linked to the conceptual framework. The theoretical framework plays significant role in research. First, introduces the researcher to a new view in the research problem. This enabled the researcher to understand the problem in the area of interest. Secondly, it enabled the researcher to conceptualize the topic in its entirety. This helped the researcher to acknowledge the problem from a wider perspective and thus enhanced the objectivity in the researcher's thinking (Kombo & Tromp, 2014).

2.2.1 Agency Theory

The agency theory has its origins in the organizational works of Mitnick (1973) and economical agency theory developed by Ross (1973). The theory argues that agency cost would arise when there is a separation between ownership and control. This refers to the situation in a company where those who own the firms may not be the same people as those who control the firms. The seminal work of Jensen and Meckling (1976) explained that in proposing a theory of the firm based upon

conflicts of interest between various contracting parties – namely shareholders, corporate managers and debt holders – a vast literature has been developed explaining both the nature of these conflicts and means by which they may be resolved (Jensen & Meckling, 1976). The theory has been developed both theoretically and empirically to allow a full investigation of the problems caused by divergences of interest between shareholders and corporate managers.

Jensen and Meckling (1976) refer the agency theory relationship as a contract under which one party (the principal) engages another party (the agent) to perform some service on their behalf. As part of this, the principal delegates some decision – making authority to the agents. The conflict that forms agency problems is not only between shareholders and managers (principals – agents) but also between shareholders and shareholders (principal – principal), especially in developing economies. The separation of ownership and control in modern corporations raises information asymmetry problem between managers and investors; the managers have information the investors do not have; such information asymmetry creates a moral hazard problem at the expense of outsiders.

Agency theory is founded on seven fundamental assumptions: self – interest, goal conflicts, bounded rationality, information asymmetry, and preeminence of efficiency, risk aversion and information as commodity. Agency theory is concerned with aligning the interests of owners and managers. Based on the premise that there is an inherent conflict of interest between the firm's owners and their managers. The managers possessed superior knowledge and expertise than the firm owners. They are in position to pursue self-interest at expense of the shareholders (Fame & Jensen, 1983).

Self – interested and opportunistic managers in order to mask wealth may opt to disclose selected favorable information leading to expropriation and overcompensation (Fame & Jensen, 1983). Agency problems arise from conflicts of interest between two parties in a contract, and as such, are almost limitless in nature. However, both theoretical and empirical research has been developed in four key problematic areas - namely moral hazard, risk aversion, earnings retention, and time

horizon. The agency problems arise because of the impossibility of perfectly contracting for every possible action of an agent whose decisions affect both his own welfare and the welfare of the principal (Brennan, 1995b).

Chung and Edmans (2009) suggested that improved corporate governance and stock market liquidity may jointly be determined by firm's unobservable characteristics. Agency theory clarifies the need for control of firms' by the board of directors. Central to agency theory is that as firms grow in size, shareholders (Principals) lose control, professional managers (agents) have the specialized knowledge to operate the firms. The separation of ownership and control creates opportunities for management to take decisions. The agents may strife to maximize their own utility at the expense of the principals. The principal – agent problem occurs when the interest of a principal and agent come into conflict (Klein, 2009).

Elder, and Kim (2010) demonstrated that large investors have increasingly supported measures that improve internal corporate governance for such measures also improve stock market liquidity. Conflict of interest arise leads to agency problems. Agency theory helps to explain the actions of the various interest groups in the corporate governance debate. The examination of the theory behind corporate governance provides a foundation for understanding the issue in greater depth and links between historical perspective and its application in modern governance standards (Chung *et al.*, 2010). Managers have an incentive to pursue their own interests and transfer the firms' wealth to themselves (Switzer & Wang, 2013).

Majdi and Aymen (2013) found that existing relationship between corporate governance and stock market liquidity may exist in reverse order. The effective corporate governance mechanisms through which the board is expected to influence its stock market liquidity; agency theory suggests that a greater proportion of independent directors were able to monitor any self – interested actions among the managers. With corporate governance monitoring, there is less opportunity for managers to purse their self – interest at the expense of owners. This reduces agency costs enabling firms to trading large size quickly at a low cost. The relevance of this theory in understanding the principal - agent relationship. The agent represents the

principal in a particular business transaction and is expected to represent the best interest of the principal without regard for self – interest. This theory formed the basis on which the study was anchored.

2.2.2 Stewardship Theory

Stewardship idea came from the work of McGregor (1960) in which posed the theory that explains autonomy, self-governance and hard work as important elements to the managers' motivation in order to achieve the corporate objectives. A steward is one who takes on the responsibility of caring for something on behalf of another person or a group of people. This theory states that if managers are left on their own, act as responsible stewards of assets they control (Donaldson & Davis, 1991). Stewardship theory holds that ownership doesn't really own a company; it's merely holding it in trust. This is an alternative view of agency theory, in which managers are assumed to act in their own self – interests at the expense of shareholders. Stewardship theory relates to the board's task to support and advice the management (Davis, 1991).

The assumptions of stewardship theory are that long – term contractual relations are developed based on trust, reputation, collective goals and involvement where alignment is an outcome that results from relational reciprocity. Davis, Schoorman and Donaldson (1997) managers do extremely well on their jobs when given proper authority to participate in organizational decision - making process. When the same person acts as chief executive officer and chairman then the better of attaining the managerial power and control the board of directors. Stewardship theory supports the management empowerment in any organization. Maslow's (1958) hierarchy of human needs also demonstrated actions of achievement, social realization and self-actualization. However, this hierarchy is not compulsory as managers have no survival needs so compensation. Managers to be persuaded towards better performance as good stewards along with power and authority as only financial rewards are not sufficient enough. The main issue in stewardship theory is ignorance of intrinsic nature of man.

The pro – social manner fosters the quality of the relationship between the principal and manager and the environment and ideals of the firm. The wealth maximizing of the firm's performance, such as growth or profitability, is the desired outcome of the stewardship perspective and a number of studies have shown identical results (Davis *et al*., 1997; Tosi, Brownlee, Silva & Kartz, 2003). Stewardship theorists argue that superior corporate performance is associated with the majority of inside directors because; firstly, they ensure more effective and efficient decision – making and secondly, they contribute greatly to maximize profits for shareholders (Kiel & Nicholson, 2003). Consequently, insider- dominated boards are favored more for their depth of knowledge, access to current operational information, technical expertise and commitment to the firm. Daily, Dalton and Cannella (2003) argued that managers and directors safeguard shareholder's interests by making right decisions. They increase performance of their organizations because they want to protect their market reputation as good decision makers.

The theory suggests that this outcome is achieved when both the principals and agents in the employment relationship select to behave a steward. At the heart of stewardship theory is the assumption that the principal - steward relationship is based on choice. When both parties choose to behave as stewards and place the principal's interest ahead, theory suggests a positive impact on performance because both parties are working toward a common goal (Craig & Dibrell, 2006; Eddleston & Kellermanns, 2007; Mallian, 2007). The choice of stewardship behavior is impacted by both psychological and situational factors. Psychological factors such as intrinsic motivation, high identification and personal power can direct behavioral choice to stewardship (Zahra, Hayton, Neubaum, Dibrell & Craig, 2008). Intrinsic motivation exists within individuals provides satisfaction in and of itself; it is a psychological attribute of stewardship theory because steward managers are motivated by intangible, higher order rewards. It was found that individuals who have high levels of identification with their organizations are more likely to choose stewardship because they feel a strong sense of belonging with their organizations (Zahra *et al*., 2008; Vallejo, 2009).

Stewardship theory suggests that stewards behave in a pro-social manner, behavior which is aimed at the interest of the owner and thus the firm (Zahra *et al*., 2008 & Nichoson, 2008). The theory argues that the effective control held by professional managers empower them to maximize firm performance. Regarding the leadership structure, stewards maximize their utility because they achieve organizational goals rather than self- serving objectives (Balta, 2008). The stewardship theory has its roots from psychology and sociology. Stewards are company executives and managers working for the shareholders. The stewards protect the profits for shareholders and they are satisfied and motivated when organizational success is attained (Abdulla & Valentine, 2009).

Studies have shown that moral hazard problem is the main cause explaining why managers do not work with good faith and honesty in order to increase wealth of owners and maintain their reputation (Acharya & Viswanathan, 2011). The managers and executives are also managing their careers in order to be perceived as effective stewards of their respective firms. Situational factors depict the organizational structure and include the management philosophy and culture as demonstrated. It was found that an involvement - oriented management philosophy was portrayed in an environment where employees were trusted with responsibility and opportunities (Eddleston, Kellermanns & Zhang, 2012). In organizations typified by collectivism, individuals put the goals of collective first than individual personal goals; the emphasis is on membership, identifying and displaying loyalty due to the tight – knit social framework present in the organization. Low power distance describes an environment where equality is perceived between different levels of the organizational hierarchy.

The organizational structure that accommodates and influence the choice of stewardship behavior maximize firms' performance. The principal needs to create an organizational structure where this stewardship behavior can flourish. As such, a stewardship structure can be seen as a collectivistic and cooperative, resulting in positive benefits in the organization. Stewardship theory motivates managers by replacing absence of trust in agency theory with respect to authority and fondness to

ethical behaviors. The theory places structures that allow harmonization of managers and shareholders objectives (Talat & Mian, 2014).

Effective structures reduce information asymmetry which is an important factor in improving stock market liquidity. This theory has a clear objective of shareholders satisfaction. Having a single leader creates one channel of communicate. This avoids confusion as to who is in charge when a company needs to weather a storm. Stewardship governance requires that a CEO and the board be trust worthy and willing to put self - interest aside for the good of the organization. Relevance of stewardship theory is to understand how human beings can be motivated to contribute to the achievement of the goals of organizational principals.

2.2.3 Resource Dependency Theory

The above - mentioned theories namely agency and stewardship provide the insights to the principal (shareholders) and the agent (managers) while another theory of corporate governance that emphasizes the need of different resources for the success of business is named as resource dependence theory. This theory introduces accessibility to resources that is a critical dimension of corporate governance debate. The origin of resource dependence theory was from the work of Pfeffer and Jeffery (1972) indicated the importance of the relationship between power and exchange within and around the firm. The theory was further emphasized by (Aldrich & Pfeffer, 1976; Salancik & Pfeffer, 1978). Since the introduction of resource dependence theory (RDT) in 1972, it has been used as a premier perspective in understanding organizational environmental relationships.

Salancik and Pfeffer (1978) had the intention to provoke additional thoughts, the study attention and concerns for three different ideals, include the concept of resource interdependence, external social constraint and organizational adaption. The intentions of Salancik and Pfeffer also led to the development of the RDT, that provided an alternative perspective to economic theories of mergers and board interlocks in order to understand precisely type of the inter organizational relations. The resource dependence theory states that; company's success is dependent upon maximizing its power over certain resources which are necessary for running its

smooth operations. Basically, the theory concentrates on the role of the board of directors that helps to secure and acquire the crucial resources of the firm by their external linkage to the environment (Salancik & Pfeffer, 1978). Through this linkage, it brings in different resources, such as information, skills, access to key constituents like suppliers of quality raw materials, buyers of outputs, public, policymakers, social groups as well as legitimacy (Williamson, 1985).

According to Dalton, Daily, Johnson and Ellstrand (1999), independent directors on the boards provide more assistance in gaining the desirable resources. As an outside director who is related to a law firm provides the legal services and advises in the board meetings with executive directors which is very costly for the firm to obtain otherwise. The directors have more linkages with the outdoor environment that is necessary for organizations' survival and future growth. Further explained that board of directors bring resources for the firms namely; necessary information, expertise, provide access to business stakeholders in which key suppliers, customers, policymaker, legal advisors and social groups are at the top.

Dalton *et al*., (1999) demonstrated that competent and high level of involvement of directors were not sufficient enough to provide either access to information or better decisions to improve stock market liquidity in the short time. Hillman and Dalziel (2003) argued that the board of directors as the main source for the achievement of different resources required by the firms. In general, the theory argues that availability of efficient skills or effective boards are involved in the accessibility of resources. The theory suggests that the board of directors is the key source of various resources that enhances organization operation, performance and organizational life (Daily *et al*., 2003).

One of the assumptions of resource dependency theory is the uncertainty clouds an organization's control of resources and makes its choice of dependence – lessening strategies imperative. As uncertainty and dependencies increase, the need for links to other organizations also increases. (Ruigrok, Peck, Tacheve and Greve, 2007) considered the boards as the boundary guards that shelter the necessary firm's resources like assets, capital, knowledge, skills and projects partnership agreements.

Resource dependence theory demonstrates the role of the board of directors as the resource providers, on the other; agency theory suggests the importance of the boards in monitoring the managerial activities. Resource dependence theory focus on the role of board of directors in providing access to resource needs by the firm (Davis & Cobb, 2010; Awotundun, Kehinde & Somoye, 2011).

The proponent of resource dependency theory argues that was need to have environmental linkages between the firm and outside resources (Wan, Wan & Idris, 2012). These environmental linkages can help the firm reduce the levels of transaction costs associated with environmental interdependency. The proposition of resource dependence theory is: organizations controlling resources that other actors need to have power over. These actors, with regard to the relationship between organizations on one hand and customers and suppliers on the other hand and uncertainty triggers off strategies to reduce uncertainty. Various factors have been known to intensify the character of these dependences. The factors include; the significance of the resource, the relative shortage the resource and the extent to which the resource is concentrated in the environment (Wan *et al*., 2012).

The theory strongly emphasizes the important role of the board in providing the much - needed resources to move the firm to the next level. The theory further recognizes the vital role of the administrative arm as a link between the firm and the resources required to accomplish its goals (Tricker, 2012). The theory also recognizes the fact that organization tends to reduce the risks of external influences by ensuring the resources are available for their survival, growth and development. Hitt, Ireland and Hoskisson (2012) noted that the organizations can benefit from each other through the interdependent of organizational relationship. It is assumed that the boards have important links that contribute significantly to stock market liquidity and firm performance.

Firms must engage in transactions with other actors and organizations in its environment in order to acquire resources. Power and exchange within and around the firm. The resource dependence theory covers and provides the boarder view of the corporate governance that make it well connected with the diverse organizational

environment (Dress & Heugens, 2013). The resource dependence theory is often criticized based on the lack of empirical testing of its basis premises. The basic concept and the boundaries of the theory are not as extensive tested as it should be. The importance of this theory is how minimize environmental dependence. This theory is important because an organization's ability to gather, alter and exploit information faster is fundamental to stock market liquidity.

2.2.4 Transaction cost Theory

Transaction cost theory is part of corporate governance and agency theory. It is based on the principal that costs arise when you get someone else to do something for you (director to run the business you own). The origin of this theory can be traced back to the 1930s. Transaction cost theory was the works of Ronald Coase in 1937. The main proposition of the theory is that; corporations can save costs if they can concentrate on their core business instead of focusing entirely on non- core business activities. Transaction cost theory is a variant of agency theory that can be defined as an interdisciplinary coalition of economics, law and organizations which views the firm as system comprising of people with different motives and objectives (Williamson, 1999).

The shareholders and managers have different goals and pursue their own self – interest. The problem may arise when managers as agents do not deliver as promised (moral hazard) or misrepresent themselves (adverse selection). It was based upon the fact that costs arise when you hire someone else to act on your behalf like elected directors who perform business operation for the owners (Coase, 2002). This theory assumes that corporate governance framework was based upon the net effect of business transactions (internal and external) rather than the traditional view of contractual relationships outside the organization with shareholders. The main concern of the transaction cost theory was carrying out economic transactions based on the most efficient and improved corporate governance structure. Transaction cost refers to explicit fees associated with a trading as well as implicit fees of monitoring and controlling trading costs.

Transact cost theory is based on two central assumptions regarding human behavior, these being: “opportunism” and bounded “rationality” opportunism refers to offering incomplete and inaccurate information during both the negotiation of and implementation of economic transactions (Coase, 2002). The transaction costs include the cost of information, search, negotiation in addition to contracting and enforcement. The economic implication was the decision – makers who have to weigh costs associated with performance of an activity in – house against that of outsourcing it to the market. Thus, if the transaction cost of using the market was higher, the transaction could be executed by the firm in - house. If executed in the market decision – makers have to determine the most appropriate contract to use (Coase, 2002). The transaction cost theory states that a firm as a sum of contracts put in practice in order to organize and regulate transactions serves for accomplishing contractual relations (Badulescu & Badulescu, 2008).

Lamminmaki (2010) suggested that decision on which approach to adopt should be guided by quantitative analysis of cost and benefits arising from the decision based on comparison of transaction cost. The concepts of bounded rationality and opportunism on the part of directors in different business units of a firm also apply when one was to view the motivation behind either of the decision. The three variables that dictate the impact on transaction costs are: asset specificity (amount the manager personally gain), certainty (or otherwise of being caught) and frequency (endemic nature of such action within the corporate culture). The degree and impact of these three variables helps in determining the efficiency of monitoring and control required by the senior management in reducing the transaction costs since the opportunistic behavior by managers in the business unit can discourage potential investors (Tricker, 2012). Therefore, it was important for firms to organize themselves in a manner that minimize the impact of bounded rationality. Building up internal controls that make managers to be more risk averse by seeking safe grounds of easily governed markets.

The relevance of transaction cost theory provides an explanation of the bid ask spread and price impact. Transaction cost is expressed in the bid ask spread as a measure of stock market liquidity. Agents pay cost when executing transactions such

as commission, taxes, brokerage, exchange fees and bid ask spread supply and demand of immediacy with the stock market markers. The theory main proposition was that; firms can save costs if they can concentrate on their core business. The transaction cost theory gives a theoretical predication that market transaction costs are positively related to stock market liquidity. This theory tries to model the real firm life choices, rather than optimal decisions (Switzer & Wang, 2013).

Transaction cost theory has been applied to a diverse range of situations. It appears to help the firms to identify internal measures and mechanisms which can economize transaction costs associated with contractual hazards. The internal staff to focus their efforts on critical tasks of core business. To increase the speed of transformation, lower the costs and improve the quality of production. The company's management to internalize much of its transactions to reduce uncertainties about prices. This theory is the most important reason why hierarchical organizations exist. The significance of this theory is to allow the company to decide whether to expand internally (possibly through vertical integration) or deal with external parties (Wepukhulu, 2016). Minimizing the costs of exchange (in - house versus outsource). Firms to focus on core business activities. As illustrated in table 2.1 the main objective of the four corporate governance theories discussed is "the maximization of the shareholders wealth".

Table 2.1: Comparisons of Corporate Governance Theories

Rationale	**Agency Theory**	**Steward Theory**	**Resource Dependency Theory**	**Transaction Cost Theory**
Focus	Self-interest	Shareholders interest	Resource and authority	Transaction costs
Objective	Minimize agency costs	Maximize trading volumes	Maximize the use of resources	Minimize transaction costs
Attitude towards risk	Risk aversion	Risk aversion	Risk aversion	Risk aversion

The attitude towards risk was the same in the above four theories (risk aversion). A number of studies have adopted these four theories (Switzer & Wang, 2013; Beekes *et al*., 2014). Since the managers are the agents of the principals and they make all decisions. If left unchecked they may interfere seriously with the proper functioning of firms and security markets. The proper directing and controlling of the firms increase the firms' ability to trade large size quickly at lower costs. Based on the above comparisons and findings, the study adopted the agency theory framework.

2.3 Conceptual Framework

Conceptual framework assists the reader to quickly see the proposed relationship between variables and it becomes the researcher's map of the territory being investigated (Mugenda & Mugenda, 2013). Conceptual framework plays an important role in assisting a researcher to organize the thinking and complete an investigation successfully. It provides clear links from the literature to the research goals and questions. It helps in formulating the research design, acts as reference points for literature discussion, methodology and data analysis. It also provides a broad scope of thinking and links ideas and data so that deeper connections of the study can be revealed (Kombo & Tromp, 2014).

A conceptual framework model analyzing the influence of corporate governance on stock market liquidity of firms listed at the Nairobi Securities Exchange was developed from the literature review. The conceptual framework was to shed more light on the methodology that was used in the study. It was assumed that stock market liquidity is influenced by the aspects of improved corporate governance namely: board effectiveness, independence of directors, board structure and seniority of directors. For the purpose of this study firm size was adopted as a moderating variable of the firms' specific characteristics. Independent variables were those related to corporate governance and agency theory as presented in the conceptual framework (figure 2.1). The study examined the influence of each governance category as follows; Board effectiveness (Board size and frequency of boards meetings), Independence of directors (proportion of independent directors to the full board of boards), Board structure (CEO duality and independence of the chairperson)

and Seniority of directors (tenure of board members and experience). The widely used dimensions of tightness, trading time, depth and breadth of the stock market liquidity measures were adopted. Figure 2.1 illustrated the conceptual framework of the study.

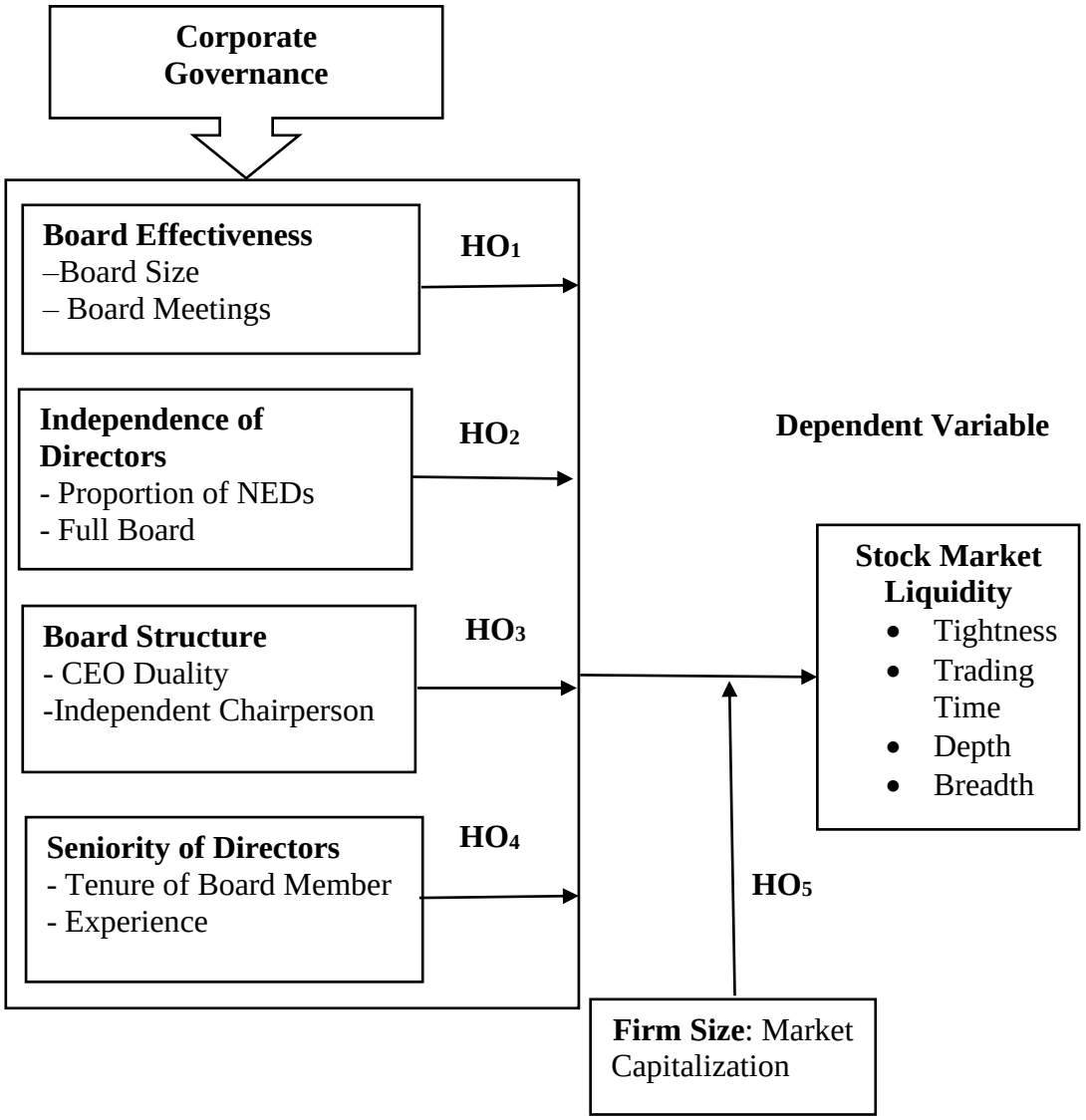

Figure 2.1: Conceptual Framework

2.3.1 Board Effectiveness

Board effectiveness has attracted increased attention of legislators and investors over the past years. For instance, the Cadbury Report in the UK (1992) emphasized the

need for the board of directors within listed firms to be effective. The reviewed board structure and the responsibilities of the board directors as well (Solomon, 2010). The factors that determine the influence of board effectiveness on stock market liquidity are usually factors related to the board control and the process of decision making. An effective board has to monitor, discipline and remove ineffective management team. Among other responsibilities, non – executives directors should critically assess, approve and review the financial and operational decisions of executive directors (Fama & Jensen, 1983).

Upadhyay, Bhargara and Faircloth (2014) demonstrated that the board committees improve the observation of the performance of individual directors and also reduce coordination and communication problems. The company to establish a well- defined plan of meetings and the publishing of reports give more confidence to stakeholders and reduces the asymmetry of information between them. The frequency of board meetings provides signals to the market, thus revising expectations of investors, increasing the trading volume of stock transactions (Jensen, 2000). Board effectiveness has been a subject of significant research in terms of its influence on stock market liquidity performance, having been fuelled by prominent business failures of large firms such as Enron and Worldcom (Klein, 2009). It was argued that within a certain range, the larger the board, the more effective it was in its statutory duties of monitoring management (Sanda, Mikailu & Garba, 2011; Kercher, 2013).

The boards' size and composition influence its ability to function effectively. Smaller boards have generally been considered to be more efficient in decision making (Yermack, 1996) and to promote better decisions making, governance codes often specify that the board should not be too large. While there may be no one size fit all recommendation for what constitutes an optimal board size, a board size of 8 – 10 was often recommended. In consistent with the recommendations board size should be of 10 directors including the chairman. Cascio (2004) boards of directors may vary significantly in size from small (five and seven members) to very large (30 or more) members. However, there was no consensus as to whether larger or smaller boards were better with respect to their influence on stock market liquidity.

According to Mohamed, Ahmad and Khai (2016) board of directors plays integral and vital roles in every firm. The regular board meeting is of a great importance to the overall effectiveness and efficiency of every board. Every director is expected to attend all board meetings as this forms part of the requirements for re-nomination as a board member. Board meeting assists directors to be well equipped with information and with all development within the firm. Board meeting is an organized set up arranged to assemble directors' relevant issues and information. Frequent board meeting can be ascertained by the number of meetings held during a year by top level managers. Oyerinde (2014) demonstrated that frequent meeting leads to waste in managerial time, increase financial burden in terms of travelling expenses and sitting allowance given to the board members. High board meeting frequency does not improve stock market liquidity but the quality of such meetings does.

Sanda *et al.,* (2011) argued that within a certain range, the larger the board, the more effective it is in its statutory duties of monitoring the management. However, large board size is seen as a limit on board effectiveness due to the following; large board prevent meaningful dialogue among directors and it is easier for the CEO to control and manipulate large boards. Large boards are a creation of the CEO so as to entrench him - self in the company (Rahman & Haniffa, 2005). The board to be free from the management and effective control of the CEO, the board size should be small. As board size increases, the board became less effective at monitoring management because of free – riding problems amongst directors and time required in decision making (Jensen, 1993).

The attention of academic literature has been on variables of board attributes influencing stock market liquidity and firm performance (Rebeiz, 2015; Uwuigbe, Eluyela, Uwuigbe, Obarakpo & Falola, 2018). These board attributes examined by previous studies were board independence, board size, board diversity, board composition but not much on board process which involves number of board meetings and frequency. Olufemi (2018) provided support for the agency theory, which suggests that when the board meets more frequently, it will increase its ability to effectively monitor advice, scrutinize and create an atmosphere of discipline. This

will improve the firm ability to trade large size quick at low cost thereby achieving shareholders objective of maximizing their wealth. The frequency of board meetings can be used as a measure of determining the activeness of a board and getting of timely reports and planning.

Since board diligence or commitment is not directly observable, the prior literature relies on the frequency of board meetings (i.e., the number of times the board meets in a year) as a proxy of board is likely to have richer information about the firm's operating environment. Dulewicz and Herbert (2004) demonstrated that boards with improved monitoring of performance, supervision of management and communication were likely to achieve higher stock performance. Vigilant boards are likely to take actions aimed at reducing the level of information asymmetry between the board and their CEOs (Rutherford & Bucholtz, 2007). Foo and Zain (2010) revealed that board independence and frequency of board meetings improves stock market liquidity. These meetings provide signals to the market, thus revising expectations of investors and increasing the volume of market transactions and reduced transaction cost (Jensen, 1993).

The more the frequency of committee meetings contributes to better quality of financial reporting. The attendance of the members of the board to the meetings can also be an important factor in the work of the latter particularly with regard to preparation and control of accounting information (Andre, Broye, Pong & Schatt, 2011). Jermias and Gani (2014) demonstrated that board attributes influence board effectiveness, leading to more strategic decisions and enhance stock market liquidity. Payne, Benson and Finegold (2009) argued that effectiveness attributes were associated with higher level of board efficiency.

2.3.2 Independence of Directors

The independence of directors has been the subject of much debate in the corporate governance literature. Since the work of Fame and Jensen (1983) it was assumed that board independence and its effectiveness are linked. The role of directors was to monitor the tasks performed by management, to oppose to bad decisions, and provide advice at a high management level. The agency theory predicts that outside directors

have not sufficient power to oppose the strategies used by leaders in order to enhance their power and partners including the development of asymmetric information. In this framework Fame and Jensen also argued that the most influential members in the board naturally have to be internal members, since they have valid and specific information regarding the activities of the firm. The information was mainly obtained by internal mutual supervision of other managers.

The proportion of independent directors is one of the key features of the board effective structure. The Cadbury committee produced two major recommendations with respect to the structure of UK corporate boards. Firstly, boards should consist of at least three non-executive directors, two of whom should be independent of management. Also, the positions of the chairman and CEO (or equivalent) should not be held by the same individual. The rational for this was to ensure a higher level of monitoring by company boards by introducing more independence and to prevent any one individual from dominating the board (Cadbury Report, 1992). Based on a wide range of positive study findings on the relationship between board independence and stock performance CBK recommends that non-executive directors should not be less than 3/5 on board size in order to enhance accountability among the listed firms (CBK, 2013).

According to a survey by Ferreira and Kirchmaier (2013), the number of independent directors on boards increased form 29 percent in 2000 to 34 percent in 2010. The survey results show that both firm size and firm performance were positively related to board independence in European countries. Romano, Ferretti, and Rigolini (2012) found no relationship between the presences of independent directors in the board of directors with their performance. Chen and Jaggi (2001) suggested the proportion of the independent directors was positively related to comprehensiveness of financial disclosure. Similarly, Ajnkya, Bhojraji and Sengupta (2005) demonstrated that an independent board enhances the frequency and earnings forecasts by effective monitoring of management. The independent chairman enhances monitoring efficiency and thus reduces the advantages gained by withholding information, thereby improving the disclosure and stock market liquidity performance.

Lin (2013) illustrated that the increase of independent directors in firms is a popular regulatory measure in Asia after the financial crisis. The firms have started paying attention to the monitoring role of the board as means of improving corporate governance. Independent boards are strong and more effective at monitoring managers. It could presumably restore stakeholders' confidence (Rezaee, 2009). However, the independence of directors comes with its own challenges. Good advice and effective monitoring require a framework of trust and information sharing. Adams and Ferreira (2007) argued that independence of directors' advisory role depends critically on the information provided by the CEO. Therefore, as with almost everything; independence of directors comes with benefits of mitigating informational asymmetries. Through demand of additional number disclosure of information and also generate its own agency costs by aggravating incentives for managers to affect the quality of information. Fan, Wei and Xu (2011) noted that if independence of directors is viewed with greater suspicion, decision making may be slower and less cooperative.

Agency theory recommends the need to involve independent directors in the company's board to monitor any self – interested actions by managers with a view of minimizing agency costs (Williams, Duncan & Ginter, 2006). The internal directors are normally known to be aligned with the CEO who was the highest - ranking company executive with power to appoint executives. In actual corporate scene, the directors dully appointed by the CEO may not effectively monitor the CEO. Byrd and Hickman (1992) argued that a high caliber CEO may appoint independent directors to please shareholders with an illusion that there was active monitoring in the company's activities and assets when indeed there is none. The truly independent directors of the board are more likely to opt for a clean slate by hiring replacement of the CEO when the company's stock market liquidity deteriorates significantly (Borokhovich & Parrino, 1996). Oyoga (2010); Poudel and Hovey (2012); Mohammad and Shahid (2012) all agree in their findings that there was a positive influence of the high presence of independent directors in the board with high stock performance.

Although independent directors help a great deal in decision making in organizations, research has found no direct linkage between board independence and firm stock performance. The board independence is affected by stock performance, companies reacting to bad performance by adding outside directors to the board. The advantages of an active independent board are normally realized when specific issues such as; CEO replacement or acquisition proposals are to be voted on. Coles, Naveen and Naveen (2015) attribute the missing link between board independence and stock performance to board ineffectiveness. Despite of mixed findings on the influence of outside directors on the stock market liquidity performance, agency theory perspective has been adopted to evaluate the influence of board independence on stock market liquidity.

2.3.3 Board Structure

Board structure refers to the number of directors and the type, as determined by the usual insider- outsider classification (Ferreira & Kirchmaier, 2013). Board structure offers a critical internal corporate governance mechanism to provide strategic direction and to protect the interests of shareholders and stakeholders (Akisik & Gal, 2017). Board members, acting on behalf of shareholders, must consider the welfare of the firm during the decision - making process. The outcome of this function influences the firms' ability to trade large size quickly at low cost. Garas and Elmassah (2018) demonstrated that separation of CEO and chairman of the board. The existence of board independence and independent audit committee positively influence stock market liquidity. Kaymak and Bektas (2008) had a negative relationship between the CEO duality and stock market liquidity performance.

According to Hermalin and Weishbach (2010) board structure plays a very important role as it fulfills legal requirements. Also provides strategic guidance, leadership, objective judgment, independent management and exercises control over the firms. Top management is responsible for developing strategies that leads to the firm's competitive advantage. Shareholders do escape agency problems by leaving them to the board of directors. Since directors are themselves agents whose interests are not necessarily aligned with the shareholders. The selection of good board structure and

its composition is paramount for the firms to remain competitive. The board's activity is very important since it is positively related to the firms' liquidity and financial performance (Mululu, 2005).

Board insiders are the members of the top management team, employees of the firm or its subsidiary. Outsider directors have no such association but have some influence link with the firm. They can further be classified into affiliated and non – affiliated outsider directors. Affiliated outsider director are not members of the current management or employees of the firm but have some influential link with the firm. Non – affiliated outside directors are usually know as independent directors for they are recruited primarily because of their expertise, recognition, name and skills (Pearce & Zahr, 1992). Board of directors and board composition are the central point of internal corporate governance mechanism.

Companies in which the role of CEO and chairperson of the board of directors are combined or held by one person are considered to have unitary board in the council. Duality first points out the absence of separation of decision control and decision management. It indicates that the committees are not independent. Effectively means that control decision does not limit the discretion of individual decision of the executive chairperson. Board duality is a corporate leadership structure that mergers the position of board of directors' chairperson and the CEO. The role of governance and oversight may extend to the dissemination of information from the company to external directors. Thus, firms having a dual executive have a weak level of voluntary disclosure. Because the board seems to be less effective in controlling the management and ensuring the high level of transparency (Fame & Jensen, 1983).

The board of directors is responsible for evaluating CEO activities. It is an important approach to ensure that CEO activities are in line with the interest of shareholders (Fame & Jensen, 1983; Shleifer & Vishny, 1997). The board of directors is meant to perform the critical functions of monitoring and advising the CEO. The low level of transparency can be used to hide the fraud and incompetence. Separation of the position of the chairperson and CEO promotes accountability and facilitates division of responsibilities between them. Heidrick and Struggles (2014) found that 93

percent of directors of European listed firms believed that it is important for the leadership of the chair to encourage excellent team dynamics.

Linck, Wetter and Yang (2008) demonstrated that board structure tends to reflect the firm's industry. The need for monitoring of activities and the transparency of the firm's earnings. Jensen (1993) noted that troubled firms expand their board in response to poor past stock market liquidity performance to increase managerial capacity. A survey by Russell Reynolds Associates (2002) the majority of chairpersons confirmed that board structure, diversity, ratio of executive to non - executive directors and independence are of secondary importance to the effectiveness of the board. However, a majority of chairpersons were supportive of unitary board system. Ferreira and Kirchmaier (2013) noted that the number of independent directors on boards increased from 29 percent in 2000 to 34 percent in 2010. The survey results show that both firm size and firm performance are positively related to board independence in European countries. The proportion of boards with a combined CEO and chair varies among member countries. Heidrick and Struggles (2014) found that the Netherlands had the highest number of independent directors at 68 percent.

Empirical studies in several disciplines have investigated whether changes in board structure can influence outcomes there have significant implications for shareholders' interests. Young's (2000) found that increased demand for NEDs was more pronounced in firms classified as having excessively manager – dominated boards. Young's further, argued that there was little evidence that an increase in NEDs causes firms to adjust other governance elements to restore the optimum level of monitoring. The findings show that the proportion of NEDs was significantly lower for firms with a combined chairperson and CEO for firms with smaller boards and less diversified firms. Dalton *et al.,* (2003) argues that as board size increases the strategies decision making capabilities. The board increase due to knowledge and intellect that is brought to the board by experts from varied backgrounds. Smaller board structures are assumed to have inadequate confidence and unclear understanding in making strategic changes.

Weir and Laing (2001) found that combined leadership structure was common in the two highest quartile groups; the highest performing quartile had the lowest proportions of non – executive directors on their boards. The best performing quartiles had the lowest representation of unaffiliated non – executive directors. In their interpretation, the benefits of combining the role of chair and CEO outweigh those of separation. Merely adopting a specified set of governance structures does not automatically mean that it enables the firms to trade large volume quickly at low cost. Fich and Schivdasani (2006) found that 'busy' boards, where directors hold multiple directorships in other companies, do not harm shareholders' wealth. They suggested that the extent to which outside directors are 'busy' determines the effectiveness of monitoring by the board.

2.3.4 Seniority of Directors

Board with members who represent a good mix of age, experience and back ground tend to foster constructive debate in decision making process. Ali, Ng and Kulik (2018) seniority of directors can be seen at the time of crisis that may require greater than usual board roles of oversight and management. Seniority of directors could signal to the job market the commitment of the firms maintains their employees. Thus, helpful in attracting skillful individual from diverse backgrounds. Seniority of directors is very important aspect of board composition. The board that has diversity in thinking, background, experiences, expertise, age, skills and a range of tenures that are appropriate given the firm's situations (Marko, Navodya, Sivashankari, Peter, & Jorma, 2020).

Seniority of directors is an important dimension of boardroom diversity. There are limited studies on the influence of seniority of directors on stock market liquidity compared to other dimensions. Seniority of directors' matter because it is an important proxy for directors' decision making, it reflects directors' values. One could expect specific historical events in a firm or country to have a strong influence on the values of individuals of different ages in general, but more especially, on their values regarding work. Talavera, Yin and Zhang (2018) seniority of directors can be considered essential in firms that have undergone significant transformations.

Seniority of directors might hold diverse values and have experiences that could adversely influence their collective decision - making process in boardrooms.

The idea that tenure length of the directors' service may be associated with board effectiveness is not new. As issue explored in governance studies is whether board tenure length, among the many directors' attributes studied, influence a board's ability to monitor management. Shan, George and Melver (2011) demonstrated that the expertise of a board was not a significant determinant of corporate financial and liquidity performance in China. To create board commitment for sustainability of major organizational change important things to consider are: board experience, competence, board meeting dynamics and board as a provider of critical resources (Alange & Steiber, 2009). To gain the trust and respect of the executive and CEO, board need to possess the necessary depth and breadth of experience (Ingley & Walt, 2008).

A number of studies on corporate governance hypothesize that longer tenure the better monitoring. Since tenure length decreases directors' susceptibility to management influence (Beasley, 1996) and increases their firm – specific knowledge. In contrast, other researchers expect longer tenure to lead to greater commitment to the status quo and board entrenchment, resulting in weaker monitoring (Anderson, Mansi, & Reeb, 2004). The directors' tenure is associated with better access to information and resources, improving the boards' ability to carry out its duties. The amount and nature of information that directors possess have greater influence on board effectiveness (Bebchuk & Weisbach, 2010). Ross (2005) found that younger boards generally outperformed older boards, suggesting the possibility that younger boards may be more innovative and perhaps more willing to participate in the monitoring process.

Zajac and Westphal (1996) demonstrated that an individual's age might be related to his or her openness to new ideas. As average board tenure increases, the occupational expertise of board members becomes more homogeneous perhaps suggesting a reduction in the range of decision – making perspectives (Kosnik, 1990). Younger decision – makers appear less bound by the status quo and more amenable to change.

Seniority of directors and the length of service in the board is an indicator of familiarity with the company's business and environment. While it can help the administration to exercise its duties and responsibilities of supervision, familiarity can also reveal some rooting and inefficiency in the board (Sakwa, 2015).

Board with diverse directors' tenure lengths may recognize the benefits of having both senior and junior directors, leading to knowledge continuity as well as independence. Li and Wahid (2017) argued that tenure diverse boards exhibit significantly higher CEO performance – turnover sensitivity and that firms with tenure – diverse audit committees are less likely to experience accounting restatements. Even though tenure diverse boards seem to exhibit superior monitoring performance, there is limited evidence that firms exhibit superior stock market liquidity. It is further suggested that calls for board renewal, to the extent that it would increase average board tenure, may help enhance board monitoring.

Although seniority of directors of different ages and experiences would have behaviors that differ when considering directors as a group, these varying behaviors that could lead to value creation. It is possible that as individuals get older, their cognitive abilities could deteriorate and their motivations could change as they get older, compared to when they were younger (Talavera *et al*., 2018). Older individuals might not be as energetic as younger individuals, may have more problems getting along with co-workers. They might value time spent with family more than time spent working, since they may be less motivated at work (Ali *et al*., 2017). Younger directors could be more familiar with newer technologies, whereas older directors could provide boardrooms with stability and wisdom.

Kesner (1988) suggested that the time required for a new director to acquire a sufficient understanding of the firm ranges from three to five years. Average board tenure of board members is important. Because every new task or responsibility has a learning curve. In the early stages of learning, decisions are generally tentative and often involve an incomplete analysis. Westphal and Khanna (2003) illustrated that longer tenure appears to increase directors' independence. It offers some insulation

against social isolation for objecting to a course of action preferred by management and other directors.

In theory, social pressures may keep directors in line with management objectives but directors with longer tenure appear less constrained. Interestingly, not only has longer tenure been shown to increase firm's ability to trade large size quickly at low cost. Also, board members who share similar tenure develop a sense of friendship, collectively are better able to evaluate top management proposals. Dou, Sahgal and Zhang (2015) demonstrated that directors' performance improves with the extended tenure and experience. They argued that longer – servicing directors have higher level of commitment, are better at controlling CEO turnover and CEO pay. They are more likely to restrict the expansion of resources under CEO control. The longer tenured board members with tenure of over 20 years are better at monitoring management actions. They gather and store valuable information about the firm and can share it with other independent directors for the good of the company (Bonini, Deng, Ferrori & John, 2015).

2.3.5 Firm Size

There are a number of moderating variables that are likely to influence corporate governance on stock market liquidity. These variables include firm size, share price, return volatility, firm age, analyst following, asset tangibility, insider trading, growth opportunities, research and development, leverage, industry effect and year effect (Prommin, Jumreornvong & Jiraporn, 2014). The study considers only one moderating variable of firm size. Zuhroh (2019) firm size is a scale that classifies the size of a firm using various mode; total assets, log size, stock market value and total sales. Higher total assets and sales of the firm indicated the turnover of funds in the firm. The higher the total assets, the greater the capital the firm invests. On the basis of the descriptions, it can be stated that firm size represents the size of a firm.

Firm size is a reflection of a firm's high commitment to always improve its financial performance and stock market liquidity. Firm size is controlled, for larger firms to have more information available as they may attract many investigations on their stock, thus have less severe adverse selection risk (Diamond & Verrechie, 1991). The

proxy for firm size is market capitalization, which is calculated; as the number of shares outstanding times share price at the end of a fiscal year. To accurately capture the influence of tick – size induced binding constrains, instead of share price; use the reciprocal of share price (1/PRICE). The firm size has been considered as a proxy of information asymmetry and agency costs. The equities firms with weak market capitalization are less liquid.

Roulstone (2003) suggested that "firms with higher trading volume present market maker with more opportunities to manage their inventory and recoup losses to informed investors". Consequently, there exists to a negative association between bid - ask spread and trading volume. The big firms provide large amount of information to the public. Greater information lowers adverse selection, large sized firms have lower bid – ask spread. Larger firm size is known to possess the ability to reduce the transaction cost. They gather and process information that facilitates quick decision making that is positively associated with improved stock market liquidity. Hughes and Master (2013) found that increase in firm size by 1 percent increases costs by 0.95 percent for both small and large firms. This implied that the transaction cost of set up even smaller firms would be higher. Sutardjo (2019) demonstrated that there was a significant influence between firm size and stock market liquidity.

Naceur and Goaied (2010) argued firm size negatively influence of profitability of firms operating above their optimum level. Allen and Rai (1996) noted that the larger firms have been marked by higher levels of inefficiency. Zho (2011) firm size had a negative influence on stock market liquidity. Flamini, McDonald and Schumacher (2009) suggested that bigger firms are more competitive as compared to smaller firms. They take advantage of the economies of scale enjoy a higher level of profits and improved stock market liquidity. The increase of firm size improves stock market liquidity of the firm and this in turn increases the value of the firm (Almajali, Alamro & Al-soub, 2012).

The firms with bigger market share are considered to make more returns to its shareholders. Large size firms are in this context, thought to have higher abilities to maximize its profit and stock market liquidity. Omri, Zayani and Loukil (2004)

argued from theoretical standpoints that there is a positive influence of firm's size on stock market liquidity. As the firm's size increase, the liquidity of its stock will increase; a large firm is following by analysts and attracts investors. In addition, its size allows it to disclose more information thereby reducing information asymmetry. Thus, the firm ability to trade large size quickly at low cost. This proposition has been empirically supported by Stoll (2004) noted that the securities of small firms are less liquid than the securities of large firms.

2.3.6 Stock Market Liquidity

Corporate governance is assumed to improve stock market liquidity by alleviating information asymmetry between managers and investors. Corporate governance is likely to improve firms' ability to trades large size quickly at low cost. To investigate the firm's stock market liquidity, it was necessary to determine the dimensions that were measurable. The most widely used measures in the studies of stock market liquidity are based on the three dimensions namely: tightness, trading time, and price impact (Ali *et al*., 2017). As stock market liquidity is not directly observable and has several dimensions. It is clear that it cannot be captured by a single dimension. Moreover, the available data does not exactly correspond to the aforesaid dimensions (Sarr & Lybek, 2002).

2.3.6.1 Tightness

Tightness is the ability to buy and sell an asset at about the same price at the same time or over a short period of time. Tightness is also called as trading cost. It represents to the financial cost of completing a transaction or transaction cost which is low. The quoted spread is understood though not expressed as transaction costs for market orders when a transaction occurs at the quoted price with no price improvement. It has been considered as a direct measure of trading costs (Sarr & Lybek, 2002). In periods of heightened information asymmetry, the bid – ask spread is wide for, in such periods unformed traders trade their orders away from the market. They decrease their chances of trading with informed traders. The quoted spread is posted costs of the market, while the effective spread is used to capture the transaction costs (Callahan, Lee & Yohn, 1997). Heflin, Shaw and Wild (2005)

suggested that effective spreads are likely to be a better spread – based measure for the stock market liquidity than either raw or relative spreads.

Quoted Spreads = $Ask_t - Bid_t / (Ask_t + Bid_t)/2$ (1)

Effective Relative Spread = $2 \left| \frac{(Ask_t + Bid_t)/2 - P_t}{(Ask_t + Bid_t)/2} \right|$ (2)

Where:

Bid_t: the bid price

Ask_t: asking price

Chang, D'Anna, Watson and Wee (2008) indicated that in determining the time – weighted quoted spread (TWQS) as a daily ratio of the time weighted bid – ask spread is divided by the time weighted mid – point spread averaged over a number of trading days in a financial year. The higher the TWQS, the lower is the stock market liquidity. Mclnish and Wood (1992) noted that the time weighted quoted spread estimates the equilibrium spread and mitigates the measurement error pertaining to any spurious behavior in the spread. Sarr and Lybek (2002) found that transaction cost measures are directly related to tightness and indirectly related to breadth and resiliency. The bids – ask spread considers nearly all clearly and fully stated costs and also not expressed.

$TW\ Quoted\ Spread_{iy} = 1/D_{iy} \sum_{d=1}^{Diy} TWBidAskSpred_{iyd} / TWMidPointPrice_{iyd}$ (3)

Where:

$TWBidAskSpread_{iyd}$ is the time – weighted bid asks spread of firm i on day d of year y, $TWMidPointPrice_{iyd}$ is the time – weighted mid – point price of firm i on day d of year y, D_{iy} is the number of days with available data for firm i in year y.

The time – weighted bid ask spread is calculated as follows:

$TWBidAskSpread_{iyd}$ = (Ask–Bid) x time1 + (Ask-Bid) x time2 +…+ (Ask-Bid) x time n / Time 1 + Time 2 +… + Time n
(4)

The Time – weighted mid-point price is calculated as follows:

$TWMidPointPrice_{iyd}$ = (Ask + Bid)/2 x time1+ (Ask + Bid)/2x time2 +… + (Ask +Bid)/2 x time n /Time 1 + Time 2 + Time n (5)

Ask = best available ask on the limit order book

Bid = best available bid on the limit order book

Time n = represents the time period that the bid – ask spread remained in existence.

2.3.6.2 Trading Time

Trading time is defined as the speed at which orders are executed and settled (Sarr & Lybek, 2002). The ability to execute a transaction immediately at the prevailing price. Turnover captures trading speed or frequency (how many times a share changes hand in a certain period). Datar, Naik, and Radcliffe (1998) used turnover as a proxy of stock market liquidity and found a significant role of stock market liquidity in explaining the cross – sectional variation in stock returns. Glosten and Milgrom (1985) suggested that shares with high trading volume have low level of information asymmetry since prices reveal less information. In their studies Bartov and Bodnar (1996) found a positive influence of information asymmetry on trading volume. They argued that information asymmetry may cause a reduction in the trading volume given that uninformed traders may reduce their trades in such shares. Sarr and Lybek, also suggested that a high turnover rate indicated high liquidity. Turnover is measured as the sum of daily shares traded in year to the number of shares outstanding.

$TO_{iy} = VOL_{iy/}N_{iy}$ (6)

Where:

VOL_{iy} is the total number of shares traded for firm i in a period of a year y and N_{iy} is the number of outstanding shares for the firm i in a period of a year y. Volume data for each firm is collected on a daily basis, while a number of outstanding shares data collected on a yearly basis.

2.3.6.3 Price Impact

The study was to measure price impact on the stock market liquidity by the use of depth and breadth of the trades. Kluger and Stephen (1997) demonstrated that markets characterized by price imbalances, depth and breadth are more liquid and are thus better able to absorb a large trading volume without a substantial price change.

i) Depth

Depth is measured as the existence of abundant orders traded (Sarr & Lybek, 2002). The ability to buy and sell a certain amount of an asset without influence on the quoted price. Amihud's (2002) illiquidity (ILLIQ) is used to measure the daily price impact of the order flow. The premium that buyer pays or the discount that a seller concedes when executing a market order, results from inventory and adverse selection costs. Huang and Stoll (1996) studies on informed trading suggested that price impact of trade captures information asymmetry as trade conveys private information.

A large trade may attract other traders given that there is a possibility that trade is information motivated activity. For example, a large purchase may signal good news while a large sale may signal bad news in trading. Given the non – availability of intraday data, a number of empirical studies show that ILLIQ is a reliable measure of price impact and stock market liquidity (Hasbrouck, 2009; Karolyi, Lee & Van Dijk, 2012). The ILLIQ is measured as the daily ratio of absolute stock return to trading volume in the shillings averaged over a number of trading days in the financial year. For example, how much absolute stock price changes with shilling of trading volume? The higher the illiquidity, the lower is the stock market liquidity.

$$ILLIQ_{iy} = 1/D_{iy} \sum_{d=1}^{Diy} |R_{idy}| / VOLD_{idy} \quad (7)$$

Where:

$|R_{idy}|$ is the absolute stock return of firm i on day d in a period of a year y, $VOLD_{idy}$ is the trading volume of firm i on day d of year y, and D_{iy} is the number of days with available data for firm i in a period of a year y.

ii) Breadth

Breadth refers to the fact that numerous and large (volume) orders have only a minimal price impact (Sarr & Lybek, 2002). Liquidity ratio is a volume - based measure. Liquidity ratio measures breadth and it is also known as the Amivest measure of stock market liquidity. Liquidity ratio captures how much trading volume is associated with the unit change per a share price. The higher the liquidity ratio, the higher the depth or stock market liquidity. Liquidity ratio measures the sum of daily trading volume divided by the sum of daily absolute stock return in a financial year.

$$LR_{iy} = \sum_{d=1}^{Diy} VOL_{idy} / \sum_{d=1}^{Diy} |R_{idy}| \quad (8)$$

Where:

VOL_{idy} is the daily trading volume of firm i on day d of year y, $|R_{idy}|$ is the absolute daily stock returns of firm i on day d of year y and D_{iy} is the number of days with available data for firm i in year y.

2.4 Empirical Review

This section discussed the empirical literature that has been advanced to explain the influence of corporate governance on stock market liquidity. The empirical literature was reviewed according to the study objectives to document the immediately available knowledge pertaining to the study variables of board effectiveness,

independence of directors, board structure, seniority of directors and firm size before the onset of this research.

2.4.1 Board Effectiveness

Sidhu and Kaur (2019) while investigating the effect of corporate governance on stock market liquidity: empirical evidence from Indian companies. The study found that board effectiveness had positive and significant influence on stock market liquidity. This implied that maintaining good corporate governance mechanism is beneficial for firms in terms of their stock market liquidity. The corporate governance and stock market liquidity were measured in the sample of BSE 500 listed companies the period from 2013 – 2017. Pane data regression model was applied for testing the hypothesized association.

Hamdan, Ahmed and Adel (2017) on examining the impact of corporate governance strength on stock market liquidity in Malaysia, the study found a significant positive association between corporate governance effectiveness and stock market liquidity. The results implied that the firms with effective monitoring mechanisms mitigate information asymmetry which leads to less adverse selection problems among trading stocks. The study used a sample of 2, 020 yearly firm observations in Bursa Malaysia over the period 2009 – 2012. The study employed ordinary least square regression and several estimation methods such as two stage least squares using instrumental variables (IV – 2SLS) and dynamic GMM. The study constructed a corporate governance board effectiveness measure by combining both internal and external monitoring mechanisms.

In a study carried out by Majdi and Aymen (2013), investigated the relationship between corporate governance and stock liquidity. The study used data collected from 469 firms in France for the period 2007 to 2012. Corporate governance mechanisms were measured using governance index of selected 82 items distributed around four themes namely; the board of directors, the audit quality, the ownership structure and the disclosure of information as independent variables. The stock market liquidity was measured by the three dimensions of trading volume, trading time and the price impact as dependent variable. The findings of the studies

concluded that effective corporate governance may reduce the information asymmetry and improve stock liquidity of companies. These findings suggested that firms improve stock liquidity by adopting best practices of corporate governance. The studies noted that, high ownership concentration and after controlling its level, corporate governance and best practices tends to improve stock liquidity.

Hussain, Khan, Gemici and Olah (2021) looked at the impact of country and corporate – level governance and firm internationalization on stock liquidity of 120 listed firms in Japan, Hong Kong, Pakistan and India. The study found that board size was insignificant to stock liquidity. Large board size raised conflict among directors which indirectly affects the decision - making procedures and thus reduces stock market liquidity. Board meeting were found to have no relationship with stock market liquidity and further, board independence was insignificant to stock market liquidity. The period of study spanning from 2008 to 2017. The employed the time series cross sectional Prais – Winsten Model of regression with panel – corrected stand and error (PCSE).

A study by Sakwa (2015) investigated the effect of corporate governance on stock market liquidity of firms listed at Nairobi Securities Exchange. The study found that board size had a positive but lesser effect on stock market liquidity. Further, frequency of board meetings had a positive but lesser effect on stock liquidity. The population of the studies comprised of all the 59 firms listed at NSE from 2009 to 2013. The dependent variable of stock market liquidity was measured by; trading volumes, price volatility, share price and firm size.

2.4.2 Independence of Directors

In a study conducted by Angelo and Alex (2012) on how board independence affects stock market liquidity and price efficiency. The study findings were that firms with greater board independence had narrower spreads and greater speed of adjustment to new information. Additionally, improvements in board independence over time are positively associated with improvements in firm liquidity and efficiency. The results suggested that greater board independence can lower the probability of informed trading resulting in greater liquidity provision and smaller price delay. The study

used a sample of 239 listed firms in Australia from 2004 – 2009. The study employed a 2SLS framework to model simultaneity issue.

Wajih, Ahmed, Suha and Rashid (2021) on investigating the role of ownership structure and board characteristics in stock market liquidity in South Asia. The studies found that independence of directors significantly and positively influences stock market liquidity because of their monitoring power on the board. The study period spinning from 2011 – 2020. Data was collected from the Datastream. The study used a fixed effects model and generalized method of moments (GMM). Manjit (2016) while examining the corporate governance and stock market liquidity of Indian manufacturing companies included in the S & P BSE 100 index during the period 2009 – 2012 by invoking pooled regression model. The studies found that independence of directors had a negative association with stock market liquidity and the correlation was not significant.

Ali *et al.,* (2017) conducted research on corporate governance and stock liquidity dimensions: Panel evidence from pure order – driven Austrian market. The study found that the proportion of independent directors and number of board meetings significantly reduce stock market liquidity risk. Further the presence of independent directors, board size and meetings significantly increase stock liquidity. The studies used a large sample of 1207 firms (10, 179 firm - yearly observations) over the long period of 13 years. The study constructed a corporate governance index by following the Horwath report. The study employed pooled ordinary least squares. They provided a comprehensive and robust evidence for the association between the corporate governance and stock market liquidity in the Australia. The study adopted the dependent variable of stock market liquidity as measured using three dimensions of trading cost, price impact and immediacy.

Sakwa (2015) on investigating the effect of selected corporate governance variables on stock liquidity for firm's listed at the Nairobi Securities Exchange. The study found that board independence had a positive and sizeable effect on stock liquidity. Thus, a shift in board independence influences a same direction shift of the stock liquidity. The population of the studies comprised of all the 59 firms listed at NSE

from 2009 to 2013. The Analysis of variance (ANOVA) test of significance on the five predictor variables found none of the variables were significance in predicating stock market liquidity.

2.4.3 Board Structure

Wajih *et al.,* (2021) while investigating the role of ownership structure and board characteristics in stock market liquidity in South Asia. The study period was 2011 – 2020. The study data was collected from the Datastream. The study used a fixed effects model and generalized method of moments (GMM). The study revealed that chief executive office duality significantly increases stock market liquidity which means that the dual role of CEOs increases leadership and monitoring power. It also helps to control adverse selection problems and stock market liquidity is positively affected.

In a study carried out by Manjit (2016) on the corporate governance and stock market liquidity of Indian manufacturing companies included in the S & P BSE 100 index during the period 2009 – 2012 by invoking pooled regression model. The study found that CEO duality was positively related with stock market liquidity. However, multiple directorships were negatively related with liquidity advocating that busy directors have negative influence on stock market liquidity of the firms. Frequent audit committee meetings and percentage of board meetings attended by independent directors were negatively related with liquidity.

A study by Okumu (2015) on corporate governance and firm value for firms listed at the Nairobi Securities Exchange. The study was conducted the period spanning from 2010 to 2012 on the 63 firms listed at the NSE. The study investigated the relationship between corporate governance using the attributes of board size, board composition, CEO duality and audit committee composition, compared against measures of firm value of return on asset and market to book value of firms listed at the NSE. The study found that CEO duality and audit committee as a corporate governance attribute had significant influence on both return on asset and market to book value ratio as measures of firm value. The findings indicated that corporate governance attributes had a significant influence on return on assets while corporate

governance attributes had insignificant influence on market to book value ratio as a measure of firm value.

In a study carried out by Oyoga (2010) investigated whether the performance of financial institutions listed at the Nairobi Securities Exchange were affected by corporate governance best practices put in place. The study adopted board independence, shareholding compensation, board governance disclosure and shareholder rights as independent variables. The study constructed the corporate governance index as per Globe and Mail rankings using data from financial institutions and performance measures drawn from annual audit financial statements as dependent variable. The findings of the study indicated that there was a positive relationship between boards composition with performance of financial institutions listed at the NSE. The study concluded that financial institutions listed at the NSE should endeavor to attain the highest possible level of corporate governance.

2.4.4 Seniority of Directors

Sakwa (2015) investigated the effect of corporate governance on stock market liquidity of firms listed at Nairobi Securities Exchange. The population of the studies comprised of all the 59 firms listed at NSE from 2009 to 2013). The study found that seniority of directors in the board had slightly larger negative influence on stock liquidity. Seniority of the board resulted in marginal decrease of stock liquidity of listed firms.

Wahid and Li (2018) while examining the impact of directors' tenure diversity on board monitoring effectiveness. The study found that tenure diversity appears not to be associated with higher future performance, in terms of stock market liquidity. The study used a sample of 867 firm yearly observations. The study period was from 2000 – 2012 on Singapore Universe of ExecuComp firms. The study used the panel regression model.

A study by Ning, Majeed and Zeb (2021) on investigating board diversity and financial statement comparability: evidence from China. The study found positive and significant results, revealing that tenure and experience enhances comparability

in Chinese firms. The results were consistent with arguments that higher tenure and experience increases the monitoring of management activities. The study sample comprised of Chinese A – share (listed) firms registered on Shenzhen and Shanghai Stock Exchange for a period spanning 2005 – 2020. The study employed a panel data regression model to estimate the effect of board diversity on firms' comparability.

Majdi and Aymen (2013) while investigating the empirical relation between corporate governance and stock market liquidity of the French firms. Based on a cross – sectional analysis on 155 French companies during 2008 and 2009. The study sample included all industrial and commercial companies listed in Paris Stock Exchange. The study methodology relied on linear regression using the method of ordinary least square (OLS). The study found that the average of the board of the administration members' length of service had a negative and significant effect on stock market liquidity. The study measured seniority of directors in terms of average tenure of the board of directors.

2.4.5 Firm Size

Abdollahi and Mostafaloo (2020) on investigating corporate governance and dimensions of stock liquidity in Iranian firms. The study used financial and stock market liquidity information of companies listed on Tehran stock Exchange in the period of 2013 to 2017. The study covered a sample of 211 listed companies. The tests were performed using Eviews software. Mult-variable linear regression analysis was used to test the research hypothesis. The study found that firm size had a positive and insignificant relationship between firm size and stock market liquidity.

A study by Sidhu and Kaur (2019) on the effect of corporate governance on stock market liquidity: empirical evidence from Indian companies. The study found that firm size had a negative and significant coefficient ($\beta = -1.168$, $p < 0.01$) at 10 % level, that was, larger firms had high stock market liquidity. Further, the coefficient of firm age was negative, consistent with the predictions. However, they were statistically significant. The corporate governance and stock market liquidity were measured in the sample of BSE 500 listed companies in India the period from 2013 –

2017. Pane data regression model was applied for testing the hypothesized association.

Ruhana and Hidayah (2020) in their study on the effect of liquidity, firm size and corporate governance toward sustainability report disclosures. The study found that firm size had a significant negative influence on sustainability report disclosure and stock market liquidity. The study was on empirical examination on participant of Indonesia sustainability reporting award for companies. The study period was from 2012 to 2017. The study used sample of 54 companies using purposive sampling method.

Hussain *et al*., (2021) looked at the impact of country and corporate – level governance and firm internationalization on stock liquidity of 120 listed firms in Japan, Hong Kong, Pakistan and India. The study found that firm size had significant negative impact on stock market liquidity. The study also found a negative relationship between country – level governance mechanisms and stock liquidity. The study period spanning from 2008 to 2017. The employed the time series cross sectional Prais – Winsten Model of regression with panel – corrected stand and error (PCSE).

Sidhu (2016) on investigating the relationship between corporate governance and stock market liquidity. The study found that firm size and firm age had a positive sign of coefficient consistent with the expectation that the older and larger firms have higher stock market liquidity in the Indian manufacturing companies. The sample included a subset of companies comprising the S & P BSE 100 index for three financial years from 2009 – 2012. The study used SPSS (Version 20) and STATA (Version 12) for data analysis. Pooled ordinary least square (OLS) regression model was employed.

2.5 Critique of Existing Literature

Studies have been undertaken to ascertain the influence of corporate governance on stock market liquidity in different countries. However, these studies had number of weaknesses. Empirical evidence and results of various studies show mixed results on

the influence of corporate governance and stock market liquidity. This was evident even in situations where similar indicates of corporate governance were employed. Some of the studies have postulated significant or insignificant negative relationship. Empirical findings show that there was a positive relationship between corporate governance and stock market liquidity (Majdi & Aymen, 2013; Hamdan *et al*., 2017; Ali *et al*., 2017; Sidhu & Kaur, 2019). Others show a negative relationship between corporate governance and stock market liquidity these include (Sakwa, 2015; Wahid & Li, 2018; Rahana & Hiayah, 2020 & Hussain *et al*., 2021). The lack of convergence implied that the studies did not establish a clear relationship between corporate governance and stock market liquidity.

The reviewed studies seem not to use the similar analysis models on the study variables. Some studies used ordinary least square (OLS), panel data regression model and the 2SLS framework to model simultaneity issue. Review of literature indicates that majority of the previous empirical studies have only analyzed the relationship between corporate governance and stock liquidity using only two dimensions of stock market liquidity measures. Studies such as Sakwa (2015) only used two dimensions to analyze stock market liquidity. It is also evident from empirical studies that there are no comprehensive studies on corporate governance and stock market liquidity in Kenya using the three dimensions.

The studies suffered from a short time series of two to three years (Majdi & Aymen, 2013; Okumu, 2015; Wajih *et al*., 2021; Wahid & Li, 2018). From the reviewed studies, various conceptual, methodological, and contextual knowledge gaps came about. Most studies cited in the literature have been conducted in the context of developed nations. They have failed to look at some of the factors influencing corporate governance and stock market liquidity in developing nations. Thereby raising a lot of questions as to whether the stock market liquidity due to poor corporate governance in Kenya are similar to those in developed nations.

2.6 Research Gap

Though considerable empirical work has been done on the influence of corporate governance on stock market liquidity, the findings cannot be generalized in

explaining the same influence with firms listed at the Nairobi Securities Exchange. Several conceptual, contextual and methodological gaps were noticed from the critical review of previous literature. These gaps were noted (Majdi & Aymen, 2013; Ali *et al*., 2017; Wahid & Li, 2018) to exist on areas covered. In addition, there exists a contextual gap given that the studies were conducted outside Kenya. Hence the findings from these studies may not be applicable to listed firms at the Nairobi Securities Exchange. The study had a bearing to work of earlier researchers (Oyoga, 2010; Sakwa, 2015 & Okumu, 2015) on the relationship between corporate governance and stock market liquidity. However, these scant studies were limited to considering only individual specific corporate governance variables. There exists an objective gap since the studies did not address variables such as board effectiveness, independence of directors, board structure and seniority of directors.

From the literature review, it is clear that research in the area of corporate governance and stock liquidity has not been comprehensively done in Kenya. The study had a wider coverage since it used the three dimensions of tightness, trading time and price impact to measure stock market liquidity. Hence the study sought to fill the existing gap by investigating the influence of corporate governance and stock market liquidity at the Nairobi Securities Exchange.

2.7 Summary of Literature Reviewed

It is widely acknowledged that corporate governance is important factor in stock market liquidity. Accountability and transparency component of corporate governance would help listed firms at the Nairobi Securities Exchange gain investors and shareholders' confidence to enable the firms run honestly. This is where corporate governance is critical. The agency theory postulates that the agents who are in this case the managers. Stewardship theory relates to the board's role of providing support and advice to management. Managers are persuaded towards better performance as power, authority and financial rewards are not sufficient enough. The resource dependency theory emphasizes the need of different resources to the success of business. Power and exchange within and around the firm. Finally, transaction cost theory whose main proposition are that: corporations can save costs if they can

concentrate on their core business activities instead of focusing entirely on non – core business activities.

The evidence relating efficiency of corporate governance and stock market liquidity in both developed and developing economies tend to vary due to political, economic, cultural and sector differences among firms and individual nations though there are some similarities. The conceptual framework was developed to link dependent variable with independent variables. It was evident from the literature review that board effectiveness, independence of directors, board structure and seniority of directors influences stock market liquidity. The literature review has shown that the subject of corporate governance and stock market liquidity has attracted significant interest among the financial scholars. This has led to many corporate governance theories that seek to explain how stock market liquidity is measured. However, there is no conclusion on a universal theory that has been adopted.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents all the aspects of research methodology that were used in the study. Rajasekar, Philominathan, Chinnathambi and Thanjavur (2013) define research methodology as a systematic way to solve a problem. It is essentially, the procedures by which researchers go about their work of describing, explaining and predicting a phenomenon. These includes; research philosophy, research design, target population, sampling frame and census, data collection instruments, processing and analysis procedures.

3.2 Research Philosophy

The ultimate goal of any study is to generate new knowledge. The research hypothesis determines the philosophical assumptions underpinning the research. Research philosophy deals with the source, nature and development of new idea. It is the belief about the ways in which data about a phenomenon should be collected, edited, coded, classified, analyzed and used (Collis & Hussey, 2014). The philosophy applies a scientific approach to develop numeric measures to generate acceptable knowledge. There are many research philosophical perspectives widely discussed in the literature such as positivism and post positivism, constructivism, interpretivism, transformative, critical, pragmatism and deconstructivism (Teddlie & Tashakkori, 2010; Creswell, 2014).

Positivism and interpretivism are the two major philosophical views applied in business studies. Positivist philosophy often involves quantitative data, theory or hypothesis gets tested using data while interpretivist uses the data to develop a theory or hypothesis. Interpretivist philosophy often involves a qualitative approach. The study adopted positivism research philosophy. Positivist adopts a clear quantitative approach to investigating a phenomenon, as opposed to post – positivist approaches,

which aims to describe and explore in depth a phenomenon from a qualitative perspective (Agyeman, 2010; Babbie, 2010; Strivastrave & Rego, 2011).

Positivism philosophy advocates the application of methods of natural sciences to the study of social reality. Positivists believe that knowledge is arrived at through gathering of facts that provide the basis for laws (Collis & Hussey, 2014). The study used the positivist approach because it sought to investigate the influence of corporate governance on stock market liquidity of listed firms at Nairobi Securities Exchange. Consequently, the research hypotheses were derived first, then data was collected and analyzed to confirm or reject the propositions arising from the hypotheses.

3.3 Research Design

The study adopted longitudinal research design. Longitudinal research design enables the researcher to detect developments and changes in the characteristics of the target population. Therefore, a longitudinal study is more likely to suggest cause and effect relationship. The study employed a quantitative research design to investigate the influence of corporate governance on stock market liquidity of firms listed at the Nairobi Securities Exchange. Cooper and Schindler (2013) affirm that research design is a guide followed to collect, analyze and interpret the observations that are made. It is the blueprint for the research instruments, methods utilized to collect information and to address research objectives. Its basic elements are theories, concepts, constructs, problems and hypotheses.

Creswell (2014) states that a research design is the entire process of research from conceptualization of problem to writing of research questions, onto data collection, classification, analysis, interpretation and report writing. Therefore, research design is a plan, structure and strategy for the investigating of any research. Mule, Mukras and Oginda (2013) and Cherry (2016) observes that quantitative research design is best suited for gathering information where the researcher wants to know attitudes concerning one or more research variables. Quantitative research design is difficult, expensive and requires a lot of time to perform the analysis if not carefully planned.

3.4 Target Population

According to Mugenda and Mugenda (2013) a target population is the entire population, or group, that a researcher is interested in researching or analyzing. Population is a set of people, services, elements and events, group of things or households that are being investigated (Ondabu, 2017). A target population for a survey is the entire set of units for which the survey data are to be used to make inferences. Thus, the target population defines those units for which the findings of the survey are meant to generalize. Establishing study objectives is the first step in designing a survey. The target population for the study was all the listed firms at the Nairobi Securities Exchange. According to Nairobi Securities Exchange (2017) there were sixty - eight (68) listed firms by December 2017 as per Table 3.1. The survey approach was simple and convenient to use for it saved time, money and effort.

Table 3.1: Target Population

Sector	Number of firms
Agricultural	7
Automobiles and Accessories	4
Banking	10
Commercial and Services	11
Construction and Allied	5
Energy and Petroleum	5
Insurance	7
Investment	5
Investment Services	1
Manufacturing and Allied	10
Telecommunication and Technology	1
Real Estate Investment Trust	1
Exchange Traded Fund	1
Total	**68**

3.5 Sampling Frame and Census

A sample is a subset of units in a population selected to represent all units in a population of interest. Frame refers to the listing of all units in the population under study. Saunders, Lewis and Thorn (2007) a sampling frame has the property that the researcher can identify every single element. Sampling frame is the list of all population units from which a sample can be selected (Cooper & Schindler, 2013). It is the source material or device from which a sample is drawn and includes; individuals, households or institutions. The study conducted a survey of all the 68 firms listed at the Nairobi Securities Exchange according to NSE (2017) and CMA (2017) directory as per (Appendix I).

A survey is a process of collecting data from existing population units with no particular control over factors that may affect the population characteristic of interest in the study (Rajasekar *et al*., 2013). A survey approach was adopted hence no sampling since the units of the study were not too many, concentrated in Nairobi and therefore, accessible and not prohibitive in terms of cost and time. Mugenda and Mugenda (2013), a census is preferred where the population is small and manageable. The listed firms delisted, merged during the period under study and newly listed firms whose full data would not be obtained were excluded from the study.

The study was conducted for the period spanning 2016 – 2020. The study period was important since it included the period after the introduction and implementation of the CMA corporate governance guidelines in Kenya of 2002. It also included the, introduction of Automated Trading Systems, changes accounting system to International Financial Reporting Standards, conversion of the Nairobi Securities Exchange from company limited by guarantee to company limited by shares and the Nairobi Securities Exchange becoming a member of Financial Information Service Division 2015.

3.6 Data Collection Instrument

According to Cooper and Schindler (2013), data collection instruments are tools which are used to collect the necessary information needed to prove or serve some facts. Maina (2012) observes that the research instruments are testing devices used for measuring a given phenomenon designed to obtain data on a topic of interest. The tools include: questionnaire, observation, computer assisted interviewing system and secondary data collection sheet. For the purpose of this study the researcher preferred the use of secondary data collection sheet as per (Appendix II).

The study preferred the secondary collection sheet over other instruments because it was easy and cheaper to administer, no opportunity for bias, confidentiality was upheld and it saved on time. The secondary data collection sheet was designed by the help of financial experts who include lecturers in the field of finance and finance managers. Ensuring that instrument captured all the necessary information to investigate the influence of corporate governance on stock market liquidity at the NSE, the instrument was discussed with the experts and the necessary reviews were done.

Having agreed on the instrument, actual data collection was conducted. Data was collected from the firms' audited financial statements and stock market liquidity records in order to get the true picture of firms listed at the NSE from: the Nairobi Securities Exchange offices, the Kenya National Audit Office and Central Bank of Kenya Statistical bulletins. The liquidity and trading data include; share price, trading volume, market capitalization, bid - ask prices, bid and ask size, the number of orders, shares traded, and shares outstanding. The financial information from published financial reports.

3.7 Data Collection Procedure

The study used secondary data collected from the Nairobi Securities Exchange. Data was collected from the daily securities prices at the Nairobi Securities Exchange records. The data collection also involved getting information from published financial statements for 5 years under study. The study largely involved manually

reviewing of documents of all the 68 listed firms; stock market liquidity records, audited annual financial reports and company releases. The data collected was keyed in an excel sheet ready for analysis.

3.8 Data Analysis and Presentation

Data processing entailed editing, classification and tabulation of raw data ready for analysis. Data processing first involved the cleaning of raw data to ensure that it was consistent. The data analysis was done primarily using descriptive statistics. The secondary data may not answer the research objectives and hypothesis unless analyzed, processed in a coherent and organized manner and meaning to be derived at (Hair, Black & Babin, 2010). Data was further subjected to hypothesis testing. Data analysis was done by the use of E-views 7 software.

The study measured the goodness of fit on the regression model for quoted spread, turnover, illiquidity and liquidity ratio using R^2 values, from which the change in R^2 value were derived. The R^2 represents the proportion of variations of dependent variables accounted by independent variables in the regression model. Change in R^2 is the contribution to the explanation of the variance accounted by independent variables in the regression model after the introduction of the moderating variable (Cooper & Schindler, 2013).

3.8.1 Model Specification and Variable Definition

The study employed panel data regression analysis model. This model allows more observations, more information and more degree of freedom. The model incorporates changes within a firm as well as changes across firms. It accounts for the influence of firm specific attributes. The panel data regression equation had stock market liquidity as the dependent variable and corporate governance internal mechanisms (board effectiveness, independence of directors, board structure and seniority of directors) as independent variables and firm size as a moderating variable. The study model was formulated as follows:

Stock market Liquidity $(Y_{i,t}) = \beta_0 + \beta_1 X_{1i,t} + \beta_2 X_{2i,t} + \beta_3 X_{3i,t} + \beta_4 X_{4i,t} + \beta_5 X_{5i,t} + \varepsilon_{i,t}$

$Y_{i,t}$ is stock market liquidity measured by quoted spread, turnover, illiquidity and liquidity ratio.

Where:

Subscripts i denotes individual firms (i = 1, 2…68), t denotes time period (t = 2016, 2017…2020).

X_1 – Board Effectiveness

X_2 – Independent Directors

X_3 – Board Structure

X_4 – Seniority of Directors

X_5 – Moderating variable of firm size measured by reciprocal of share price (1/price) to capture the effect of tick-size.

β_0 – Is the intercept

$\varepsilon_{i,t}$ – Is the residual term, an error term or disturbance term. The error term accounts for: omitted variables that could influence stock market liquidity that were not captured in the model, errors in measurement and errors in specification of the model.

In isolating the influence of corporate governance on stock market liquidity that are a number of moderating variables that are found to influence stock market liquidity in the prior empirical studies (Chung *et al*., 2010 & Prommin *et al*., 2014). They include; firm size, share price, return volatility, firm age, asset tangibility, leverage, growth opportunities, industry effect and year effect. The study employed one firm characteristic of firm size as a moderating variable in its empirical model given that other characteristics were captured by the stochastic component.

3.8.2 Independent Variables

Independent variables were these related to agency theory and corporate governance best practices of firms listed at the NSE namely; Board effectiveness: measured by logarithm of the number of board members in a particular financial period. Independent directors: measured by number of non – executive directors divided by the total number of directors. Board structure: measured by 1 if CEO exercise same role as chairperson of the board and 0 otherwise. Seniority of directors: measured by logarithm of tenure of board members.

3.8.3 Dependent Variable

The study dependent variable was stock market liquidity. The previous studies (Prommin *et al*., 2014; Beekes *et al.*, 2014; Sidhu & Kaur, 2019) have measured stock market liquidity using four dimensions of tightness, trading time, price impact and resiliency. Ali *et al*., (2017) used the same measures while investigating corporate governance and stock liquidity in Australia. The study employed the use of three dimensions; tightness, trading time, and price impact measure by (depth and breadth).

3.8.3.1 Tightness

Tightness is measured by quoted spread. The quoted spread is calculated by ask minus bid divided by the sum of ask and bid upon two (Heflin *et al*., 2005) or daily ratio of time – weighted bid – ask spread divided by time weighted mid – point spread averaged over a number of trading days in the financial year under consideration. For the purpose of this study, the standardized number of trading days in a year were taken be 252 days. Heflin *et al.,* also suggested that effective spreads are likely to be better spread – based measure for stock market liquidity.

3.8.3.2 Trading Time

Stock turnover is the main measure of trading time which is calculated as sum of daily shares traded to the number of shares outstanding in the financial year under

consideration (Majdi & Aymen, 2013 & Beekes *et al.*, 2014). The higher the turnover rate indicated high stock market liquidity.

3.8.3.3 Depth

Depth is measured by Amihud illiquidity estimate which is measured by daily ratio of absolute return to trading volume in US dollars averaged over a number of trading days in the financial year under consideration (Karolyi *et al*., 2012). The higher the illiquidity the lower is the stock market liquidity.

3.8.3.4 Breadth

Breadth is measured by liquidity ratio. The liquidity is computed as a sum of daily trading volume to the sum of absolute stock return in a financial year under consideration (Beekes *et al*., 2014 & Ali *et al*., 2017). The higher the liquidity ratio, the higher the stock market liquidity.

3.8.4 Diagnostic Tests

The study used a variety of tools to test the regression results for challenges associated with econometric model. The diagnostic tests were conducted by the use of Eviews 7 econometric software including; Normality test, Hausman test, Multicollinearity test, unit root test and autocorrelation test.

3.8.4.1 Normality Test

In describing and summarizing the data, descriptive analysis was performed on all variables to establish the mean, median, minimum, maximum and standard deviation. Additionally, the Jarque – Bara (JB) test was applied on all variables to establish whether they follow the normal probability distribution calculated by the kurtosis and skewness. According to Kline (2011), in a normal distribution, the values of skewness should be zero and those values of kurtosis to be 3. And if the p – value was sufficiently high, one can reject the null hypothesis that variables were not normally distributed. All the Jarque - Bera values were far away from zero which that meant variables were not normally distributed.

3.8.4.2 Hausman Test

The Hausman test is a test for model misspecification. The Hausman test helps to determine whether to use the fixed effects or random effects model in the panel data analysis (Hair *et al*., 2010). Essentially, the test looked to see if there was a correlation between the unique errors and the regressors in the model. The procedure involves running both the fixed effects and the random effects regression models, save the estimates and tested whether the error term was correlated with the independent variables. The variation across entities was assumed to be random and uncorrelated with the independent variables included in the model. The null hypothesis was that there was no correlation between the two. Interpreting the results from the Hausman test is fairly straightforward: if the p – value of Chi – square test was small (less than 0.05) at 5% level of significance, reject the null hypothesis.

3.8.4.3 Multicollinearity Test

This study explored the correlation matrix to check which variables were highly correlated so as to avoid the problem of multicollinearity which is common in time series data. Correlation analysis was performed on independent variables to test for multicollinearity, a phenomenon where two or more independent variables are highly correlated. If any or more variables were found to be correlated with each other one was dropped and estimation done and compared. Multicollinearity occurs in the data when two or more independent variables are highly correlated. If the correlation coefficients are far much less than 0.8 threshold indicated that there is no concern for multicollinearity (Hair *et al*., 2010). The problem of multicollinearity was solved by collecting data from the entire population. The other methods of determining multicollinearity are tolerance test and variance inflation factor (VIF).

$$\text{Tolerance} = (1 - R_i^2)$$

$$\text{Variance Inflation Factor (VIF)} = \frac{1}{(1 - R_i^2)}$$

Where:

R_i^2 was coefficient of determination obtained when X_i (i = 1, 2, 3……p) was regressed on all remaining independent variables in the model. A variance inflation factor between 5 and 10 indicated high correlation that may be problematic. And if the variance inflation factor goes above 10, it can be assumed that the regression coefficients were poorly estimated due to multicollinearity.

3.8.4.4 Autocorrelation Test

Autocorrelation problem occurs when error term observations in a regression are correlated making; the coefficient estimates unbiased, variance of coefficient estimates to increase hence suppressing the estimated standard errors. The Durbin Watson's Autocorrelation test was computed to test for serial correlation's presence or absence. The value of Durbin Watson always lies between 0 and 4. Durbin Watson equal to 2 indicated that no autocorrelation. If Durbin Watson statistic is substantially less than 2 there was evidence of positive serial correlation and if Durbin Watson statistic is substantially great than 2 there is evidence of negative serial correlation (Campbell, Lo & Mackinlay, 1997). The acceptable range of Durbin – Watson should be within 1.50 - 2.50 (Baum & Christopher, 2006).

3.8.4.5 Unit Root Tests

To avoiding inappropriate model specification and to increase the confidence of the results. Unit root tests were conducted to test for stationary, a time series is stationary if a shift in time doesn't cause a change in the shape of distribution; unit roots are causes of non – stationary. Unit root tests are known for having low statistical power. Many test exists, in part, because none stand out as having the most power.

The starting point was to test whether data was stringy balanced or not, if balanced use Levin, Lin & Chu test if other use fisher unit tests including: Im, Pesaran and Shin W-stat, ADF - Fisher Chi-square and PP - Fisher Chi-square. This combined test has been found to have superior test power by researchers in economics to analysis long run relationships in panel data. These tests are among the widely used

and are influential. These tests were founded on the assumption that all series are non-stationary under the null hypothesis but accounts for heterogeneity in the autoregressive coefficient, which is assumed to change freely among the states (Liang, 2017).

3.8.4.6 Test Statistics

The study employed the use of t – statistics, p – value, f- test and chi - square to arrive at conclusive inference. The t – test was used to determine if there was a significant difference between the means of two groups, which may be related in certain features. The t - test is used for the purpose of hypothesis testing. The p – value is the evidence against a null hypothesis (Sekaran & Bougie, 2016). The smaller the p – value, the stronger the evidence that reject the null hypothesis. The p - values are expressed as decimals and also can be expressed as a percentage.

The F– test is any statistical test in which the test statistic had an f – distribution under the null hypothesis. The f test is used to compare statistical models that had been fitted to a data set, in order to identify the model that best fits the population (Gupta, 1995). The chi – square statistic is used for testing relationship between categorical variables. The null hypothesis of the chi – square test is that no relationship exists on the categorical variables in the population: they are independent (Pennearselvam, 2006).

3.9 Operationalization of Study Variables

Operationalization is the process of strictly defining variables into measurable factors. The process defines the concepts and allows them to be measured empirically and quantitatively (Gujarati, 2011). Corporate governance; independent variables of board effectiveness, independence of directors, board structure and seniority of directors, moderating variable of firm size and dependent variable of stock market liquidity as measured by tightness, trading time, depth and breadth were operationalized as shown in the variable operationalization Table 3.2.

Table 3.2: Variable Operationalization Framework

Variable Name	Nature Variable	Terms of Measurement
Board Effectiveness	Independent	Measured by logarithm of the number of board members in a particular financial period.
Independence of Directors	Independent	Measured by number of non – executive directors divided by the total number of directors.
Board Structure	Independent	Measured by 1 if CEO exercise same role as chairperson of the board and 0 otherwise.
Seniority of Directors	Independent	Measured by logarithm of tenure of board members.
Tightness	Dependent	Measured by ask minus bid divided by the sum of ask and bid upon two.
Trading Time	Dependent	Measured by sum of daily shares traded to the number of shares of outstanding in a year.
Depth	Dependent	Measured by daily ratio of absolute return to trading volume in shillings daily averaged over a number of trading days in a year
Breadth	Dependent	Measured by sum of daily trading volume to the sum of absolute stock return in a year.
Firm Size	Moderating	Measured by reciprocal of share price (1/price) to capture the effect of tick size

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter was to summarize the collected data, show how it was analyzed and then present the results. The chapter begins with descriptive statistics of the data used, diagnostic tests, correlation analysis and interpretation of regression results, hypothesis testing and finally chapter summary.

4.2 Descriptive Statistics

This section presents descriptive analysis of the data collected by the use of secondary data. The study data comprised of 295 observations on 59 firms. Firms delisted, merged and newly listed whose full data would not be obtained were excluded from the study. Results as per Table 4.1 has measures of central tendency namely mean and median, measures of diversion such as minimum, maximum, standard deviation and measures of distribution such as skewness, kurtosis and Jarque – Bera. The descriptive statistics results on the influence of corporate governance mechanisms were measured by (board effectiveness, independence of directors, board structure and seniority of directors) while stock market liquidity dimensions of (tightness, trading time, price impact) were measured by (quoted spread, turnover, Illiquidity and Liquidity ratio) taking into consideration the influence of firm size as the moderating variable.

The results of the study revealed that quoted spread as a measure of stock market liquidity reported an average of 4.83% with a maximum of 80% and minimum of 3.21% with a deviated of 6.21% on both sides of the mean. Turnover as measure of as a measure of stock market liquidity, the findings indicated an average of 8% with a maximum of 72.67% and a minimum of 1.7% with a deviated of 15.37% on both sides of the mean. The standard deviation of turnover was relatively high to that of quoted spread by 9.09%.

Illiquidity when used as a measure of stock market liquidity of listed firms at the NSE, the findings indicated an average of illiquidity was Ksh8.66 with a maximum of Ksh40.42 and a minimum of Ksh6.40 which deviated on both sides of the mean by Ksh7.82. Liquidity ratio as a measure of stock market liquidity, the findings shows that firms listed at the NSE reported an average liquidity ratio of 0.2587 with a maximum of 1.928 and a minimum of zero that deviated by 0.2644 on both sides of the mean. On average the proportion of NEDs in the board, the findings indicated an average of 44.54%, a minimum of 25% and maximum of 69.9%.

The findings further indicated that independent directors constituted 8.6% of the board size with standard deviation of 15.28%. The findings show that seniority of directors with 90.1%, a maximum of 100% and a minimum of 69.9% with standard deviation of 12.04% on both sides of the means. The findings revealed that board structures in which the CEO was the same person as the chairperson of the board of directors had 44.53% while the firms with separation of CEO and chairpersons had 55.47%. The findings indicated that on average firm size was 1.5 (antilog of 0.1769), a maximum of 316 (antilog of 2.5) and a minimum of 1 (antilog of 0.0002) that deviated by 2.2 (antilog of 0.3477) on both sides of the mean.

The minimum and maximum differences in the stock market liquidity measures of quoted spread, turnover, illiquidity and liquidity ratio as per descriptive statistics were above 70%, an indication that there were large differences in trading costs of firms listed at the NSE. These differences could be attributed to a number of factors that have influence stock market liquidity in the prior empirical studies (Chung *et al.*, 2010 & Prommin *et al.*, 2014). They include: share price, return volatility, asset tangibility, firm age, leverage, growth opportunities, year effect and industry effect. In terms of stock market liquidity, different sector firms perform differently. In this sense it is necessary to include industry dummies in the models. Given these differences the study found that the above factors could have caused the variations.

The descriptive statistics results indicated that the standard deviation was relatively low with stock market liquidity measures of quoted spread, turnover and liquidity ratio of 6.21%, 15.37%, and 26.44% respectively and illiquidity with the highest of

over 100%. The adopted measures were indication that the internal corporate governance mechanisms of firms listed at the NSE were sufficient in assisting them to monitor and control the transaction costs. The maximum of over 100% and the minimum of 6.21% implied that all other factors constant the trading cost variation was 6.21% and over 100%. Given these results quoted spread suffers from the hereroskedesticity and high volatility when adopted as stock market liquidity measure. The illiquidity emerged as the best measure of the influence of corporate governance on stock market liquidity. A number of studies show that illiquidity is a reliable measure of price impact on stock market liquidity (Lesmond, 2005; Hasbrouck, 2009; Goyenko, Holden & Trzcinka, *2*009; Karolyi *et al*., 2012).

Skewness coefficients revealed that board effectiveness, independence of directors and seniority of directors were skewed to the negative side (skewness coefficient -2.8886, -0.4772 and -0.9803). These findings were in support of Uyaebo and Usman (2015) who demonstrated that stock market liquidity in Nigeria was not normally distributed though it was positively skewed. These findings were in support of random walk hypothesis which stipulates that stock market returns responds to both positive and negative news and could explain its ability to trade large size quickly at low cost.

Jaque – Bera was used as a statistical tool to test the goodness of fit whether the data had the skewness and kurtosis matching a normal distribution. Large Jarque –Bera values indicates that errors were not normally distributed. The independent variables; board effectiveness, independence of directors, board structure and seniority of directors had Jarque-Bera values of 5047, 10939, 150.20 and 53.34 respectively with p value of 0.000. The Jarque-Bera statistics for the dependent variables; quoted spread, turnover, Illiquidity and Liquidity ratio were 64717, 745.53, 421.9 and 2269 respectively with p - value of 0.000. Since all these values were far away from zero that meant the variables were not normally distributed.

Table 4.1: Descriptive statistics

	LR	ILLIQ	Quoted Spread	Turnover	BE	BDEP	BS	BSEN	Firm Size
Mean	0.258	8.658	0.0483	0.080	1.047	0.086	0.445	0.910	0.177
Median	0.185	6.400	0.0321	0.017	1.041	0.062	0.454	0.954	0.035
Max.	1.928	40.42	0.800	0.726	1.256	1.000	0.699	1.079	2.500
Min.	0.000	1.080	0.000	0.000	0.079	0.000	0.250	0.699	0.000
Std. Dev.	0.264	7.817	0.062	0.154	0.129	0.153	0.053	0.120	0.348
Skew	2.801	2.026	6.466	2.548	-2.89	5.231	-0.477	-0.980	3.579
Kurt.	15.38	7.230	74.40	8.889	22.42	30.93	6.362	2.295	17.34
J.B	2269	421.9	64717	745.53	5047	10939	150.2	53.34	3157
Prob.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sum	76.32	2554	14.25	23.612	309.0	25.42	131.4	268.4	52.18
Sum Sq. Dev.	20.54	17966	1.134	6.943	4.927	6.867	0.822	4.265	35.54
Observ.	295	295	295	295	295	295	295	295	295

4.3 Diagnostic Tests

Diagnostic tests were conducted before data was used to perform statistical analyses. These tests included; normality tests, Hausman test, multicollinearity test, autocorrelation test and unit root tests.

4.3.1 Normality Test

To ascertain whether, corporate governance and stock market liquidity data flows followed a normal probability distribution, skewness, kurtosis and Jarque - Bera tests were employed in the analysis. Kline (2011) demonstrated that a normal distribution the value of skewness should be zero and those values of kurtosis to be 3. And if the p – value is sufficiently high, one can reject the null hypothesis that variables are not normally distributed. As per the findings as shown in Table 4.1, the Jarque - Bera coefficient were far away from zero and with a p – value of 0.000.

Since the p – value of Jarque - Bera were less 0.1, the data was not normally distributed. The kurtosis coefficient was beyond a range of negative 3 and 3 positive. Therefore, the data was not normally distributed. The data was further skewed both

to the negative and positive units. These findings corroborate with those of Kodongo (2013) who reported that financial data are seldom distributed.

4.3.2 Hausman Test

Hausman tests were conducted on the variables to test whether to use the fixed effects or random effects model (Hair *et al.,* 2010). Table 4.2 shows the results of Hausman tests. The null hypothesis is that the preferred model is random effects. Essentially, the tests look to see if there is a correlation between the unique errors and regressors in the model. If the p – value is less 0.05, reject the null hypothesis. The alternative hypothesis is that the model is fixed effects. Hausman test can also be used to differentiate between fixed effects model and random effects model in panel data analysis. In this case, random effects model is preferred under the null hypothesis due to higher efficiency, while under the alternative hypothesis fixed effects is at least as consistent and thus preferred.

Hausman test on quoted spread findings indicated that the Chi square test statistics value of 4.754061 with probability of 0.4466 which meant that the preferred model was the random effects model. The Hausman test on turnover findings revealed that the Chi square test statistics value of 7.1036 with probability of 0.2130 which implied that the preferred model was the random effects model. The Hausman test on illiquidity findings indicated that the Chi square test statistics value of 20.4587 with probability of 0.0010 which meant that the preferred model was the fixed effects model. The Hausman test on liquidity ratio findings demonstrated that the Chi square test statistics value of 3.2524 with probability of 0.6611 which implied that the preferred model should be the random effects model.

Table 4.2: Hausman Test

Variable	Chi - square	P - Value	Preferred Model
Quoted Spread	4.7541	0.4466	Random Effects
Turnover	7.1036	0.2130	Random Effects
Illiquidity	20.4587	0.0010	Fixed Effects
Liquidity Ratio	3.2524	0.6611	Random Effects

4.3.3 Multicollinearity Test

The study conducted multicollinearity test to establish whether the independent variables were highly correlated. The study adopted the Variance Inflation Factor (VIF) method to test for multicollinearity. The VIF findings were presented in Table 4.3, which indicated that VIF values for all the independent variables were less than 10, which is the maximum accepted (Castillo, 2009). The VIF value for board effectiveness was 3.68, independent of directors was 3.44, board structure was 3.24 and seniority of directors was 1.88.

The multicollinearity test on corporate governance had an average VIF of 3.06 with the VIF values ranging between 3.68 and 1.88 which indicated some correlation, but not enough to be concerned about. A VIF between 5 and 10 indicates high correlation that may be problematic. And if the VIF goes above 10, one can assume that the regression coefficients are poorly estimated due to multicollinearity (Hair *et al.*, 2010). This implied that the predictors were moderately correlated. Since they did not have very high VIFs ranging between 5 and 10 no indicators for worry that the correlation was problematic.

Table 4.3: Variance Inflation Factor Test for Multicollinearity

Variable	VIF	1/VIF
Board Effectiveness	3.68	0.271779
Independent of Directors	3.44	0.290912
Board Structure	3.24	0.308695
Seniority of Directors	1.88	0.532747
Mean VIF	**3.06**	

4.3.4 Autocorrelation Test

On the testing the presence of the first order serial correction among the residuals. The study used the Durbin –Watson statistic which measures the linear association between adjacent residuals from the regression model. The test requires that the residuals or errors in prediction could not follow a pattern from case to case. The study employed autocorrelation analysis using quoted spread, turnover, illiquidity and liquidity ratio as proxies for the dependent variable of stock market liquidity.

The Durbin Watson statistic test was applied to test for serial correlation presence or absence. Baum and Christopher (2006) the value of “d “always lies between 0 and 4. If the Durbin – Watson statistic is substantially less than 2, there was evidence of positive serial correlation. As a rough rule of thumb, if Durbin – Watson was less than 1.0., there was to be cause for alarm. The preferred Durbin – Watson statistic was within the interval (1.5<d<2.5).

Any value below 1.5 implied positive autocorrelation and value above 2.5 also indicated negative autocorrelation which in regressions can imply an underestimation of the level of statistical significance. The Durbin – Watson statistic for quoted spread was 1.661, turnover 2.50, illiquidity 1.562 and liquidity ratio 2.3611 which were within (1.5<d<2.5). Hence the absence of both negative and positive serial correlation. The model therefore satisfied autocorrelation test (Cooper & Schindler, 2013). The study findings were similar to those of (Baum and Christopher, 2006), who concluded that the acceptable range of the Durbin – Watson should be within 1.50 - 2.50. Since the Durbin – Watson statistic was within the acceptable range there was no concern for autocorrelation.

4.3.5 Unit Root

The unit root tests were conducted to test whether variables were non – stationary and possessed a unit root. Also, to avoid inappropriate model specification and increase the confidence of the results. If p – value is less than 0.05 reject the null hypothesis. The null hypothesis is the presence of unit root. The study conducted Levin, Lin & Chu tests to check whether data was stringy balanced or not. Since data was not balanced the study used fisher unit tests which included; Im, Pesaran and Shin W-stat, ADF - Fisher Chi-square and PP - Fisher Chi-square.

The assumption that all series were non-stationary under the null hypothesis but accounts for heterogeneity in the autoregressive coefficient, which was assumed to change freely among the states (Liang, 2017). The findings indicated that all variable had a probability value of 0.0000 which was statistically significant at 5% level as

shown in the unit root tests. Therefore, the null hypotheses on study variables were rejected. This implied that all the variables in the study were stationary.

4.4 Correlation Analysis

The study used correlation coefficient to ascertain whether there was linear relationship between the dependent variable and independent variables. Correlation coefficients were computed and the results for each variable were presented. Correlation coefficients were important in determining whether to accept or reject the null hypothesis. The degree of the linear relationship between two variables in correlation ranges between -1 and +1 (Kothari & Gaurav, 2014).

The relationship was considered strong when r= ±0.5 and above while the relationship was considered medium when r=±0.3 to ±0.49 and when r= ±0.1 to 0.29 the relationship was considered small. Multicollinearity occurs in the data when two or more independent variables were highly correlated. The findings indicated that correlation coefficient between the variables were very low with (-0.948 being the lowest) and (0.867 being the highest) in all four the variables. Since the correlation coefficients were far much less than 0.8 threshold, there was no concern for multicollinearity (Hair *et al*., 2010).

The findings in Table 4.4 revealed that the correlation coefficient of quoted spread with each of the four proxies of corporate governance namely; board effectiveness, independence of directors, board structure, and seniority of directors were not statistically significant at 5% level (-0.249, -0.209, -0.050, and 0.008 respectively all with p values great than 0.05). Implied that the correlation between each variable with quoted spread did not exist above and beyond the influence of firm size. Invariably meant that the above corporate governance mechanisms had no influence on the quoted spread of firms listed at the NSE. The correlation coefficient between board effectiveness and firm size was 0.867, which indicated that there was a positive relationship between the variables.

The correlation coefficient between independence of directors and firm size was 0.297 and between independence of directors and quoted spread was -0.209. The

relationship between these variables was negative, which indicated that as firm size and quoted spread increased; board effectiveness decreased thus stock market liquidity. These findings were in line with those of Kahuthu (2017) that an increase in the spread had a negative influence on stock market liquidity and firm performance. These findings were similar with those found by Roulestone (2003) that there was a negative association between bid ask spread and trading volume.

Stock market liquidity measure of turnover was observed to have negative and statistically not significantly correlated at 5% level of significance with board effectiveness, independence of directors and seniority of directors (-0.834, -0.204, and -0. 271 respectively with p – values of 0.079, 0.742, and 0.660 which were more than 0.05). Implied that the correlation between board effectiveness, independence of directors and seniority of directors with turnover did not have any influence on stock market liquidity of firms listed at the NSE when turnover was adopted as a measure of stock market liquidity. A positive and insignificant correlation coefficient at 5% level of significant was observed between turnover with seniority of directors (0.717 and p – value of 0.173 which was greater than 0.05). Implied that the correlation between seniority of directors with turnover existed above and beyond the influence of firm size. Invariably meant that turnover increase with seniority of directors.

This finding revealed that correlation coefficient between board effectiveness and quoted spread was -0.249, which indicated that there was a negative relationship between the variables. The correlation coefficient between independence of directors and quoted spread was -0.209 and independence of directors and turnover was -0.204. The relationship between these variables was positive, which indicated that as quoted spread and turnover increased, independence of directors decreased. These findings were in line with those of Nadia *et al*., (2014) that show a strong negative correlation with turnover on investigating the relationship between market microstructure and corporate governance in the Tunisian stock market.

A negative and significant correlation coefficient at 5% level of significance was observed between illiquidity of firms listed at the NSE with independence of directors and seniority of directors (-0.259, $p > 0.05$; -0.892, $p < 0.05$ respectively).

Implied that the correlation between each of the variables with illiquidity did not exist above and beyond the influence of firm size. Invariably meant that these corporate governance mechanisms had no influence on illiquidity of firms listed at the NSE. Board effectiveness and board structure had a positive and statistically not significant correlation coefficient at 5% level with illiquidity of (0.726, p > = 0.05 and 0.720, p > 0.05). Implied that the correlation between seniority of directors with illiquidity existed above and beyond the influence of firm size. Invariably meant that as the firm size increased illiquidity reduced.

This finding indicated that the correlation coefficient between board effectiveness and illiquidity was 0.726, which meant that there was a positive relationship between the variables. The correlation coefficient between board structure and turnover was -0.271 and board structure and illiquidity had 0.720. The relationship between these variables was negative, which indicated that as turnover and illiquidity increased, board structure decreased. These findings were in line with those of Nadia *et al.,* (2014) that banks were negatively correlated at 1% significance level with pension funds and investment companies and demonstrated that illiquidity measures decreased if the trading volume was higher.

The findings demonstrated that independence of directors and seniority of directors had a positive and insignificant correlation coefficient at 5% level of significance with liquidity ratio (0.517 and 0.717 both with p values greater than 0.05). Implied that the correlation between board effectiveness, and board structure with liquidity existed above and beyond the influence of firm size. Invariably meant that as the firm size of firms listed at the NSE increased so did the liquidity ratio increase. Board effectiveness and board structure had negative and statistically not significant correlation coefficient with liquidity ratio of (-0.545, p – value > 0.05 and -0.868, p – value < 0.050). Implied that the correlation between these variables with liquidity ratio did not have any influence on stock market liquidity of firms listed at the NSE. Invariably meant that these variables had no influence on the liquidity ratio of firms listed at the NSE.

These findings revealed that correlation coefficient between board effectiveness and liquidity ratio was -0.545, which indicated that there was a positive relationship between the variables. The correlation coefficient between seniority of directors and illiquidity was -0.892 and seniority and liquidity ratio had 0.717. The relationship between these variables was negative, which indicated that as illiquidity and liquidity ratio increased, seniority of directors decreased. These findings corroborated with those of Nadia *et al.,* (2014) who illustrated that depth exhibits a strong negative correlation with insurance and investment companies and a strong positive correlation with pension funds.

Table 4.4: Partial Correlation Analysis Results

		Firm Size	Quoted Spread	Turnover	ILLIQ	LR	BE	BDEP	BS	BSEN
Firm Size	Pearson Correlation	1								
	Sig.(2 – tailed)	…..								
	N	59								
Quoted	Pearson Correlation	.144	1							
Spread	Sig.(2 – tailed)	.817	.....							
	N	59	59							
Turn	Pearson Correlation	-.482	.527	1						
over	Sig.(2 – tailed)	.441	.361	…..						
	N	59	59	59						
ILLIQ	Pearson Correlation	.814	.098	-.577	1					
	Sig.(2 – tailed)	.094	.876	.308	…..					
	N	59	59	59	59					
LR	Pearson Correlation	-.554	-.033	.591	-.932*	1				
	Sig.(2 – tailed)	.333	.958	.294	.021	…..				
	N	59	59	59	59	59				
BE	Pearson Correlation	.867	-.249	-.834	.726	-.55	1			
	Sig.(2 – tailed)	.057	.686	.079	.165	.342	…..			
	N	59	59	59	59	59	59			
BDEP	Pearson Correlation	.297	-.209	-.204	-.259	.517	.431	1		
	Sig.(2 – tailed)	.628	.735	.742	.674	.372	.469	…..		
	N	59	59	59	59	59	59	59		
BS	Pearson Correlation	.221	-.050	-.271	.720	-.87	.150	-.807	1	
	Sig. (2 – tailed)	.721	.936	.660	.170	.057	.810	.098	…..	
	N	59	59	59	59	59	59	59	59	
BSEN	Pearson Correlation	-.948*	.008	.717	-.892*	.717	-.946*	-.201	-.352	1
	Sig.(2 – tailed)	.014	.989	.173	.042	.173	.015	.746	.561	…..
	N	59	59	59	59	59	59	59	59	59

*Correlation is significant at the 0.05 level (2 – tailed)

4.5 Unit Root Tests

To avoid inappropriate model specification and increase the confidence of the results, time series properties of the data were investigated. The test results indicated that all the variables in the study were stationary.

4.5.1 Quoted Spread

Table 4.5 shows the unit root results on quoted spread. Quoted spread was found to be stationary at intercept and level I (0) because the Levin, Lin and Chu t* had a probability value of 0.0000 which was significant at 5% level of significance. Therefore, the null hypothesis that quoted spread had a unit root was rejected.

Table 4.5: Results on Quoted Spread

Method	Statistic	Prob.**	Cross-sections	Observ.
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-28.8481	0.0000	59	236
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-8.93284	0.0000	59	236
ADF - Fisher Chi-square	227.282	0.0000	59	236
PP - Fisher Chi-square	250.609	0.0000	59	236

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

4.5.2. Turnover

The Levin, Lin & Chu t* statistic for turnover had a probability value of 0.0000 as documented on Table 4.6, which was significant at 5% level of significance. Therefore, the null hypothesis that turnover had a unit root was rejected.

Table 4.6: Results on Turnover

Method	Statistic	Prob.**	Cross-sections	Observ.
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-134.013	0.0000	57	228
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-19.9966	0.0000	57	228
ADF - Fisher Chi-square	207.140	0.0000	57	228
PP - Fisher Chi-square	233.211	0.0000	56	224

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

4.5.3. Illiquidity

Table 4.7 revealed the unit root test results on illiquidity. The Levin, Lin & Chu t* statistic for illiquidity had a probability value of 0.0000 which was significant at 5% level of significance. Therefore, the null hypothesis that illiquidity had a unit root was rejected.

Table 4.7: Results on Illiquidity

Method	Statistic	Prob.**	Cross-sections	Observ.
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-20.5233	0.0000	59	236
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.23916	0.0000	59	236
ADF - Fisher Chi-square	188.379	0.0000	59	236
PP - Fisher Chi-square	237.811	0.0000	59	236

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

4.5.4 Liquidity Ratio

Table 4.8 illustrated the unit root results on liquidity ratio. The liquidity ratio was found to be stationary at intercept and level I (0) because the Levin, Lin & Chu t* had a probability value of 0.0000 which was significant at 5% level of significance. Therefore, the null hypothesis that liquidity ratio had a unit root was rejected.

Table 4.8: Results on Liquidity Ratio

Method	Statistic	Prob.**	Cross-sections	Observ.
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-31.2142	0.0000	59	236
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.24753	0.0000	59	236
ADF - Fisher Chi-square	177.259	0.0003	59	236
PP - Fisher Chi-square	200.377	0.0000	59	236

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

4.5.5. Board Effectiveness

Board effectiveness was found to be stationary as demonstrated on Table 4.9, at intercept and level I (0) because the Levin, Lin & Chu t* had a probability value of 0.0000 which was significant at 5% level of significance. Therefore, the null hypothesis that board effectiveness had a unit root was rejected.

Table 4.9: Results on Board Effectiveness

Method	Statistic	Prob.**	Cross-sections	Observ.
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-9.39488	0.0000	46	184
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.09804	0.0180	46	184
ADF - Fisher Chi-square	98.0319	0.3141	46	184
PP - Fisher Chi-square	103.581	0.1924	46	184

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

4.5.6. Independence of Directors

Table 4.10 illustrated the unit root test results on independence of directors. Independence of directors was found to be stationary at intercept and level I (0) because the Levin, Lin & Chu t* had a probability value of 0.0000 which was significant at 5% level of significance. Therefore, the null hypothesis that independence of directors had a unit root was rejected.

Table 4.10: Results on Independence of Directors

Method	Statistic	Prob.**	Cross-sections	Observ.
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-17.2083	0.0000	46	184
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.45202	0.0003	46	184
ADF - Fisher Chi-square	115.705	0.0480	46	184
PP - Fisher Chi-square	128.620	0.0071	46	184

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

4.5.7. Board Structure

Board structure was found to be stationary as shown on Table 4.11, at intercept and level I (0) because the Levin, Lin & Chu t* had a probability value of 0.0000 which was significant at 5% level of significance. Therefore, the null hypothesis that board structure has a unit root was rejected.

Table 4.11: Results on Board Structure

Method	Statistic	Prob.**	Cross-sections	Observ.
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.50157	0.0000	10	40
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.20343	0.05806	10	40
ADF - Fisher Chi-square	15.8843	0.7238	10	40
PP - Fisher Chi-square	18.3805	0.5624	10	40

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

4.5.8. Seniority of Directors

Table 4.12 indicated the unit root test results on seniority of directors. The Levin, Lin & Chu t* statistic for seniority of directors had a probability value 0.0000 which was significant at 5% level of significance. Therefore, the null hypothesis that seniority of directors had a unit root was rejected.

Table 4.12: Results on Seniority of Directors

Method	Statistic	Prob.**	Cross-sections	Observ.
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-18.2076	0.0000	10	40
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.05053	0.0202	10	40
ADF - Fisher Chi-square	23.5533	0.2624	10	40
PP - Fisher Chi-square	27.1595	0.1308	10	40

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

4.5.9. Firm Size

The Levin, Lin & Chu t* statistic for firm size had a probability value 0.0000 as revealed on Table 4.13, which was significant at 5% level of significance. Therefore, the null hypothesis that firm size had a unit root was rejected.

Table 4.13: Results on Firm Size

Method	Statistic	Prob.**	Cross-sections	Observ.
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-6.50119	0.0000	52	208
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.99034	0.8390	52	208
ADF - Fisher Chi-square	98.3077	0.6390	52	208
PP - Fisher Chi-square	112.981	0.2150	51	204

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

The unit root tests were found on the assumption that all series were non- stationary under the null hypothesis but accounted for heterogeneity in the autoregressive coefficient, which was assumed to change freely among the states under study. The results revealed that all the variables had p- value less 0.05 and the probability distribution remained unchanged. Probabilities for Fisher tests were computed using an asymptotic Chi square distribution. All other tests assumed asymptotic normality. The results indicated that all the variables in the study were stationary at 5% level of significance. Therefore, all the null hypothesis were rejected.

4.6 Regression Analysis

The study conducted regression analysis to investigate the influence of corporate governance on stock market liquidity of firms listed at the NSE. Regression analysis was an important tool: in making predictive analysis to estimate, on decision making to eliminate guesswork, to pick the right variables to make the most informed decisions, correcting errors and avoid making costly mistakes and finally looking at the data that can provide new and fresh insights (Kothari & Gaurav, 2014). Stock market liquidity dimensions of explained variable were measured by: tightness, trading time, depth and breadth. The corporate governance mechanisms of explanatory variables were: board effectiveness, independence of directors, board structure, seniority of directors and firm size as moderating variable.

In order to estimate the influence among variables panel data regression model was deployed to help understand how the typical value of the explained variable (stock market liquidity) changes when any one of the explanatory variables were held fixed. The study adopted four regression models illustrated as follows:

Model 1

$Y = f(\beta_1 X_{1i,t}, \beta_2 X_{2i,t}, \beta_3 X_{3i,t}, \beta_4 X_{4i,t})$……(1)

Where Y is the $Tightness_{it}$

Meaning tightness of a firm listed at the NSE at any given time is a function of: $\beta_1 X_{1i,t}$, $\beta_2 X_{2i,t}$, $\beta_3 X_{3i,t}$ and $\beta_4 X_{4i,t}$

$$Y_{i,t} = \beta_0 + \beta_1 X_{1i,t} + \beta_2 X_{2i,t} + \beta_3 X_{3i,t} + \beta_4 X_{4i,t} + \beta_5 X_{5i,t} + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where:

Subscripts i denotes individual firms and t denotes time period.

Tightness – is firm stock market liquidity measured by Quoted Spread

X_1 – Board Effectiveness

X_2 – Independent Directors

X_3 – Board Structure

X_4 – Seniority of Directors

X_5 – Moderating variable of firm size measured by reciprocal of share price (1/price) to capture the effect of tick-size.

β_0 – is the intercept

Hausman test was conducted to test the hypothesis that there was no influence between the dependent variable of quoted spread and the predictor independent variables: board effectiveness, independence of directors, board structure and seniority of directors and firm size as a moderating variable. The test results were as per Table 4.14, indicated that the Chi-square test statistic was 4.754061 with an insignificant p - value of 0.4466 which was more than 0.05. This therefore meant that the null hypothesis was rejected in favor of the random effects model. Therefore, the random effects model was accepted as suitable for this equation.

Table 4.14: Hausman Test Results on Quoted Spread

Test Summary		Chi-Square Statistic	Chi-Square Difference	Probability
Cross-section random		4.754061	5	0.4466
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Variable (Different)	Probability
Board Effectiveness	0.044616	0.080318	0.000994	0.2575
Independence of Directors	0.027233	0.091727	0.003344	0.2647
Board Structure	-0.016101	0.000217	0.000175	0.2175
Seniority of Directors	-0.017434	-0.093168	0.050489	0.7361
Firm Size	0.002421	0.024328	0.001184	0.5243

Table 4.15 revealed that board effectiveness had correlation coefficient of 0.08 and a significant p - value of 0.0102 ($p < 0.05$) which was significant at 5 percent level of significance. This meant that when board effectiveness increased by 0.08 percent per year then tightness increased by 1 percent in the same year. These results were supported by Sidhu and Kaur (2019) who found that board effectiveness had positive and significant influence on stock market liquidity. This implied that maintaining good corporate governance mechanism is beneficial for firms in terms of their stock market liquidity.

Independence of directors had correlation coefficient of 0.09 and an insignificant p - value of 0.2002 ($p > 0.05$). This implied that independence of directors had no significant influence on tightness during the study period. Independence of directors had a positive but insignificant relationship. The results concur with those of Wajih *et al.,* (2021) that independence of directors had a negative association with stock market liquidity and the correlation was not significant.

Board structure had correlation coefficient of 0.000217 and an insignificant p - value of 0.9926 ($p > 0.05$). This meant that board structure had no significant influence on tightness during the study period. Board structure had a positive but insignificant relationship. The findings were in line with those of Manjit (2016) that CEO duality was positively related with stock market liquidity. However, multiple directorships

were negatively related with liquidity advocating that busy directors have negative influence on stock market liquidity of the firms. Frequent audit committee meetings and percentage of board meetings attended by independent directors were negatively related with liquidity.

Seniority of directors had correlation coefficient of -0.09 and a significant p - value of 0.0155 ($p > 0.05$) which was significant at 5 percent level of significance. The coefficient of seniority of directors was negatively significant. This suggested that improved corporate governance was inversely linked with trading cost dimension of stock market liquidity. This meant that when seniority of directors decreased by 0.09 percent per year then tightness increased by 1 percent in the same year. These results were well supported with those of Sakwa (2015) that seniority of directors in the board had slightly larger negative influence on stock liquidity. Seniority of the board resulted in marginal decrease of stock market liquidity of listed firms.

Firm size had correlation coefficient of 0.02 and an insignificant p - value of 0.0570 ($p > 0.05$). This implied that firm size had no significant influence on tightness during the study period. Firm size had a positive but insignificant relationship. The study findings were in line with those of Abdollahi and Mostafaloo (2020) who found that firm size had a positive and insignificant relationship between firm size and stock market liquidity. The constant had correlation coefficient of 0.004 and an insignificant p - value of 0.9439. This meant that jointly these proxies of corporate governance did not influence tightness as a measure of stock market liquidity during the period of study.

Table 4.15: Random Effects Model on Quoted Spread

Variable	Coefficient	Standard Error	t-Statistic	Probability
Board Effectiveness	0.080318	0.031069	2.585102	0.0102
Independence of Directors	0.091727	0.071446	1.283864	0.2002
Board Structure	0.000217	0.023396	0.009279	0.9926
Seniority of Directors	-0.093168	0.038272	-2.434369	0.0155
Firm Size	0.024328	0.012732	1.910791	0.0570
Constant	0.003777	0.053602	0.070460	0.9439
	Effects Specification			
			Standard Deviation	Rho
Cross-section random			0.024491	0.1657
Idiosyncratic random			0.054957	0.8343
	Weighted Statistics			
R-squared	0.051410	Mean dependent variable		0.034219
Adjusted R-squared	0.034998	S.D. dependent variable		0.055920
S.E. of regression	0.054933	Sum squared residual		0.872103
F-statistic	3.132515	Durbin-Watson stat		1.661149
Probability (F-statistic)	0.009036			
	Unweighted Statistics			
R-squared	0.084772	Mean dependent variable		0.048308
Sum squared residual	1.038746	Durbin-Watson stat		1.394656

The regression equation for model 1 is as follows:

$Y = 0.0038 + 0.0803X_1 + 0.0917X_2 + 0.0002X_3 - 0.0932X_4 + 0.0243X_5$

Model 2

$Y = f(\beta_1 X_{1i,t}, \beta_2 X_{2i,t}, \beta_3 X_{3i,t}, \beta_4 X_{4i,t})$………………………………………… (1)

Where Y is the Trading time$_{it}$

Meaning trading time of a firm listed at the NSE at any given time is a function of: $\beta_1 X_{1i,t}$, $\beta_2 X_{2i,t}$, $\beta_3 X_{3i,t}$ and $\beta_4 X_{4i,t}$

$Y_{i,t} = \beta_0 + \beta_1 X_{1i,t} + \beta_2 X_{2i,t} + \beta_3 X_{3i,t} + \beta_4 X_{4i,t} + \beta_5 X_{5i,t} + \varepsilon_{i,t}$…………………… (2)

Where:

Subscripts i denotes individual firms and t denotes time period.

Trading time – is firm stock market liquidity measured by Turnover

X_1 – Board Effectiveness

X_2 – Independent Directors

X_3 – Board Structure

X_4 – Seniority of Directors

X_5 – Moderating variable of firm size measured by reciprocal of share price (1/price) to capture the effect of tick-size.

β_0 – is the intercept

Hausman test was conducted to test the hypothesis that there was no influence between the dependent variable of turnover and the predictor independent variables: board effectiveness, independence of directors, board structure and seniority of directors and firm size as a moderating variable. The test results were as per table 4.16, indicated that the Chi-square test statistic was 7.103684 with an insignificant p - value of 0.2130 ($p > 0.05$). This therefore meant that the null hypothesis was rejected in favor of the random effects model. Therefore, the random effects model was accepted as suitable for this equation.

Table 4.16: Hausman Test Results on Turnover

Test Summary		Chi-Square Statistic	Chi-Square Difference	Probability
Cross-section random		7.103684	5	0.2130
Cross-section random effects test comparisons:				
Variable		Fixed	Random	Variable (Difference)	Probability
Board Effectiveness		0.002891	0.022659	0.000152	0.1087
Independence	of				
Directors		-0.089459	-0.087161	0.000456	0.9143
Board Structure		-0.0591	-0.058892	0.000019	0.9451
Seniority of Directors		0.474756	0.161581	0.042902	0.1305
Firm Size		-0.018387	-0.054710	0.000592	0.1356

Table 4.17 indicated that board effectiveness had correlation coefficient of 0.02 and an insignificant p - value of 0.06213 ($p > 0.05$). This implied that board effectiveness had no significant influence on trading time during the period of study. Board effectiveness had a positive but insignificant relationship. The study findings were contradictory to findings of Hamdan *et al.,* (2017) who found a significant positive association between corporate governance effectiveness and stock market liquidity. The results implied that the firms with effective monitoring mechanisms mitigate information asymmetry which leads to less adverse selection problems among trading stocks.

Independence of directors had correlation coefficient of -0.09 and an insignificant p - value of 0.3655 ($p > 0.05$). This meant that independence of directors had no significant influence on trading time during the study period. Independence of directors had a negative but insignificant relationship. These findings were not in agreement with those of Angelo and Alex (2012) that firms with greater board independence had narrower spreads and greater speed of adjustment to new

information. Additionally, improvements in board independence over time were positively associated with improvements in firm liquidity and efficiency.

Board structure had correlation coefficient -0.06 and a significant p - value of 0.0395 ($p > 0.05$) which was significant at 5 percent level of significance. This implied that when board structure reduced by 0.06 percent per year then trading time improved by 1 percent in the same year. The study findings were contradictory to the findings of Wajih *et al.,* (2021) that CEO duality significantly increases stock market liquidity which means that the dual role of CEOs increases leadership and monitoring power. It also helps to control adverse selection problems and stock market liquidity which is positively affected.

Seniority of directors had correlation coefficient of 0.16 and an insignificant p - value of 0.2132 ($p > 0.05$). This meant that seniority of directors had no significant influence on trading time during the study period. Seniority of directors had a positive but insignificant relationship. These results concern with those of Wahid and Li (2018) that found that tenure diversity appears not to be associated with higher future performance, in terms of stock market liquidity.

Firm size had correlation coefficient of -0.05 and an insignificant p - value of 0.0775 ($p > 0.05$). This implied that firm size had no significant influence on trading time during the study period. Firm size had a negative but insignificant relationship. Hussain *et al*., (2021) found that firm size had significant negative impact on stock liquidity. These results were well supported with those of Sidhu and Kaur (2019) that firm size had a negative and significant coefficient ($\beta = -1.168$, $p < 0.01$) at 10 % level, that was, larger firms had high stock market liquidity. Further, the coefficient of firm age is negative, consistent with the predictions. However, they were statistically significant. The constant had correlation coefficient of -0.04 and an insignificant p - value of 0.7827 ($p > 0.05$). This meant that jointly these proxies of corporate governance did not influence trading time as a measure of stock market liquidity during the period of study.

Table 4.17: Random Effect Model on Turnover

Variable	Coefficient	Standard Error	t-Statistic	Probability
Board Effectiveness	0.022659	0.045815	0.494588	0.6213
Independence of Directors	-0.087161	0.096172	-0.906296	0.3655
Board Structure	-0.058892	0.028476	-2.068117	0.0395
Seniority of Directors	0.161581	0.129519	1.247549	0.2132
Firm Size	-0.054710	0.030878	-1.771822	0.0775
Constant	-0.037142	0.134556	-0.276031	0.7827
	Effects Specification			
			Standard Deviation	**Rho**
Cross-section random			0.140481	0.8505
Idiosyncratic random			0.058900	0.1495
	Weighted Statistics			
R-squared	0.034567	Mean dependent variable		0.014752
Adjusted R-squared	0.017864	S.D. dependent variable		0.059649
S.E. of regression	0.059114	Sum squared residual		1.009898
F-statistic	2.069531	Durbin-Watson stat		2.505548
Probability (F-statistic)	0.040257			
	Unweighted Statistics			
R-squared	0.030590	Mean dependent variable		0.080044
Sum squared residual	6.730900	Durbin-Watson stat		0.375930

The regression equation for model 2 is as follows:

$Y=-0.0371 + 0.0227X_1 - 0.0872X_2 - 0.0589X_3 + 0.1616X_4 - 0.0547X_5$

Model 3

$Y = f(\beta_1 X_{1i,t}, \beta_2 X_{2i,t}, \beta_3 X_{3i,t}, \beta_4 X_{4i,t})$…… (1)

Where Y is the $Depth_{it}$

Meaning depth of a firm listed at the NSE at any given time is a function of: $\beta_1 X_{1i,t}$, $\beta_2 X_{2i,t}$, $\beta_3 X_{3i,t}$ and $\beta_4 X_{4i,t}$

$Y_{i,t} = \beta_0 + \beta_1 X_{1i,t} + \beta_2 X_{2i,t} + \beta_3 X_{3i,t} + \beta_4 X_{4i,t} + \beta_5 X_{5i,t} + \varepsilon_{i,t}$…… (2)

Where:

Subscripts i denotes individual firms and t denotes time period.

Depth – is firm stock market liquidity measured by Illiquidity

X_1 – Board Effectiveness

X_2 – Independent Directors

X_3 – Board Structure

X_4 – Seniority of Directors

X_5 – Moderating variable of firm size measured by reciprocal of share price (1/price) to capture the effect of tick-size.

β_0 – is the intercept

Hausman test was conducted to test the hypothesis that there was no influence between the dependent variable of illiquidity and the predictor independent variables: board effectiveness, independence of directors, board structure and seniority of directors while firm size was a moderating variable. The results test was as per Table 4.18, revealed that the Chi-square test statistic was 20.458701 with a significant p - value of 0.0010 ($p < 0.05$). This therefore, meant that the null hypothesis was rejected in favor of the fixed effects model. Therefore, the fixed effects model was accepted as suitable for this equation.

Table 4.18: Hausman Test Results on Illiquidity

Test Summary		Chi-Square Statistic	Chi-Square Difference	Probability
Cross-section random		20.458701	5	0.0010
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Variable (Difference)	Probability
Board Effectiveness	-0.684145	-2.066260	0.303862	0.0122
Independence of Directors	8.033698	7.278792	0.911229	0.4290
Board Structure	0.313586	0.785077	0.037959	0.0155
Seniority of Directors	-3.892550	-21.633852	82.555807	0.0509
Firm Size	0.204005	-0.382814	1.157334	0.5854

Table 4.19 shows that board effectiveness had correlation coefficient of -0.68 and an insignificant p - value of 0.7406 ($p > 0.05$). This meant that board effectiveness had no significant influence on depth during the study period. Board effectiveness had a negative but insignificant relationship. The study findings were contradictory to the findings of Majdi and Aymen (2013) that effective corporate governance may reduce the information asymmetry and improve stock market liquidity of companies. These findings suggested that firms improve stock market liquidity by adopting best practices of corporate governance. The studies noted that, high ownership concentration and after controlling its level, corporate governance and best practices tends to improve stock market liquidity.

Independence of directors had correlation coefficient of 8.03 and an insignificant p - value of 0.0621 ($p > 0.05$). This implied that independence of directors had no significant influence on depth during the study period. Independence of directors had a positive but insignificant relationship. The study findings were not in line with those of Sakwa (2015) who found that board independence had a positive and sizeable effect on stock market liquidity. Thus, a shift in board independence influences a same direction shift of the stock market liquidity.

Board structure had correlation coefficient of 0.31 and an insignificant p - value of 0.08027 ($p > 0.05$). This meant that board structure had no significant influence on depth during the study period. Board structure had a positive but insignificant relationship. These results were contradictory to the findings of Okumu (2015) that CEO duality and audit committee as a corporate governance attribute had significant influence on both return on asset and market to book value ratio as measures of firm value.

Seniority of directors had correlation coefficient of -3.89 and an insignificant p - value of 0.7145 ($p > 0.05$). This meant that seniority of directors had no significant influence on depth during the study period. Seniority had a negative but insignificant relationship. Firm size had correlation coefficient of 0.20 and an insignificant p - value of 0.9052 ($p > 0.05$). The study findings were contradictory to those of Ning *et al.,* (2021) who found positive and significant results, revealing that tenure and experience enhances comparability in Chinese firms and thus stock market liquidity.

Firm size had correlation coefficient of 0.204 and an insignificant p - value of 0.905 ($p > 0.05$). This meant that firm size had no significant influence on depth during the study period. Firm size had a positive but insignificant relationship. These results were in with those of Ruhana and Hidayah (2020) who found that firm size had a significant negative influence on sustainability report disclosure and stock market liquidity. The constant had correlation coefficient of 9.28 and an insignificant p - value of 0.3700 ($p > 0.05$). This implied that jointly these proxies of corporate governance had no influence on depth as a measure of stock market liquidity during the period of study.

The R - squared of illiquidity was 89.3% with a constant of a coefficient of correlation coefficient of 9.28 and an insignificant p - value of 0.3700 ($p > 0.05$). This meant that jointly these proxies of corporate governance in the study did not influence depth as a measure of stock market liquidity during the period of study. These findings indicated that the R-squared was well fitted in the model. Gujarati (2011) demonstrated that the practice of choosing a model on the basis of highest R-squared was a kind of data mining that introduces pretest bias which could destroy

some of the properties of estimators of linear regression model. These finding were in line with those of (Goldberger, 1991) who argued that a high R- squared was the evidence in favor of the model and low R- squared was not evidence against it either.

The regression was not well fitted with an adjusted R- squared of 3.5%, 17.9%, and 4.41% of quoted spread, turnover and liquidity ratio respectively. However, regression was well fitted with adjusted R-squared of 89.3% with statistically significant F- statistic. The R – squared value implied that there was 89.3% less variation around the line than the mean, in other words, the relationship between illiquidity and corporate governance accounts for 89.3% of the variation. The R-squared results were very low in three equations of quoted spread, turnover and liquidity ratio. The R- squared was interpreted as the fraction of the variance of the dependent variable explained by independent variables.

The statistic would have been equal to one if the regression fits perfectly and zero if it fits no better than the mean of the dependent variable. In general, the higher the R-squared the better the model fits. The causes of the low R- squared values could have been attributed by a number of reasons: first, stock market liquidity had three main dimensions and these were measured differently using different approaches. Secondly, the corporate governance in the firms listed at the NSE had a number of independent variables. However, to achieve objectives of the study only four independent variables were used. Given that variables influence stock market liquidity differently, the exclusion of these variables from the study could have accounted for the low R- squared.

The Chi - square test results for the dependent variable measures of quoted spread, turnover and liquidity ratio were 4.7541, 7.1037, and 3.2524, and p values of 0.4466, 0.2130 and 0.6611 respectively were insignificant while illiquidity had a Chi - square of 20.4587 and p value of 0.0010 ($p < 0.05$) which was significant. The results of random effects estimate of regression equations were not well fitted with a reasonable adjusted R- squared and had a statistically insignificant F - statistics. The study used both the random and fixed effect models for ($n = 5$) but the existing literature on corporate governance on stock market liquidity (Chung and cheung,

2016 and Prommin *et al*., 2014) employed fixed effects regression in the short time series (n = 4). However, fixed effects may not be suitable for relatively short time – series. (Ali *et al*., 2017) used the fixed effects model for relatively long time – series (n = 13) and found that the fixed effects model provides an additional support to the governance and stock market liquidity.

Table 4.19: Fixed Effects Model on Illiquidity

Variable	Coefficient	Standard Error	t-Statistic	Probability
Board Effectiveness	-0.684145	2.064188	-0.331436	0.7406
Independence of Directors	8.033698	4.286162	1.874334	0.0621
Board Structure	0.313586	1.253363	0.250196	0.8027
Seniority of Directors	-3.892550	10.62872	-0.366229	0.7145
Firm Size	0.204005	1.710576	0.119261	0.9052
Constant	9.275066	10.32539	0.898278	0.3700
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.915563	Mean dependent variable		8.657729
Adjusted R-squared	0.892534	S.D. dependent variable		7.817302
S.E. of regression	2.562666	Akaike info criterion		4.909314
Sum squared residual	1517.037	Schwarz criterion		5.709200
Log likelihood	-660.1238	Hannan-Quinn criterion		5.229608
F-statistic	39.75800	Durbin-Watson stat		1.562613
Probability (F-statistic)	0.000000			

The regression equation for model 3 is as follows:

$Y = 9.2751 - 0.6841X_1 + 8.0337X_2 + 0.3136X_3 - 3.8926X_4 + 0.204X_5$

Model 4

$Y = f(\beta_1 X_{1i,t}, \beta_2 X_{2i,t}, \beta_3 X_{3i,t}, \beta_4 X_{4i,t})$ ………………………………………… (1)

Where Y is the $Breadth_{it}$

Meaning breadth of a firm listed at the NSE at any given time is a function of: $\beta_1 X_{1i,t}$, $\beta_2 X_{2i,t}$, $\beta_3 X_{3i,t}$ and $\beta_4 X_{4i,t}$

$Y_{i,t} = \beta_0 + \beta_1 X_{1i,t} + \beta_2 X_{2i,t} + \beta_3 X_{3i,t} + \beta_4 X_{4i,t} + \beta_5 X_{5i,t} + \varepsilon_{i,t}$ …………………… (2)

Where:

Subscripts i denotes individual firms and t denotes time period.

Breadth – is firm stock market liquidity measured by Liquidity Ratio

X_1 – Board Effectiveness

X_2 – Independent Directors

X_3 – Board Structure

X_4 – Seniority of Directors

X_5 – Moderating variable of firm size measured by reciprocal of share price (1/price) to capture the effect of tick-size.

β_0 – is the intercept

Hausman test was conducted to test the hypothesis that there was no influence between the dependent variable of liquidity ratio and the predictor independent variables: board effectiveness, independence of directors, board structure and seniority of directors with firm size as a moderating variable. The test results were as per Table 4.20, revealed that the Chi - square test statistic was 3.252403 with an insignificant p - value of 0.6611 ($p > 0.05$). This therefore, meant that the null hypothesis was rejected in favor of the random effects model. Therefore, the random effects model was accepted as suitable for this equation.

Table 4.20: Hausman Test Results on Liquidity Ratio

Test Summary			Chi-Square Statistic	Chi-Square difference	Probability
Cross-section random			3.252403	5	0.6611
Cross-section random effects test comparisons:					
Variable	**Fixed**	**Random**		**Variable (Difference)**	**Probability**
Board Effectiveness	0.093905	0.120508		0.008275	0.7700
Independence of Directors	0.053182	0.271707		0.026075	0.1760
Board Structure	-0.095521	-0.116688		0.001235	0.5469
Seniority of Directors	-0.209378	0.593036		0.623317	0.3095
Firm Size	0.014311	0.098760		0.013392	0.4655

Table 4.21 illustrated that board effectiveness had correlation coefficient of 0.12 and an insignificant p - value of 0.3507 ($p > 0.05$). This meant that board effectiveness had no significant influence on breadth during the study period. Board effectiveness had a positive but insignificant relationship. These findings were in line with (Hussain *et al*., 2021) who found that board size was insignificant to stock market liquidity. Large board size raised conflict among directors which indirectly affects the decision-making procedures and thus reduce stock market liquidity. Board meeting were found to have no relationship with stock market liquidity and further, board independence was insignificant to stock market liquidity. These results also concur with those of Sakwa (2015) found that board size had a positive but lesser effect on stock market liquidity. Further, frequency of board meetings had a positive but lesser effect on stock liquidity.

Independence of directors had correlation coefficient of 0.27 and an insignificant p - value of 0.3413 ($p > 0.05$). This implied that independence of directors had no significant influence on breadth during the study period. Independence of directors had a positive but insignificant relationship. These results were contradictory to those of Ali *et al.,* (2017) who found that the proportion of independent directors and number of board meetings significantly reduce stock market liquidity risk. Further the presence of independent directors, board size and meetings significantly increase stock market liquidity.

Board structure had correlation coefficient of -0.12 and an insignificant probability value of 0.1915 ($p > 0.05$). This meant that board structure had no significant influence on breadth during the study period. Board structure had a negative but insignificant relationship. These results were not in line with those of Oyoga (2010) who found a positive relationship between boards composition with performance of financial institutions listed at the NSE.

Seniority of directors had correlation coefficient of 0.59 and a significant p - value of 0.0021 ($p < 0.05$) which was significant at 1 percent level of significance. This meant that when seniority of directors improved by 0.59 percent per year then the breadth increased by 1 percent in the same year. These findings were contradictory to the findings of Majdi and Aymen (2013) that the average of the board of the administration members' length of service had a negative and significant effect on stock market liquidity. The study measured seniority of directors in terms of average tenure of the board of directors. Firm size had correlation coefficient of 0.10 and an insignificant p - value of 0.1057 ($p > 0.05$). This meant that firm size had no significant influence on breadth during the study period. Firm size had a positive but insignificant relationship.

The constant had correlation coefficient of -0.54 and a significant p - value of 0.0272 ($p < 0.05$). This implied that jointly these proxies of corporate governance influenced breadth as a measure of stock market liquidity during the period of study. When corporate governance reduced by 0.54 percent stock market liquidity (Breadth) increased by 1 percent in the same year. The value of adjusted R – squared was found to be 0.044081 which indicated that the independent variables of corporate governance are to explain about 4.41% variation of stock market liquidity of firms listed at the NSE. The value of Durbin Watson statistics of 2.361106 was also within the acceptable range which indicated the absence of autocorrelation in the error term.

Table 4.21: Random Effects Model on Liquidity Ratio

Variable	Coefficient	Standard Error	t-Statistic	Probability
Board Effectiveness	0.120508	0.128909	0.934827	0.3507
Independence of Directors	0.271707	0.285049	0.953193	0.3413
Board Structure	-0.116688	0.089122	-1.309304	0.1915
Seniority of Directors	0.593036	0.191500	3.096799	0.0021
Firm Size	0.098760	0.060853	1.622932	0.1057
Constant	-0.535529	0.241214	-2.220138	0.0272
	Effects Specification			
			Standard Deviation	**Rho**
Cross-section random			0.155215	0.3857
Idiosyncratic random			0.195875	0.6143
	Weighted Statistics			
R-squared	0.060339	Mean dependent variable		0.127165
Adjusted R-squared	0.044081	S.D. dependent variable		0.199734
S.E. of regression	0.195282	Sum squared residual		11.02104
F-statistic	3.711514	Durbin-Watson stat		2.361106
Probability (F-statistic)	0.002849			
	Unweighted Statistics			
R-squared	0.142739	Mean dependent variable		0.258731
Sum squared residual	17.61308	Durbin-Watson stat		1.477416

The regression equation for model 4 is as follows:

$$Y = -0.5355 + 0.1205X_1 + 0.2717X_2 - 0.1167X_3 + 0.593X_4 + 0.0988X_5$$

4.7 Hypotheses Testing

The hypotheses testing was arranged according to the objectives which entailed: board effectiveness, independence of directors, board structure, seniority of directors and firm size as the moderating variable. The decision rule was when $p < 0.05$, the null hypothesis was rejected and when $p > 0.05$, then the null hypothesis was accepted. The hypothesis testing was conducted as follows:

Hypothesis 1 (H_{O1}): There is no significant influence of board effectiveness on stock market liquidity of firms listed at the Nairobi Securities Exchange

This hypothesis intended to test whether board effectiveness had influence on stock market liquidity of firms listed at the Nairobi Securities Exchange or not. In order to test this hypothesis, correlation and regression analysis coefficient were considered. The regression analysis indicated there was positive and statistically significant influence between board effectiveness and quoted spread at 5% level of significance. The positive and a significant $p > 0.05$ which meant that when board effectiveness increased by 0.08 percent per year then tightness increased by 1 percent in the same year. These results were supported by the correlation results that revealed a positive and an insignificant $p < 0.05$ between board effectiveness and seniority of directors. This indicated that board effectiveness had no significant influence on Breadth during the period of study.

From the regression results board effectiveness had a negative and an insignificant $p < 0.05$ with illiquidity. This invariably meant that board effectiveness had no significant influence on depth during the study period and a negative but insignificant relationship. These results concur with those of correlation results that indicated board effectiveness had a positive and an insignificant $p < 0.05$ with liquidity ratio. This revealed that board effectiveness had no significant influence on breadth during the study period and a positive but insignificant relationship. From these findings board effectiveness had significant influence on quoted spread but no significant influence on turnover, illiquidity and liquidity ratio on stock market liquidity of firms listed at the NSE, therefore the null hypothesis was rejected that there no significant influence on quoted spread and accepted the null hypothesis that there was no significant influence on turnover, illiquidity, liquidity ratio on stock market liquidity of firms listed at the NSE.

The analysis of this variable revealed that there was a contradiction in findings that could create aspersion as to whether board effectiveness influences the firms' ability to trade large size quickly at low cost. These findings were in line with those of Hermalin and Weisbach (2010) who concluded that although the empirical literature

did not infer a relationship between board composition and stock performance, board size was negatively related to corporate governance. These finding were in line with those of Solomon (2013) that board effectiveness had never been empirically demonstrated because it relied on more than one factor. Owning to the high transaction costs in developing stock markets like the NSE, it can be argued that board effectiveness could have play important role of clearly articulating issues surrounding stock market liquidity. Chang *et al.*, (2008) that there was no evidence indicating direct linkage between board effectiveness and stock market liquidity.

Hypothesis 2 (H_{O2}): There is no significant influence of independence of directors on stock market liquidity of firms listed at the Nairobi Securities Exchange

This hypothesis intended to test whether independence of directors had influence on stock market liquidity of firms listed at the Nairobi Securities Exchange or not. In order to test this hypothesis, correlation and regression analysis coefficient were considered. The analyses were conducted to statistically test the relationship between independence of directors and stock market liquidity. The regression results indicated that independence of directors had a weak positive and an insignificant $p < 0.05$ with quoted spread. This revealed that independence of directors had no significant influence on tightness during the study period and a positive but insignificant relationship. The regression results demonstrated that independence of directors had a negative and an insignificant $p < 0.05$ with turnover. This meant that independence of directors had no significant influence on trading time during the study period and a negative but insignificant relationship.

The results were supported by those from the regression output. The study findings revealed that there was statistically significant positive relationship between independence of directors and trading time. The independence of directors indicated a positive and an insignificant $p < 0.05$ with illiquidity. This implied that, independence of directors had no significant influence on depth during the study period and a positive but insignificant relationship. These results were further supported by those of liquidity ratio which were positive and an insignificant with p

< 0.05. This meant that independence of directors had no significant influence on breadth during the study period and a positive but insignificant relationship. Given these findings therefore, accept the null hypothesis that there was no significant influence of independence of directors on stock market liquidity of firms listed at the NSE and failed to reject the alternative hypothesis that there was a significant influence of independence of directors on stock market liquidity of firms listed at the NSE. Hence, concluded that independence of directors did not influence stock market liquidity of firms listed at the NSE.

These findings were in line with those of Romano, Ferretti, and Rigolini (2012) who found no relationship between the presences of independent directors in the board of directors with their stock market liquidity performance. These findings concur with those of Pankaj *et al*., (2012) and Romano *et al*., (2012) that the presence of independent directors in the board had no influence on stock market liquidity performance. The results indicated that although independence of directors play critical role in decision making processes of firms listed at the NSE, there was no direct link between independence of directors and stock market liquidity when measured by quoted spread, turnover, and illiquidity and liquidity ratio. These could have be attributed to: high trading costs, firm size and individual firms' financial performance. The listed firms at the NSE, tended to react to high transaction costs by increasing outside directors to the board the action that entailed costs to the firms by ways of fees, travel expenses and allowances.

Hypothesis 3 (H_{O3}): There is no significant influence of board structure on stock market liquidity of firms listed at the Nairobi Securities Exchange

This hypothesis intended to test whether board structure had influence on stock liquidity of firms listed at the Nairobi Securities Exchange or not. In order to test this hypothesis, correlation and regression analysis coefficient were considered. There was a positive but insignificant relationship between board structure and tightness. Board structure had a positive and an insignificant $p < 0.05$ with quoted spread. This indicated that board structure had no significant influence on tightness during the study period. The results revealed that board structure had a negative and a

significant $p > 0.05$ with turnover which was significant at 5 percent level of significance. This meant that when board structure reduced by 0.06 percent per year then trading time improved by 1 percent in the same year.

The results of regression analysis revealed that board structure had a positive and an insignificant $p < 0.05$ with illiquidity. This implied that board structure had no significant influence on depth during the study period and a positive but insignificant relationship. These results were supported by those of correlation that board structure had a positive and an insignificant $p < 0.05$ with liquidity ratio. This revealed that board structure had no significant influence on breadth during the study period and had a negative but insignificant relationship. Therefore, the null hypothesis that there was no significant influence of board structure on stock market liquidity of firms listed at the NSE was accepted on quoted spread, illiquidity and liquidity ratio and rejected the null hypothesis that there was significant influence on turnover.

These findings were in line with those of Okumu (2015) who found that board structure was not a significant corporate governance tool that influenced stock market liquidity of firms listed at the NSE. The findings were in line with those findings of Sakwa (2015) found that unitary structure of the board had a negative influence on stock liquidity. The presence of unitary structure in the board led to slight decrease in stock liquidity at the NSE. These results were supported by those of Aboubakar and Mohammand (2014) who also found there that was no significant relationship between stock market liquidity and duality of directors among the listed firms.

Young's (2000) found that increased demand for NEDs was more pronounced in firms classified as having excessively manager – dominated boards. Young's further, argued that there was little evidence that an increase in NEDs causes firms to adjust other governance elements to restore the optimum level of monitoring. The findings demonstrated that the proportion of NEDs was significantly lower for firms with a combined chairperson and CEO for firms with smaller boards and less diversified firms.

Hypothesis 4 (H_{O4}): There is no significant influence of seniority of directors on stock market liquidity of firms listed at the Nairobi Securities Exchange

This hypothesis intended to test whether seniority of directors had influence on stock market liquidity of firms listed at the Nairobi Securities Exchange or not. In order to test this hypothesis, correlation and regression analysis coefficient were considered. The analyses were conducted to statistically test influence of seniority of directors on stock market liquidity. The regression results revealed that seniority of directors had a negative and a significant $p < 0.05$ with quoted spread which was significant at 5 percent level of significance. This indicated that when seniority of directors decreased by 0.09 percent per year then tightness increased by 1 percent in the same year. The results of regression analysis revealed that seniority of directors had a positive and an insignificant $p < 0.05$ with turnover. This meant that seniority of directors had no significant influence on trading time during the study period and had a positive but insignificant relationship.

These results were supported by those of seniority of directors which had a negative and insignificant $p < 0.05$ with illiquidity. This invariably meant that seniority of directors had no significant influence on depth during the study period and had a negative but insignificant relationship. Seniority of directors had a positive and a significant $p < 0.05$ with liquidity ratio which was significant at 1 percent level of significance. This meant that when seniority of directors improved by 0.59 percent per year then the breadth increased by 1 percent in the same year. Based on these findings therefore, the null hypothesis that there was no significant influence of seniority of directors on the stock market liquidity of firms listed at the NSE was rejected. Reject the null hypothesis on quoted spread and liquidity ratio and failed to reject the null hypothesis on turnover and illiquidity that there was no significant influence on the stock market liquidity of firms listed at the NSE.

These results were well supported with those of (Sakwa, 2015) that Seniority of directors and the length of service in the board was an indicator of familiarity with the company's business and environment. While helped the administration to exercise its duties and responsibilities of supervision, familiarity revealed some

rooting and inefficiency in the board. These results were supported by those of Bonini *et al.,* (2015) who found that longer tenured board members with tenure of over 20 years were better at monitoring management actions because they gather and store valuable information about the firm. The findings concur with those of Dou *et al*., (2015) that directors' performance improved with the extended tenure and experience.

Hypothesis 5 (H_{O5}): The relationship between corporate governance and stock market liquidity of firms listed at the Nairobi Securities Exchange is not significantly influenced by firm size

This hypothesis intended to test whether moderating variable of firm size had influence on stock market liquidity of firms listed at the Nairobi Securities Exchange or not. Moderating influence occurs when some independent variable (X) was correlated with some dependent variable (Y) not because it exerts some direct influence upon the dependent variable, but because it causes changes in moderating variable (M) and then the moderating variable cause's changes in the dependent variable (MacKinnon, Lockwood, Hoffman, West & Sheets, 2002).

The interpretation of the regression analysis on the influence of corporate governance on stock market liquidity firms listed at the NSE indicated that firm size had a positive and an insignificant $p < 0.05$ with quoted spread. This implied that firm size had no significant influence on tightness during the study period and had a positive but insignificant relationship. Firm size had negative and an insignificant $p < 0.05$ with turnover. This meant that firm size had no significant influence on trading time during the study period and had a negative but insignificant relationship.

These results revealed that firm size had a positive and an insignificant $p < 0.05$ with illiquidity. This meant that firm size had no significant influence on depth during the study period and had a positive but insignificant relationship. Firm size had a positive and an insignificant $p < 0.05$. This invariably meant that firm size had no significant influence on breadth during the study period. Firm size had a positive but insignificant relationship. As per the above findings the null hypothesis was accepted. The moderating influence of firm size on stock market liquidity of firms

listed at the NSE had no significant and failed to reject the alternative hypothesis that the moderating influence of firm size influences stock market liquidity of firms listed at the NSE.

These findings were in line with those of Zho (2011) who found a negative influence of firm size on stock market liquidity. Almajali *et al*., (2012) found that the size of the firm influenced its stock market liquidity performance and firm size was considered a proxy of information asymmetry and agency costs. The small firms were found to incur high level of information asymmetry. Moreover, equities firms with weak market capitalization were less liquid. These findings were in line with those of Naceur and Goaied (2010) found that firm size negatively influence of profitability of firms operating above their optimum level. Allen and Rai (1996) found that the larger firms were marked by higher levels of inefficiency.

The study findings were contradictory to the findings from the previous studies carried out (Chung *et al*., 2010; Beekes *et al*., 2014 & Prommin *et al*., 2014). This raises a number of issues that could have been addressed in future studies. Ali *et al.*, (2017) investigated corporate governance and stock liquidity: panel evidence from 2001 to 2013 in Australia, found that corporate governance quality was positively correlated with firm size, asset tangibility, leverage, and firm age, indicated that better governed firms were larger and older and had more asset tangibility and high debt in their equity – debt mix or capital structure.

On the contrary, corporate governance quality had a negative correlation with inverse of stock volatility, stock price and growth opportunities, implied that better governed firms were associated with lower equity risk and lower growth opportunities. Sakwa (2015) found that none of the variables were significant in predicating stock liquidity at the NSE of trading volumes, price volatility, share price and firm size. Hussain *et al*., (2021) found that corporate governance and stock liquidity were negatively associated.

4.8 Chapter Summary

The chapter presented the study findings on corporate governance and stock market liquidity of firms listed at the Nairobi Securities Exchange. The chapter first, presented descriptive statistics, correlation and regression analysis. The study conducted diagnostic tests in order to discuss the study findings effectively whose results were presented entail: normality tests, multicollinearity test, autocorrelation test, unit root tests and Hausman tests. The results of independent variables were presented with respect to the dependent variable measures in determining their influence on stock market liquidity of firms listed at the Nairobi Securities Exchange. Finally, the study successfully conducted hypothesis tests.

All the variables were found to have mixed results. Board effectiveness had a positive and significant influence on stock market liquidity of firms listed at the Nairobi Securities Exchange when quoted spread was used as a measure and no significant influence with turnover, illiquidity and liquidity ratio. Independence of directors and firm size had no significant influence while board structure and seniority of directors had negative and significant influence on stock market liquidity of firms listed at the Nairobi Securities Exchange.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the study's summary, conclusions and recommendations. The main objective of the study was to investigate corporate governance and stock market liquidity of firms listed at the Nairobi Securities Exchange. The findings of the study were arrived at after testing the hypotheses presented in chapter one. The conclusions drawn were based on the findings related to the specific objectives of the study and recommendations were based on the conclusions drawn from the study. The chapter also included a section capturing suggestions for further studies.

5.2 Summary

The study was to investigate the influence of corporate governance on stock market liquidity of firms listed at the Nairobi Securities Exchange. Better corporate governance implies higher liquidity for securities of listed firms. Liquidity in market stocks is important because it determines how quickly and efficiently securities can be bought or sold. High liquidity is associated with lower risk. A liquid stock is more likely to keep its value when being traded.

The findings were arrived at after analysis of data. The data was first subjected to descriptive statistical analysis test. The variables were found not to be normally distributed. The variables were then subjected to unit root test analysis to assess the stationarity of the variables. The study found that all the variables were stationary. Correlation analysis was used test for multicollinearity among the independent variables. All the study variables were not highly correlated hence no problem of Multicollinearity. The study conducted Hausman test to determine whether to use the fixed or random effects models. The general objective of the study was achieved through running regression of stock market liquidity on the quoted spread, turnover, illiquidity and liquidity ratio. The objective was to find out whether these variables had any causal relationship in the study.

5.2.1 Board Effectiveness

The first objective was to evaluate the influence of board effectiveness on stock market liquidity of firms listed at the Nairobi Securities Exchange. Board effectiveness had positive and significant influence on stock market liquidity of firms listed at the NSE when quoted spread was used as measure but no significant influence when measured by turnover, illiquidity and liquidity ratio. The findings correlated to those of Sakwa (2015) who found that board size had a positive but lesser effect on stock market liquidity. Further, frequency of board meetings had a positive but lesser effect on stock liquidity. Since board effectiveness and commitment are not directly observable, the empirical findings from this study were mixed. Others studies (Majdi and Aymen, 2013; Hamdan, Ahmed and Adel, 2017; Sidhu and Kaur, 2019) revealed that board effectiveness as one of the proxies of corporate governance internal mechanisms had a positive and significant influence on stock market liquidity whereas others indicators did not indicate any significant influence. These study findings were consistent with related literature.

5.2.2 Independence of Directors

The second objective was to establish the influence of independence of directors on stock market liquidity of firms listed at the Nairobi Securities Exchange. Independence of directors were found to have no significant influence on stock market liquidity of firms listed at the Nairobi Securities Exchange. This study findings were linked to those of Manjit (2016) who found that independence of directors had a negative association with stock market liquidity and the correlation was not significant. Ali *et al.,* (2017) found that the proportion of independent directors and number of board meetings significantly reduce stock market liquidity risk. Further the presence of independent directors, board size and meetings significantly increase stock liquidity.

5.2.3 Board Structure

The third objective was to identify the influence of board structure on stock market liquidity of firms listed at the Nairobi Securities Exchange. The board structure was found to have negative and significant influence on stock market liquidity when measured by turnover but no significant influence when measured by quoted spread, illiquidity and liquidity ratio. The findings of this study did not concur with those of Manjit (2016) who found that CEO duality was positively related with stock market liquidity. However, multiple directorships had negative relationship with liquidity advocating that busy directors have negative influence on stock market liquidity of the firms. Frequent audit committee meetings and percentage of board meetings attended by independent directors were negatively related with liquidity. Wajih *et al.,* (2021) revealed that CEO duality significantly increases stock market liquidity which means that the dual role of CEOs increases leadership and monitoring power. It also helps to control adverse selection problems which may positively affect stock market liquidity.

5.2.4 Seniority of Directors

The fourth objective was to determine the influence of seniority of directors on stock market liquidity of firms listed at the Nairobi Securities Exchange. Seniority of directors was found to have negative and significant influence on stock market liquidity when measured by quoted spread and liquidity ratio but no significant influence on stock market liquidity when turnover and illiquidity were used. These study findings were similar to those of Sakwa (2015) who found that seniority of directors in the board had slightly larger negative influence on stock liquidity. Seniority of the board resulted in marginal decrease of stock liquidity of listed firms.

These study findings correlated to those of Wahid and Li (2018) that tenure diversity appears not to be associated with higher future performance, in terms of stock market liquidity. Majdi and Aymen (2013) also found that the average of the board of the administration members' length of service had a negative and significant effect on stock market liquidity. Seniority of directors and length of service in the board is an indicator of familiarity with the firm's activities and environment while it could help

the management to exercise its duties and responsibilities of supervision. Familiarity also revealed some rooting and inefficiency in the board. A CEO who has acquired a great deal of seniority as a director may effectively be entrenched in the firm hiding fraud and incompetence. The long stay of directors in the firm could enrich the individual directors and not the firm; such directors could make wrong decisions resulting to firms' inability to trade large size quickly at low cost.

5.2.5 Firm Size

The fifth objective was to ascertain the influence of firm size on the relationship between corporate governance and stock market liquidity of firms listed at the Nairobi Securities Exchange. Firm size was found to have no significant influence on the relationship between corporate governance and stock market liquidity of firms listed at the Nairobi Securities Exchange. These study findings concur with those conducted by Sidhu and Kaur (2019) that firm size had a negative and significant relationship, where, larger firms had high stock market liquidity. Further, the coefficient of firm age is negative, consistent with the predictions.

These study findings were linked to those of Hussain *et al.,* (2021) who found that firm size had significant negative impact on stock market liquidity. The study also found a negative relationship between country – level governance mechanisms and stock market liquidity. Ruhana and Hidayah (2020) also found that firm size had a significant negative influence on sustainability report disclosure and stock market liquidity. The study findings indicated that stock market liquidity and seniority of directors move in opposite directions which show that seniority of directors was not significant. The findings of the study further indicated that illiquidity was found to be the best measure of corporate governance on stock market liquidity of firms listed at the Nairobi Securities Exchange.

5.3 Conclusions

The following conclusions were made on the influence of corporate governance on stock market liquidity of firms listed at the Nairobi Securities Exchange. Board effectiveness had positive and significant influence on stock market liquidity of firms

listed at the Nairobi Securities Exchange when quoted spread was used as measure but no significant influence when measured by turnover, illiquidity and liquidity ratio. Independence of directors had no significant influence on stock market liquidity. Board structure had negative and significant influence on stock market liquidity when measured by turnover but no significant influence when measured by quoted spread, illiquidity and liquidity ratio.

Seniority of directors had negative and significant influence on stock market liquidity when measured by quoted spread and liquidity ratio but no significant influence when turnover and illiquidity were used. Firm size was found to have no significant influence on the relationship between corporate governance and stock market liquidity of firms listed at the Nairobi Securities Exchange. The findings further indicated that of the four stock market liquidity measures of quoted spread, turnover, illiquidity and liquidity ratio, illiquidity was the best measure of stock market liquidity.

Investigating factors influencing corporate governance on stock market liquidity was important for investors and firms. As it could shed some light on the channel through which better corporate governance influences stock market liquidity as well as increase the shareholders wealth. This is in line with the agency theory which this study was anchored. As far as this could be ascertained the study demonstrates how corporate governance relates to the three dimensions of stock market liquidity of firms listed at the Nairobi Securities Exchange.

5.4 Policy Recommendations

Based on the conclusions of the study, the section presents policy recommendations for action. The findings of the study may be helpful for policymakers to improve efficiency and reduce externalities for investors to comprehend the influence of trading practices on transaction costs. The policymakers can identify the factors that influence stock market liquidity and come up with regulatory policies to select efficient trading systems in response to information asymmetry. The study recommends that the policy makers should construct a new corporate governance index to provide comprehensive and updated information.

The findings will help investors and firms at the Nairobi Stock Exchange and elsewhere and any other firm in competitive industry. Regulators to ensure that all the trading activities are disclosed to enable investor make informed decisions. The study recommends that firm managers, investors and regulators should monitor internal governance mechanisms more closely in order to understand the causes of the firms' inability to trade large size quickly at a low cost.

The study will benefit the business environment through sharing of business analytics and other financial information as guided by the corporate governance and stock market liquidity. As the environment is very dynamic, the practitioners of management need to update themselves and their respective industries on the best practices required. Unethical practices by the corporate executives should be severely punished. The study recommends that firm managers take into consideration the findings of the study as the starting point to further investigate the factors that influence corporate governance and stock market liquidity at the Nairobi Securities Exchange.

The general public/parties likely to benefit from the study include business executives, stockholders, brokers and consultancy firms. As they are likely to benefit from the in-depth analysis of the relationship between corporate governance and stock market liquidity of firms listed at the Nairobi Securities Exchange. The creditors, business partners as well as the customers are also expected to benefit from the study.

The study developed a conceptual framework for underpinning future research work on the influence of corporate governance on stock market liquidity. The study successfully tested hypotheses related to original conceptual framework developed in chapter two. The study provides a contribution to the existing literature by enlarging the corporate governance and stock market liquidity data base. It will be used as a basis of reference by students for any future studies in the field of corporate governance and stock market liquidity. Future researchers in corporate governance and stock market liquidity can use the findings and recommendations of the study as part of their literature review. The findings will enrich the area of corporate governance and stock market liquidity.

5.5 Areas for Further Research

Based on the recommendations of the study, the final section presented the suggested areas for further research. While the objectives were clear and successfully accomplished, several areas remain unclear and require further research. The study concentrated on the board aspects that influence of corporate governance on stock market liquidity of firms listed at the Nairobi Securities Exchange. Whereas the variables covered were important, further research to be conducted on accountability and transparency disclosures that could influence stock market liquidity.

This study used data collected from the firms listed at the Nairobi Securities Exchange for a period of five years. The study proposes that further research be conducted on a larger cross – section and a longer time – series data. Also, further research to be conducted to ascertain the influence of corporate governance practices of legislation, trading and listing rules on stock market liquidity at the Nairobi Securities Exchange.

REFERENCES

Abdollahi, A., & Mostafaloo, M. (2020). Corporate governance dimensions of stock liquidity: A case of Iranian Firms. *Journal of Humanitities insights, 4*(3), 129 - 135.

Abdussalam, M. (2009). Corporate governance from the Islamic perspective. *A comparative analysis with OECD principles, critical perspectives and accounting*.

Aboubakar, A., & Mohammand, F. (2014). *The Effects of Corporate Governance on Stock Liquidity: Evidence from Tehran Stock Exchange.* Tahran.

Acharya, V., & Viswanathan, S. (2011). Leverage,moral hazard and liquidity. *The Journal of Finance, 66 (1)*, 99 - 138.

Adam, S. (1776). *The Wealth of nations.* New York: Reprint Modern Library.

Adams, R., & Ferreira, S. (2007). A Theory of Friendly Boards. *Journal of Finance*, 62: 217 - 250.

Adams, R., Hermalin, B., & Weisbach, M. (2010). The role of boards of directors in corporate governance: A conceptual framework and survey. *Journal of Economic Literature, 48*, 58 - 107.

Agyeman, S. (2010). *Challenges facing venture capitalists in developing economies. An empirical study about venture capital indutry in Ghana.* Umea University.

Akisik, O., & Gal, G. (2017). The Impact of Corporate Social Responsibility and Internal Controls on Stakeholders' view of the Firm and Financial Performance. *Sustainability Accounting Management and Policy Journal, 8*(3), 246 - 280.

Aldrich, E., & Pfeffer, J. (1976). Environments of organizations. *Annual Review of Sociology, 2*, pp. 79 1- 105.

Allen, L., & Rai, A. (1996). Operational efficiency in banking: An international comparison. *Journal of Banking and Finance, 20*, pp. 655 - 672.

Almajali, A., Alamro, H., & Al- soub, Z. (2012). Factors affecting the financial performance of Jordanian insurance companies listed at Amman stock exchange. *Journal of Management Research, 4 (2)*, 2 - 43.

Amihud, Y. (2002). Illiquidity and stock returns: Cross- section and time series effects. *Journal of Financial Markets, 46*, 1411 - 1425.

Amihud, Y., & Mendelson, H. (1986). Asset pricing and the bid- ask spread. *Journal of Financial Economics, 17*, 223 - 249.

Anderson, C., Mansi, S., & Reeb, D. (2004). Board characteristics, accounting report intergrity and cost of debt. *Journal of Accounting and Economics, 37 (3)*, 315 - 342. doi:10.1016/j.jacceco.2004.010.004

Andre, P., Broye, G., Pong, C., & Schatt, A. (2011). Audit fees, big four premium and institutional settings: The devil is in the details. Paris, France: Unpublished SSRN Work Paper, ESSEC Business School.

Angelo, A., & Alex, F. (2012). Board independence, stock market and price efficiency. doi:https://ssrn.com/abstract=1922608

Armstrong, N., & Davis, B. (2005). *Corporate governance: South Africa, a pioneer in Africa.* Johannesburg: The South African Institute of International affairs (SAIIA). Retrieved from http:// www.saiia.org.za/research-reports/corporate-governance-south-africa-a-pioneer-in-africa/

Awotundun, A., Kehinde, S., & Somoye, O. (2011). Corporate governance and stakeholders interest: A case of Nigerian banks. *Journal of Business and Management, 6 (10).*

Babbie, E. (2010). *The Practice of Social Research. 12th ed. Mason: Cengage learning.*

Badulescu, D., & Badulescu, A. (2008). Theoretical background of corporate governance (1). Annals of Oradea, University, Fascicle of Management and Technological.

Balta, E. (2008). The impact of business environment and boards of directors on strategic decision- making: A case study of Greek listed companies. Unpublished PhD Research Thesis, Brunei Business School.

Bartov, E., & Bodnar, M. (1996). Alternative accounting methods, information asymmetry and liquidity: Theory and evidence. *Accounting Review, 71*, pp. 397 - 418.

Baum, C., & Christopher, F. (2006). *An introduction to Modern Econometrics using Stata.* New York .

Beasley, M. (1996). An empirical analysis of the relation between the board of directors composition and financial statement fraud. *The Accounting Review, 71 (4)*, pp. 443 - 465.

Bebchuk, L., & Weisbach, M. (2010). The state of corporate governance research. *Review of Financial Studies, 23 (3)*, pp. 939 - 961. doi:10:1093/rfs/hhp121

Beekes, W., Brown, P., & Zhang, Q. (2014). Corporate governance and the informativeness of disclosures in Australia: A re-examination. *Accounting and Finance*. doi:10.1111/acfi.12088

Berglund, T. (2020). Liquidity and corporate governance. *Journal of Risk and Financial Management, 13*, 54 - 65.

Bonini, S., Deng, M., Ferrari, M., & John, K. (2015). *Til death do us part: The long tenured directors.* New York: Working Paper, Stevens Institute of Technology, University of Modena.

Bosch, H. (2002). The changing face of corporate governance. *Law Journal, 25 (2)*, pp. 270 - 293.

Brenna, J. (1995b). Corporate finance over the Past 25 Years. *Financial Management, 24*, 9 - 22.

Byrd, J., & Hickman, K. (1992). Do outside directors monitor manager? *Journal of Financial Economics, 32 (2)*, 195 - 221.

Cadbury, R. (1992). *Report of the committee on the financial aspect of corporate governance.* London: Gee Publishing.

Callahan, M., Lee, M., & Yohn, L. (1997). Accounting horizons. *11*, pp. 50 - 60.

Campbell, Y., Lo, W., & Mackinlay, C. (1997). *The econometrics of financial markets.* Princeton, New Jersey: Princeton University Press.

Castillo, J. (2009). Convenience sampling. Retrieved from http://experimentresources.com/convenience-sampling.html

CBK. (2013). *Prudential guidelines 2012.* Nairobi: Central Bank of Kenya. Retrieved from https://www.centralbank.go.ke

Chan, Y., Tang, T., & Tam, W. (2012). *Media coverage of corporate governance scandals and stock market liquidity.* Hong Kong: School of Bussiness, Hong Kong Baptist University. Retrieved from http:// ssrn.com/abstract=1869454

Chang, M., D'Anna, G., Watson, I., & Wee, M. (2008). Does disclosure quality via investor relations affect information asymmery? *Australian Journal of Management, 33*, 375 - 390.

Chen, C., & Jaggi, B. (2001). Association beween independent non - executive directors, family control and financial disclosures and pulic policy. *19*, pp. 285 - 310.

Chen, P., Chung, H., Lee, C., & Liao, L. (2007). Corporate governance and equity liquidity: Analysis of S & P transparency and disclosure rankings. *Corporate Governance an International Review, 15*, pp. 644 - 660.

Cherry, K. (2016). Introduction to research methods: Variables' causal relationships. Retrieved from Retrieved from https://www.verywell.com

Christensen, H., Hail, L., & Leuz, C. (2014). Capital market effects of securities regulation: Prior conditions, implementation and enforcement. *France Working Paper, (407)*. doi:http://ssrn.com/abstract id =1745105

Chung, H., Elder, J., & Kim, C. (2010). Corporate governance and liquidity. *Jouranl of Financial and Quantitative Analysis, 45*, 265 - 291.

Chung, J., & Edmans, C. (2009). Block holders trading, market efficiency and managerial Myopia. *Journal of Finance,, 64*, 2481 - 2513.

Chung, R., & Cheung, M. (2016). The effects of stock liquidity on firm value and corporate governance: Endogeneity and the REIT experiment. *Accounting, Finance and Economics*.

CMA. (2009). *Guildelines on corporate governance in public listed companies in Kenya.* Nairobi: Kenya Gazette Notice.

CMA. (2016). *Capital Market.* Retrieved 10 2017, from Retrievered from http://www.cma.or.ke/index.php?option=com-content&=view&id=16&Itemid=36

CMA. (2017). *Listed firms at the Nairobi securities exchange.* Retrieved from Retrieved from: http://www.tradingeconomics.com/kenya/stock-market

Coase, H. (2002). The nature of the firm. *Economica, 4*, pp. 386 - 405.

Coates, C. (2007). The goals and promise of the Sarbanes – Oxley act. *The Journal of Economic Perspectives, 21 (1)*, 91 - 116.

Coles, J., Naveen, D., & Naveen, L. (2015). *Board groupthink* . Working paper, University of Utah, Drexel University and Temple University.

Collis, J., & Hussey, R. (2014). *Business research: A practical guide for undergraduate and postgraduate students* (4th ed.). Palgrave Macmillan.

Cooper, R., & Schindler, S. (2013). *Business research methods.* New York: McGraw - Hill Higher Education.

Craig, J., & Dibrell, C. (2006). The natural environment, innovation and firm performance: A comparative study. *Family Business Review, 19 (4),* pp. 275 - 288.

Creswell, J. (2014). *Research design: Qualitative, quantitative and mixed methods approaches* (2nd ed.). Thousand Oaks: CA: SAGE Publications.

Crockett, A. (2008). Market liquidity and financial stability. *Review - Special Issue on Liquidity, 11,* pp. 13 - 18.

Daily, M., Dalton, D., & Cannella, A. (2003). Corporate governance: Decades of dialogue and data. *Academy of Management Review, 28 (3),* pp. 371 - 383.

Dalton, R., Daily, M., Johnson, L., & Ellstand, E. (1999). Number of directors and financial performance: A Meta – analysis. *Academy of Management Journal, 42 (6),* 674 - 686.

Dang, D., Li, F., & Yang, C. (2018). Measuring firm size in empirirical corporate finance. *Journal of Banking and Finance, 86*(January), 159 - 176.

Dater, T., Naik, Y., & Radcliffe, R. (1998). Liquidity and stock returns: An alternative test. *Journal of Financial Markets, 1,* 203 - 219.

Davis, F., & Cobb, A. (2010). Resource dependence theory: Past and future. *Research in the Sociology of Organizations, 28 (1),* 21 - 42.

Davis, H. (1991). *Board leadership roles and shareholders returns: An examination of agency.* Doctoral Thesis, University of Iowa.

Davis, H., Schoorman, D., & Donaldson, L. (1997). Toward a stewardship theory of management. *Academy of Management Review, 22 (1),* pp. 20 - 47.

Dedman, E. (2002). The Cadbury committee recommendations on corporate governace- A review of compliance and performance impacts. *International Journal of Management Reviews, 4 (4),* 335 - 352.

Diamond, W., & Verrecchia, E. (1991). Disclosure, liquidity and the cost of capital. *Journal of Finance, 46,* 1325 - 1359.

Dou, Y., Sahgal, S., & Zhang, J. (2015). *Should independent directors have term limit? The role of exeperience in corporate governance.* Working paper, University of New South Wales.

Dress, M., & Heugens, P. (2013). Synthesizing and extending resource dependence theory a Meta- analysis. *Journal of Management, 39 (6),* 1666 - 1698.

Dulewicz, V., & Herbert, P. (2004). Does the composition and practice of board of directors bear any relationship to the performance of their companies? *Corporate governance: An International Review, 12(3),* pp. 263 - 280.

Eddleston, A., & Kellemenns, W. (2007). Destructive and productive family relationships: A stewardship theory perspective. *Journal of Business Venturing, 22 (4),* 545 - 565.

Eddleston, A., Kellermanns, W., & Zellweger, M. (2012). Exploring the entrepreneurial behavior of family firms: Does the stewardship perspective explain differences? *Entrepreneurship Theory and Practice, 36 (2),* 347 - 367.

Elewechi, M. (2007). Corporate governance in Nigeria. *An International Review, 15 (2),* pp. 173 - 193.

Fame, E., & Jensen, M. (1983). Separation of ownership and control. *The Jounal of Law and Economics, 8 (1),* 301 - 326.

Ferreira, D., & Kirchmaier, T. (2013). *Corporate Boards in Europe: Size, independence and gender diversity. In Boards and Shareholders in European Listed Companies:Facts, Context and Post - Crisis Reforms.* Cambrige: Cambridge University Press.

Fich, E., & Schivdasani, A. (2006). Are busy board effective monitors? *Journal of Financial, 61 (2)*, 689 - 724.

Flamini, V., McDonald, C., & Schumacher, L. (2009). Determinants of commercial bank profitability in Sub - Saharan Africa. *IMF Working Paper*, 1 - 30.

Foo, B., & Zain, M. (2010). Board independence, board diligence and liquidity in Malaysia: A research note. *Journal of Contemporary Accounting and Economics, 6*, 92 - 100.

FRC. (2012). *UK corporate governance code.* London: Finnnish Corporate Governance Code . Retrieved from Retrieved from www.cgfinland.fi/en

FRC. (2014). *The UK corporate governance code.* London: Finish Corporate Governance Code, 2012. Retrieved from www.cgfinland.fi/en

Gakeri, J. (2013). *Enhancing Kenya's securities markets through corporate governance: Challenges and opportunities.* Nairobi: School of Law, University of Nairobi.

Garas, S., & Elmassah, S. (2018). Corporate Governance and Corporate Social Responsibility Disclosures: the case of GCC Countries. *Critical Perspectives on International Business, 14*(1), 2 - 26.

Glosten, R., & Milgrom, R. (1985). Bid, ask and transaction prices in a specialist market with heterogeneously informed traders. *Journal of Financial Economics, 14*, 17 - 100.

Goldberger, S. (1991). *A course in Econometrics.* London: London: Harvard University Press Cambridge, Massachusetts.

Goyenko, Y., Holden, W., & Trzcinka, A. (2009). Do Liquidity Measures Measure Liquidity? *Journal of Financial Economics*, 105, 82-112.

Gujarati, D. (2011). *Econometric by Example Palagrave.* New Delhi: Macmillian.

Gupta, P. (1995). *Statistical methods.* New Delhi: Sultan Chand and Sons Publishers.

Hair, J., Black, C., & Babin, J. &. (2010). *Multivariate data analysis, 7th ed.* Upper Saddley River, New Jersey: Pearson Education International.

Hamdan, A., Ahmed, A., & Adel, A. (2017). Corporate governance strength and stock market liquidity in Malaysia. *International Joural of Managerial Finance*. doi:https://doi.org/10.1108/IJMF - 10 - 2016 - 0195

Handa, P., & Schwartz, A. (1996). How best to supply liquidity to a security market. *The Journal of Portfolio Management, 22*, 44 - 51.

Harris, L. (2000). *Trading and exchange: Market microstructure for practitioners.* Oxford: Oxford University Press.

Hasbrouck, J. (2009). Trading costs and returns for us equities: Estimating effective costs from daily data. *The Journal of Finance, 64*, 1445 -1477.

Heflin, L., Shaw, W., & Wild, J. (2005). Disclosure policy and market liquidity: Impact of depth quotes and order sizes. *Contemporary Accounting Research, 22*, 829 - 865.

Heidrick, G., & Struggles, J. (2014). *Towards Dynamic Governance 2014: European Corporate Governance Report.* London: International Corporate Governance Network.

Hermalin, E., & Weisbach, S. (2010). *Board of Directors as an Endogenously Determined Institute: A survey of the economic literature.* Economic Policy Review.

Hillman, A. J., & Dalziel, T. (2003). Boards of directors and firm performance. *Intergrating Agency of Management Review, 28 (3)*, pp. 383 - 396.

Hitt, M., Ireland, D., & Hoskisson, R. (2012). Strategic management laws: Competitiveness globalization. Boulevard: Engage, Learning.

Holmstrom, B., & Kaplan, S. (2003). The state of US corporate governance: What's right and what's wrong? *15 (3)*, pp. 8 - 20. doi:10.1111/j.1745-6622.2003.tb00457.x

Huang, D., & Stoll, R. (1996). Dealer versus auction markets: A paired comparison of executive costs on NASDAQ and the NYSE. *Journal of Financial Economics, 41*, 313 - 357.

Hughes, J., & Mater, L. (2013). Who said large banks don't experience scale economies? Evidence from a risk- return- driven cost function. *Journal of Financial Intermediation, 22*, pp. 559 - 585.

Hussain, W., Khan, M., Gemici, E., & Olah, J. (2021). Governance, firm internationalization and stock liquidity among selected emerging economies from Asia. *Journal of Asian Finance, Economics and Business, 8*(9), 0287 - 0300. doi:10.13106/jafeb2021.vol18.no9.0287

IMF. (2015). *Global financial stability report- Vulnerabilities, legacies and policy challenges: Risks rotating to emerging markets.* Washington.

Ingley, C., & Wait, N. (2008). Risk Management and Board Effectiveness. *International Studies of Management and Organisation*, pp. 38 (3), 43 - 70.

Jensen, M. (1986). Agency costs of free cash flow, corporate financial and takeovers. *American Economics Review, 74 (4)*, pp. 650 - 659.

Jensen, M. (1993). The modern industrial revolution, exit and the failure of internal control systems. *Journal of Finance, 48*, pp. 831 - 880.

Jensen, M. (2000). *Theory of firm: Governance, residual claims and organizational forms.* Boston: Harvard University Press.

Jensen, M., & Meckling, W. (1976). Theory of the firm: Management behavior, agency costs and ownership structure. *Journal of Financial Economics, 3 (4)*, pp. 305 - 360.

Jermias, J., & Gani, L. (2014). The impact of board capital and board characteristics on firm performance. *The British Accounting Review, 46 (2)*, pp. 135 - 153.

Johnson, L., Daily, M., & Ellstrand, E. (1996). Boards of directors: A review and research agenda. *Journal of Management, 22 (3)*, pp. 406 - 438.

Kahuthu, W. (2017). *The effect of stock market liquidity on stock returns of companies listed on Nairobi securities exchange (Thesis).* Nairobi: Strathmore University . Retrieved from http://su-plus.strathmore.edu/handle/11071/5594

Karmani, M., Ajina, A., & Boussada, R. (2015). An investigation of the relation between corporate governance and liquidity: Empirical evidence from France. *Journal of Applied Business Research, 31*(2), 631 -646.

Karolyi, G., Lee, K., & Van Dijk, M. (2012). Understanding commonality in liquidity around the world. *Journal of Financial Economics, 105,* 82 - 112.

Kaymak, K., & Bektas, E. (2008). East Meets West? Board Characteristics in an Emerging Market: Evidence from Turkish Banks, Corporate Governance. *An International Review, 16*(6), 550 - 561.

Kercher, K. (2013). *A study of board remuneration committees: Structure and effectiveness.* PhD Thesis, Faculty of Business, Board University. Australia.

Kesner, I. (1988). Director's Characteristics and Committee Membership, An investigation of type, occupation, tenure and gender. *Academy of Management Journal*, 31, 66 - 84.

Kiel, G., & Nicholson, G. (2003). Board composition and corporate performance: How the Australian experience informs contrsting theories of corporate governance. *An International Review, 11 (3)*, pp. 189 - 205.

Klein, H. (2009). Principal-agent problems in the financial crisis of 2007-2009. *Unpublished Masters' Thesis, Amsterdam: Vrije Universiteit*.

Kline, B. (2011). *Convergence of structural equation modeling and multilevel modeling. In Williams, M. & Vogt, W. P. (Eds.), Handbook of methodological innovation in social research methods.* London:Sage.

Kluger, D., & Stephen, J. (1997). Alternative liquidity measures and stock returns. *Review of Quantitative Finance and Accounting, 8*, pp. 19 - 36.

Kodongo, C. (2013). Foreign Exchange Risk and the flow of International Portfolio Capital: Evidence from Africa's capital markets. *Journal of International Finance*, 1 - 250.

Kombo, K., & Tromp, A. (2014). *Proposal and thesis writing: An introduction* . Nairobi, Kenya: Paulines Publications.

Kosnik, R. (1990). Effect of Board Demography and Directors' Incentives on Corporate Grenmail Decisions. *Academy of Management*, pp. 33: 129 - 150.

Kothari, C., & Gaurav, G. (2014). *Research methodology: Methods and techniques. Third edition.* London: New age international (P) Limited, Publishers.

Lamminmaki, D. (2010). An examination of factors motivating hotal outsourcing discussion papers accounting.

Lesmond, D. (2005). Liquidity of Emerging Markets. *Journal of Financial Economics*, 77, 411- 452. Retrieved from http://dx.doi.org/10.1016/j.jfineco.2004.01.005

Li, N., & Wahid, A. (2018). Director tenure diversity and monitoring effectiveness. *Research Collection School of Economics, 6*(2), 1 - 51. doi:https://ink.libray.smuedu.sg/soe-research

Liang, D. (2017). *Introduction to Java Programming and Data Structures, Comprehensive Version* (11th ed.). London.

Linck, J., Wetter, J., & Yang, T. (2008). The determinants of board structure. *Journal of Financial Economics, 87*, 308 - 328.

Loderer, C., Stulz, R., & Waelchli, U. (2017). Firm Rigidifies and the decline in Growth Opportunities. *Management Science, Forthcoming*.

MacKinnon, P., Lockwood, M., Hoffman, M., West, G., & Sheets, V. (2002). A Comparision of Methods to Test Mediation and other Intervening Variable Effects. *Psychological Methods, 7*, 83 - 104.

Madiavale, C. (2011). The Relation between corporate governance and financial performance of previously governance owned companies quoted at the Nairobi stock exchange. *Unpublished MBA Project University of Nairobi*.

Maina, M. (2012). *Qualitative and quantitative research methods simplified.* Nairobi: Frajopa Printers Mall.

Majdi, K., & Aymen, A. (2013). An investigation of relation between corporate governance and liquidity: empirical evidence from France. *La Rochelle Business School, IRGO, France*.

Mallian, A. (2007). *Corporate governance.* (2nd Ed.) Oxford University Press.

Manjit, S. (2016). Corporate governance and stock market liquidity. *Journal of Commerce and Accounting Research., 5*(3).

Manyuru, J. (2005). Corporate governance and organizational performance: The case of companies quoted at the Nairobi securities exchange. *Unpublished MBA Project, University of Nairobi*.

Marcia, J. (2013). Ownership, corporate governance and liquidity in Caribbean firms. *Northern Caribbean University*.

Marko, H., Navodya, D., Sivashankari, B., Peter, T., & Jorma, E. (2020). The Importance of Diversity on Boards of Director's Effectiveness and its Impact on Innovativeness in the Bioeconomy. *Humanities and Social Sciences Communications, 7*(116).

Maslow's, A. (1958). *A dynamic theory of human motivation.* Oxford: Oxford University Press.

McGregor, D. (1960). *The human side of enterprise.* New York: Reprint Modern Library.

Mclnish, H., & Wood, A. (1992). An analysis of intraday patterns in bid/ask spreads for NYSE stocks. *The Journal of Finance, 47*, 753 - 764.

Merriam Webster's collegiate dictionary. (1993). Springfield, M. A: Merriam Webster. Retrieved August 31, 2017, from https://www.merriam-webster.com/dictionary/quality

Mohamed, S., Ahmad, K., & Khai, K. (2016). Corporate Governance Practices and Firm Performance: Evidence from top 100 public listed companies in Malaysia. *Procedia Economy Finance, 35*, 287 - 296.

Mohammad, M., & Shahid, U. (2012). Corporate governance and bank performance: Evidence from Bangladesh. *Coporate board: Role, duties and composition, 8 (1).*

Mohamud, A. (2017). *Effect of Firms Size on the Relationship between Strategic Planning Dimensions and Performance on Manufacturing Firms in Kenya.* Nairobi: PhD thesis.

Mugenda, M., & Mugenda, G. (2013). *Research methods: Qualitative and quantitative approaches.* Nairobi: ACT Press.

Mule, R., Mukras, S., & Oginda, M. (2013). Ownership concentration and financial management discretion on financial performance: Empirical evidence from NSE. *International Journal of Humanities and Social Sciences, 1 (13)*.

Mululu, K. (2005). *The Ralationship between Board Activity and Firm Performance: A study of firms quoted on the Nairobi securities exchange.* Nairobi: Unpublished MBA project. University of Nairobi, Kenya.

Naceur, S., & Goaied, M. (2010). The determinants of commercial banks interest margin and profitability: Evidence from Tunisia. *Journal of Frontiers in Economics and Finance, 5 (1),* 106 - 130.

Nadia, B., Abdelfatteh, B., & Jean, P. (2014). Corporate governance and market microstructure: Evidence on institutional investors in the Tunisian stock exchange.

Nicholson, N. (2008). Evolutionary psychology, organizational culture and the family firm. *The Academy of Management Perspectives, 22 (2),* pp. 73 - 84.

Nicolason, G., Belen, F., & Marta, C. (2016). Board of directors' effectiveness and the stakeholder perpective of corporate governance: Do effective boards promote the interest of shareholders and stakeholders? *Business Research Quarterly*. Retrieved from www. elsevier.es/brq

Ning, D., Majeed, M., & Zeb, A. (2021). Board diversity and financial statement comparability: evidence from China. *Eurasian Business Review*. doi:https://doi.org/10.1007/s4821- 022- 00214 - 3.

NSE. (2017). *Industry sectors.* doi:http://www.nse.com.ng/issuers/listing-your-company/industry-sector.

Ntim, G., Lindop, S., Osei, A., & Thomas, A. (2013). *Executive compensation, corporate governance and corporate performance: A simultaneous equation approach. Managerial and Decision Economics.* London: Published online in Wiley online Library. Retrieved from www. wileyon linelibrary.com

Okumu, F. (2015). *Corporate governance and firm value for firms listed at the Nairobi Securities exchange.* Nairobi: MBA project, University of Nairobi.

Olufemi, O. (2018). *Board Meeting Frequency and Firm Performance: examining the nexus in Nigerian Deposit Money Bank.* Landmark University.

Omri, M., Zayani, E., & Loukil, L. (2004). Impact of liquidity on stock return: An empirical investigation of the Tunis stock market. *Macroecon. Finan. Emerg. Market Econ., 3 (2),* pp. 261 - 283.

Ondabu, T. (2017). *Effect of investment incentives on stock market performace: Survey of firms listed at the NSE.* Nairobi: JKUAT.

Ongere, V., & K'obonyo, P. (2011). Effects of selected corporate governance characteristics on firm performance empirical evidence from Kenya. *International Journal of Economics and Financial Issues, 1 (3),* pp. 9 - 122.

Oyerinde, A. (2014). Corporate Governance and Bank Performance in Nigeria: further evidence from Nigeria. *Journal of Business Management, 9*(8), 133 - 139.

Oyoga, B. (2010). *Corporate governance and firm performance of financial institutions listed in Nairobi stock exchange.* Nairobi: Unpublished Master's thesis: University of Nairobi.

Pankaj, V., & Vijay, K. (2012). *Corporate governance mechanism and firm performance: A study of selected Indian firms.* Retrieved from http://ssrn.com/abstract=2107237

Pannearselvam, R. (2006). *Research methods.* New Delhi: Prentise Hall.

Payne, G., Benson, G., & Finegold, D. (2009). Corporate board attributes, team effectiveness and financial performance. *Journal of Management Studies, 46 (4),* 704 - 731.

Pearce, A., & Zahra, S. (1992). Board Composition from a Strategic Contingency Perspective. *Joural of Management Studies* , 29 (4), 411 - 438.

Pennearselvam, R. (2006). *Research methods.* New Delhi: Prentise Hill.

Pfeffer, J. (1972). Size and composition of corporate boards of directors: The organization and its environment. *Administrative Science Quarterly, 17 (1)*, pp. 218 - 228.

Pfeffer, J., & Salancik, R. (1978). *The external control of organizations: A resource dependence perspective.* California: Stanford University Press.

Poudel, R., & Hovey, M. (2012). *Corporate governance and efficiency in Nepalese commercial banks.* PhD Thesis Armidale: University of New England.

Prommin, P., Jumreornong, S., & Jiraporn, P. (2014). The effect of corporate governance on stock liquidity: The case of Thailand. *International Review of Economics and Finance, 32*, pp. 132 - 142.

Rahman, R., & Haniffa, M. (2005). The effect of role duality on corporate performance in Malaysia. *Corporate Ownership and Control, 2 (2)*, pp. 40 - 47.

Rajasekar, S., Philominathan, P., Chinnathambi, V., & Thanjavur, P. (2013). *Research methodology.* Tamilnadu, India. Retrieved from https://arxiv.org/pdf/

Rebeiz, S. (2015). Boardroom's Independence and Corporate Performance: the ever - elusive conundrum. *Corporate Governance, 15*(5), 747 - 775.

Rezaee, Z. (2009). *Corporate governance and ethics.* New York: John Willey and Sons INC.

Rico, W. (2004). *Measuring and predicting liquidity in the stock market.* St. Gallen: Dissertation der Universitat.

Romano, G., Ferretti, P., & Rigolini, A. (2012). Corporate governance and performance in Italian banking groups. *Paper presented at International Conference.* Pisa, Italy. Retrieved from Retrieved from http://www.google.co.ke

Ross, C. (2005). *The Composition of Semi - Two - Tier Corporate Boards and Firm Performance.*

Roulstone, T. (2003). Analyst following and market liquidity. *Contemporary Accounting Research, 20 (3)*, pp. 551 - 578.

RRA. (2002). *What makes an effective UK board? Views from FTSE chairmen.* doi:http://www.non-execs.com/associates/features/russell Reynolds.asp

Ruhana, A., & Hidayah, N. (2020). The effect of liquidity, firm size and corporate governance towards sustainability report disclosures. *Advances in Economics, Business and Management Research, 120*, 279 - 284.

Ruigrok, W., Peck, S., Tacheva, S., & Greve, P. (2007). The determinants and effects of board nomination committees. *Journal of Finance, 54 (5)*, 1829 - 1853.

Rutherford, A., & Buchholtz, K. (2007). Investigating the relationship between board characteristics and board information. Corporate governance. *An International Review, 15*, pp. 576 - 584.

Ryan, M., & Deci, L. (2000). Intrinsic and extrinsic motivations: Classic definitions and nnew directions. *Contemporary Educational Psychology, 25*, pp. 54 - 67.

Sakwa, B. (2015). The effect of corporate governance practices on stock market liquidity of firms listed at the Nairobi securities exchange. *Master's Project, University of Nairobi*.

Salancik, R., & Pfeffer, J. (1978). Who gets power and how they hold on to it: A strategic – contingency model of power, organizational dynamics. *3 - 21*, 5 (3).

Sanda, A., Mikailu, A., & Garba, T. (2011). Corporate governance mechanisms and firm performance in Nigeria. *African Economic Research Consortium, Research Paper 149*.

Sarr, A., & Lybek, T. (2002). Measuring liquidity in financial markets. *IMF Working Paper 02/232*.

Saunders, M., Lewis, P., & Thorn hill, A. (2007). *Research methods for business students* (4th ed.). London, England: Prentice.

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach.* London: John Wiley & Sons Ltd.

Shan, K., George, Y., & Mclver, P. (2011). Corporate Governance Mechanisms and Financial Performance in China. Penel data evidence on listed non financial companies . *Asia Pacifi Business Review*, pp. 17 (3), 301 - 324.

Shleifer, A., & Vishny, R. (1997). A survey of corporate governance. *Journal of Finance, 52 (2)*, 737 - 783.

Sidhu, M., & Kaur, P. (2019). Effect of corporate governance on stock market liquidity: Empirical evidence from Indian companies. *Journal of the Indian Institute of Management, 46*(3), 197 - 218.

Sidhu, M. (2016). Corporate governance and stock market liquidity. *Journal of Commerce and Accounting Research, 5*(3), 1 - 31.

Solomon, J. (2013). *Corporate governance and accountability* . London: John Wiley & Sons.

Stoll, H. (2004). Friction. *Journal of Finance, 55 (4)*, 1479 - 1514.

Strivastrave, N., & Rego, S. (2011). *Business research methodology.* New Delhi: Tata McGraw - Hill.

Sutardjo, T. (2019). Effect of Liquidity and Company Size on Profitibilty and Company Value in Industry Banking in Indonesia Stock Exchange. *Journal of Research in Business and Management, 7*(6), 28 - 38.

Switzer, N., & Wang, J. (2013). Default risk estimation, back credit risk and corporate governance. Financial markets, institutions and instruments. *22*, pp. 91 - 112.

Talat, A., & Mian, N. (2014). Theoretical perspective of corporate governance: A review. *European Journal of Scientific Research, 199 (2)*.

Tang, K., & Wang, C. (2011). Corporate governance and firm liquidity: Evidence from the Chinese stock market. *Emerg Mark Finance Trade, 47*(1), 47 - 60.

Teddlie, C., & Tashakkori, A. (2010). *Foundations of Mixed Methods Research.* Thousand Oaks, CA: Sage Publications.

Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. *Journal of Finance, 43,* 1- 19.

Tosi, L., Brownlee, L., Silva, P., & Katz, P. (2003). An empirical exploration of decision- making under agency controls and stewardship structure. *Journal of Management Studies, 40 (8),* 2053 - 2071.

Tricker, B. (2012). *Corporate governance: Principles, politics and practices* (2nd ed.). Oxford: Oxford University.

Upadhyay, A., Bhargara, R., & Faircloth, S. (2014). Board structure and monitoring committees. *Journal of Business Research, 67,* 1486 -1492.

Uwuigbe, U., Eluyela, F., Uwuigbe, R., Obarakpo, T., & Falola, I. (2018). Corporate governance and Quality of Financial Statements: a study of listed Nigerian Banks. *Banks Bank Syst, 13*(3), pp. 12 -23.

Uyaebo, S., & Usman, F. (2015). Application of Asymmetric GRACH Models. *Jouranal of Applied Statistics*, 134 - 160.

Vallejo, C. (2009). The effects of the commitment of non- family employees of firms from the perspective of stewardship theory. *Journal of Business Ethics, 87 (3)*, pp. 379 - 390.

Wajih, A., Hunjra, A., Alawis, S., & Mehmood, K. (2021). The role of ownership structure and board characteristics in stock market liquidity. *International Journal of Financial Studies, 9*, 1 - 15.

Wan, F., Wan, Y., & Idris, A. (2012). Corporate governance and firm performance of listed companies in Malaysia. *Trends and Development in Management Studies*.

Wang, J. (2013). Liquidity commonality among Asian equity markets. *Pacific Basin Finance Journal, 21*(1), 1209 - 1231. doi: 10.1016/j.pacfin.2012.06.003

Weir, C., & Laing, D. (2001). Governance structures, director independence and corporate performance in the UK. *European Business Review, 13 (2)*, pp. 86 - 95. doi: 10.1108/09555340110385254

Wepukhulu, J. (2016). Relationship between corporate governance and performance of commercial banks in Kenya. Nairobi, Kenya: PhD Thesis, Jomo Kenyatta University of Agriculture and Technology (JKUAT).

Westphal, J., & Khanna, P. (2003). Keeping Directors in line: social distancing as a control mechanism in the corporate elite. *Administrative Science Quarterly*, pp. 48: 361 - 398.

William, R., Duncan, W., Ginter, P., & Schewchuk, M. (2006). Do governance equity characteristics and venture capital involvement affect long - term wealth creation in US health care and biotechnology IPO? *Journal of Health Care Financial Economics, 33 (1)*, 54 - 71.

Williamson, E. (1985). *The economic institutions of capitalism.* New York: Free Press, MaCmillan.

Williamson, E. (1999). *The mechanisms of governance.* New York: Free Press, MaCmillan.

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

Young, S. (2000). The increasing use of non - executive directors: Its impact on UK board structure and governce arrangement. *Journal of Business Finance and Accounting , 27 (9) & (10),* 1311 - 1342.

Zahra, A., Hayton, C., Neubaum, O., Dibrell, C., & Craig, J. (2008). Culture of family commitment and strategic flexibility: The moderating effect of stewardship. *Entrepreneurship Theory and Practice, 32 (6),* 1035 - 1054.

Zajac, E., & Westphal, J. (1996). The Costs and Benefits of Management Incentives and Monitoring in Large US Corporations: When is more not better? *Journal of Strategic Management*.

Zho, D. (2011). Ownership structure, liquidity and trade informativeness. *Journal of Financial and Accounting, California State University at Bakersfield,* pp. 1 - 18.

Zuhroh, I. (2019). The Effects of Liquidity Firm Size and Profitability on the Firm Value with Mediating Leverage. *2nd International Confernce on Islamic Economics* . Business and Philanthroph.

APPENDICES

Appendix I: Firms Listed at the NSE

AGRICULTURAL

1. Eaagads Ltd
2. Kapchorua Tea Co. Ltd
3. Kakuzi
4. Limuru Tea Co. Ltd
5. Rea Vipingo Plantation Ltd
6. Sasini Ltd
7. Williamson Tea Kenya Ltd

AUTOMOBILES AND ACCESSORIES

8. Car and General (K) Ltd
9. CMC Holdings Ltd
10. Sameer Africa Ltd
11. Marshalls (E.A.) Ltd

BANKING

12. Barclays Bank Ltd
13. CFC Stanbic Holdings Ltd
14. I & M Holdings Ltd
15. Diamond Trust Bank Kenya Ltd
16. KCB Group Ltd
17. National Bank of Kenya Ltd
18. NIC Bank Ltd

37. E.A.Portland Cement Ltd

ENERGY AND PETROLEUM

38. Kenol Kobil Ltd
39. Total Kenya Ltd
40. KenGen Ltd
41. Kenya Power & Lighting Co Ltd
42. Umeme Ltd

INSURANCE

43. Jubilee Holdings Ltd
44. Pan Africa Insurance Holdings Ltd
45. Kenya Re-Insurance Corporation Ltd
46. CFC Insurance
47. Liberty Kenya Holdings Ltd
48. Britam Holdings Ltd
49. CIC Insurance Group Ltd

INVESTMENT

50. Olympia Capital Holdings Ltd
51. Centum Investment Co Ltd
52. Trans-Century Ltd
53. Home Afrika Ltd

19. Standard Chartered Bank Ltd
20. Equity Group Holdings
21. The Co-operative Bank of Kenya Ltd

COMMERCIAL AND SERVICES

22. Express Ltd
23. Kenya Airways Ltd
24. Nation Media Group
25. Standard Group Ltd
26. TPS Eastern Africa (Serena) Ltd
27. Scan Group Ltd
28. Uchumi Supermarket Ltd
29. Hutchings Biemer Ltd
30. Longhorn Publisher Ltd
31. Deacons (East Africa) Plc.
32. Nairobi Business Ventures Ltd

CONSTRUCTION AND ALLIED

33. Athi River Mining
34. Bamburi Cement Ltd
35. Crown Berger Ltd
36. E.A.Cables Ltd
54. Kurwitu Ventures

INVESTMENT SERVICES

55. Nairobi Securities Exchange Ltd

MANUFACTURING AND ALLIED

56. B.O.C. Kenya Ltd
57. British American Tobacco Kenya Ltd
58. Carbacid Investments Ltd
59. East African Breweries Ltd
60. Mumias Sugar Co. Ltd
61. Unga Group Ltd
62. Eveready East Africa Ltd
63. Kenya Orchards Ltd
64. A.Baumann CO. Ltd
65. Flame Tree Group Holdings Ltd

TELECOMMUNICATION AND TECHNOLOGY

66. Safaricom Ltd

REAL ESTATE INVESTMENT TRUST

67. Stanlib Fahari I-REIT

EXCHANGE TRADED FUND

68. New Gold Issuer (RP) Ltd

Source: (NSE, 2017)

Appendix II: Secondary Data Collection Sheet

Variable	Details	2016	2017	2018	2019	2020
Board size	The number of board members					
Independence of directors	Proportion of NEDs in board indicate 1 if more 60% otherwise 0					
Board structure	CEO duality indicate 1 if yes, otherwise 0					
Seniority of directors	Tenure of directors on the board					
Tightness	$\underline{Ask_t - Bid_t}$ $(Ask_t + Bid_t)/2$					
Trading time	$TO_{iy} = VOL_{iy}/N_{iy}$ Where: VOL_{iy} = total no. of shares traded for firm i in a period of a year y and N_{iy} = no. of outstanding shares for the firm i in a period of a year y.					
Depth	Illiquidity ($ILLIQ_{iy}$) = $1/D_{iy}$ $\sum_{d=1}^{Diy} \lvert R_{idy} \rvert / VOLD_{idy}$ Where $\lvert R_{idy} \rvert$ = absolute stock return of firm i on day d in a period of a year y, $VOLD_{idy}$ = trading volume of firm i on					

	day d of year y, and D_{iy} = no. of days with available data for firm i in a period of a year y.					
Breadth	Liquidity Ratio (LR_{iy}) = $\sum_{d=1}^{Diy} VOL_{idy} / \sum_{d=1}^{Diy} \lvert R_{idy} \rvert$ Where: VOL_{idy} = daily trading volume of firm i on day d of year y, $\lvert R_{idy} \rvert$ = absolute daily stock returns of firm i on day d of year y and D_{iy} = no. of days with available data for firm i in year y.					
Firm size	Market capitalization (MC) = no. of shares outstanding x share price at the year Or reciprocal of share price (1/price) to capture the effect of tick – size.					

Appendix III: Simplified Correlation Table

	QUOTED SPREAD		TURNOVER
QUOTED SPREAD	1	TURNOVER	1
BE	-.249	BE	-.834
BDEP	-.209	BDEP	-.204
BS	-.050	BS	-.271
BSEN	.008	BSEN	.717
FIRM SIZE	.144	FIRM SIZE	-.482
	ILLIQ		LR
ILLIQ	1	LR	1
BE	.726	BE	-.525
BDEP	-.259	BDEP	.517
BS	.720	BS	-.868
BSEN	-.892	BSEN	.717
FIRM SIZE	.814	FIRM SIZE	-.554

Appendix IV: Unit Root Tests

Panel unit root test: Summary
Series: BREADTH
Date: 05/12/21 Time: 09:47
Sample: 2016 2020
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-31.2142	0.0000	59	236
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.24753	0.0000	59	236
ADF - Fisher Chi-square	177.259	0.0003	59	236
PP - Fisher Chi-square	200.377	0.0000	59	236

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: DEPTH
Date: 05/12/21 Time: 09:48
Sample: 2016 2020
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-20.5233	0.0000	59	236
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.23916	0.0000	59	236
ADF - Fisher Chi-square	188.379	0.0000	59	236
PP - Fisher Chi-square	237.811	0.0000	59	236

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: TIGHTNESS
Date: 05/12/21 Time: 09:50
Sample: 2016 2020
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-28.8481	0.0000	59	236
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-8.93284	0.0000	59	236
ADF - Fisher Chi-square	227.282	0.0000	59	236
PP - Fisher Chi-square	250.609	0.0000	59	236

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: TRADING TIME
Date: 05/12/21 Time: 09:52
Sample: 2016 2020
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-134.013	0.0000	57	228
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-19.9966	0.0000	57	228
ADF - Fisher Chi-square	207.140	0.0000	57	228
PP - Fisher Chi-square	233.211	0.0000	56	224

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: BOARD EFFECTIVENESS
Date: 05/12/21 Time: 09:54
Sample: 2016 2020
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-9.39488	0.0000	46	184
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.09804	0.0180	46	184
ADF - Fisher Chi-square	98.0319	0.3141	46	184
PP - Fisher Chi-square	103.581	0.1924	46	184

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: BOARD STRUCTURE
Date: 05/25/21 Time: 17:18
Sample: 2016 2020
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.50157	0.0062	10	40
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.20343	0.5806	10	40
ADF - Fisher Chi-square	15.8843	0.7238	10	40
PP - Fisher Chi-square	18.3805	0.5624	10	40

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: FIRM SIZE
Date: 05/12/21 Time: 09:55
Sample: 2016 2020
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-6.50119	0.0000	52	208
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.99034	0.8390	52	208
ADF - Fisher Chi-square	98.3077	0.6390	52	208
PP - Fisher Chi-square	112.981	0.2150	51	204

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: INDEPENDENCE OF DIRECTORS
Date: 05/19/21 Time: 13:13
Sample: 2016 2020
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-17.2083	0.0000	46	184
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.45202	0.0003	46	184
ADF - Fisher Chi-square	115.705	0.0480	46	184
PP - Fisher Chi-square	128.620	0.0071	46	184

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: SENIORITY OF DIRECTORS
Date: 05/12/21 Time: 09:58
Sample: 2016 2020
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-18.2076	0.0000	10	40
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.05053	0.0202	10	40
ADF - Fisher Chi-square	23.5533	0.2624	10	40
PP - Fisher Chi-square	27.1595	0.1308	10	40

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Appendix V: Regression Analysis

Panel regression equations

Equation 1: Breadth

Correlated Random Effects - Hausman Test
Equation: EQ01RE
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	3.252403	5	0.6611

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
BOARD EFFECTIVENESS	0.093905	0.120508	0.008275	0.7700
INDEPENDENCE	0.053182	0.271707	0.026075	0.1760
BOARD STRUCTURE	-0.095521	-0.116688	0.001235	0.5469
SENIORITY	-0.209378	0.593036	0.623317	0.3095
FIRM SIZE	0.014311	0.098760	0.013392	0.4655

Random effects model

Dependent Variable: BREADTH
Method: Panel EGLS (Cross-section random effects)
Date: 05/25/21 Time: 17:25
Sample: 2016 2020
Periods included: 5
Cross-sections included: 59
Total panel (balanced) observations: 295
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BOARD EFFECTIVENESS	0.120508	0.128909	0.934827	0.3507
INDEPENDENCE	0.271707	0.285049	0.953193	0.3413
BOARD STRUCTURE	-0.116688	0.089122	-1.309304	0.1915
SENIORITY	0.593036	0.191500	3.096799	0.0021
FIRM SIZE	0.098760	0.060853	1.622932	0.1057
C	-0.535529	0.241214	-2.220138	0.0272

Effects Specification	S.D.	Rho
Cross-section random	0.155215	0.3857
Idiosyncratic random	0.195875	0.6143

Weighted Statistics

R-squared	0.060339	Mean dependent var	0.127165
Adjusted R-squared	0.044081	S.D. dependent var	0.199734
S.E. of regression	0.195282	Sum squared resid	11.02104
F-statistic	3.711514	Durbin-Watson stat	2.361106
Prob(F-statistic)	0.002849		

Unweighted Statistics			
R-squared	0.142739	Mean dependent var	0.258731
Sum squared resid	17.61308	Durbin-Watson stat	1.477416

Equation 2: Depth

Correlated Random Effects - Hausman Test
Equation: EQ02FE
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	20.458701	5	0.0010

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
BOARD EFFECTIVENESS	-0.684145	-2.066260	0.303862	0.0122
INDEPENDENCE	8.033698	7.278792	0.911229	0.4290
BOARD STRUCTURE	0.313586	0.785077	0.037959	0.0155
SENIORITY	-3.892550	-21.633852	82.555807	0.0509
FIRM SIZE	0.204005	-0.382814	1.157334	0.5854

Fixed effects model

Dependent Variable: DEPTH
Method: Panel Least Squares
Date: 05/23/21 Time: 19:56
Sample: 2016 2020
Periods included: 5
Cross-sections included: 59
Total panel (balanced) observations: 295

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BOARD EFFECTIVENESS	-0.684145	2.064188	-0.331436	0.7406
INDEPENDENCE	8.033698	4.286162	1.874334	0.0621
BOARD STRUCTURE	0.313586	1.253363	0.250196	0.8027
SENIORITY	-3.892550	10.62872	-0.366229	0.7145
FIRM SIZE	0.204005	1.710576	0.119261	0.9052
C	9.275066	10.32539	0.898278	0.3700

Effects Specification			
Cross-section fixed (dummy variables)			
R-squared	0.915563	Mean dependent var	8.657729
Adjusted R-squared	0.892534	S.D. dependent var	7.817302
S.E. of regression	2.562666	Akaike info criterion	4.909314
Sum squared resid	1517.037	Schwarz criterion	5.709200
Log likelihood	-660.1238	Hannan-Quinn criter.	5.229608
F-statistic	39.75800	Durbin-Watson stat	1.562613
Prob(F-statistic)	0.000000		

Equation 3: Tightness

Correlated Random Effects - Hausman Test
Equation: EQ03RE
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.754061	5	0.4466

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
BOARD EFFECTIVENESS	0.044616	0.080318	0.000994	0.2575
INDEPENDENCE	0.027233	0.091727	0.003344	0.2647
BOARD STRUCTURE	-0.016101	0.000217	0.000175	0.2175
SENIORITY	-0.017434	-0.093168	0.050489	0.7361
FIRM SIZE	0.002421	0.024328	0.001184	0.5243

Random effects model

Dependent Variable: TIGHTNESS
Method: Panel EGLS (Cross-section random effects)
Date: 05/25/21 Time: 18:05
Sample: 2016 2020
Periods included: 5
Cross-sections included: 59
Total panel (balanced) observations: 295
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BOARD EFFECTIVENESS	0.080318	0.031069	2.585102	0.0102
INDEPENDENCE	0.091727	0.071446	1.283864	0.2002
BOARD STRUCTURE	0.000217	0.023396	0.009279	0.9926
SENIORITY	-0.093168	0.038272	-2.434369	0.0155
FIRM SIZE	0.024328	0.012732	1.910791	0.0570
C	0.003777	0.053602	0.070460	0.9439

Effects Specification	S.D.	Rho
Cross-section random	0.024491	0.1657
Idiosyncratic random	0.054957	0.8343

Weighted Statistics

R-squared	0.051410	Mean dependent var	0.034219
Adjusted R-squared	0.034998	S.D. dependent var	0.055920
S.E. of regression	0.054933	Sum squared resid	0.872103
F-statistic	3.132515	Durbin-Watson stat	1.661149
Prob(F-statistic)	0.009036		

Unweighted Statistics

R-squared	0.084772	Mean dependent var	0.048308
Sum squared resid	1.038746	Durbin-Watson stat	1.394656

Equation 4: Trading time

Correlated Random Effects - Hausman Test
Equation: EQ04RE
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	7.103684	5	0.2130

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
BOARD EFFECTIVENESS	0.002891	0.022659	0.000152	0.1087
INDEPENDENCE	-0.089459	-0.087161	0.000456	0.9143
BOARD STRUCTURE	-0.059192	-0.058892	0.000019	0.9451
SENIORITY	0.474756	0.161581	0.042902	0.1305
FIRM SIZE	-0.018387	-0.054710	0.000592	0.1356

Random effects model

Dependent Variable: TRADING TIME
Method: Panel EGLS (Cross-section random effects)
Date: 05/25/21 Time: 18:24
Sample: 2016 2020
Periods included: 5
Cross-sections included: 59
Total panel (balanced) observations: 295
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BOARD EFFECTIVENESS	0.022659	0.045815	0.494588	0.6213
INDEPENDENCE	-0.087161	0.096172	-0.906296	0.3655
BOARD STRUCTURE	-0.058892	0.028476	-2.068117	0.0395
SENIORITY	0.161581	0.129519	1.247549	0.2132
FIRM SIZE	-0.054710	0.030878	-1.771822	0.0775
C	-0.037142	0.134556	-0.276031	0.7827

Effects Specification	S.D.	Rho
Cross-section random	0.140481	0.8505
Idiosyncratic random	0.058900	0.1495

Weighted Statistics			
R-squared	0.034567	Mean dependent var	0.014752
Adjusted R-squared	0.017864	S.D. dependent var	0.059649
S.E. of regression	0.059114	Sum squared resid	1.009898
F-statistic	2.069531	Durbin-Watson stat	2.505548
Prob(F-statistic)	0.049257		

Unweighted Statistics			
R-squared	0.030590	Mean dependent var	0.080044
Sum squared resid	6.730900	Durbin-Watson stat	0.375930

Appendix VI: Letter of Introduction

David Magaki Bichanga,

P. o Box 288 – 0028,

Ngong Hill.

Mobile Phone: 0711598811

Email: davemagaki@gmail.com

To whom it may concern

Dear Sir/Madam,

Ref: Data Collection

My name is David Magaki Bichanga and I am a Doctor of Philosophy (PhD) student in Finance at the Jomo Kenyatta University of Agriculture and Technology (JKUAT), department of Economics, Accounting and Finance. I am currently working on my graduate thesis "Corporate Governance and Stock Market Liquidity of Firms Listed at the Nairobi Securities Exchange".

In connection with this work, I need your company to supply me with the company daily trading stock records and annual financial reports for the last five years from 2016 to 2020. I want to assure you that all information you provide will be kept confidential. Your company name will not be recorded on any document related to this study.

Thank you for the assistance.

Yours Faithfully,

David Magaki Bichanga

PhD, Student, JKUAT.