AN ASSESSMENT OF THE RELATIONSHIP BETWEEN CAPITAL MARKETS DEVELOPMENT AND ECONOMIC GROWTH IN KENYA

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DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the dissertation contains no material previously published or written by another person except where due reference is made in the dissertation itself.

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ABSTRACT

This study investigated the relationship between capital markets development and economic growth in Kenya for the period 2000-2019 The study used Gross Domestic Product (GDP) as the dependent variable and market capitalization, equity market turnover, bond market turnover as the independent variables, 91-day T-Bill as the control variable and exchange rates as the moderating variable. The data was analysed using STATA version 14.0. Statistical analyses including Descriptive statistics, Optimal Lag length selection, ARDL Bound tests for cointegration, Stationarity Test, ARDL ECM model, ECM, goodness of fit test, diagnostic tests and stability tests were undertaken. From the results, it is evident that capital market development has a significant effect on economic growth in Kenya. The study findings revealed that market capitalization had a significantly negative effect on GDP in the short run and a significantly positive effect on GDP in the long run. Further, equity market turnover had a significantly positive effect on economic growth short run and a significantly negative effect on economic growth in the long run. Bond market turnover results indicated the presence of a significantly positive effect at first difference in the short run and a significantly negative effect on economic growth in the long run. The study's bound test statistic validates the presence of long run effect of the model on GDP as f-value is well above the critical values. The study recommends that CMA and Capital markets industry stakeholders should implement initiatives that will support market activity and securities subscriptions in a bid to increase Market Capitalization, Equity Turnover and Bond Turnover percentage contribution to GDP. Further, it recommends the National Treasury to review sustainability of economic development and the suitability of the operating and economic environment for the growth and development of the domestic capital markets. In conclusion, domestic capital market plays a fundamental role as an engine for economic growth as revealed by the study findings.

Key terms: *Capital Markets, Capital Markets Development, Economy, Economic Growth, Gross Domestic Product, Autoregressive Distributed Lag Model, Short Run, Long run*

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DEFINITION OF TERMS

All Share Index – This is a sequence of values that indicate the evolving mean values of share prices for firms listed in a capital market (Wabwire, Owuor, Onyuma, & Njuguna, 2013).

ARDL model- An autoregressive distributed lag (ARDL) model is an ordinary least square (OLS) based model which is applicable for both non-stationary time series as well as for times series with mixed order of integration.

Bond Market – This is a prearrangement where there is trading of bonds that are offered by the borrower and which need to be backed by a lender's consideration (Musah, Badu-Acquah, & Adjei, 2019).

Bond Market Development – This refers to the effects of group of macroeconomic factors, bond trading activities, infrastructure, stock capitalization, and governance issues, regulatory and legal which influence the indicators of bond market development (Musah et al., 2019).

Bond market turnover – This refers to the total value of bonds traded in a period which is used to measure the liquidity of a bond market (Kiragu, 2015).

Capital Markets Development - This refers to an increase in sustainability and volume of secondary and primary markets. State agencies in different countries regulate domestic capital markets although exchanges are self-regulating (Omoke, 2010).

Corporate bond – This refers to an instrument of issuing debt by an organization that aims to obtain debt to finance its activities. The company is the borrower and investors who buy the bond are the lenders (Wanyama, 2017).

Developed Capital Market- A capital markets in which its country is ranked as high income and have also put in place significant strategies to promote openness to foreign ownership, ease of capital movement, and efficiency of market institutions. These markets include

Canada, United States, Austria, Australia, and Hong Kong, amongst others. (MSCI June 2021)

Economic Growth – Refers to the process by which the amount of goods and services one can earn with the same amount of work increases over time (Everett, Ishwaran, Ansaloni, & Rubin, 2010).

Emerging Capital Market- capital markets within the low and/or middle-income economies. The ratio of Total market capitalization to Gross National Product is low. These markets include Argentina, Egypt, South Africa, and China, amongst others. (MSCI, June 2021).

Equity market turnover – This is the entire value of traded stocks in each duration of time (Gatua, 2013).

Frontier Capital Market- This is a less advanced capital markets in the developing world which are considered desirable by investors looking for substantial long-term returns as they portend significant growth, stability, and establishment potential in the long term. These markets include Kazakhstan, Kenya, Mauritius, Nigeria, Jordan, Vietnam, and Sri Lanka, amongst others. (MSCI, June 2021).

Government bonds – Refers to a debt security issued by a government to support government spending (Oduor, 2018).

Gross Domestic Product – Refers to the value of services and products of a countries' economy minus the value of the services and goods used in production (Tjukanov, 2011).

Market capitalization – This refers to the value of outstanding stocks of a listed company (Gatua, 2013).

ABBREVIATIONS AND ACRONYMS

AIC	Akaike information criterion
ANOVA	Analysis of Variance
ARDL	Autoregressive Distributed Lag
BMS	Bond Market Size
BMTR	Bond Market Turnover Ratio
CBK	Central Bank of Kenya
CBN	Central Bank of Nigeria
CEE	Central and Eastern Europe
CMA	Capital Market Authority
CMD	Capital Market Development
CMMP	Capital Markets Master Plan
CPI	Consumer Price Index
ECM	Error correction model
EMH	Efficient Market Hypothesis
FDI	Foreign Direct Investments
FPE	Final Prediction Error
GDP	Gross Domestic Product
GDS	Gross Domestic Savings
GNI	Gross National Income
GNP	Gross National Product
HQIC	Hannan Quinn Information Criteria
IMF	International Monetary Foundation
IOSCO	The International Organization of Securities Commissions
KNBS	Kenya National Bureau of Statistics
MCR	Market Capitalization Ratio

MINT	Mexico, Indonesia, Nigeria, and Turkey
MSCI	Morgan Stanley Capital Index
NASI	Nairobi All Share Index
NSE	Nairobi Securities Exchange
OECD	Organisation for Economic Co-operation and Development
REPO	Repurchase agreement
SA	Structural-Activity
SBIC	Schwartz Information Criteria
SEC	Securities and Exchange Commission
SEE	South East Europe
STR	Share of Stock Exchange Turnover in GDP
SU-IERC	Strathmore University Institutional Ethics Review Committee

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Financial sector and institutions play a fundamental role in economic development, growth, and expansion. The financial markets largely comprise of the capital and money market which are not single institutions but constituents of the international financial ecosystem. The money market is market where short-term debt securities with maturity of one year or less including treasury bills, certificates of deposits, commercial paper and repurchase agreements (REPOS) are traded amongst individuals, corporations, financial institutions, governments, and banks that lend and borrow for a period not longer than a year and as short as overnight. The capital market refers to financial markets provision for investments in the long-term such as the trading of shares and bonds by institutional and individual investors through licensed and approved institutions such as investment banks and stockbrokers (Buchichi, 2013). The capital markets raise the utilisation of savings into productive investments by giving a channel for total capital (savings) and allocation of the capital to investments that create value for an economy.

Due to this, the capital market is an organized and extensively specialized financial market and is a crucial part of economic growth due to its capacity to mobilize and facilitate investments and savings (Rurangwa & Shukla, 2017). The capital market is a critical piece that influences an economy on its way to development and growth because it is accountable for the extended capital formation and growth by providing funds for long-standing investment. The capital markets ensure efficiency and effectiveness in the distribution and allocation of limited resources for maximum benefits to the economy and aims to decrease over dependence of the corporate industry on short-range financing for longstanding initiatives and encourages foreign capital inflow (Rurangwa & Shukla, 2017). It also provides an avenue for firms to access affordable and long-term capital while enhancing their corporate governance and sustainability.

Atje and Jovanovic (1989) as research pioneers in this field explored the consequences of capital markets on growth of economies and established a positive interconnection. Other researchers (Levine, 1991; Bencivenga, Smith and Starr, 1996) furthered researched on this and established that capital markets influenced the growth of economies via an increase in liquidity. Further, Obstfeld's (1994) research showed that diversification of risk over globally combined capital markets as another avenue to enhance economic growth. Research has been done on the effects of capital market development on growth of the economy in South East Europe (Njemcevic, 2017), Bolivia (Zegada, 2011), Malaysia (Nordin & Nordin, 2017), Jordan (Masoud, 2015), Rwanda (Rurangwa & Shukla, 2017), and South Africa (Khetsi & Mongale, 2015). The findings from these studies have been mixed with some studies (Zegada, 2011; Murayi, 2013), finding an association amongst economic growth and capital market development research (Khetsi & Mongale, 2015; Acquah-Sam & Salami, 2014) finding no indication of association amongst variables.

1.1.1 Capital Markets Development

The growth of the domestic capital markets has been a longstanding policy issue for developing economies that aim to move from frontier to emerging and developed markets as per the Morgan Stanley Capital Index and framework for effective classification of Markets (MSCI, June 2021). The framework assesses these markets founded on liquidity, size, and economic development, and access to the market criteria. Domestically, Kenya which is currently classified as a Frontier market aimed to be achieving the MSCI Emerging Market status by 2020. While significant progress has been made in terms of product diversity, access, and usage, this has not been achieved due to challenges associated with size and liquidity. (Gachanja, 2018; MSCI, June 2021; CMMP, November 2014).

In tandem with these aspirations, the past decades have witnessed majority of the countries and Government implement strategies and incentives to spur local capital market growth, development, deepening and broadening. These changes are often implemented through significant and partial adjustments to create financial systems and establish them as more combined, interconnected, and interoperable with the global market through the removal of

controls and restrictions on foreign investor holdings, capital account opening and banking. (Gachanja, 2018; Laeven, 2014). Further significant improvements have been implemented in frontier and emerging markets including openness to foreign investors; ease of capital inflows and outflows; efficiency of operational framework including investor registration and account set up, responsiveness of diversity and availability of investment tools. transferability, short selling/stock lending, information flow, depository/registry trading. settlement and clearing, and market regulations and the stability of the institutional framework to promote a free market and long-term investments.

The elevation of capital market development was encouraged mostly by Global standard creators and international organizations such as the Organisation for Economic Co-operation and Development (OECD), The International Organization of Securities Commissions (IOSCO), International Monetary Foundation (IMF), and the World Bank. This is cognizant of the fact capital markets have a fundamental part in maintaining financial stability and economic growth sustenance. Further, the capital markets play a major role financing strategic sectors including manufacturing. agriculture, infrastructure through Public Private Partnerships, and Medium and Small Medium Enterprises (SMEs) and its interconnectedness with economic growth are increasingly being recognized globally in the Sustainable Development Goals (SDGs) and locally in the Government of Kenya's Big 4 Agenda (World Bank, 2019). These institutions opine that the development of capital markets through creation of financial integration and development would result in the promotion of economic growth by increasing capital efficiency of allocating capital and permitting for better risk sharing (Laeven, 2014).

Capital markets provides a platform for connecting issuers of securities which are institutions in search of capital and investors who have capital and in search of a return, through the placement and trading of securities in the primary and secondary markets of the Securities Exchange. Further, through the money market, capital markets provide corporates and individuals an ecosystem for the respective issuance and investment of short-term debt securities with maturity of one year or less. Governments and corporations use the capital

government which in turn have an impact on the choices of participants of an economy and thus impact economic growth (Lenee & Oki, 2017).

Economic growth is the most dominant tool for improving quality of life and reducing poverty in developing countries (Tjukanov, 2011). This means that strong economic growth contributes to the advancement of human development which in turn promotes growth of the economy. The variable of economic growth has been used as a dependent variable in several studies in the finance and economic disciplines. Gross domestic product (GDP) has been the most used indicator for growth of the economy in literature reviewed. Other economic growth variables include Gross National Income (GNI) and Gross National Product (GNP) (Tjukanov, 2011). This study uses GDP as an indicator to measure Kenya's economic growth.

1.1.3 Capital Markets Development and Economic Growth

Zegada (2011) recognized the existence of a plethora of literature on the association between growth of the economy and capital market development which can be broadly classified into four main theoretical foundations: mutual exclusion, demand following, supply-leading, and mutual causation. The mutual causation theory sees that there exist influences that can lead to economic growth and capital market developments concurrently and these factors can also have impact on each side (Lenee & Oki, 2017). These studies include that of Qamruzzaman and Wei (2018) in China on financial innovation, stock market development, and economic growth that found evidence on bidirectional effect of economic growth on stock market development. Iddrisu and Abdul-Malik (2017) established a bidirectional association between stock market development and growth in economies and growth in the economy had greater effects on stock market development.

In the demand-following hypothesis, the argument is that growth of the economy results to capital market development. Thus, the course of causality is opposite which means that an economy is affected by several factors so as to develop, before any foreseeable development of the capital market can be recognized (Lenee & Oki, 2017). These include Barna and Mura

(2010) found the great connection from capital market and economic growth indicative that economic growth was as a result of financial development.

The proponents of the mutual exclusion theory state that there is no association between capital market development and growth of the economy and are autonomous of each other. These studies include Carp's (2012) study on stock value traded and market capitalization in Eastern and Central Europe had no effect on growth of economies. Ofori-Abebrese, Kamasa, and Pickson (2016) assessed connection between stock exchange and economic growth in Ghana and found no link between stock exchange and economic growth of the country. Osuala, Okereke and Nwansi (2013) did not find any evidence of a relationship between economic growth and capital market development. The supply-leading theory hypothesises that capital market development comes before growth of the economy which suggests that the causality link owing to actions in capital markets that can influence negative or positive effects on the economic advancement indicators (Lenee & Oki, 2017). These studies include Omoke's (2010) research that found capital market development affected financial sector growth and Kiragu's (2015) research on the impact of Treasury bond market development on growth of the economy in Kenya.

Okereke(2008) notes that the accessibility of the secondary market like the stock market for example is a significant feature of the capital market, since investors are much willing to employing funds in so primary market if their properties are easily exchangeable into cash. Therefore, the existence of a securities exchange is the essential of capital market progress in any society. Further, by gathering funds for deploying into productive investments, the capital market collects those who have (savers) and those who need funds (investors) at generally viable prices and conditions acceptable to both parties, thus guarantee effective resource distribution as encouraging economic growth.

1.1.4 Capital Markets Development in Kenya

Data reviewed from the Nairobi Securities Exchange (NSE) in June 2019 Bulletin and the Capital Markets Authority (CMA) Quarterly Statistical Bulletin in June 2019 show that

equity market income for Q2.2019 was Kshs 32.89 Billion in comparison to Kshs 45.25 Billion recorded in Q1.2019; a 27.31% reduction confirmed a drop in trading activity at the NSE in that quarter. Moreover, there was a 3.46 % decrease in the market capitalization on a monthly basis. There was also a reduction in volumes traded from 1.081.60 Kshs Million in quarter one of 2019 to 1,396.67 Kshs million in quarter two of 2019 (NSE, 2018).

Additionally, other compound indicators such as the NSE 20 Share index and NSE All Share Index (NASI) also reduced from 7.51 % to 5.11 % in quarter two of 2019. There was a 24.81% increase in market turnover from Kshs. 201.71 billion of bonds traded compared to Kshs. 161.61 billion in the first quarter of 2019. Corporate bond activity contributed to an increase of 0.09 % and government securities contributed to 99.91 % increase on total bond turnover in this period. This indicates the low levels of depth of the corporate bonds within Kenya's securities market as marked by the increased concentration of the Government Securities (NSE, 2018).

Table 1: Kenya Securities Market Annual Performance Indicators 2001-2019

Year	Nairobi Securities Exchange All Share	Market Cap Kshs Billions	Equity Turnover Kshs Billions	Bond Turnover KShs Billions
2000	1,913.00	101.42	3.63	5.88
2001	1,355.00	86.10	3.12	14.08
2002	1,363.00	112.05	2.88	33.63
2003	2,738.00	317.53	15.25	26.45
2004	2,946.00	314.15	22.24	34.11
2005	3,973.00	462.50	36.50	13.59
2006	5,646.00	791.58	95.21	48.57
2007	5,444.00	851.39	87.97	84.81
2008	3,521.00	854.00	97.52	95.36
2009	3,247.00	832.00	38.16	110.65
2010	4,433.00	1,166.99	110.32	479.36
2011	3,205.00	868.24	78.06	445.65
2012	4,133.00	1,272.00	86.79	565.68
2013	4,927.00	1,920.72	155.75	452.46
2014	5,113.00	2,312.10	215.73	506.25

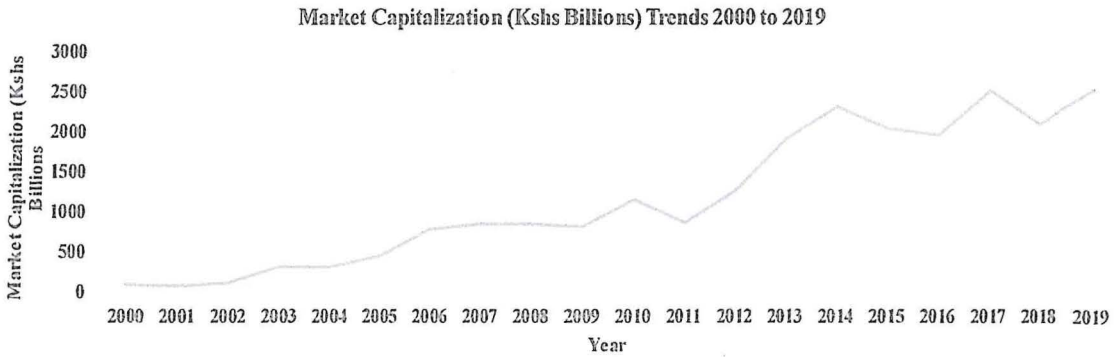
2015	4,040.00	2,053.52	209.38	305.10
2016	3,186.21	1,961.92	147.18	433.12
2017	3,711.94	2,521.77	171.61	435.89
2018	2,833.84	2,102.02	175.66	557.72
2019	2,654.39	2,539.98	153.82	651.68

Source: CMA/NSE (2019)

Source: CMA/NSE (2019)

Figure 1 : NASI Annual Trends 2000-2019

As per data from the CMA and NSE, the Nairobi all share index stood at 2,654.39 points as at the end of 2019 compared to 1,913 points recorded in 2000 (Figure 1.1). The highest annual index recorded in the period 2000-2019 was in 2006 at 5,646 points when the Nairobi Securities Exchange witnessed major listings including the Safaricom Initial Public Offering (IPO).

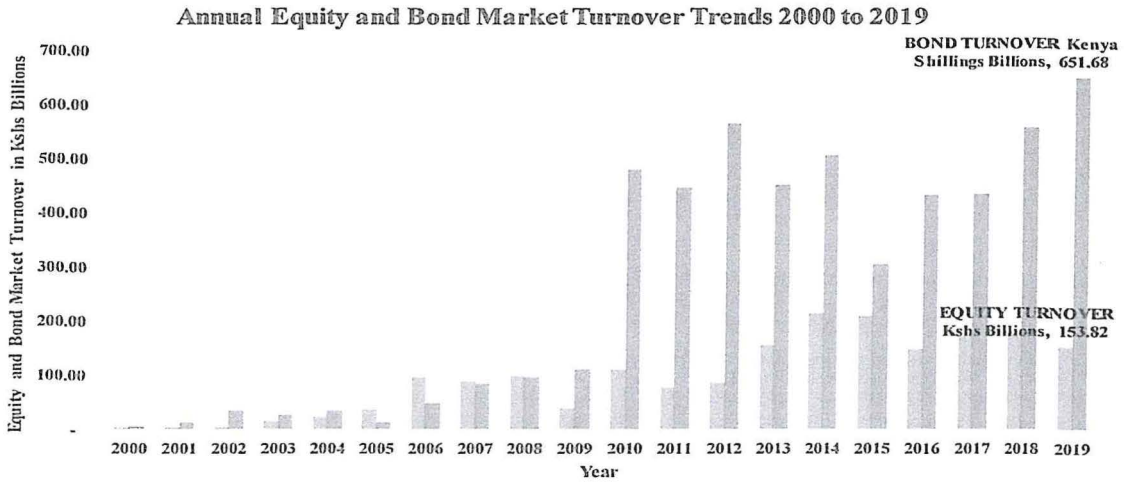


Source: CMA/NSE (2019)

Figure 2: Market Capitalization (Kshs Billions) Trends 2000 to 2019

As displayed in Figure 1.2, Kenyan equities Market Capitalization have witnessed significant progressive growth over the years. As at the 2019, Kenya's annual market capitalization stood at Kshs 2,539.98 Billion a significant increase from Kshs 101.42 Billion in 2000. This has been attributable to increase in equity listings to 65 in 2019 as well as increased diversity in equity related products such as the Exchange Traded funds (ETFs) and the Real Estate Investment Trusts (REITS).

Kenya's Equities and Bond market has witnessed significant growth over the past 19 years. As at 2019, the equities and bond market recorded Kshs 153.82 Billion and Kshs 651.68 Billion turnover respectively illustrated in Figure 1.3. The Bond market specifically the Treasury bond market has been active over previous years accounting for approximately 99% of the total Bond Market activity. The corporate bond market has been suppressed especially with the maturity of various bond issuances and the collapse of the Imperial and Chase Bank corporate bond issuances.



Source: CMA/NSE (2019)

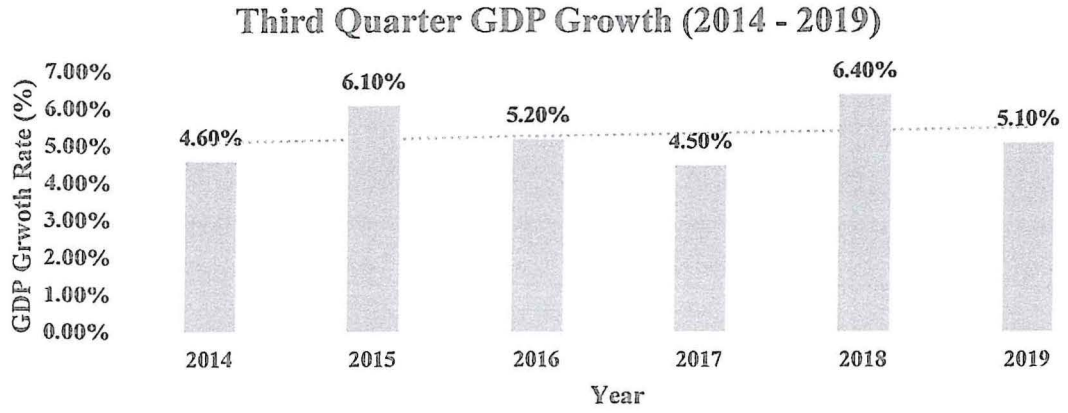
Figure 3: Annual Equity and Bond Market Turnover (Kshs Billions) 2000-2019Economic Growth in Kenya

In 2014, Kenya's GDP was rebased, and the country's status rose from a less developed country to middle-level countries according to the World Bank's classification. It was necessary to rebase the GDP by using a more recent base year to collate new constant price estimates. The old base year was 2001 while the new base year is 2009. It helps to accommodate changes in production structures due to developments and innovations. demand side changes like consumption patterns. GDP has been on an upward trend since 2006 as most of the sectors of the economy have been growing and their contribution increasing (Waiyaki, 2016).

The lowest-economic performance of Kenya was -0.8% in 1992 with the highest being 8.4% in 2010 (Ogola, 2016). Kenya's has remained hardy in recent years as growth of the economy has increased at a rate of 5.7 % in 2015 to 5.8 % in 2016 mostly owing to a steady macroeconomic setting. In the first half of 2017, the economy expanded from 4.7 % to 6.0 % in the first half of 2018. The economic growth was reinforced by a robust bounce in output in the agricultural sector, increased performance in the service industry, and stable industrial activity. In 2015, the Kenya National Bureau of Statistics (KNBS) attributed economic growth to a progression in the performance of significant sectors such as transport, storage. financial services, real estate, and construction. Growth in the retail and wholesale, mining. and ICT slowed from 2014-2015 although they remained significant at 6%. 11%. and 7.3% of GDP respectively (Deloitte, 2016).

Recent data reviewed from KNBS shows economic performance in the third quarter of 2019 was comparatively slower than in the corresponding quarter of 2018. Real GDP grew by 5.1 % in 2019 from 6.4 % in 2018 as shown in Figure 1.4. This reduced performance as attributed to the limited growth of the national economic industries. The slowed overall performance was occasioned by relatively slower growths in activities of water supply. transportation and storage, manufacturing, construction, electricity supply. retail and wholesale trade and relative to notable performances recorded in the same quarter of 2018. The performance recorded in the quarter in review though significantly slower than the

corresponding quarter of 2018 was supported by improved performances in activities of Mining and Quarrying, Financial and insurance and Real Estate.



Source: KNBS (2018)

Figure 4: Kenya's Third Quarter GDP Growth Rates

1.2 Statement of the Problem

Studies on capital market development and economic growth have found mixed results on the relationship between these variables. For example, Carp (2012) established that stock value traded and market capitalization in Eastern and Central Europe had no effect on growth of economies. Ofori-Abebrese et al. (2016) study in Ghana found no link between stock exchange and economic growth of the country. Osuala et al. (2013) found no effects of capital market on economic growth in Nigeria. Further, Murayi (2013) found no relationship between GDP and capital market development. On the contrary, other studies (Qamruzzaman & Wei, 2018; Lenee & Oki, 2017; Barna & Mura, 2010; Iddrisu & Abdul-Malik, 2017) established a bidirectional association amongst stock market development and growth in economies and growth in the economy had greater effects on stock market development.

The Kenyan government has reinvigorated its efforts to strengthen the capital markets through reforms and introduction of new investment products in the capital market to entice local and foreign investor participation. These include growth in number of organizations in the capital markets, development of the regulatory sandbox, the implementation of the hybrid

bond market, and pilot testing of the derivatives market. These efforts are aimed at financing utility and infrastructure development, create a bridge between suppliers of users and capital, facilitating investments and savings, and facilitating resource allocation. Despite these initiatives, the current savings and investments fall below the expected threshold of the government and there is a need to establish the course of association between capital market development and growth of the economy.

Furthermore, Kenya's Capital Markets faces significant risks such as Market Concentration in the equities and the bond market as well as low uptake of capital markets products and services.

These financial reforms were expected to bring about an efficient capital markets that would encourage domestic savings and investment and consequently lead to economic growth and development. The Kenyan economy has not really experienced impressive performance and therefore the need to interrogate whether the Capital markets is fundamentally playing its role in contributing to economic growth.

There is research (Murayi, 2013; Ikikii and Nzomo, 2013; Kiragu, 2015; Kipchumba, 2017) that has assessed the relationship between capital market development and economic growth in Kenya. Specifically, there is less evidence of studies that have adopted market capitalization, equity market turnover, and bond market turnover as key variables moderated by Exchange Rate.

Furthermore, Odidi (2020) suggested as an area for further research suggested research incorporating a different moderating factor preferably a macroeconomic variable to determine the different effects that other factors portray on the economic growth and financial market development dependent and independent variables, respectively.

The study aimed to fill the gap in literature by analysing the causal relationship between capital market development and growth of the economy with a further extension to a moderating variable (exchange rate) which has not been covered by previous studies.

1.3 Research Objectives

The study aimed to assess the relationship between capital markets development and economic growth in Kenya.

1.3.1 Specific Objectives

This study was guided by the following specific objectives, which aimed to establish:

i. The relationship between market capitalization and economic growth in Kenya.
ii. The relationship between equity market turnover and economic growth in Kenya.
iii. The relationship between bond market turnover and economic growth in Kenya; and
iv. The moderating effect of exchange rate in the relationship between capital markets development and economic growth in Kenya.

1.3.2 Research Questions

This study was guided by the following research questions

i. What is the relationship between market capitalization and economic growth in Kenya?
ii. What is the relationship between equity market turnover and economic growth in Kenya?
iii. What is the relationship between bond market turnover and economic growth in Kenya?
iv. What is the moderating effect of exchange rate in the relationship between capital markets development and economic growth in Kenya?

1.4 Limitation of the study

The study limited its investigation to market capitalization, equity market turnover, and bond market turnover as the proxies for capital market development. In terms of economic growth, the study limited its scope to real GDP. The study used Exchange Rates as the moderating variable for the study and 91-day Treasury bill Interest rates as the control variable. The

study used secondary data for the various quarterly capital market development and economic growth metrics for the period 2000-2019.

1.5 Significance of the Study

The findings will be useful to various key capital market industry stakeholders in five-fold as highlighted below:

1.5.1 To Securities Market Regulatory Authorities

The findings will be key in assisting the CMA and NSE in creation of necessary policies and frameworks to promote market development, increase quality listings and enhance the efficiency and development of the securities industry. Additionally, the results will inform significant enhancement and changes that are required to enhance the deepening, broadening, growth, development, diversification and uptake of securities markets products and services. The findings will also identify the gaps to enhance the size and liquidity of the local capital markets which is crucial in pushing Kenya's capital markets closer to its aspirations to achieve the Emerging Market status as per the Morgan Stanley Capital Index.

1.5.2 To Policy Makers

The findings from the study will influence the magnitude of development of capital markets on economic growth giving empirical data through which policy makers to develop and implement incentives and policy mechanisms to aid with market-based funding to increase Kenya's economic growth.

1.5.3 To development partners and institutions

The recommendations and findings will support institutions such as the World Bank and International Finance Corporation (IFC) in identifying the required technical assistance towards local capital markets to achieve development and growth as part of their strategy to develop strong, deep capital markets as part of their strategies in frontier and emerging market.

1.5.4 To Capital markets intermediaries, licensed entities, and investors

The findings and recommendations from this study will help in market stakeholders and intermediaries in the capital system environment consisting of listed companies, stockbrokers, investment advisors, and fund managers in comprehending their input to economic growth in Kenya.

1.5.5 To the existing knowledge base

Lastly, the findings of the study contributed to the body of knowledge on the relationship between capital markets development and economic growth while suggesting areas for further study.

1.6 Organization of the dissertation

This chapter presented the background of the study, problem statement, research objectives, scope, and significance of the study. The second chapter presents the literature review of the study. The research techniques and methods that were used in the study are captured in Chapter three. The analysis of data and interpretation are presented in the fourth chapter of the study while the conclusions and recommendations of the study are in the fifth chapter.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents the review of literature of the study. The chapter presents the theoretical framework, which consists of Efficient Market Hypothesis (EMH), Schumpeter's Theory of Economic Growth and Purchasing Power Parity theory. It also includes an empirical review of literature on the relationship between capital markets development and economic growth from a global, regional, and local context. The summary and critique of the literature, research gaps, conceptual framework, and discussion of variables are also presented.

2.2 Theoretical Review of Literature

A theoretical framework is a set of concepts and constructs promoted by scholars and experts of a discipline that a researcher borrows from a basis for the arguments of variables under study for data analysis and interpretation of results (Kivunja, 2018). This section presents the theoretical premise of the study. The study proposes to adopt the Efficient Monitoring Hypothesis (EMH), Schumpeter's theory of economic growth and the purchasing power parity theory.

2.2.1 Efficient Market Hypothesis

Fama (1965) suggested the Efficient Market Hypothesis (EMH) which supports the theoretical argument that there is an association between growth of the economy and capital market development. The EMH opines that a financial market is efficient which implies that the price of assets traded have their information available and is fair as they represent the overall perceptions of all investors about forecasts (Atoyebi et al., 2013).

Mishra et al. (2010) argue that by operating efficiently, the capital market of a country can result to the development of a country. The efficient operation of a market leads towards confidence among the public and investors who in turn will be motivated to invest in securities with the aim of making a profit. On the contrary, an unreasonably speculative market results to a discouraged public to make investments. This means that entrepreneurs

will not be able to mobilize supplementary capital for growth. This situation then results to a damaging influence growth of the economy of any country. Hence, it serves to state that efficiency of the capital market is a must situation in which the growth of a country can be achieved.

The EMH has three major strands of hypothesis, these are, "strong", "semi-strong", and "weak". A semi-strong version of EMH states that prices in the capital market should show all available information to the masses and instance changes in prices reflects new public information. The weak EMH version alludes that traded assets prices (bonds, stocks, or property) all show publicly available information from the past. The strong version of EMH opines that prices immediately show even "insider" or hidden information. There is proof against and for the semi-strong and weak EMHs and even greater proof against strong EMH (Omoke, 2010).

The critics of EMH state that there are variety of situations in recent times that there has been a great deal of proof that prices in the market may not have been set by investors exhibiting rationality but psychological factors may have had a significant role to the outcome. These critics place more emphasis and support on the influence of behavioural and psychological factors rather than efficiency practices (Malkiel, 2003). Another critique of EMH is that because investors perceive value of stock uniquely, it is thus difficult to define the worth of a stock in a market that is efficient.

Despite these criticisms, the EMH theory has been used in several studies (Omoke, 2010; Atoyebi et al., 2013; Liu, 2013) that explored the association amongst growth of the economy and development of capital markets. The EMH theory bears relevance to this study as it links capital market and economic growth. Further, the EMH has good comprehension on the connection between growth of economies and capital market development in Kenya. Hence it gives a structure for examination of the capital market efficiency and also highlights substantial perceptions about the performance in future investments, prospects of the

economy, bankruptcy possibilities which provides prove of capital market development and growth of economies.

The EMH further implies that investors should not be able to beat the market since all information that could predict performance is built into stock price. The EMH is also based on the assumptions that stock prices follow a random walk in that they are determined by current stock prices rather than past stock price movements.

The theory is suitable for this study as it provides a significant evidence and basis for testing the efficiency of Equity and Bond market in the Nairobi Securities Exchange which are significant determinants of the level of capital market development.

2.2.2 Schumpeter's Theory of Economic Growth

Schumpeter (1911) proposed the theory of economic growth and the theory was founded upon the belief of a competitive market, private property, and efficiency of a financial market that can provide an environment for new innovations. Nevertheless, countries that lack a democratic system often do not fulfil these conditions. Hence, Schumpeter's theory is directed towards economically and democratically enhanced countries. Some critical roles of financial markets are to mobilize savings to manage risk, facilitate transactions, monitor managers, and evaluate projects. Therefore, financial markets development is important for a country's innovation (Schumpeter, 1911).

The collaborations of inventions in the real and financial sectors create a wave of growth in the economy (Schumpeter 1911). Innovation in an economy is thus seen as a motivator for enhancing productivity and accelerating economic growth process. Focussing on the different features of an economy, innovation in the financial system enhances the financial development process and this is referred to as financial innovation. Innovation in the financial industry further helps in accumulation of capital and advanced innovation in technology which in turn results to economic growth that is sustainable in the long-term (Qamruzzaman & Wei, 2018).

Schumpeter's theory of economic growth has received empirical tests and has been confirmed. King and Levine (1993) showed evidence of cross-country data, which indicated that economic growth was due to financial systems. The study was conducted over the 1960-1989 period and involved data on 80 countries. The findings of the study indicated statistically significant influence of financial development on growth of the economy. The study concluded that Schumpeter was correct about the significance of finance for development of the economy. The theory has however received some criticisms one of which is that the theory relies too much on the impact of financial innovations on growth of the economy. Despite this criticism, the theory has been used and supported by several studies (Wait & Ruzive, 2016; Qamruzzaman & Wei, 2018) that aimed to measure the association among development of the capital market and growth of the economy.

Schumpeterian dynamics focus on the pattern of growth and structural change in capitalistic economies. Its main emphasis is put on the disruptive effects of innovation on the real economy. In this context the role of the financial sphere is often only touched or even neglected. However, financial markets do have a crucial and reinforcing effect on the dynamics of the real economy and vice versa.

The theory is thus important to this research as it emphasizes the need for and importance of capital markets on economic growth and development of a country. Further, in line with the theory, the main role of the capital market is trade-off in credit for the aim of economic development financing, and so the capital market is a foundation of tomorrow income created by structural changes.

2.2.3 Purchasing Power Parity Theory

This theory was developed by Menon and Viswanathan (2005) and its argument is that products whose value is homogenous would be similar in different countries based on the specific currency of at the country level. The theory suggests that similarity in purchasing power across different countries results into stability in the exchange rates between different

countries. This means that price ratio level of the products should be same as the currency of a given country (Jiang, Bahmani-Oskooee & Chang, 2015).

If at all money has no purchasing power against commodities in a country, the currency of the country will be said to be incorrectly valued. The theory operates on the assumption of existence of a perfect world that is characterised by lack of transaction costs and goods have similar qualities (Bahmani-Oskooee, Chang, Chen & Tzeng, 2017). According to Menon and Viswanathan (2005), there are two common classes of purchasing power parity (PPP); absolute as well as relative. The absolute PPP argues that no matter the currencies, similar costs must have similar costs. On the other hand, the relative PPP argues that consideration and attention should be paid to imperfections existing in the markets (Ross, 2008).

The theory is further based on the assumptions that Exchange rate movements in the short term are news driven. Announcements about interest rate changes, changes in perception of the growth path of economies and the like are all factors that drive exchange rates in the short run. PPP, by comparison, describes the long run behaviour of exchange rates. The economic forces behind PPP will eventually equalize the purchasing power of currencies.

Therefore, the theory is relevant to the current study since it provides an explanation of the currency of Kenya in relation to other countries (foreign exchange rate). The theory argues that exchange rates at equilibrium ensure that the exchanged value can be used to purchase goods of same values from more than one country involved. Hence, the theory was used to underpin the variable exchange rate.

2.3 Empirical Review of Literature

2.3.1 Market Capitalization and Economic Growth

In South East Europe, Njemcevic (2017) examined economic progress and capital markets in transition countries using the neoclassical model of growth of the economy for South East Europe (SEE) and Central and Eastern Europe (CEE). Development of the capital market was measured by share of stock exchange turnover in market capitalization (TR), share of

stock exchange turnover in GDP (STR), and share of market capitalization in GDP (MCR). The economic growth variable was measured by capital, labour, and technological development. The findings revealed that only market capitalization indicator was found to have an important effect on GDP. The study used data from secondary capital markets and did not have access to data for primary activities. The study did also not account for economic and financial crisis of the 2008 that most countries in the region experienced during the study period.

Nyarano and Elly (2017), investigated the relationship between the stock market performance and the economic growth in the East African Community. The stock market variables considered in the study were stock market capitalization, market liquidity and share price volatility. The population of the study included an All-Share index in the 4 stock markets in the member countries. Data for GDP growth was collected from the World Bank website. The study employed the Vector Autoregressive (VAR) model as well as the Granger test for causality to estimate as well as provide evidence regarding the nature and direction of relationship of the variables. Findings of the study established an existence of long term relationship between the stock market performance variables (market capitalization and liquidity) and economic growth in the East African community. These results depict that an increase in stock market capitalization and liquidity in the East African Community contributes to the economic growth in the long term.

On the contrary, Zegada (2011) used estimation of tri-variate and bivariate Granger-causality and Vector Auto-Regressive (VAR) models on quarterly data from 1994-2010 for economy growth and capital market development in Bolivia. Capital market was size, fixed-income security market, and liquidity of capital market were the dimensions that were used to measure capital market development. The economic growth was measured by the real GDP per capita unlike technology development, labour, and capital as adopted in Njemcevic (2017). The findings revealed no significant effects of capital market development and economy growth. The study was limited to size and liquidity parameters for capital market

and the fixed-income security market and GDP. The study did not include bonds market as a parameter for development of capital market.

Nordin and Nordin (2017) assessed effects of capital market on growth of the economy from 1981-2014 in Malaysia. Time series data was used to assess the effect of capital market on growth of the Malaysian economy. In comparison to Zagada (2011) and Njemcevic (2017) which used VAR models adopted variance decomposition estimation techniques. The equity and debt markets were used as proxies for capital market development. The parameter for economic growth was constant GDP per capita. The findings indicated stock market had a consequence on growth of the economy in comparison to debt market. Moreover, uni-directionality causality of the stock market on growth of the economy was confirmed. The study was limited to stock market data and did not include bond market as a parameter for development of the capital market. The study only measured directional impacts of development of the capital market on growth of the economy.

In Jordan, Masoud (2015) examined effect of stock market performance on economic growth of examining using empirical literature in comparison to Njemcevic (2017), Zegada (2011), and Nordin and Nordin (2017) which used secondary data. The results of the research implied a positive effect of an efficient stock market on growth of the economy in the short-term and long-term. In contrast, Rurangwa and Shukla (2017) adopted Ordinary Least Square (OLS) and Granger casualty statistical methods to analyse series data from 2009-2016. Market capitalization, turnover, and volume of shares traded as were the proxies for development of the capital market whilst real GDP measured growth of the economy. The findings indicated market capitalization, turnover, and volume of shares traded impacted GDP as found in Njemcevic (2017); Nordin and Nordin (2017) and disagreed with Zegada (2011) results.

Rezina, Jahan, and Mustafi (2017) investigated the causal relationship between stock market development and GDP in Bangladesh as well as the impact of stock market performance upon GDP of Bangladesh from 1994 – 2015. The results revealed that market capitalization ratio explained the variations in GDP where an increase in market capitalization resulted in a

reduction of GDP. The findings also revealed that market capitalization and economic growth had a long-run causal relationship.

Osamwonyi and Kasimu (2013) adopted Granger causality to examine GDP and stock market development in three African countries from 1989 – 2009. The results revealed that market capitalization was found to Granger cause GDP in Kenya, Nigeria, and Ghana. Coming closer to Kenya in the East African Community (EAC), Nyanaro and Elly (2017) found that there was a long run effect of economic growth and market capitalization in the EAC market.

Ikikii and Nzomo (2013) used quarterly time series data from 2000 – 2011 and found that market capitalization had a positive impact on economic growth finding that a 1% increase in capitalization causes 0.115% increase in GDP. Muriithi (2016) examined the effect of total value of shares traded and NSE 20 share index on economic growth in Kenya as measured by GDP for the period 2000 to 2015 on quarterly time series data. Market capitalization had a negative and significant long run relationship with economic growth. In the long run market capitalization was negative and significant to GDP both in the first and second lag.

In Kenya, Omoke (2010) investigated eight firms from the NSE from 2004-2009 using Fisher's Theory of capital and investment. Independent variables were market capitalization, trading volume, and stock market volatility. GDP per capita growth and GDP growth rate were parameters for economic growth and the relationship was analysed using a multivariate regression model. The study concluded capital market development affected financial sector growth. Specifically, the findings showed that market capitalization, trading volume, and stock market price volatility had an effect on GDP. The dimensions for capital development were similarly used by other studies (Masoud, 2015; Rurangwa & Shukla, 2017). This study focused on the unidirectional relationship between capital market developments on economic growth only relying on regression modelling which only provides "simple" correlations. The study was limited to financial sector firms listed in the capital market.

2.3.2 Equity Market Turnover and Economic Growth

From the global perspective, Fynn (2011) used data from 1990 to 2010 from in South Africa, Brazil, India, Russia, and China finding that stock market had no positive effect on economic growth for the (BRICs) sample but had a positive effect for G7 countries (Brazil, India, and China). This was a cross-country study that did not focus on individual countries' economic growth based on equity market development which this study aims to do.

In another study that focused on Bangladesh's economic growth and stock market development from 1980-2016, Qamruzzaman and Wei (2018) used the autoregressive distributed lagged (ARDL) bounds testing approach to investigate long-run cointegration before conducting a Granger-causality Stock turnover ratio (TUR), Trade Openness (TO), Government final consumption expenditure (GEXP), and inflation were the selected capital market development whilst economic growth was measured by real GDP. Similar to Fynn (2011) findings, a positive influence from stock return ratio to economic growth was established. The study did not include the bond market as a component of capital market development which was adopted in this study.

Chepkoech (2017) investigated the relationship between Stock market capitalization and Economic growth. The information utilized was gathered from the Capital Market Authority for 11 year period from 2005. The information for financial development for a similar period was got from the database Kenya National Bureau of Statistics and Central Bank of Kenya. In order to establish the relationship between market capitalization and economic growth in Kenya. Findings of the study revealed there was a relationship between the two factors showing that the two co-moved. The relapse investigation found a powerless positive association with the level of development rate that is autonomous of market capitalization being 5.085%.

Nyasha and Odhiambo (2018) examined the vibrant causality connection amongst growth of economies and stock market development for a period 36 years (1971-2007). The study used approaches similar to Qamruzzaman and Wei (2018) research. The findings revealed stock

market turnover Granger-caused economic growth. The study did not include bond market in its capital market development proxies which this study aims to include in its model. Kipchumba (2017) investigated stock market development and economic growth in Kenya from 1993-2015. Market capitalization, transaction volume, and stock turnover, and real GDP were the independent and dependent variables respectively. Inflation rate, exchange rate, and foreign direct investment were used as control variables. A bidirectional causality relationship between stock turnover ratio and economic growth was established. The study does not include the influence of bond market as a parameter for measuring capital market development which this study aims to include in its model.

2.3.3 Bond Market Turnover and Economic Growth

Kipchumba (2017) conducted an empirical study to investigate the stock market development and Economic growth in Kenya. The researcher employed Vector Autoregressive Model. The researcher additionally, conducted descriptive analysis. Results established a bidirectional causality relationship between economic growth and market capitalization, economic growth and stock turnover ratio, and economic growth and the transaction volume at the Nairobi Securities Exchange. This implies that collectively, all the measures of the stock market development have a bidirectional link with the growth in the gross domestic product. In addition, findings reveal that there is a causality relationship between stock market development and control variables (Foreign Direct Investment, and Inflation).

Fink and Haiss (2006) examined the relationship between real GDP and bond market in thirteen leading economies from 1950 – 2000. Co-integration and Granger causality test approaches were used and provided evidence growth in bond market capitalization and growth in real output in Italy, Finland, and Japan. In USA, Japan, Switzerland, and Norway real economic activity had an influence on development of the bonds market thus giving credence to the supply-leading approach. Aigbovo and Izekor (2015) Nigeria GDP and capital market from 1980 to 2011 using Granger causality, co-integration, error correction models, and unit root tests to analyse the relationships between Real Gross Domestic Product

(RGDP) and Value of Share Traded (VLT), Market Capitalization (MCAP), Turnover Ratio (TR), and All Share Index (ASI). The study revealed that TR had significant and positive effects on growth of economies in the long-run and short-run.

Kapingura and Makhetha-Kosi (2014) evaluated causality of growth of national economies and bond market development in South Africa from 1995 to 2012. Quarterly data was analysed using pairwise Granger causality test and Engle Granger cointegration method. The empirical results revealed an association amongst economic movement and bond market capitalization. The study used bond market capitalization to measure the variable of bond market development whilst this study aims to use the bond market turnover ratio.

Murayi (2013) unlike previous studies which adopted Granger causality in this section, adopted correlational research design and a multivariate regression model to examine relationship between real GDP, value traded ratio, bond market turnover ratio, stock market size, market capitalization ratio, and stock market turnover ratio from 1992-2011 in the NSE. Real GDP had a significant connection with development of stock market, however, GDP had no significant relationship with value traded ratio and market capitalization ratio. The study was limited to multivariate regression analysis whilst the present test aims to use the Grangers causality test to assess bidirectionality between variables.

Kiragu (2015) focusing on 14-year quarterly periods between 2001 and 2014 examined the interaction between Treasury bond market variables were bond market size (BMS) as a parameter of market size and bond market turnover ratio (BMTR) as a parameter of market liquidity. The data was analysed using regression and correlational analysis. The findings indicate that bond market development has a positively significant impact on GDP. The study used regression analysis focuses on the coefficients of influence and does not examine causality between variables.

2.3.4 Moderating Effect of Exchange Rate on Capital Markets Development and Economic Growth

A country's exchange rate and growth are closely related. Rodik (2008) indicates that a devalued exchange rate stimulates economic growth in developing countries. On the other hand, over-valuation of the exchange rate is regularly related to slow growth. Various studies such as (Fischer, 1993; Gala, 2007) link exchange rate over valuation to macroeconomic instability.

In the context of Capital market development, when capital investments come into an economy, initially investors obtain local currency that increases demand for local currency. This therefore results to the currency appreciates. Impacts of currency appreciation seem negative for developing and emerging countries. The domestic capital markets constitute of both local and foreign investors. Therefore, the existing relationship between stock market development and economic growth will be affected.

This therefore indicates that exchange rate could have a moderation effect on the relationship of capital market development and economic growth.

Obura & Anyango (2018) in their study on the Moderating Effect of Interest Rates on Relationship between Foreign Exchange Rate Fluctuation and Performance of Nairobi Securities Exchange Market concluded that interest rates moderate the relationship and recommends that policies governing the regulations of interest rates should be formulated since it moderates the relationship. The findings in their study consistently augment findings from Reilly & Brown (1997) and Schwert & Robert (1990) who also concluded that interest rates moderate the relationship between foreign exchange fluctuation and performance of securities markets.

2.3.5 Controlling Effect of Interest Rates (91-day T-Bill) on Capital Markets Development and Economic Growth

Higher interest rate, in other hand, not only discourage the businesses to use credit but also stimulate investors to switch to bank deposits causing decline in stock prices. Therefore, Interest rates have a controlling effect on capital market development and economic growth. Rajesh (2019) in his study examined the relationship between 91-days Treasury bill rate and NEPSE Index with the use of annual time series data taken from Mid-July 1994 to Mid-July 2018 in the context of Nepal and found out that the interest rate policy of Nepal Rastra Bank considerably influences in the stock market performances in long-run as well as the investors' decisions in choices between stock market and bank deposits.

2.4 Research Gap

This study aims to assess the relationship between capital market development and economic growth in Kenya. In most of the studies, the capital market development variable has been measured by the stock turnover ratio, volume of shares (Rurangwa & Shukla, 2017) and stock market capitalization (Njemcevic, 2017; Kipchumba, 2017), and stock market volatility (Omoke, 2010).

Boopen, Shalini and Sawkut (2009) found that financial development has a positive contribution on economic growth. Mahdi (2008) finds that higher education has a positive effect on the economic growth over the short and long run.

Dorko (2012) however finds there is a frail positive relativity with the level of development rate and market capitalization. Maranga (2013) there is a weak negative correlation between gross domestic product growth and stock market returns; there is a negative connection between interbank loaning financing cost and the monetary development (Otieno, 2015). Stock market indices impact significantly on economic growth (Sambu, 2014). Mosiori (2014) found that foreign direct investment and exchange rates positively affect economic growth while inflation and interest rates have an inverse relationship with economic growth.

From the empirical studies reviewed, foreign studies agree that market capitalization and its related metrics have compelling effect on economic growth. However local studies post mixed results: there is a weak negative correlation between gross domestic product growth and interest rate and stock market returns (Maranga, 2013; Otieno, 2015); stock market indices impact significantly on economic growth (Sambu, 2014; Mosiori, 2014). This indicates that the relationship between market capitalization and economic growth remains unsettled, especially for an emerging economy such as Kenya's.

There are fewer studies that have used Exchange rate to moderate the relationship between capital market development and economic growth. Furthermore, Odidi (2020) suggested in her study areas of further research another study incorporating a different moderating factor preferably a macroeconomic variable, to determine the different effects that other factors portray on the economic growth and financial market development dependent and independent variables, respectively.

2.5 Conceptual Framework

The independent variables of the study are dimensions of capital markets development (market capitalization, equity market turnover, and bond market turnover). The study uses real GDP as the dependent variable of the study. The control variables for the study are exchange rates and 91-day Treasury bill interest rates which are factors that can affect the economic growth of a country.

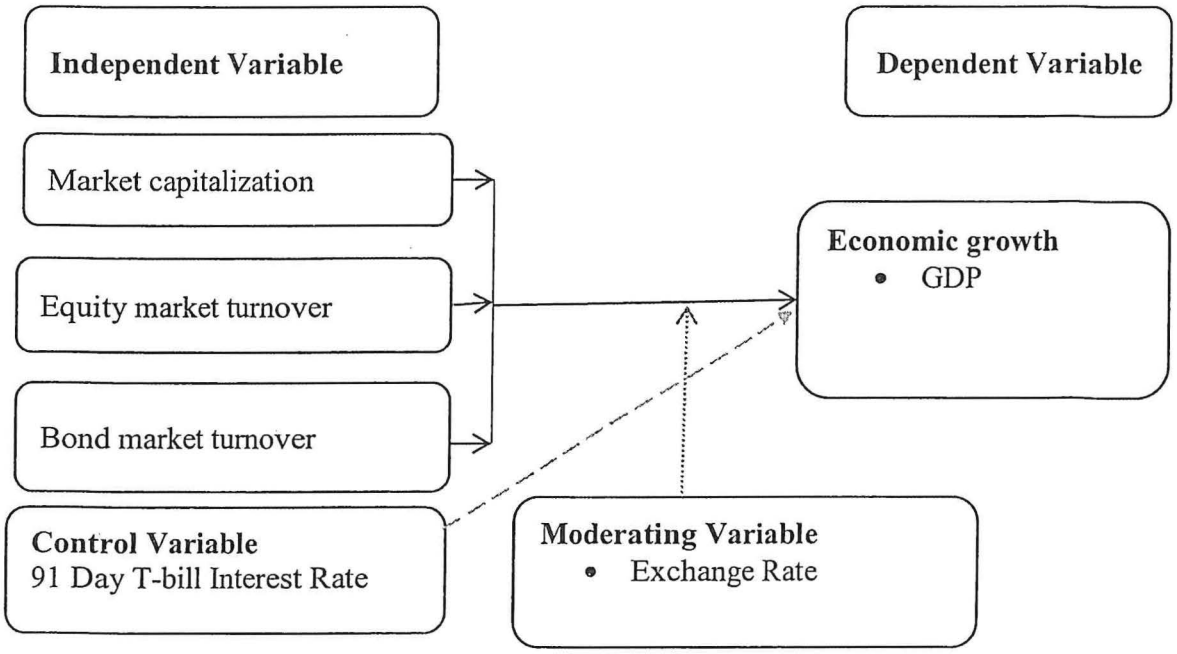


Figure 5: Conceptual Framework

2.5.1 Discussion of the Variables

Capital market development has been measured in different ways in different studies. In this research, market capitalization, equity market turnover, and bond market turnover are used to measure this concept. The empirical evidence shows that these variables have been used in various contexts and the outcome has been positive, negative, or non-existent towards economic growth which is measured in terms of GDP (Acquah-Sam & Salami, 2014; Khetsi & Mongale, 2015; Murayi, 2013).

Literature shows exchange rates have an impact on economic growth of a country. Ehigiamusoe and Lean (2019) found that a higher rate and volatility of real exchange reduces the economic advancement. Hence, exchange rates are used as a control variable in this study. Intisar (2017) used macroeconomic variables as control variables, including exchange rates, to estimate the relationship between capital market developments on economic growth.

Interest rates were included as a control variable as they influence stock market development. Studies (Intisar 2017; Acquah-Sam & Salami, 2017) have found positive and negative effects of interest rates on capital market development and economic growth and thus was included as control variables in this study.

2.6 Operationalization of Variables

Operationalization of variables involves picking a valid and measurable index for a variable (Tariq, 2015). Table 2 is a summary of the study variables and the way these were measured. The source of citation of how these variables have been measured in other studies is also provided along with the measurement scale of these variables.

Table 2: Operationalization of Variables

Variable	Description	Measure	Citation
Stock market Turnover	Total value of shares traded derived by multiplying the Volume of Shares Traded by the Volume Weighted Average Price at a specified period.	Natural logarithm	Fynn (2011); Kipchumba (2017)
Bond market turnover	Total value of bonds traded in a given period which is used to measure the liquidity of a bond market derived by adding Treasury Bond market Turnover and Corporate Bond Market Turnover	Natural logarithm	Kapingura & Makhetha-Kosi (2014); Murayi (2013)
Market capitalization	Estimated worth/value of the company derived by multiplying the current Volume Weighted Average Price by the total number of shares issued and outstanding at a specified period.	Natural logarithm	Nordin & Nordin (2017); Masoud (2015); Rurangwa & Shukla (2017)
Real GDP	This is a country's GDP after being adjusted for inflation	%	Qamruzzaman & Wei (2018)

Exchange rates	Local currency (KShs) units relative to the US dollar	Natural logarithm	Nyasha & Odhiambo (2018) Ehigiamusoe & Lean (2019)
Interest rates	Central Banks interest rates (91 Day Treasury Bill Interest Rate)	%	Intisar (2017); Acquah-Sam & Salami (2017)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter shows the research method that the study adopted to answer the research objectives and research questions. The chapter is presented in sections that consist of the research philosophy, the causal research design was explained and described, census procedure for selecting the population and sample for the study, secondary methods as the means of data collection, inferential statistical analysis, and ethical procedures followed for executing the study.

3.2 Research Philosophy

There are three major paradigms of research, which are ontology, epistemology, and axiology under which research philosophies fall (Mkansi & Acheampong, 2012). Research philosophies are a system of assumptions and beliefs on knowledge development that influences the way a researcher views their world. There are five major philosophies in research: critical realism, pragmatism, positivism, postmodernism, and interpretivism. This study adopted the positivist philosophy, which is a pure scientific approach designed to provide pure facts and data, which cannot be manipulated by human bias and interpretation. The positivist approach is suitable for this study as it sought to establish the relationship between the development of the capital market and advancement of the economy. Gill and Johnson (2010) see positivism as an approach to establish causality relationship between variables.

3.3 Research Design

A research design refers to a blueprint and framework of conducting a research study and aims to detail the process required for collecting data. The study adopted a causal research design. The goal of causal research design is to decide cause-and-effect associations and involves influence of explanatory variables, effect on dependent variables (Zikmund et al., 2012). Causal research was important for establishing a causal relationship between developments of the capital market and growth of the economy in Kenya.

3.4 Population and Sampling

The population of the study encompasses the Equities Market comprising of sixty-five (65) listed companies and the Bond Market in Kenya including both the fifty-five (55) Treasury bonds and three (3) Corporate Bonds listed and trading in the NSE. The sample included all the listed companies and Treasury and Corporate Bond market quarterly performance metrics for the period 2000 to 2019. Real Gross Domestic Product quarterly observations for the period 2000 to 2019 were used to measure economic growth.

3.5 Data Collection Methods

Data collection approaches can be distinguished between quantitative and qualitative approaches. Quantitative approaches rely more on numbers and numerical information whilst qualitative data lends itself to description and words (Paterson et al., 2016). The study used quantitative methods which focused on secondary data of the variables from the Nairobi Securities Exchange. The data for development of capital market variables is available from the NSE database whilst data on GDP was derived from KNBS. The Exchange Rates and 91-day Treasury bill data was collected from the Central Bank of Kenya websites. This data was in quarterly datasets for the 2000 to 2019 financial years. The subject (what or who) in a study that a researcher investigates is referred to as a unit of analysis (Lewis-Beck, Bryman, & Liao, 2004).

Stock market Turnover was measured by the total value of shares traded derived by multiplying the volume of shares traded by the volume weighted average price at a specified period. Bond market turnover was measured by total value of bonds traded in a given period which is used to measure the liquidity of a bond market derived by adding Treasury bond market Turnover and Corporate Bond Market Turnover. Market capitalization was measured by the estimated worth/value of the company derived by multiplying the current volume weighted average price by the total number of shares issued and outstanding at a specified period. Real GDP was measured of a Kenya's gross domestic product that has been adjusted for inflation.

3.6 Data Analysis

The process of converting raw data and figures into useful information, which can be used to understand relationship between variables is known as data analysis (Smeeton & Goda, 2003).

3.6.1 Descriptive analysis

The analysis included using descriptive and inferential statistical procedures, which included mean, standard deviation, and regression analysis. The summary statistics was used to communicate the large set of information by summarizing the set of observations by giving the standard deviation, mean, minimum and maximum values.

3.6.2 Trend Analysis

Trend analysis was conducted to provide a clear picture of the variables trend covered under the period of consideration.

3.6.3 Stationarity Test

Shrestha & Bhatta (2018) note that most of the modelling techniques applied in time series analysis are primarily concerned with stationarity of the data. The starting point is to examine the properties of series graphically and confirming it statistically. Graphs are the most preliminary tool to get the rough idea about the stationarity of the series. However, statistical tests are required for final decision. This study undertook a unit root test to provide statistical evidence on the stationarity of the study variables.

3.6.4 Augmented Dickey Fuller (ADF) test

The unit root test is the most common method for testing for unit root. Shrestha & Bhatta (2018). A series of data is stationary if the variance and the mean do not change over time. Gujrati (2003) recommends undertaking a test of stationarity to look for the direction of integration.

To determine this, the ADF test was used in this study where the assumption is that the null hypothesis means that series is not stationary. It is important to determine whether data is stationary or non-stationary to determine whether the statistical properties of a time series do not change over time as this may affect the outcome of the relationship between variables.

The study first tested the stationarity of the time series variables in the econometric model to determine their order of integration, using the augmented Dickey–Fuller (Dickey & Fuller, 1979) test.

3.6.5 Lag Length Selection

It is necessary to choose the appropriate lag length before applying the ARDL bounds test. In addition, the choice of lag length should be exercised with caution, as inappropriate lag length can lead to biased results and cannot be accepted for policy analysis.

The information criteria/unstructured model selection procedures are used by the Bounds test of cointegration for plausible model selection. The five unstructured procedures, commonly known as information criteria, are Akaike Information Criterion (AIC) developed by (Akaike 1973b), Akaike Information Criterion Corrected (AICC) formulated by (Hurvich and Tsai 1989), Bayesian or Schwarz Information Criterion (BIC or SIC) developed by (Schwarz 1978), Bayesian or Schwarz Information Criterion Corrected (BICC or SICC) developed by (McQuarrie and Tsai 1998) and an information criterion proposed by (Hannan and Quinn 1979) generally abbreviated as HQC. These criteria were developed for the lag selection in di□erent testing approaches.

The study used Final Prediction Error (FPE), Akaike information criterion (AIC), Hannan Quinn Information Criteria (HQIC) and Schwartz Information Criteria (SBIC) to choose the appropriate lag length.

3.6.6 Bound Test for cointegration

To capture the effect of capital market development on economic growth, the authors estimated the long-run linkage by using the ARDL bounds testing approach to cointegration.

The bounds test approach was originally introduced by Pesaran & Shin (1999) and further extended by Pesaran, Shin & Smith (2001). In a linear relationship involving a number of time series variables in which some are stationary, I (0), and other non-stationary but I(1), then ARDL bounds test is used to confirm whether a long-run relationship exists between the model variables. Given the fact that some variables in the study are I (0) and others are I(1), bounds test approach for cointegration based on an ARDL framework was used for analysis.

3.6.7 Autoregressive Distributed Lag Model (ARDL)

The use of the ARDL approach that examines the long-run and short-run relationship of capital market development on economic growth in Kenya makes the current study unique.

Kripfganz & Daniel Schneider, 2018 posits that Autoregressive distributed lag (ARDL) models are used to assess dynamic relationships with time series data in a single-equation framework. The current value of the dependent variable is allowed to depend on its own past realisations the autoregressive part as well as current and past values of additional explanatory variables the distributed lag part. The variables can be stationary, nonstationary, or a mixture of the two types.

The study employed the Autoregressive distributed lag model, where the dependent variable is a function of its own past lagged values as well as current and past values of other explanatory variables.

3.6.8 Econometric model

The objective of the study is to assess the relationship between capital market development and economic growth moderating for the effect of exchange rate, and interest rates as a control variable. This relationship is given in the form of a long-linear empirical model as:

$$GDP_t=\beta_o+\beta_1 lnMCAP_t+\beta_2 lnETO_t+\beta_3 lnBTO_t+\beta_4 lnMCAP*ER_t+\beta_5 lnETO*ER_t+\beta_6 lnBTO*ER_t+\beta_7 IR_t+\varepsilon_t$$

Where:

GDP_t Gross Domestic Product at Time t

β_o	Constant
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$	The effect of the independent variable (s) on the dependent variable.
Ln	Natural logarithm
$MCAP_t$	Market Capitalization at time t
ETO_t	Equity turnover at time t
BTO_t	Bond market turnover at time t
MCAP * ER	Market capitalization moderated by the exchange rate (interaction term)
ETO*ER	Equity turnover moderated by the exchange rate (interaction term)
BTO * ER	Bond turnover moderated by the exchange rate (interaction term)
ER_t	Exchange rate at time T
IR_t	91-day Treasury Bill Interest Rate
t	Time period (from
ε	Error term

3.7 Goodness of Fit test

A rough impression of the robustness of estimated regression coefficients can be made by examining how well the regression line explains the data, whether there is a serial correlation in residuals and whether the overall model is significant, among others. Goodness of fit test values is displayed together with the estimated coefficients.

Common tests for goodness of fit include R^2, which shows a correlation in bivariate case and hence the value closer towards 1 is better. In a multivariate regression, adjusted R^2 is chosen instead of R^2. R^2 increases with the increase in the number of variable while adjusted R^2 increases only when the new variable improves the prediction power.

3.8 Diagnostic Tests

The study conducted diagnostic tests to test for serial correlation, functional form, normality, and heteroscedasticity of the models.

3.8.1 Durbin-Watson Test

Autocorrelation is the extent of correlation amongst variable values in a data distribution. This study used the Durbin-Watson test to determine the degree of correlation between the study variables. Durbin Watson (DW) statistics indicate whether there is an autocorrelation in residuals. The Durbin-Watson test yields a test value that range from 0 to 4. Values close to 2 (the middle of the range) suggest less autocorrelation, and values closer to 4 or 0 indicate greater negative or positive autocorrelation respectively (Akter, 2014).

3.8.2 Breusch-Godfrey LM test for autocorrelation

While the Durbin-Watson Test is limited to establishing whether auto-regressions of the first order are present, the Breusch-Godfrey (BG) aims to identify autocorrelation in any predesignated order p. The test uses the model's residuals used in a regression analysis and test statistic is calculated from these residuals. The null hypothesis from a BG test is that there exists no serial correlation of any order up to p. It also supports a broader class of regressors (such as models of the form $y_i = ax_i + by_i\text{-}1 + c$) (Breusch, 1978).

3.8.3 Breusch-Pagan test for heteroskedasticity

To check for heteroscedasticity, the study conducted the Breusch-Pagan (BP) for heteroscedasticity test where a significance level of over 0.05 is considered as evidence of no heteroscedasticity problem in the data from the results of the analysis of variance which is a statistical procedure.

3.8.4 Normality Test

A normality test for the variable was conducted where the graphical method was adopted covering histogram and PP plot. This graphical method was preferred due to its good power properties and is considered as a most powerful test for normality (Ghasemi & Zahedias, 2012).

3.9 Stability Test

The cumulative sum (CUSUM) of recursive residuals and the CUSUM of square (CUSUMSQ) tests are applied to assess the parameter stability (Pesaran & Pesaran, 1997). The cumulative sum test identifies systematic changes in the regression coefficients, while the cumulative sum of squares test detects sudden changes from the constancy of the regression coefficients.

3.10 Ethical Issues in Research

The study followed the requisite ethical procedures and adhered to improve the study quality. This study used secondary data and there were no foreseeable risks to anyone during the study. The study used data from the CMA, NSE and CBK websites, which is publicly available and thus does not require any processes of seeking permission for including the data in this study. The study ensured all information borrowed, adapted, or adopted from other studies and journal articles was acknowledged by making in-text citations and a comprehensive list of references to avoid any plagiarism. The quality, validity, and reliability of data were enhanced by conducting diagnostic tests before running the analysis.

CHAPTER FOUR: PRESENTATION OF RESEARCH FINDINGS

4.1 Introduction

This chapter presents the analysis of data, findings, and interpretation of the study on the data analysis and interpretation. The chapter includes figures and tables that show the values from the analysis conducted including the diagnostic tests and the analysis to check for causality among the variables.

4.2 Descriptive Statistics

The values of mean and standard deviation were generated in the study as descriptive statistics and summarized as indicated in Table 3.

Table 3: Summary of Descriptive Statistics

Variable	N	Mean	Std. Dev.	Min	Max
GDP	80	4.07	2.92	-9.5	8.30
MCAPt (million)	80	1140	839	81.9	2820
ETOt (million)	80	23.8	18.2	.443	65.2
BTOt (million)	80	3350	2530	.928	8160
ERt	80	84	12	63	105
IRt	80	8	3	1	18

The results in Table 3 indicate the minimum value of market capitalization as 81.9 million with the maximum value being 2,820 million the mean value being 1,140 million and standard deviation of 839 million. This implies that on average, the listed firms had a market capitalization of Kshs. 1,140 million.

The results on equity market turnover showed the minimum value as .443 million with the maximum value being 65.2 million, the mean being 23.8 million and standard deviation of 18.2 million This shows that on average, the studied had equity market turnover of Kshs. 23.8 million over the period of consideration.

Regarding bond market turnover, the minimum value was 0.928 million with a maximum value of 8,160 million, the mean being 3,350 million with standard deviation of 2,350 million. This implies that the studied firms had an average bond market turnover of Kshs.

3,350 million. The descriptive analysis findings on exchange rate showed the minimum value as 63 with maximum of 105 and mean of 84 while standard deviation was .060.

For 91-day T-bill interest rate, the minimum value was 1%, the maximum being 18% with a mean of 8% and standard deviation of 3%.

On economic growth, the study noted the minimum value of GDP as -9.50% with maximum of 8.30%, mean of 4.07% and standard deviation of 2.92%.

4.3 Trend Analysis

The findings were determined and summarized as indicated in Figure 6-Figure 12.

4.3.1 Market Capitalization trend analysis

Figure 6 displays the trend analysis of the market capitalization as one of the independent variables covered in the study.

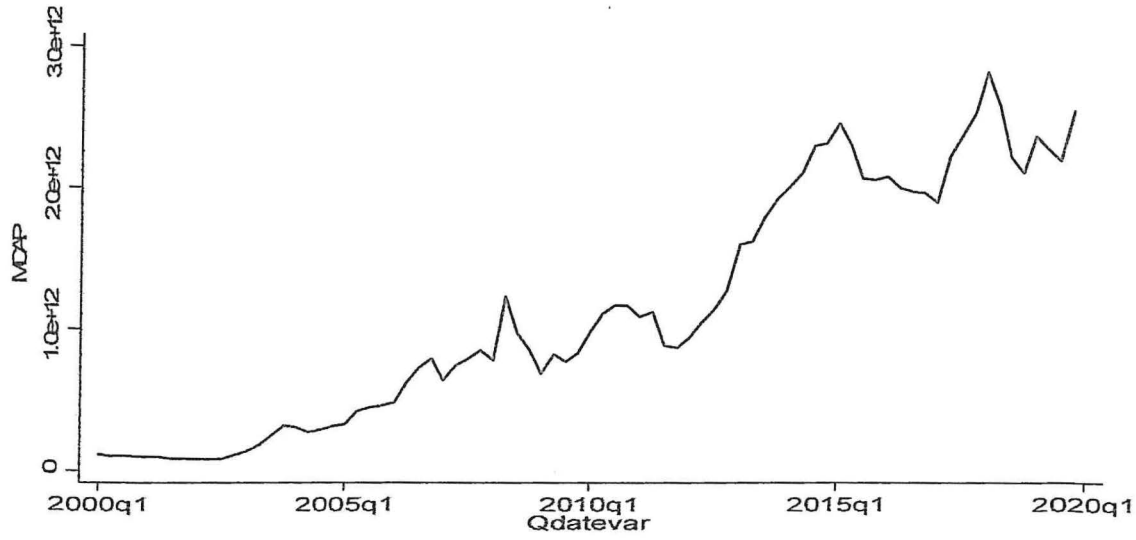


Figure 6: Trend Analysis of Market Capitalization

The findings in Figure 4.1 indicate the trend in market capitalization over the period of consideration. From the findings, there was consistent increase in market capitalization of the listed firms in Kenya over the period of consideration. This increase in market capitalization

over the period of consideration was characterized by exchange rate stability and interest rate environment.

4.3.2 Equity Market Turnover trend analysis

The trend analysis of the equity market turnover as another variable covered in the present study was determined and summarized as shown in Figure 7.

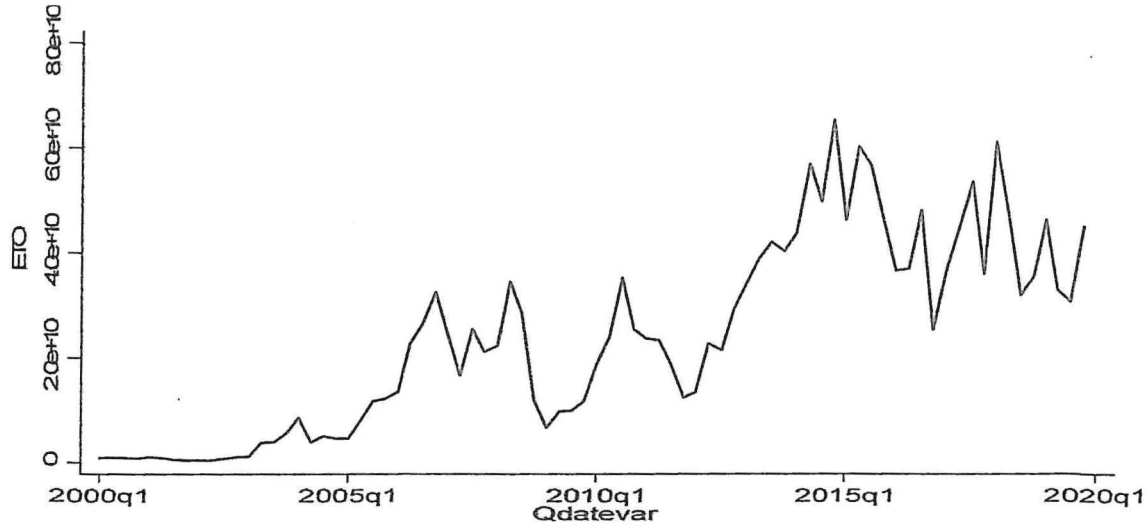


Figure 7: Trend Analysis of Equity Market Turnover

The findings in Figure 7 show that there was stability in equity market turnover among the listed firms over the period of consideration.

4.3.3 Bond Market Turnover Trend analysis

The trend analysis of the bond market turnover is as illustrated in Figure 8.

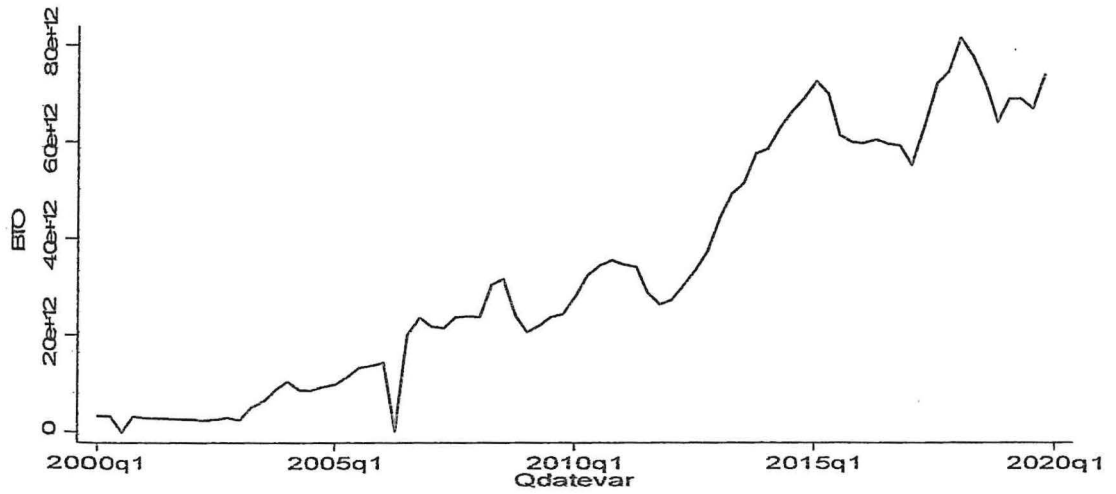


Figure 8: Trend Analysis of Bond Market Turnover

The results in Figure 8 indicate a stable but consistent increase in bond market turnover of the studied firms across the period of consideration.

4.3.4 Exchange Rate Trend Analysis

Figure 9 gives the trend analysis of exchange rate.

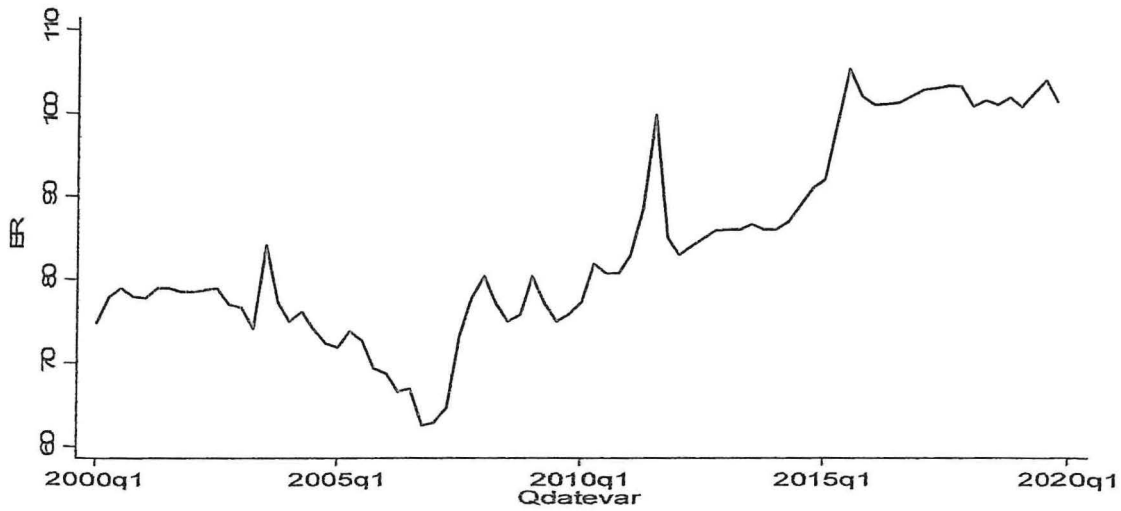


Figure 9: Trend Analysis of Exchange Rate

Figure 9 shows that the movement of exchange rate across the period of consideration was unstable characterised by fluctuations (increase and decrease).

4.3.5 91-day T-bill interest rate Trend Analysis

The trend analysis on 91 days T-bill interest rate is as summarized in Figure 10.

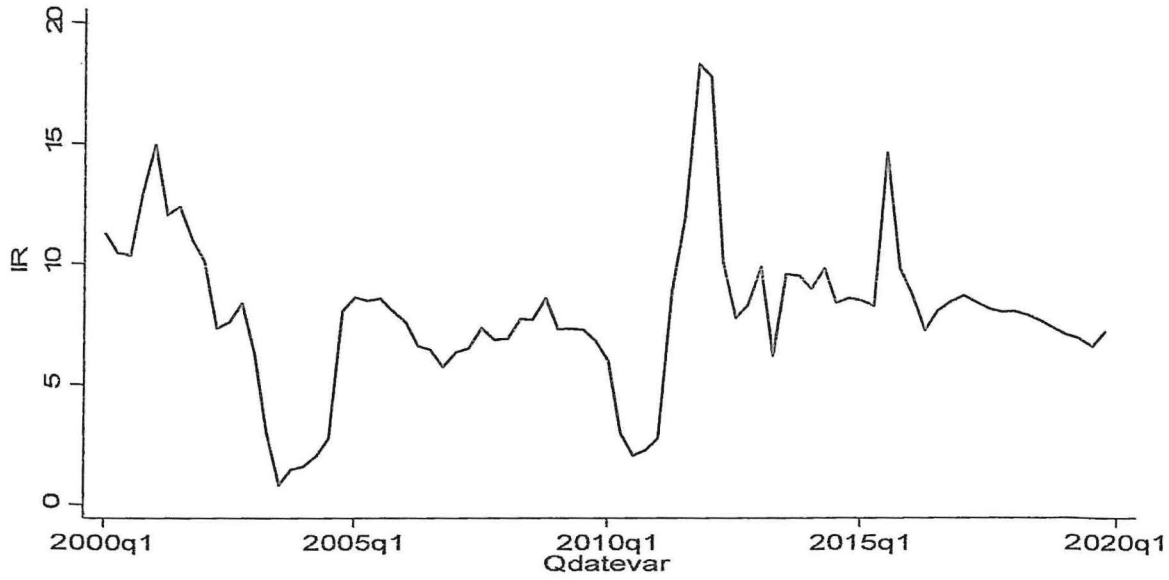


Figure 10: Trend Analysis of 91 days T-bill interest rate

Figure 10 shows that the movement in 91 days T-bill interest rate was observed to be erratic and unstable across the study period of consideration.

4.3.6 Economic Growth (GDP) Trend Analysis

The findings of trend analysis of economic growth as determined through GDP are as shown in Figure 11.

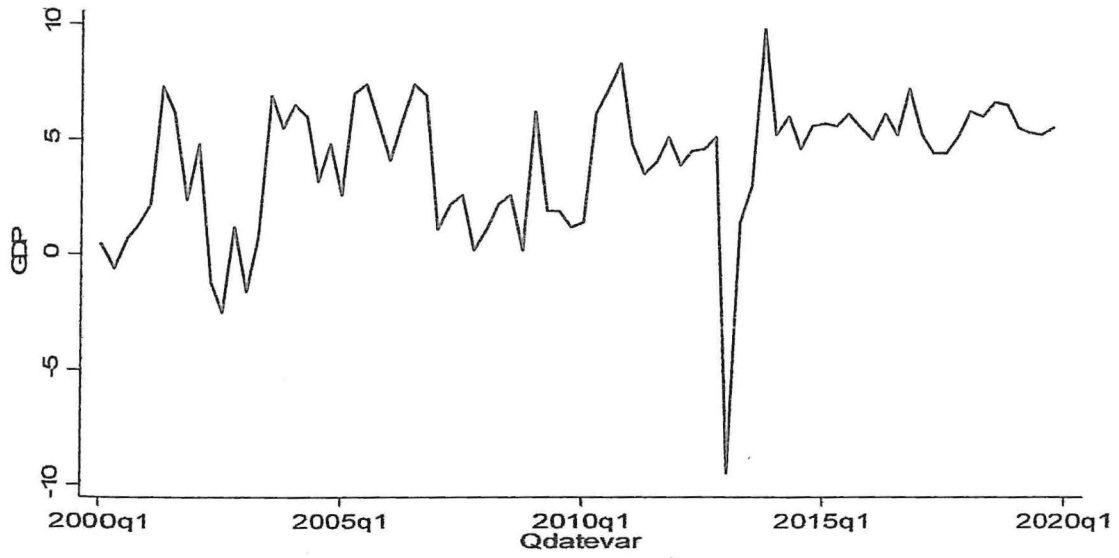


Figure 11: Trend Analysis of Economic Growth (GDP)

4.3.7 Study Variables Trend Analysis

Figure 12 shows a comparative trend of all dependent, independent, control and moderating study variables across the period under consideration.

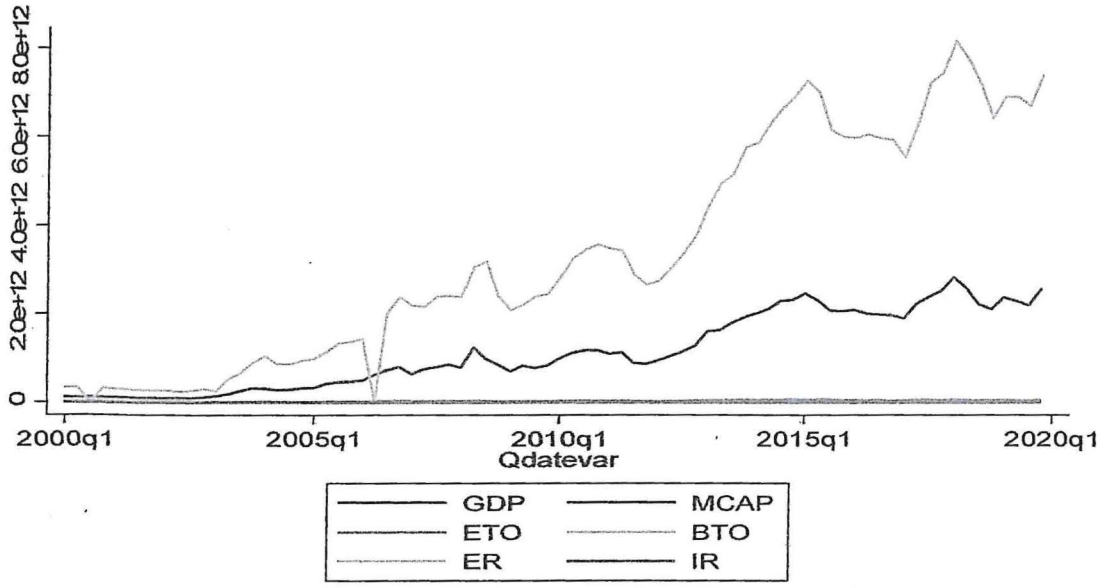


Figure 12: Trend Analysis of Study Variables

4.4 Lag Length Selection

The first step in estimation of ARDL model was to determine the optimal lag length of the variables. The study used Final Prediction Error (FPE), Akaike information criterion (AIC), Hannan Quinn Information Criteria (HQIC) and Schwartz Information Criteria (SBIC) to demonstrate the optimal lag length of the variables as given tables below.

Table 4: Optimal Lag Length of GDP

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-86.4826				.585258	2.30217	2.31443	2.33284
1	-81.6495	9.6663*	1	0.002	.529108	2.2013	2.22581	2.26264*
2	-80.1416	3.0157	1	0.082	.522099*	2.18794*	2.22471*	2.27994
3	-79.726	.83123	1	0.362	.53022	2.20332	2.25234	2.32599
4	-79.3485	.75498	1	0.385	.539027	2.2197	2.28098	2.37304

*Optimal lag

Table 5: Optimal Lag Length of Market Capitalization

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-110.135				1.09059	2.92459	2.93685	2.95526
1	50.0208	320.31*	1	0.000	.016547*	-1.26371*	-1.23919*	-1.20237*
2	50.8074	1.5731	1	0.210	.01664	-1.25809	-1.22132	-1.16609
3	51.3353	1.0559	1	0.304	.016849	-1.24567	-1.19664	-1.123
4	51.6478	.62501	1	0.429	.017159	-1.22757	-1.16629	-1.07424

Table 6: Optimal Lag Length of Equity Turnover

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-128.844				1.78436	3.41694	3.42919	3.4476
1	-24.3369	209.01*	1	0.000	.117093*	.693076*	.717588*	.754411*
2	-24.3322	.00927	1	0.923	.120204	.719269	.756038	.811272
3	-24.3166	.03119	1	0.860	.123365	.745175	.7942	.867845
4	-23.5983	1.4367	1	0.231	.124295	.752587	.813868	.905925

Table 7: Optimal Lag Length of Bond Market Turnover

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-119.751				1.40465	3.17766	3.18992	3.20833
1	-77.9125	83.678	1	0.000	.479551	2.10296	2.12747	2.1643
2	-73.067	9.691	1	0.002	.433409	2.00176	2.03853	2.09376
3	-69.6264	6.8812	1	0.009	.406471	1.93754	1.98656	2.06021
4	-67.0383	5.1762*	1	0.023	.38987*	1.89574*	1.95703*	2.04908*

Table 8: Optimal Lag Length of market capitalization moderated by the exchange rate

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-261.927				59.2202	6.91914	6.93139	6.94981
1	-119.098	285.66*	1	0.000	1.41755*	3.18679*	3.2113*	3.24813*
2	-118.734	.72828	1	0.393	1.44151	3.20353	3.24029	3.29553
3	-117.174	3.1203	1	0.077	1.42049	3.18878	3.23781	3.31145
4	-116.905	.53801	1	0.463	1.44822	3.20802	3.2693	3.36136

Table 9: Optimal Lag Length of equity turnover moderated by the exchange rate

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-265.028				64.2554	7.00074	7.013	7.03141
1	-147.106	235.84*	1	0.000	2.96233*	3.92384*	3.94835*	3.98517*
2	-147.057	.09845	1	0.754	3.03747	3.94886	3.98563	4.04086
3	-146.184	1.7459	1	0.186	3.04781	3.9522	4.00123	4.07487
4	-146.184	3.5e-05	1	0.995	3.12937	3.97852	4.0398	4.13186

Table 10: Optimal Lag Length bond turnover moderated by the exchange rate

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-268.541				70.4785	7.09318	7.10544	7.12385
1	-195.921	145.24	1	0.000	10.7037	5.20846	5.23297	5.26979
2	-191.05	9.7427	1	0.002	9.66726	5.10658	5.14335	5.19858*
3	-188.932	4.2355*	1	0.040	9.38758	5.07717	5.12619*	5.19984
4	-187.488	2.8881	1	0.089	9.27938*	5.06548*	5.12676	5.21882

Table 11: Optimal Lag Length of Interest Rates

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-195.488				10.3074	5.17074	5.18299	5.2014
1	-159.951	71.075	1	0.000	4.15367	4.26186	4.28637	4.32319
2	-157.481	4.9394*	1	0.026	3.9962*	4.22318*	4.25995*	4.31518*
3	-156.711	1.54	1	0.215	4.02069	4.22923	4.27826	4.3519
4	-156.696	.02995	1	0.863	4.12666	4.25516	4.31644	4.40849

4.5 Unit Root Test to check for Stationarity

Augmented Dickey Fuller test was used to examine the order of integration. Variables are first tested for unit root at level form. Those variables that had unit root were tested at 1st difference. All variables are stationary either at level form or at 1st difference that is a prime condition for ARDL. The criteria are that if the test stat is greater than critical values or test stat has significant p – value, the variable is stationary.

Table 12: Stationarity at Level form and First Difference

Variable	Test statistic	MacKinnon approximate p-value for Z(t)	Decision
GDP	-4.241	0.0006	Stationary
MCAP at Level form	-1.484	0.5414	Nonstationary
MCAP at 1st Diff	-4.898	0.0000	Stationary
ETO at Level form	-1.719	0.4214	Nonstationary
ETO at 1st Diff	-6.282	0.0000	Stationary
BTO at Level form	-2.362	0.1528	Nonstationary
BTO at 1st Diff	-14.702	0.0000	Stationary
MCAP*ER at Level form	-0.685	0.8505	Nonstationary
MCAP*ER at 1st Diff	-7.180	0.0000	Stationary
ETO*ER at Level form	-1.213	0.6678	Nonstationary
ETO*ER at 1st Diff	-7.064	0.0000	Stationary
BTO*ER at Level form	-1.421	0.5722	Nonstationary
BTO*ER at 1st Diff	-13.396	0.0000	Stationary
IR at Level form	-3.586	0.0060	Stationary

The results in Table 12 indicate that GDP and IR are stationary at level form. Other variables are stationary at first difference.

4.1 ARDL Bounds Test for Cointegration

Autoregressive distributed lag (ARDL) bounds testing is applied to examine the cointegration relationship of the variables.

Bound test statistic in Table 14 validates the presence of long run effect of the model on GDP as f-value (7.634) is well above the critical values.

Table 13: ARDL Bounds Test

Critical value bounds	F = 7.634
H0: No levels relationship	
H1: Relationship found	

Decision: long relationship found within variables		
Significance	**I0 Bound**	**I1 Bound**
10%	2.03	3.13
5%	2.32	3.5
2.5%	2.6	3.84
1%	2.96	4.26

4.2 ARDL ECM MODEL

The Autoregressive Distributed Lag model technique was used to measure results because the variables in the model have a combination of stationarity levels of I(0) and I(1). After confirming the long-run equilibrium among the variables, the short-run and long-run coefficients are estimated by ARDL error-correction model (ARDL-ECM).

An important measure of ARDL is the speed of adjustment (adj. GDP.L1) that must be significantly negative. The study found the coefficient significantly negative that shows model is moving towards equilibrium.

4.2.1 Long run Coefficients

Table 14: Long run Coefficients

GDP	Coef.	Std. err	T	P>|t|	[95% Conf. Interval]	
Adj. GDP.L1	-.686669	. 211255	-3.25	0.003	-1.115114	-.25822
Long Run Coefficients						
MCAP	2.2522	.99176	2.27	0.029	.2408169	-4.2636
ETO	-.56.11	.26979	-2.08	0.045	-.1107372	-0.30507
BTO	-1.7027	.81419	-2.09	0.044	-3.35033	-.048041
MCAP*ER	-.52895	.23599	-2.27	0.029	-.99239	-.055521
ETO*ER	.12962	.06382	2.09	0.044	.0039039	.25184
BTO*ER	.40967	.19351	2.09	0.044	.011400	.79479
IR	-.01713	.0542	-0.32	0.754	-.1272571	.0929899

In case of long run coefficients, MCAP, ETO*ER, BTO*ER are significantly positive effect on GDP. ETO, BTO and MCAP *ER have significantly negative coefficients.

Results of Error Correction Model (ECM) As the first differenced time series are cointegrated, error correction model (ECM) is employed to examine short run as well as

long-run dynamics of cointegrated time series. The study short run coefficients were estimated through the Error Correction Model (ECM).

4.2.2 Short run Coefficients

Table 15: Short run Coefficients

GDP	Coef.	Std. err	T	P>|t|	[95% Conf. Interval]	
Short Run Coefficients						
GDPLD.	-.1985199	.2137948	-0.93	0.359	-.6321158	.235076
GDPL2D	-.0759074	.2044521	-0.37	0.713	-.4905556	.3387407
MCAPD1.	-1.5975	.58126	-2.75	0.009	-2.776573	-.41876
ETOD1.	.59675	.17082	3.49	0.001	.25032	.94159
BTOD1	1.0559	.4849	2.17	0.037	.068490	2.0328
BTOLD.	.00888	.14056	0.06	0.951	-.28989	.301768
BTOL2D	-.0129	.10239	-0.09	0.926	-.22868	.20228
BTOL3D	.083609	.06168	1.16	0.252	-.00533	.22006
MCAP*ERD1.	.37841	.13409	2.75	0.009	.093384	.65343
ETO*ERD1	-.13686	.038925	-3.49	0.001	-.215032	-.057068
BTO*ERD1.	-.24191	.11461	-2.17	0.037	-.48295	-.010882
BTO*ERLD.	-.07876	3.358	-0.02	0.981	-6.8911	6.7335
BTO*ERL2D.	.33569	2.4768	0.14	0.893	-4.687	5.3590
IRD1.	.0143879	.0430926	0.33	0.740	-.073008	.1017838
IRLD.	-.0283598	.0393338	-0.72	0.476	-.1081324	.0514128

In the case of short run coefficients, the study found that GDP is insignificant, MCAP is significantly negative at first difference, ETO is significant at first difference, BTO is significant at first difference, MCAP*ER, ETO*ER and BTO*ER are significant at first difference. Moreover, IR is insignificant.

4.2.3 Goodness of fit test

Table 16: Goodness of fit test

Goodness of fit test	
R-squared	**Adj R-squared**
0.8130	**0.6104**

Findings of the goodness of fit test in Table 15 indicate that the model has good explanatory power.

4.3 Diagnostic Tests

To check the stability of models, various diagnostic tests were applied including the Durbin Watson (DW) and Breusch-Godfrey LM test for autocorrelation and Breusch Pagan test for heteroscedasticity. The DW test in Table 17 and Breusch Godfrey tests in Table 18 demonstrated that there is no autocorrelation in the model

4.3.1 Durbin-Watson

Table 17: Durbin-Watson Test

D-statistic (40, 76) =	**2.057624**

The findings indicate that no autocorrelation detected in the model.

4.3.2 Breusch-Godfrey LM test for autocorrelation

Table 18: Breusch-Godfrey LM test for autocorrelation

lags(p)	chi2	df	Prob > chi2
1	0.197	1	0.6570

4.3.3 Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance
Variables: fitted values of GDP

Table 19: Breusch-Pagan test for heteroskedasticity

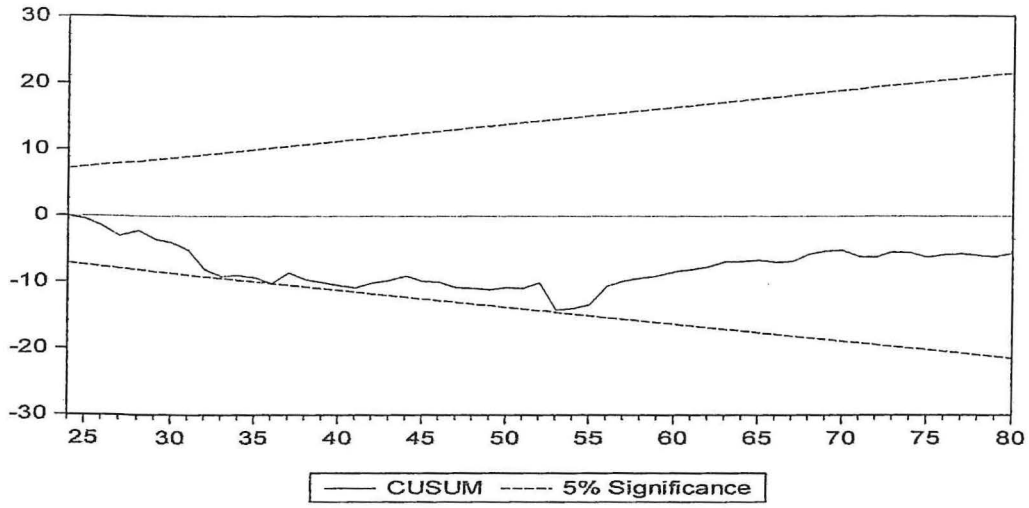
chi2(1)	**0.68**
Prob > chi2	**0.4104**

From Table 19, no heteroskedasticity was detected in the model. This concludes that the residuals are homoscedastic. The null hypothesis of homoscedasticity has been rejected. The presence of homoscedasticity does not cause any bias but does limit the preciseness of coefficient estimates.

4.4 CUSUM Stability test

CUSUM tests are undertaken for Autoregressive models using the cumulative sum of some quantity to investigate whether a sequence of values can be modelled as random. In time series analysis, the CUSUM statistics use the sequence of residual deviations from a model to indicate whether the autoregressive model is mis specified.

Figure 13: CUSUM Stability Test

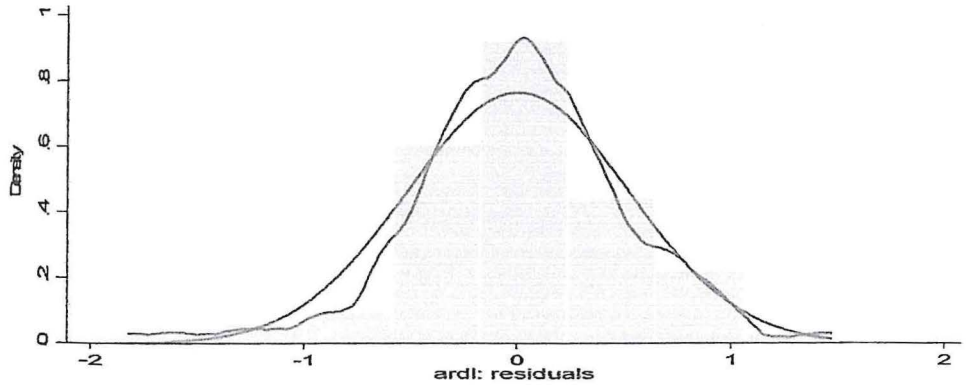


The blue lines lie between red lines indicating model is stable.

4.5 Normality Test

Normality test was conducted to establish if the residuals used in the study were normally distributed. A graphical method was used to test for normality covering normal PP plot and histogram as illustrated in the figures below.

Figure 14: Histogram for ARDL model residuals



In the figure 14, majority of the data points are seen to be well aligned on the normal PP line. The histogram gives a bell-shaped distribution with the highest bar graph happening to fall at the peak of the line graph. This is a clear indication that the residuals were normally distributed.

CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The aim of the research was to assess the relationship between Capital Markets Development and Economic Growth. This chapter gives the discussion, conclusion, recommendations, areas for further research and limitations of the study. The discussion is presented alongside the research objectives showing the relationship between the current study findings with past literature and linking the findings to theory.

5.2 Discussion of Findings

5.2.1 Capital markets development and economic growth

The general objective sought to assess the relationship between capital markets development and economic growth in Kenya.

The study findings revealed that market capitalization had a significantly negative effect on GDP in the short run and a significantly positive effect on GDP in the long run. Further, equity market turnover had a significantly positive effect on economic growth short run and a significantly negative effect on economic growth in the long run. Bond market turnover results indicated the presence of a significantly positive effect at first difference in the short run and a significantly negative effect on economic growth in the long run. The study's bound test statistic validates the presence of long run effect of the model on GDP as f-value is well above the critical values.

From the results, it is evident that capital market development has significant effect on economic growth in Kenya. These result shows that it is theoretically as well as empirically possible that the development of the domestic capital markets can significantly contribute to the growth of the country's economic.

The findings from the study are consistent with Obafemi (2021), who evaluated the impact of capital market development on economic growth using ARDL model for the period 1990-

2015 in Nigeria and ascertained that that capital market development has positive effect on economic growth.

This result contradicts Zegada (2011) who used estimation of tri-variate and bivariate Granger-causality and Vector Auto-Regressive (VAR) models on quarterly data from 1994-2010 for economy growth and capital market development in Bolivia where the findings revealed no significant effects of capital market development and economy growth.

5.2.2 Market capitalization and economic growth in Kenya

The study sought to establish the relationship between market capitalization and economic growth in Kenya. The study findings indicated that market capitalization had a significantly negative effect on GDP in the short run and a significantly positive effect on GDP in the long run.

The findings are in tandem with Jalloh (2016) who examined Stock market capitalisation and economic growth: empirical evidence from Africa and found out that enhancing stock market capitalisation by a marginal average of 10.0% induces growth by 5.4% in countries studied, amongst them Kenya and other Sub-Saharan Africa countries.

These findings are consistent with Njemcevic (2017) who examined economic progress and capital markets in transition countries using the neoclassical model of growth of the economy for SouthEast Europe (SEE) and Central and Eastern Europe (CEE). The findings revealed that only market capitalization indicator was found to have an important effect on GDP.

Similarly, Masoud (2015) indicated market capitalization, turnover, and volume of shares traded impacted GDP. Nyanaro and Elly (2017) found that there was a long run effect of economic growth and market capitalization in the EAC market.

5.2.3 Equity market turnover and economic growth

This study was set out to determine the relationship between equity market turnover and economic growth in Kenya.

The findings indicated that equity market turnover had a significantly positive effect on economic growth short run and a significantly negative effect on economic growth in the long run.

5.2.4 Bond market turnover and economic growth

The study was designed to establish the relationship between bond market turnover and economic growth in Kenya.

The study findings indicated that in the short run bond market turnover had a significantly positive at first difference effect on economic growth while in the long-run bond market turnover had a significantly negative effect on economic growth.

These findings in the long run agree with Josiah, Ronald & Maina (2014) who found BMTR to have a very low correlation with Economic Growth.

5.2.5 Moderating effect of exchange rate in the relationship between capital markets development and economic growth in Kenya

The study explored the moderating effect of exchange rate in the relationship between capital markets development and economic growth in Kenya.

Market capitalization moderated by exchange rate was found to have significantly positive effect on economic growth in the short run and a significantly negative effect on economic growth in the long run.

Equity market turnover moderated by exchange rate was found to have a significantly negative effect in the short run and a significantly positive effect on economic growth in the long run.

Bond market turnover moderated by exchange rate was found to have a significantly negative effect in the short run and a significantly positive effect on economic growth in the long run.

Subsequent upon the theoretical works of Keynes (1936) who promoted government intervention in financial markets, many governments including those of sub-Sahara Africa of which Kenya is no exception, had in the 1960s and 1970s made attempts to generate economic growth through financial repressive policies such as the use of fixed interest rates, exchange rate controls and inflationary monetary policies.

5.2.6 91-day T-bill Interest rates capital markets development and economic growth

This study was set out to establish the control effect of 91-day T-bill Interest rates on the relationship between capital markets development and economic growth in Kenya. The study findings revealed that 91-day Treasury bill interest rates have an insignificant relationship on the relationship between capital markets development and economic growth in the short run and long run.

5.3 Conclusion

The domestic capital market plays a fundamental role as an engine for economic growth as revealed by the study findings. It is important for all capital markets stakeholders to play their role in driving awareness, market development and uptake of products and services towards achievement of the optimal growth of the local capital market as an avenue to channel savings to productive investment and complement sources of finance for the Government, businesses and individual infrastructure, business expansion and development needs, respectively.

5.4 Recommendations

5.4.1 Recommendations for Policy

To achieve greater Capital market development through propped up market activity and securities subscriptions in a bid to increase Market Capitalization, Equity Turnover and Bond Turnover percentage contribution to GDP, the study therefore recommends the following:

Firstly, more targeted awareness and education efforts should be fostered by the CMA, NSE and key industry stakeholders including fund managers, investment banks and stockbrokers on the opportunities available in the Capital markets for Corporates, Issuers, and Investors.

Secondly, in a bid to increase the number of Initial Public Offers (IPOs), Equity Listings and Bond issuances aimed towards increasing uptake and increased performance, CMA and NSE should foster strategic partnerships and alliances with key institutions such as Kenya Association of Manufacturers (KAM), Kenya Private Sector Alliance (KEPSA), Kenya Industrial Estates (KIE) and SME Authority of Kenya to present the capital markets as an avenue for capital raising for Medium and Small and Medium Sized enterprises to increase listings and thus increasing market activity.

The National Treasury and the Capital Markets Authority, while looking to regulate Private Equity access to public funds, there is need to institute incentives for Private Equity and Private Debt Exits in the Capital markets Nairobi Securities Exchange cognizant of the quantum of Private Debt and Private Equity flows in Kenya and Africa from the international market.

CMA to enhance investor confidence by resolving current and past investor fund losses due to collapse and/or negligence of financial institutions such as Chase Bank, Imperial Bank, Ngenye Kariuki and Cytonn. The CMA and licensed and approved institutions should demystify regulated and unregulated products to the mass market to ensure that investors funds are invested in regulated products.

CMA should firm up efforts for the issuance of a diaspora bond and tap into diaspora flows and investments given the size and quantum of remittances inflows from Kenyans in North America, Europe, and the rest of the world. This will contribute to increase bond market turnover.

Capital Markets industry stakeholders and licensed and approved institutions to promote Islamic Capital Markets and Islamic Finance products to provide avenues for the Muslim Populace to invest in Shariah Compliant products.

The National Treasury to review sustainability of economic development and the suitability of the operating and economic environment for the growth and development of the domestic capital markets. The Government of Kenya should utilize the capital markets as an alternative source of finance for financing and refinancing government obligations including infrastructural development as opposed to over reliance on Foreign Borrowing.

Government to consider the product avenues available in the capital markets such as Real Estate Investment Trust to finance its Big 4 Agenda. This will enhance product diversity as well as increase market activity and turnover.

CMA and NSE should focus efforts towards on boarding of quality bond and equity issuances as opposed to quantity. This will increase the number of Listed companies in Kenya that comply with the Morgan Stanley Capital Index (MSCI) Market Classification Framework thus drawing Kenya closer to its aspirations to be ranked as an emerging market; and

Lastly, CMA should enhance Kenya's capital market accessibility to promote growth, development and deepening by promoting openness to foreign investment, ease of capital inflows/outflows, efficiency of operational framework, availability of diverse investment instruments and product and stability of the institutional framework.

There is also a significant need to ensure exchange rate flexibility to reduce currency risks and vulnerabilities including currency mismatches that may have significant impacts on financial markets. This is also fundamental to the growth and development of local currency debt instruments and those for hedging against exchange rate risk such as currency futures and derivatives.

5.5 Limitations of this Research

The study was an assessment of the relationship between capital markets development and economic growth in Kenya from 2000-2019. The study was limited by the lack of Monthly and daily datasets on GDP. Further, key constituents of Equity market turnover data which comprises of Exchange Traded Funds and Real Estate Investment Trusts products were introduced post 2015.

5.6 Areas for further Research

The study recommends the need to evaluate the role of the fund management industry on the Capital Markets growth and development. The study further recommends the impact of Collective Investment Schemes assets under management level on Kenya's economic growth. The total assets under management by the (CIS) were Kshs.104.71 billion; a significant 6.85% increase from Kshs. 98.0 billion managed in the third quarter ended September 30, 2020 (CMA, 2020). This indicates that besides market capitalization, equity market turnover, and bond market turnover as the proxies for capital market development, CIS Assets under management can be used as metric to measure capital market development and growth.

The study recommends the need to comprehensively evaluate the contribution of the financial sector activity on economic growth. This should comprise the evaluation of Banking, Retirement Benefits, SACCOs and Cooperative societies, Capital Markets, and Insurance. This will enhance government policy direction on the need for financial sector regulators to create further efficiencies through fiscal consolidation or adoption of a twin mandate regulatory approach like what has been implemented in jurisdictions like the United Kingdom Financial Conduct Authority. This will allow more efficacy and efficiency in regulation and market development given the dependencies that exist and complementary nature of banks, licensed, registered, and approved institutions oversighted by the different financial sector regulators.

Another area of study unearthed by this study is the need to investigate the medium term to long term role of NSE NEXT derivatives market, Operationalization of the NSE as a Self-Regulating Organization, NSE Unquoted Securities Platform and Ibuka Platform on Capital Market development in Kenya.

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APPENDICES

APPENDIX 1: LETTER OF INTRODUCTION

Off Langata Rd, Madaraka Estate,
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Cells: +254 703 034 612 / Twitter: @strathmore
Email: info@sbs.ac.ke or visit www.sbs.strathmore.edu

Strathmore UNIVERSITY
BUSINESS SCHOOL

Monday, 20 July 2020

RE: FACILITATION OF RESEARCH – VIOLA CHELANG'AT KILEL

This is to introduce Viola Chelang'at Kilel who is a Master of Science in Development Finance student at Strathmore University Business School, admission number MDF 102818 /17. As part of our MDF Program, Viola is expected to do applied research and undertake a project. This is in partial fulfilment of the requirements of the MDF course. To this effect, she would like to request for appropriate data from your organization.

Viola is undertaking a research paper on "**An Assessment of the Relationship between Capital Markets Development and Economic Growth in Kenya.**" The information obtained from your organization shall be treated confidentially and shall be used for academic purposes only.

Our MDF seeks to establish links with industry, and one of these ways is by directing our research to areas that would be of direct use to industry. We would be glad to share our findings with you after the research, and we trust that you will find them of great interest and of practical value to your organization.

We appreciate your support and shall be willing to provide any further information if required.

Yours sincerely,

Veronica Muniu,
Manager | Graduate Programmes, Strathmore University Business School

APPENDIX 2: RESEARCH PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **105107**

Date of Issue: **19/January/2021**

RESEARCH LICENSE

This is to Certify that Ms.. Viola CHELANGAT KILEL of Strathmore University, has been licensed to conduct research in Nairobi on the topic: An Assessment of the Relationship between Capital Markets Development and Economic Growth in Kenya for the period ending : 19/January/2022.

License No: **NACOSTI/P/21/8564**

105107

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

APPENDIX 3: ETHICAL APPROVAL

Strathmore UNIVERSITY

4th June 2021

Ms Chelangat Kilel Viola,
chelaeviola@gmail.com

Dear Ms Chelangat,

RE: An Assessment of the Relationship between Capital Markets Development and Economic Growth in Kenya

This is to inform you that SU-IERC has reviewed and **approved** your above **SU-master's** research proposal. Your application reference number is **SU-IERC0970/21.** The approval period is **4th June 2021 to 3rd June 2022.**

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-IERC.
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-IERC within 48 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-IERC within 48 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to SU-IERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke/ and also obtain other clearances needed

Yours sincerely,

for: Dr Virginia Gichuru,
Secretary; SU-IERC

(SU-IERC)
04 Jun 2021

Cc: Prof Fred Were,
Chairperson; SU-IERC

APPENDIX 4: FIRMS LISTED IN THE NAIROBI SECURITIES EXCHANGE

AGRICULTURAL SECTOR

1. Eaagads Ltd Ord 1.25 AIMS
2. Kakuzi Plc Ord.5.00
3. Kapchorua Tea Kenya Plc Ord Ord 5.00AIMS
4. The Limuru Tea Co. Plc Ord 20.00AIMS
5. Sasini Plc Ord 1.00
6. Williamson Tea Kenya Plc Ord 5.00AIMS

AUTOMOBILES & ACCESSORIES SECTOR

7. Car & General (K) Ltd Ord 5.00

BANKING SECTOR

8. ABSA Bank Kenya Plc Ord 0.50
9. BK Group Plc Ord 0.80
10. Diamond Trust Bank Kenya Ltd Ord 4.00
11. Equity Group Holdings Plc Ord 0.50
12. HF Group Plc Ord 5.00
13. I&M Holdings Plc Ord 1.00
14. KCB Group Plc Ord 1.00
15. National Bank of Kenya Ltd Ord 5.00
16. NCBA Group Plc Ord 5.00
17. Stanbic Holdings Plc ord.5.00
18. Standard Chartered Bank Kenya Ltd Ord 5.00
19. The Co-operative Bank of Kenya Ltd Ord 1.00

COMMERCIAL AND SERVICES SECTOR

20. Deacons (East Africa) Plc Ord 2.50AIMS
21. Eveready East Africa Ltd Ord.1.00
22. Express Kenya Plc Ord 5.00AIMS
23. Homeboyz Entertainment Plc 0.50GEMS
24. Kenya Airways Ltd Ord 1.00
25. Longhorn Publishers Plc Ord 1.00AIMS
26. Nairobi Business Ventures Ltd Ord. 1.00GEMS
27. Nation Media Group Plc Ord. 2.50
28. Sameer Africa Plc Ord 5.00
29. Standard Group Plc Ord 5.00
30. TPS Eastern Africa Ltd Ord 1.00
31. Uchumi Supermarket Plc Ord 5.00
32. WPP Scangroup Plc Ord 1.00

CONSTRUCTION & ALLIED SECTOR

33. ARM Cement Plc Ord 1.00
34. Bamburi Cement Ltd Ord 5.00
35. Crown Paints Kenya Plc Ord 5.00
36. E.A.Cables Ltd Ord 0.50
37. E.A.Portland Cement Co. Ltd Ord 5.00

ENERGY & PETROLEUM SECTOR

38. KenGen Co. Plc Ord. 2.50
39. Kenya Power & Lighting Co Plc Ord 2.50
40. Total Kenya Ltd Ord 5.00
41. Umeme Ltd Ord 0.50

INSURANCE SECTOR

42. Britam Holdings Plc Ord 0.10
43. CIC Insurance Group Ltd Ord.1.00
44. Jubilee Holdings Ltd Ord 5.00
45. Kenya Re Insurance Corporation Ltd Ord 2.50
46. Liberty Kenya Holdings Ltd Ord. 1.00
47. Sanlam Kenya Plc Ord 5.00

INVESTMENT SECTOR

48. Centum Investment Co Plc Ord 0.50
49. Home Afrika Ltd Ord 1.00GEMS
50. Kurwitu Ventures Ltd Ord 100.00GEMS
51. Olympia Capital Holdings Ltd Ord 5.00
52. Trans-Century Plc Ord 0.50AIMS

INVESTMENT SERVICES SECTOR

53. Nairobi Securities Exchange Plc Ord 4.00

MANUFACTURING & ALLIED SECTOR

54. B.O.C Kenya Plc Ord 5.00
55. British American Tobacco Kenya Plc Ord 10.00
56. Carbacid Investments Plc Ord 1.00
57. East African Breweries Ltd Ord 2.00
58. Flame Tree Group Holdings Ltd Ord 0.825GEMS
59. Kenya Orchards Ltd Ord 5.00AIMS
60. Mumias Sugar Co. Ltd Ord 2.00
61. Unga Group Ltd Ord 5.00

TELECOMMUNICATION SECTOR

62. Safaricom Plc Ord 0.05

REAL ESTATE INVESTMENT TRUST SECTOR

63. ILAM FAHARI I-REIT. Ord.20.00

EXCHANGE TRADED FUNDS SECTOR

64. ABSA New Gold ETF