

**EFFECT OF FINANCIAL LIBERALIZATION ON STOCK
MARKET DEVELOPMENT IN KENYA**


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DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

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

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DEDICATION

This research project is dedicated to; My wife Selina Sibora Langat for her unwavering support, to my daughter, Kaylee Chepchumba Langat for giving me the zeal to push through, my classmates at World Customs Organization HQ., Brussels Belgium and my colleagues at Kenya Revenue Authority, Malaba OSBP, Customs and Border Control both at Joint Verification Office and Enforcement.

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LIST OF ABBREVIATIONS

| | |
|--------------|---|
| ANOVA | Analysis of Variance |
| CBK | Central Bank of Kenya |
| EMH | Efficient Market Hypothesis |
| GDP | Gross Domestic Product |
| JSE | Johannesburg Stock Exchange |
| KNBS | Kenya National Bureau of Standards |
| NSE | Nairobi Securities Exchange |
| OLS | Ordinary Least Squares |
| SMD | Stock Market Development |
| SPSS | Statistical Package for Social Sciences |

ABSTRACT

Neoclassical theory asserts that via financial liberalization, developing nations can improve growth and savings, and cause a reduction on overdependence on foreign capital. The theorists behind financial liberalization make an argument that it should improve savings and investment in developing nations thereby resulting in higher growth. However, Keynesian economists argue that positive impacts of liberalization on savings and investment are doubtful. The objective of this research was to determine the effect of financial liberalization on Kenya's stock market development. The study was based on financial liberalization theory, neoclassical theory and efficient market hypothesis. The independent variable was financial liberalization while the control variables were; interest rate, inflation and public debt. The dependent variable that the research attempted to explain was stock market development in Kenya. The data was obtained on a quarterly basis for a duration of twenty years (from January 2002 to December 2021). A descriptive research approach being utilized in the research, with a multivariate regression model utilized in examining the link between the research variables. The research conclusion depicted a 0.172 R-square value, signifying that the selected independent variables can describe 17.2 percent of the variance in Kenya's stock market development, whereas the other 82.8 percent was attributable to other factors not surveyed in this research. The F statistic was significant at a 5% level with a $p=0.006$. This proposes that the model was satisfactory for explain stock market development in Kenya. Further, the results demonstrated that financial liberalization had a positive and significant influence on Kenya's stock market development. Interest rate and inflation had no significant influence on Kenya's stock market development. Public debt had a significant negative influence on stock market development in Kenya. The study recommends the need for practitioners and policy makers to ensure that the level of financial liberalization keeps on improving as this will enhance stock market development in the country. Policy makers should also aim at developing policies aimed at ensuring sustainable public debt as this is an important determiner of stock market development. Future studies can focus on other determinants of stock market development in Kenya.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Each developing economy needs its capital markets to develop (Ngare, Nyamongo, & Misati, 2014). For firms that need long-term financing from both domestic and international investors, capital markets are essential (Pan & Mishra, 2018). Due to their extremely low saving rates, capital markets in developing nations generally rely on foreign investments to cover their capital needs. Historically, studies have shown that trade and financial liberalization will result in investment flows between developed and developing countries. But investors in developed nations are hesitant to put money into developing markets (World Bank, 2019). As a result, developing nations implement a variety of financial liberalization measures to draw in foreign investment, which not only helps foreign investors earn greater rates but it also fosters the growth of stock markets. According to prior studies, financial liberalization is vital to the growth of the stock market (Banerjee & Majumdar, 2021; Le, Ngo & Nguyen, 2021).

This research was anchored on financial liberalization theory by Mcknonn and Shaw (1973) which explains the role of financial liberalization in stock market development. Financial liberalization enables financial liquidity addressing the basic matter of enhanced stock market development. Other supporting theories include neoclassical theory by Mckninnon (1973) which relates market liberalization with stock market development due to enhanced market liquidity. Malkiel and Fama (1970), Efficient Market Hypothesis (EMH) state that current stock price indicates information obtained on value of an organization and it is hard to obtain extra earnings using similar information.

The current study focuses on the Kenyan stock market. The Kenyan market has been liberalized and this is expected to enhance stock market development. Conversely, since it was established in 1954, the Kenyan stock market has gone through times of both high and low returns on shareholders' investment. among other things, the current political and economic environments, macroeconomic factors like inflation and interest rates have been discovered to be one of the key stock market performance variation causes. The high volatility level remains viewed as a major problem faced by the Kenyan securities market, with steadily increasing volatility level particularly encountered in the stock and security secondary markets, despite the Kenyan stock market generally being regarded to be highly liquid as well as much active in aspects of trades than most other markets in East as well as sub-Saharan Africa (CMA, 2020).

1.1.1 Financial Liberalization

This can be defined as a situation which involves reduced limits on foreign capital inflows into the capital market, as well as the setting of interest as well as exchange rates (Qamruzzaman, Karim, & Wei, 2019). Wu et al. (2017) presents a definition of financial liberalization as consisting of the foreign segment capital account deregulation, the domestic financial segment, and the stock market sector regarded distinctly from the domestic financial sector. Adeyeye et al. (2017) assert that the stock market liberalization pertains to the eradication of any repressive market regulations. A market-based system replaces an administratively controlled one as a result of stock market liberalization. Financial liberalization in the credit markets refers to a decrease in the government's influence and a rise in the market's role in loan allocation (Abiad, Oomes & Ueda, 2015).

Two potential advantages have been used as justification for financial liberalization. The first is the quantity impact, that is represented by an economy greater investment and savings level, and the second is the quality effect, which is represented by a more effective distribution of capital (Abiad, Oomes & Ueda, 2015). Financial liberalization as per may McKinnon (1973) and Shaw (1973) lessen financial repression in secured financial markets, permitting the real rate of interest to increase to its competitive market equilibrium. Additionally, the elimination of capital regulations enables both domestic and foreign investors to diversify their portfolios more, which lowers the cost of capital and increases the funds available

In aspects of operationalization, Claesens et al. (2019) categorize financial liberalization in terms of foreign assets and liabilities in a particular nation and show how this process improves the effectiveness of the financial system by eliminating ineffective financial institutions, increasing pressure for financial infrastructure reform, and resolving issues with information asymmetry. A financial liberalization index is introduced by Abiad et al. (2015) that deliberates credit controls, interest rate controls, barriers to entry for banks, regulations, privatization, and limitations on cross-border financial operations. The current study operationalized financial liberalization as the summation of a nation foreign assets and foreign obligations.

1.1.2 Stock Market Development

A stock market is a financial market that buys and sells equity securities (World Bank, 2019). These markets transfer money from savers to long-term users who will put the money to good use. Stock Market Development (SMD), as per Roubini and Bilodeau (2018), can be characterized as permitting infrastructure components, institutions, and regulations that result in broad and deep access to financial services

and capital, as well as operative financial intermediation. In efforts to increase the availability and accessibility of financial services in an economy, Mehrotra and Yetman (2015) described this as improving financial services that are suited to all societal levels. Because it supports the banking industry's role in economic development, stock market development is a crucial financial sector development component (Singh, 2014).

Stock markets, as per Liu (2001), are crucial in the providing of market liquidity that is essential in the implementation of projects that entail a longer time frame with long-term profits. Stock markets are important in providing market liquidity which is crucial in long term payoff projects implementation hence promoting the growth of an economy. The stock markets aid in reducing reduce data costs by generating and distributing data on companies that lead to effective markets where prices include all current data. In addition, the stock markets enable investors to access resources and also facilitate injection of foreign financial resources in to the economy (Adan, 2017).

Stock markets development has been measured using a number of variables. Robinson (2016) used the return on stock and the variation in market prices to assess stock market development in India. Makau (2015) utilized the capitalization rate stock market development proxy in his research. Changes in stock market prices and return on stock were employed as metrics of stock market development in a research by Imala (2015) on macroeconomic variables effect on stock market development in Nigeria. The current research assessed stock markets development via stock market capitalization and then dividing it by the GDP.

1.1.3 Financial Liberalization and Stock Market Development

The theory of financial liberalization is frequently used to characterize an unrestricted, dispersed financial system. It comes about as a result of implementing sensible policies, like contrasting actual rates of returns with real finance stock. Conversely, shallow systems are a result of the difficulties encountered during the relative financing procedure. According to Huang, Shi, and Wu (2018), an enhanced monetary system may present chances for organizations, ranging from bill dealers to commercial banks and insurance companies, to generate profits. Financial strength has a positive impact on growth by increasing the opportunity for investments. This connection demonstrates yet again the positive impact that financial liberalization has on stock market growth.

Financial liberalization effects on the growth of the stock market are commonly depicted as either positive or negative (Ashraf, 2017). By restricting stock market openness, the literature promoting neoliberalism suggests that liberalization may have positive benefits. This body of scholarship makes the notion that financial liberalization cannot be fully benefited by simply removing statutory barriers to foreign investment. Tools like information availability, investor protection, and national risk should be available to inspire foreign investment (Naghavi and Lau, 2016) and compatibility between diverse economic and political sectors. Wu et al. (2017) opine that financial liberalization improves the liquidity of stock markets which in return influences stock market performance.

McKinnon and Shaw (1973) Neoclassical theory asserts that via financial liberalization, developing nations can improve growth and savings, and cause a reduction on overdependence on foreign capital. The theorists behind financial

liberalization make an argument that it should improve savings and investment in developing nations thereby resulting in higher growth. However, Keynesian economists argue that positive impacts of liberalization on savings and investment are doubtful. In Krugman (1993), it is illustrated that liberalization of foreign capital and banks has the effect of enhancing the functioning of the local financial system.

1.1.4 Financial Liberalization and Stock Market Development in Kenya

Among the countries in Eastern and Central Africa, Kenya has one of the most advanced stock markets. Moreover, it is still a developing nation by global standards. NSE is the only stock exchange in Kenya where the trading of stocks and other capital market instruments are conducted. When the NSE was founded in 1954, there were 46 listed firms. Even though Kenya's stock market is still growing, it contributes significantly to the nation economic progress in numerous ways. These encompass domestic savings mobilization to trigger financial resources reallocation from dormant to active agents, the improvement of international capital inflow and the ease of government's privatization plans (Capital Markets Authority, 2020).

Despite the considerable stock market changes put in place, the rise in the number of listed companies was minimal. About 60 companies are currently registered on the stock market, which is fewer than there were in 1970, just before the reforms started. Market capitalization, total value exchanged, and ratio of turnover all reacted positively to the changes, despite the fact that the number of listed companies failed to maintain the upward trend. In the early 1990s, they rose, then from 1995 and 2001, they fell, until rapidly rising again between 2002 and 2008. (World Bank, 2019). It is important to note that even while these three indicators of stock market development

have improved over time, the progress was insufficient to remove Kenya's stock market's designation as developing.

Ever since it was established in 1954, NSE has gone through phases of high as well as low returns on shareholders investments in the stock market. Macroeconomic aspects like inflation and interest rates have been identified as one of the main drivers of NSE fluctuations in stock returns, along with other factors like the economy prevailing political environment. The greater standard of volatility is still viewed as a major Kenyan securities market challenge, with enhanced level of volatility particularly encountered, despite the NSE generally being deemed to be a highly liquid market as well as active in relation to trade as compared to most other East as well as sub-Saharan Africa markets (CMA, 2020).

1.2 Research Problem

Financial liberalization effect on stock market development tends to be presented as either positive or negative (Ashraf, 2017). Wang and Luo (2019) argued that financial liberalization, by matching credit access, reduces variations in expected returns. Bensethom (2021) document that increasing degree of financial liberalization broadens investor base and by so doing enhance stock market development. Wu, Chen, Jeon and Wang (2017) opine that financial liberalization aids in streamlining the functioning of local financial markets because restricting liberalization on international portfolio flows improves stock markets liquidity which in return enhances stock market development.

Despite being the most developed foreign exchange rate African markets, Kenya's performance is considerably poor. This is because absence of enough market makers to support the country's strong brokerage culture. The market's strength is instead

derived from the capacity of local investors and the depth of the market, with major concerns regarding product diversification in relation to market capitalization at NSE. In order to increase the liquidity of the exchange and draw in more investors, the government via the Treasury has begun to investigate enabling the NSE to implement short selling with a constraint to only licensed market players. In order to conform to international standards, NSE has undergone a number of structural adjustments in its legislative and organizational framework. In relation to the variety of financial products traded on the market, not much has truly been accomplished. The economy is experiencing structural changes, including an increase in foreign direct investment in infrastructure development and revisions to the law that encourage more investment (CMA, 2020).

Globally, studies have focused on market liberalization and stock market relationships with mixed findings. Naghavi and Lau (2016) and Roy and Shijin (2017) cite differences in returns in the short and long run notably during and post liberalization. Wang and Luo (2019) illustrate differences in return behavior based on developed and developing country contexts. In the developed markets, in the short run, there is no return volatility mostly because of informed investors and market efficiency. Bensethom (2021) established that in emerging economies, liquidity ratios are higher post stock market liberalization due to a positive impact that the openness level of foreign investors contribute to liquidity in these markets. These studies present a contextual gap as emerging markets have different social and economic setting from other economies.

Locally, the available research have mostly concentrated on other stock market development determinants failing addressing financial liberalization. The few

available studies also provide mixed findings. Onyango (2019) sought to determine how financial liberalization affected the Kenyan stock exchange market's liquidity. It was determined that the Kenyan securities exchange market was significantly impacted by foreign exchange volatility, the liberalization index, market volatility, and capital inflow. Kahuthu (2017) showed that the depth of the market was not significant to returns on stock but significant to market width. Rono (2018) established a strong and significant stock market liquidity and stock market development correlation at the NSE.

From the aforementioned reviews of local, regional, and international research, it is clear that the majority of them provide contradictory results, with some veering from the negative to the positive and others showing no association at all. It is challenging to extrapolate the results to a specific situation because the research used various approaches in various contexts. Moreover, the available studies have not recognized the connections among financial liberalization and stock market development hence an empirical literature gap. It was important to conduct a study relating to these variables as the level of financial intermediation in the country is low and access to financial services remains limited. This results in the research question: What is the effect of financial liberalization on stock market development in Kenya?

1.3 Research Objective

The objective of this research was determining the effect of financial liberalization on stock market development in Kenya.

1.4 Value of the Study

This research results will add to the existing theoretical and empirical literature on financial liberalization and stock market development. The results will also aid in

theory advancement because they will shed light on the limitations and applicability of the existing theories to the study's variables. On the basis of the advice and ideas for additional study, other investigations may also be conducted.

The conclusions are believed to be of help to the investment managers who are entrusted with the management of investors' assets as this study gives critical information and suggestions that will aid them in giving informed management decisions leading to optimal portfolio construction. The study will also benefit investors as it will help them to comprehend how financial liberalization affects their stock market development.

To government and regulators, in the formulating and implementing policies and regulations that govern financial liberalization and trading to ensure stability in the stock markets that will stimulate the growth of the economy whilst reducing its spillover impact on the economy. This will lead to overall economic development in the country.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The theoretical underpinnings of liberalization and market development are explored in depth in this chapter. In addition, it summarizes prior empirical research, points out knowledge gaps, and concludes with a conceptual framework and hypotheses that propose a likely causal link between the investigated variables.

2.2 Theoretical Framework

Examined in this segment are the theories underpinning the research of financial liberalization and stock market development. The study reviewed the theory of financial liberalization, neoclassical theory and the EMH.

2.2.1 Financial Liberalization Theory

McKinnon (1973) and Shaw (1973) came up with this theory and it is the anchor theory of the current study. The theory of financial liberalization is frequently used to characterize an unrestricted, dispersed financial system. It emanates from adoption of appropriate initiatives, like comparing real rates of returns to real finance stock. Shallow systems, on the other hand, are a result of the difficulties encountered throughout the relative funding procedure. According to Huang, Shi, and Wu (2018), institutions, including bill dealers, industrial banks, and insurance companies, could benefit from an upgraded monetary system. Financial depth possess positive influence on growth by increasing the opportunity for investments. This connection demonstrates once more the positive impact that financial liberalization has on the growth of the stock market.

The criticism of the theory of financial liberalization was first done by Yao, Wu and Kinugasa (2015), who distinguished the key contribution financial system played in economic development being free from regulation on rates of interest and quantities common at the time. Additionally, according to Karimo and Ogbonna (2017), who are critics of the theory of financial liberalization, the necessity for a highly developed stock market is what drives demand in the financial sector. The theory of financial liberalization is utilized in explaining the role of financial liberalization in market liquidity and in essence stock market development. Financial liberalization facilitates financial liquidity which addresses the basic issue of enhanced stock market development. The theory is pertinent to the current research as it explains how financial liberalization enhances stock market liquidity which in return translates to stock market development.

2.2.2 Neoclassical Theory

The theory was founded by McKinnon (1973) and Shaw (1973). The theory states that through financial liberalization, developing nations can improve growth and savings, and cause a reduction on overdependence on foreign capital. The theorists behind financial liberalization make an argument that it should improve savings and investment in developing nations thereby resulting in higher growth. However, Keynesian economists argue that positive impacts of liberalization on savings and investment are doubtful. In Krugman (1993), it is illustrated that liberalization of foreign capital and banks has the effect of enhancing local financial system functioning. Thus, international financial integration as a form of liberalization can stimulate the operations of local financial systems, which encourage improvements in the allocation of resources and accelerates growth in the economy.

Solow (1956) in his critique of neo classical theory argue that allocative efficiency, relies substantially on the neoclassical growth model conventions. In the model, liberalization facilitates an efficient international resource allocation. Resources flow from developed countries with abundant capital, and low return on capital, to capital scarce countries in the developing world with high return on capital. Resource flow to the developing nations lowers their capital cost, stimulating an interim increment in growth and investment which creates a lasting improvement in their living standards (Summers, 2000). Levine and Zervos (1998) point out key policy changes that involve portfolio flows that can alter the limitations on capital flows and principal as well as dividend repatriation. Neoclassical theory supports this study by explaining the effects that market liberalization has on market returns.

2.2.3 Efficient Market Hypothesis

Among the EMH proponents, Fama (1970), promoted the theory that the stock trading value of stocks is typically their nominal value and, as a result, it is impossible for investors buying discounted stocks or raise the stock price in sale agreements. On the basis on the aforementioned, expert market mastery or choosing stock might fail to enable an investor to surpass the market as a whole; therefore, the investor's only means of achieving larger returns is through coincidence or by choosing riskier assets.

Despite the existence of a lot of support for the EMH, several disagreements have been raised. Critics of the EMH show incidences which confirm that stock prices have deviated from their standard qualities. Critics have criticized the belief in rational markets (Asava, 2018). Following these contrary positions, those in defence of the hypothesis have argued that proficiency in the market has no implication that instability will not occur in the future rather, it describes a world that may be evolving

and, for speculative motive, a market that is generally efficient for most people. (Asava, 2018). The EMH assumption that investors' dealings are rational forms the main contention point, all available information is accessible to them and that they have homogenous market expectations. Considering that trade signals, the presence of varied expectations, these arguments ultimately alter the trading point. The theory significance to the current research is that it identifies external factors role especially liberalization in stock prices influence and subsequently the stock market development.

2.3 Determinants of Stock Market Development

The essentials that drive stock market performance can be internal and external, and they establish output level. Internal factors vary from firm to firm and influence returns in diverse manner. These components emanate from management decisions made in collaboration with the board. Financial liberalization, exchange rate, interest rates, inflation, public debt, unemployment, and other external factors all contributing to stock market development (Athanasoglou et al., 2005).

2.3.1 Financial Liberalization

Abdulkarim and Ali (2019) argue that financial liberalization is vital for directing money to efficient motives and risk allocation to people who might make use of them, and this increases stock market development. Financial liberalization is anticipated to improve financial inclusion, resulting in improved efficiency of the intermediaries (Rasheed, Law, Chin & Habibullah, 2016). Neaime and Gaysset (2018) asserted that in general, financial liberalization has a substantial impact in boosting stock market development.

By restricting stock market openness, the literature promoting neoliberalism suggests that liberalization may have positive benefits. This body of literature makes the claim that financial liberalization cannot be fully benefited by simply removing statutory barriers to foreign investment. The availability of information, investor protection, country risk, and compatibility between various economic and political sectors should all be factors that inspire foreign investment (Naghavi and Lau, 2016). Wu et al. (2017) opine that financial liberalization improves the liquidity of stock markets which in return influences stock market performance.

2.3.2 Interest Rates

They significantly influence the setting of prices for products and services at the local level and even internationally. Money supply occurring in the thrift will significantly impact interests. An example, when the entire economy is enjoying abundance of money, interest rates will in most cases start decreasing impacting the way business functions. Barksenius and Rundell (2012) say that this consequently makes the economy flourish and attract outsiders to come and invest.

Interest rates define the economic improvement. An unforeseen shift in the interest rates affects the investment decisions, where, investors may change their savings arrangements, like shifting to specified profit instruments from the capital market (Barnor, 2014). Khan and Sattar (2014), state that financial development can be affected either negatively or positively by the interest rates according to the motion. Savings are disheartened when interest rates on deposits are lowered and there is a consumption rise.

2.3.3 Inflation Rate

Inflation rates are among the factors that can have a great impact on the economy of a particular state. An example, when prices are increasing properties will become costly. Thus, when an economy is undergoing through inflation, the cost of average products and services also rises. Because of this, the purchasing power of people will lower and consequently impact financial development. Due to this fact, a lot of investors that take part in the enterprise of products and services will always allow a room for inflation in their decisions (Biller, 2007).

Increased inflation rates imply that prices of products will be reasonably high for consumers which make them consume less and in turn reduce the profits of the firms. These high prices to a point also activate occurrence of high rates of interest as put across by Hendry (2016). Mostly, inflation possess negative impact on the economy and it is therefore associated to market performance in a positive way (Fama, 1998). Therefore, growth should be related to the expected price level in a negative way, where short-term rate of interest represent the international fisher effect.

2.3.4 Public Debt

From the Keynesian theory, countries can balance recessions by administering debts to the private sector and also distributing the profits accrued back to the sector (Eze & Ogiji, 2016). According to Bal and Rath (2016), a thrift's gross spending affects financial development and economic steadiness, therefore a state's debt taken to back expenditure does not destroy the economy to a great extent.

According to Lwanga and Maweje (2014), Ricardian's approach suggests a correlation between the two variables that is, debt and growth, proves not to be favorable or unfavorable. In their report, financial debt is extraneous because its sole

purpose is aiding to streamline any spending and income disturbances (Renjith & Shanmugam, 2018). The approach has been established basing on the view that increasing state deficit consists rising expected taxes with a percentage or value that matches the current value of the deficit.

2.4 Empirical Review

This section presents the studies conducted before in this study area and their identified knowledge gaps.

2.4.1 Global Studies

Adeyeye et al. (2017) examined liberalization effect on the volatility of an evolving African stock market, particularly focusing on the Nigerian stock market. The study adopts four GARCH model variants. According to the estimation results, financial liberalization boosts stock market volatility by having a substantial positive impact on return volatility. Additionally, the research determined no proof of stock market asymmetry. The research offers a methodological gap as it was conducted for a short period of time, 10 years, which might not be adequate for robust analysis.

Naghavi, Mubarik and Kaur (2018) investigated financial openness impact on stock market efficiency in evolving markets after monitoring for specific institutional development level. The findings show that the link between liberalization and efficiency has an insignificant impact. In particular, the research reveals that financial liberalization had a positive and substantial effect on the stock market's informational efficiency only when a particular threshold level of institutional development had been reached. Financial liberalization had a negative impact on the effectiveness of the stock market below this point. The study presents a conceptual gap as its focus was on efficiency which is diverse from stock market development.

Wang and Luo (2019) examined impact of liberalization on bank risk-taking by via bank-level data from 169 Chinese banks between 2000 and 2016. According to empirical findings, the level of bank stability rises as financial liberalization progresses. The research also offers evidence suggesting that the growth of financial liberalization has a greater impact on banks with larger sizes, longer operating histories, and state control. Although financial deregulation has improved bank stability, this effect could be countered by a deteriorating macroenvironment, as seen by low economic development, ineffective law enforcement, and unstable political conditions. Due to the fact that it was carried out in a developed economy, the research has a contextual gap.

Using quarterly data for the years 1975 to 2016, Atsin and Ocran (2019) looked into the link between liberalization and stock market development in four Sub-Saharan African stock markets. Capital account liberalization, stock market liberalization, and financial sector liberalization were the three aspects of liberalization that were the subject of the analysis. For every market under consideration, three Bayesian VAR models are used in the empirical analysis. The investigation's findings demonstrate a positive link between the growth of stock markets and the financial sector liberalization in each of the four nations. This research offers a conceptual gap as its focus was on stock market development , a diverse idea from stock market development.

Bensethom (2021) researched on liberalization process potential effects and global financial crisis on stock market volatility. The sample spans the years December 1987 to September 2016 and includes the Philippines, Korea, and Indonesia, three Asian rising markets. The results demonstrate a number of intriguing facts using the ST-

GARCH models. First, because they account for conditional volatility regime changes, ST-GARCH processes outperform linear GARCH models in terms of performance. Second, financial liberalization has decreased conditional volatility regardless of the nonlinear model (ST-GARCH models) applied. Overall, the findings show that the Asian area cannot completely benefit from financial liberalization since these crises' negative effects can reduce their positive ones. This research offers a contextual gap since it was performed in Asian economies whose economic and social setting is diverse from Kenya.

2.4.2 Local Studies

The conclusions of Makau, Onyuma, and Okumu (2015) research were inconsistent, which raised concerns about the reliability of the turnover rate as a measure of liquidity. They investigated how cross-border listing affected stock liquidity across East African nations, using volume traded and stock turnover rate as liquidity indicators. A 5% level paired t-test was used to assess pre- and post-cross-listing averages significance for trading quantity as well as rate of turnover. Cross listing can increase the firm's stock liquidity, with the liquidity proxy establishing whether the impact is positive or negative, even if the liquidity impacts were not statistically substantial in the majority of the findings. The research has a conceptual gap as it failed to consider financial liberalization and its effect on stock market development.

Kahuthu (2017) tried to determine whether the liquidity of the stock market had any effect on the stock returns of businesses listed at the NSE between 2017 and 2016. The research design for the research was descriptive. The results demonstrated that, in contrast to market width, market depth had no bearing on stock returns. Furthermore, the vast majority of market participants claimed that both market depth and width had

an impact on stock performance. Liquidity also had a substantial impact on stock performance. The research offers a methodological gap as it was based on OLS which has its shortcomings.

Rono (2018) pursued to examine stock market liquidity impact on returns at NSE. Stock market liquidity, as determined by monthly stock transaction volumes, served as the predictor variable. The research utilized a correlational research design and multiple linear regression model was in analyzing the link between the variables. The findings showed that stock market liquidity and stock market growth at the NSE are positively and significantly correlated. The research presents a conceptual gap as it did not consider financial liberalization and its effect on stock market development.

Onyango (2019) examined liberalization effects on the liquidity of Kenyan securities exchange market. The research suggests the status of stock market liquidity at the NSE between 2000 and 2015. The research employed four metrics to assess liquidity at NSE: foreign exchange variability, liberalization index, market volatility, and capital inflow. The research also sought to understand how market risk affected stock market liquidity in a moderating manner. Model used to assess the association in a simple regression model. It was determined that the Kenyan securities exchange market was significantly impacted by foreign exchange volatility, the liberalization index, market volatility, and capital inflow. The study presents a conceptual gap due to way in which financial liberalization was operationalized.

Ochenge, Ngugi and Muriu (2020) examined dynamic link between aggregate foreign equity inflows and aggregate liquidity of the Kenyan stock market via transactional foreign trading data and various liquidity metrics. They utilized monthly based gross foreign inflows, local stock market liquidity, and returns from 2011 to 2018 along

with vector autoregression. The analysis exhibits presence of one-way causal link between inflows and liquidity and that foreign investors help local liquidity rather than hinder it. This research presents a conceptual gap as its focus on only one financial liberalization aspect.

2.5 Conceptual Framework

Displayed in figure 2.1 is the projected link between the variables. The predictor variable was financial liberalization given by country's foreign assets and liabilities to GDP. The control variables were inflation given by inflation rate, interest rate given by average lending rate and public debt given by natural logarithm of total debt. The response variable was stock market development given by the ratio of stock market capitalization to GDP.

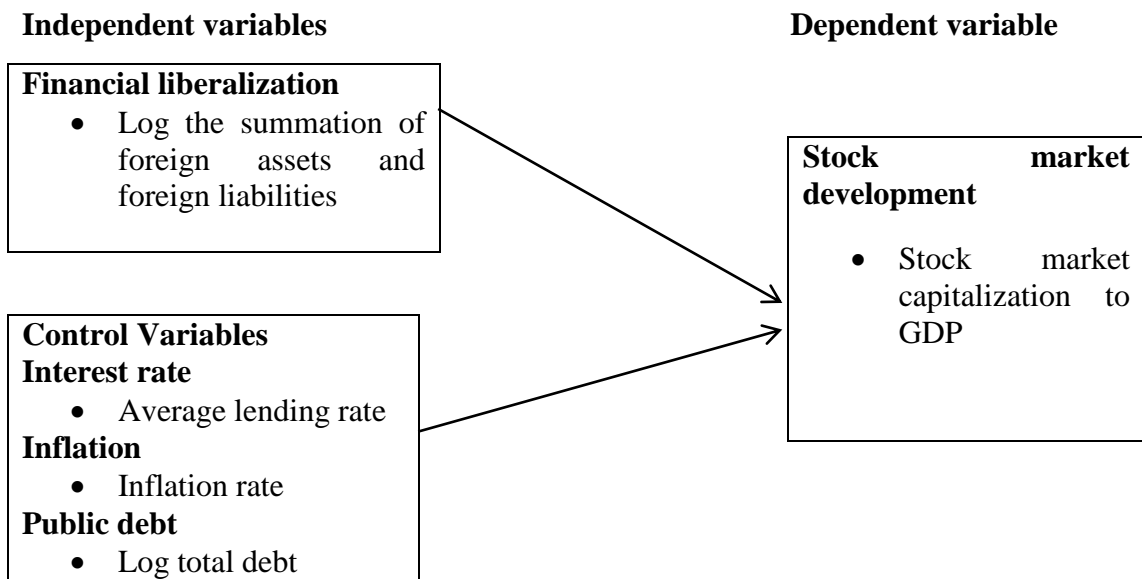


Figure 2.1: The Conceptual Model

Source: Researcher (2022)

2.6 Summary of the Literature Review and Research Gaps

The theoretical reviews displayed the anticipated link between liberalization and stock market development. Key influencers of stock market development have been deliberated. There exists a knowledge gap that has to be filled based on the research that have been examined. Various findings on the link between financial liberalization and stock market development have been drawn from the studies that have been examined. The variances from the studies can be described by conceptual, contextual as well as methodological gaps.

Conceptually, most of the research conducted locally has operationalized liberalization in diverse manner, with the most selecting for a constrained definition. This presents conceptual gaps that the current research proposes to fill. There are also methodological gaps that arise from previous studies conducted locally; most of them were conducted for a short period of time (mostly five years) which might not be adequate to capture financial liberalization impact on financial performance. The current study considered a 20 year period with data collected quarterly. Further, most of the local studies have relied on primary data while the current study made use of secondary data that was considered more objective.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter describes the approaches utilized in completing the research objective which was to establish how financial liberalization affects stock market development in Kenya. Precisely, the chapter encompasses; the design, data collection, and analysis.

3.2 Research Design

A descriptive design was assumed in determining how financial liberalization and stock market development in Kenya link. This design was suitable since the researcher was particularly interested in the phenomenon nature (Khan, 2008). Additionally, it was adequate for describing how the occurrences are related to one another. Additionally, this design validly as well as precisely represented the variables, providing adequate responses to the research questions (Cooper & Schindler, 2008).

3.3 Data Collection

This research relied on secondary data. The secondary data was retrieved from KNBS publications, CBK and from the CMA website. The quantitative data obtained included foreign assets and liabilities on a quarterly basis, the average bank lending rate and public debt which were collected from CBK website. Data on stock market development obtained from CMA website. Data on GDP and inflation was collected from KNBS on a quarterly basis. The secondary data was obtained for a period of 20 years from January 2002 to December 2021 on a quarterly basis. The 20-year quarterly duration was thought to be long enough to give sufficient data to meet the study's goals.

3.4 Data Analysis

To evaluate the data, SPSS software version 24 was employed. The results were presented quantitatively in tables and graphs. Measures of central tendency and dispersion were calculated using descriptive statistics, and standard deviation was added for each variable. Correlation and regression were used in inferential statistics. The size of the relationship between the research variables was determined by correlation, and cause and effect relationships between the variables were determined via regression. The link between the dependent and independent variables was established linearly by a multivariate regression.

3.4.1 Diagnostic Tests

The linear regression was based on a number of assumptions including no autocorrelation, no or little multi-collinearity, stationarity and multivariate normality. The diagnostic tests performed are outlined in Table 3.1

Table 3.1: Diagnostic Tests

| Test | Meaning | Statistical method | Interpretation | Diagnosis |
|-------------------|--|----------------------------------|--|---|
| Autocorrelation | Occurs when the residuals lack independence from each other. | Durbin-Watson statistic | When the test outcomes fall within critical values ($1.5 < d < 2.5$) there is no autocorrelation | Correlogram (Auto Correlation Function-ACF plot) Review model specifications |
| Multicollinearity | How closely related are the independent variables of the study | Variance Inflation Factors (VIF) | VIF less than 10 implies that there is no multicollinearity | Data causing Multicollinearity will be adjusted using log transformation |

| | | | | |
|----------------|--|---|--|--|
| Normality Test | When linear regression analysis for all variables is multivariate normal | Goodness of fit test Shapiro-Wilk test | Kolmogorov-Smirnov test prob.> 0.05. If the test is not substantial, the distribution is possibly normal. | Data that is not normally distributed will be adjusted for using log transformation and non-linear log transformation. |
| Stationarity | a unit-root test to establish if the data was stationary | Jarque Bera unit root test | A p value less than 0.05 implies that the data is stationary | Robust standard errors will be utilized when data fail the test. |

3.4.2 Analytical Model

The following formula was appropriate:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where: Y = Stock market development given by the ratio of stock market capitalization to GDP on a quarterly basis

β_0 = y intercept of the regression equation.

$\beta_1, \beta_2, \beta_3, \beta_4$ = are the regression coefficients

X_1 = Financial liberalization given by the natural logarithm of the summation of foreign assets and foreign liabilities per quarter

X_2 = Interest rate as measured by the quarterly average lending rate

X_3 = Inflation as measured by the quarterly inflation rate

X_4 = Public debt as given by log quarterly total public debt

ε = error term

3.4.3 Tests of Significance

The significance of the overall model and variables was determined via parametric testing. ANOVA was used to do the F-test, which established the model's significance, and a t-test, which established the significance of every individual variable.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND FINDINGS

4.1 Introduction

This chapter presents the results of the study analysis. It will provide the results from the descriptive analysis, the correlation tests, the diagnostics as well as the regression analysis.

4.2 Descriptive Analysis

The research extracted quarterly data on financial liberalization, interest rate, inflation, public debt and stock market development for the period between January 2002 and December 2021. The study summarized the values of the indicators using descriptive values as shown in Table 4.1

Table 4.1: Descriptive Statistics

| | N | Minimum | Maximum | Mean | Std. Deviation |
|--------------------------|----|---------|---------|-----------|----------------|
| Stock market development | 80 | .2 | .9 | .330 | .1247 |
| Financial liberalization | 80 | 5.7822 | 6.8772 | 6.225030 | .3551324 |
| Interest rate | 80 | 5.8 | 18.0 | 9.819 | 2.7188 |
| Inflation rate | 80 | 4.0 | 16.8 | 7.653 | 3.2928 |
| Public debt | 80 | 14.1327 | 15.9840 | 15.184879 | .5248796 |
| Valid N (listwise) | 80 | | | | |

Source: Research Findings (2022)

4.3 Correlation Analysis

Pearson correlation was employed to establish the relationship linking SMD in Kenya to the characteristics of the study (financial liberalization, inflation, interest rate and public debt). Table 4.2 depicts the outcomes.

Table 4.2: Correlation Analysis

| | | Stock market development | Financial liberalization | Interest rate | Inflation rate | Public debt |
|--------------------------|---------------------|--------------------------|--------------------------|---------------|----------------|-------------|
| Stock market development | Pearson Correlation | 1 | | | | |
| | Sig. (2-tailed) | | | | | |
| Financial liberalization | Pearson Correlation | .221* | 1 | | | |
| | Sig. (2-tailed) | .049 | | | | |
| Interest rate | Pearson Correlation | .139 | -.067 | 1 | | |
| | Sig. (2-tailed) | .218 | .556 | | | |
| Inflation rate | Pearson Correlation | -.056 | -.078 | -.215 | 1 | |
| | Sig. (2-tailed) | .620 | .493 | .056 | | |
| Public debt | Pearson Correlation | -.227* | -.398** | .040 | -.139 | 1 |
| | Sig. (2-tailed) | .043 | .000 | .721 | .217 | |

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).
c. Listwise N=80

Source: Research Findings (2022)

From the study's findings, a weak positive that is statistically significant link exists between financial liberalization and SMD ($r = .221$, $p = .049$). The correlation results further bare a weak negative as well as significant statistical connection between public debt and SMD ($r = -.227$, $p = .043$). The rate of interest displays a not significant positive interrelationship to SMD in the Kenyan economy ($r = .139$, $p = .218$). Inflation displayed a weak positive and not significant link with SMD in Kenya ($r = -.056$, $p = .620$).

4.4 Diagnostic Tests

The study applied various diagnostic tests to determine whether the data collected was suitable for regression analysis. Multicollinearity, normality, autocorrelation, and stationarity tests were conducted in the survey.

4.4.1 Multicollinearity

In a multiple regression model, Multicollinearity is displayed whenever predictor variables exhibit a substantial relationship. An event where independent variables have great correlations is unfortunate. Parameters are said to have Multicollinearity if they have a perfect linear connection. Outcomes for the test on Multicollinearity were displayed in Table 4.3.

Table 4.3: Collinearity Statistics

| | Collinearity Statistics | |
|--------------------------|--------------------------------|------------|
| | Tolerance | VIF |
| Financial liberalization | 0.387 | 2.584 |
| Interest rate | 0.392 | 2.551 |
| Inflation rate | 0.401 | 2.494 |
| Public debt | 0.618 | 1.618 |

Source: Research Findings (2022)

VIF value is utilized whenever values that fall below 10 are not multi-linear. One condition for multiple regressions to occur is that no strong connection should be evidenced among variables. Given by the outcomes, every VIF variable is below 10 as indicated in Table 4.3 which shows that independent variables in the study experience no significant statistical multi-linearity.

4.4.2 Normality Test

To establish if the data was normally distributed, the researcher used the Shapiro-wilk tests. If the p-value exceeds 0.05, concluding that there is normal distribution of data and vice versa. The test's outcomes are described in Table 4.4.

Table 4.4: Normality Test Results

| | Shapiro-Wilk | P-value |
|--------------------------|--------------|---------|
| SMD | 0.869 | 0.178 |
| Financial liberalization | 0.903 | 0.199 |
| Interest rate | 0.918 | 0.202 |
| Inflation rate | 0.881 | 0.194 |
| Public debt | 0.874 | 0.191 |

Source: Research Findings (2022)

Since the data displayed a p value of above 0.05 therefore having a uniform distribution, the researcher adopted the alternative hypothesis. This data was fit to be subjected to tests and analysis like for variance, Pearson's Correlation and regression.

4.4.3 Autocorrelation Test

A serial correlation test established the relationship of error terms for diverse times. For the research to obtain the desired model parameters, the Durbin Watson serial correlation test was used to carry out the analysis of autocorrelation in the data, which is a major shortcoming in the data analysis that must be examined. The findings are depicted in Table 4.5.

Table 4.5: Autocorrelation Results

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|-------|-------------------|----------|-------------------|----------------------------|---------------|
| 1 | .415 ^a | .172 | .128 | .1164 | 2.286 |

a. Predictors: (Constant), Public debt, Interest rate, Inflation rate, Financial liberalization
b. Dependent Variable: Stock market development

Source: Research Findings (2022)

From the null hypothesis, no first-order serial/auto correlation exists. The 2.286 Durbin Watson statistical varies from 1.5 to 2.5 indicating no serial correlation.

4.4.4 Stationarity Test

The research variables were subjected to a unit-root test to establish if the data was stationary. The unit root test was ADF test. With a standard statistical significance level of 5%, the test was compared to their corresponding p-values. In this test, the null hypothesis states that every variable has a unit root, and the alternative hypothesis is that the variables are stationary. Findings depicted in Table 4.6.

Table 4.6: Stationarity Test

| Variable | ADF test | |
|--------------------------|-----------|---------|
| | Statistic | p value |
| SMD | 2.7578 | 0.0000 |
| Financial liberalization | 3.2434 | 0.0000 |
| Interest rate | 3.4628 | 0.0000 |
| Inflation rate | 2.1936 | 0.0000 |
| Public debt | 2.2456 | 0.0000 |

Source: Research Findings (2022)

As demonstrated in Table 4.6, this test concludes that the data is stationary at a 5% level of statistical significance since the p-values all fall below 0.05.

4.5 Regression Analysis

Regression analysis was conducted to achieve the study objective. The test was done at 5% level of significance. Table 4.7 to 4.9 displays the results.

Table 4.7: Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|-------|-------------------|----------|-------------------|----------------------------|---------------|
| 1 | .415 ^a | .172 | .128 | .1164 | 2.286 |

-
- a. Predictors: (Constant), Public debt, Interest rate, Inflation rate, Financial liberalization
 b. Dependent Variable: Stock market development
-

Source: Research Findings (2022)

The R squared indicator indicates how the explanatory variables may describe variations in the response variable. As indicated in Table 4.8, the 0.172 R square, indicating that changes in financial liberalization, interest rate, inflation, and the public debt account for 17.2 percent of the SMD in Kenya. 82.8 percent of the SMD variation to Kenya is explained by other variables that were not examined in this research. The correlation coefficient (R) of 0.415 showed a moderate link amongst predictor factors and SMD.

The value of P obtained by ANOVA is 0.006, which is below $p=0.05$. This demonstrates that the model's importance described how financial liberalization, rate of interest, inflation, and public debt affect Kenya's SMD.

Table 4.8: Analysis of Variance

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|-------|-------------------|
| 1 | Regression | .211 | 4 | .053 | 3.899 | .006 ^b |
| | Residual | 1.017 | 75 | .014 | | |
| | Total | 1.228 | 79 | | | |

- a. Dependent Variable: Stock market development
 b. Predictors: (Constant), Public debt, Interest rate, Inflation rate, Financial liberalization
-

Source: Research Findings (2022)

The relevance of various variables was determined using the model coefficients. The statistics of t and values of p were used to accomplish this. This study is significant since it allowed the researcher to determine which independent variables were chosen

(Financial liberalization, interest rate, inflation and public debt) significantly influences the SMD of the Kenyan economy. Table 4.9 summarize the findings.

Table 4.9: Model Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. | |
|-------|-----------------------------|------------|---------------------------|-------|--------|------|
| | B | Std. Error | Beta | | | |
| | (Constant) | -.244 | .403 | | -.606 | .546 |
| 1 | Financial liberalization | .124 | .040 | .353 | 3.066 | .003 |
| | Interest rate | .005 | .005 | .098 | .908 | .367 |
| | Inflation rate | .000 | .004 | -.012 | -.107 | .915 |
| | Public debt | -.086 | .027 | -.362 | -3.132 | .002 |

a. Dependent Variable: Stock market development

Source: Research Findings (2022)

Table 4.10 displays that only financial liberalization and public debt, with a p value less than 0.05, were a significant predictor of SMD in Kenya. Other independent factors (interest rates, and inflation) were not significant predictors of SMD in Kenya, as evidenced by low t values and p values greater than 0.05.

The following regression was estimated:

$$Y = -0.244 + 0.353X_1 - 0.362X_2$$

Where,

Y = SMD

X₁ = Financial liberalization

X_2 = Public debt

Using the constant = -0.244, we can see that if selected independent variables (financial liberalization, interest rates inflation, and public debt) were rated zero, the SMD would decrease by 0.244. Increasing financial liberalization by one unit would increase SMD by 0.353 units while increasing the public debt by one unit yields the SMD to decline by 0.362. The other variables considered had no statistically significant influence.

4.6 Discussion of Research Findings

This research had an aim of seeing the way in which the predictor variables impacted the SMD in the Kenyan context. Independent variables included financial liberalization, interest rate, inflation together with public debt. This research tried to show SMD being a dependent variable. SMD was measured as the ratio of stock market capitalization to GDP. Correlation as well as regression analysis were utilized to show the connection linking the independent to dependent variables.

The Pearson model showed that a weak positive that is statistically significant link exists between financial liberalization and SMD. The correlation results further bare a weak negative as well as significant statistical connection between public debt and SMD. The rate of interest displays a not significant positive interrelationship to SMD in the Kenyan economy. Inflation displayed a weak positive and not significant link with SMD in Kenya.

The independent variables accounted for 17.2% of variances in SMD, in accordance with the summary of the model. The predictor variables of this research had explanatory power that fitted a 95% confidence level like indicated by the 0.006 p value, which was below the threshold of significance that is 5%. Therefore, the

overall model employed in this study is a good and sufficient prediction model to determine the SMD in Kenya.

This research is in agreement with Atsin and Ocran (2019) who looked into the link between liberalization and stock market development in four Sub-Saharan African stock markets. Capital account liberalization, stock market liberalization, and financial sector liberalization were the three aspects of liberalization that were the subject of the analysis. For every market under consideration, three Bayesian VAR models are used in the empirical analysis. The investigation's findings demonstrate a positive link between the growth of stock markets and the financial sector liberalization in each of the four nations.

This research is also in agreement with a research steered by Onyango (2019) who examined liberalization effects on the liquidity of Kenyan securities exchange market. The research suggests the status of stock market liquidity at the NSE between 2000 and 2015. The research employed four metrics to assess liquidity at NSE: foreign exchange variability, liberalization index, market volatility, and capital inflow. The research also sought to understand how market risk affected stock market liquidity in a moderating manner. Model used to assess the association in a simple regression model. It was determined that the Kenyan securities exchange market was significantly impacted by foreign exchange volatility, the liberalization index, market volatility, and capital inflow.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The major motive of this research was to investigate the way financial liberalization influences the SMD in Kenya. The findings from the above sections are outlined in this chapter together with the conclusions and limitations of this study. This section also outlines the strategies that can be adopted by policymakers. It also carries the recommendations.

5.2 Summary of Findings

The research assessed how financial liberalization influenced the SMD in Kenya. Financial liberalization, interest rates, inflation, as well as public debt were adopted to be the predictor variables of the research. The study used descriptive design to do analysis as well as data collection. Secondary data was gotten from CBK as well as KNBS and prepared using SPSS version 24 program. The study utilized 20 years compiled quarterly data.

The Pearson model showed a weak positive that is statistically significant link exists between financial liberalization and SMD. The correlation results further bare a weak negative as well as significant statistical connection between public debt and SMD. The rate of interest displays a not significant positive interrelationship to SMD in the Kenyan economy. Inflation displayed a weak positive and not significant link with SMD in Kenya.

The independent variables accounted for 17.2% of variances in SMD, in accordance with the summary of the model. The predictor variables of this research had

explanatory power that fitted a 95% confidence level like indicated by the 0.006 p value, which was below the threshold of significance that is 5%. Therefore, the overall model employed in this study is a good and sufficient prediction model to determine the SMD in Kenya.

The regression results further discovered that if selected independent variables (financial liberalization, interest rates inflation, and public debt) were rated zero, the SMD would decrease by 0.244. Increasing financial liberalization by one unit would increase SMD by 0.353 units while increasing the public debt by one unit yields the SMD to decline by 0.362. The other variables considered had no statistically significant influence.

5.3 Conclusion

The study's findings show that financial liberalization and public debt have a significant impact on Kenya's SMD. The research finds that higher financial liberalization leads to a significant increase in SMD in Kenya while higher public debt leads to a decline in SMD in Kenya. The research also finds that while interest rate and inflation have an impact on SMD, the impact is not statistically meaningful.

The study concludes that the factors under research – financial liberalization, interest rate, inflation and the public debt – affect SMD by describing 17.2% of the variations. This means that the non-model variables are responsible for 82.8% of variations of SMD in the country. It is therefore substantial to infer that the outlined factors affect the SMD as shown in the p-value below 0.5 ANOVA summary.

The conclusions of this research concurred with Adeyeye et al. (2017) who examined liberalization effect on the volatility of an evolving African stock market, particularly

focusing on the Nigerian stock market. The study adopts four GARCH model variants. According to the estimation results, financial liberalization boosts stock market volatility by having a substantial positive impact on return volatility. Additionally, the research determined no proof of stock market asymmetry.

5.4 Recommendations

Outcomes show that financial liberalization possesses a positive and considerable effect on SMD in Kenya implying a rise in financial liberalization can have a positive effect on SMD. This also means that foreigners are likely to invest with a country that has a high degree of openness compared to a more closed economy. The research proposes that policy makers to adopt measures aimed at enhancing financial liberalization, since this might yield a rise in SMD and possibly also other areas of the economy.

Outcomes show that public debt possesses a negative and considerable effect on SMD in Kenya implying a rise in public debt can have a negative effect on stock market development. This also means that stock market capitalization is likely to drop with a rise in public debt. The research proposes that policy makers to adopt measures aimed at reducing the level of public debt, since this would lead to a rise in stock market development.

5.5 Limitations of the Study

This research embraced a 20 years period (2002-2021). It gives no substantial evidence that in an added timeframe, the findings will not change. Moreover, it is unclear that these conclusions will be sustained after 2021, things might change. Extra timeframe is reliable because it comprises instances with economic shifts like recessions and booms.

The main drawback of the study was the quality of data. It is not possible to reliably state the results obtained in the survey as the correct reflection of the general situation. Accuracy and reliability of the data collected are assumed to a certain point. Additionally, because of the existing circumstances, computing the data has been incoherent. This study uses secondary data as opposed to primary data. The determinants of growth have been partially considered because of unavailability of data for all determinants.

Regression models were used to conduct data analysis. It might be impossible for the researchers to generalize outcomes because of the setbacks accruing from model utilization like erroneous and deceptive conclusions emanating from altering variable value. Whenever data is put in a regression model, it is impossible to process it through another previous model.

5.6 Suggestions for Further Research

The aim of the research was to determine the impact of financial liberalization on SMD of the Kenyan economy. A research utilizing primary data or mixes primary data with secondary data is recommended so as to recognize qualitative elements that might have been overlooked in the current research.

This research failed to consider all independent variables that affect SMD of an economy. A suggestion therefore arises to include other factors in future studies in order to come up with more specific findings. These factors include money supply, balance of payments, corruption, foreign direct investments and financial literacy. Providing details how each of them affects SMD will enable policymakers make decision on the steps to take in order to control their SMD.

Because of unavailability of data, this study focused on the latest 20 years. Other future studies should employ a wider range to come up with a valid conclusion. This study was also under restriction because it only focused solely on Kenya. Additional survey should be conducted in other nations to determine results. In conclusion, the investigator adopted a regression model to do a confirmation or rejection of the findings. Any studies in future should adopt other independent methods to confirm or reject their findings.

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APPENDICES

Appendix I: Research Data

| Year | Quarter | SMD | Financial liberalization | Interest rate | Inflation rate | Public debt |
|------|---------|--------|--------------------------|---------------|----------------|-------------|
| 2002 | 1 | 0.2146 | 5.7822 | 5.8333 | 7.8500 | 14.5825 |
| | 2 | 0.2227 | 5.7844 | 6.0833 | 5.8667 | 14.6232 |
| | 3 | 0.2120 | 5.7838 | 6.5000 | 4.7067 | 14.6780 |
| | 4 | 0.2277 | 5.7867 | 15.1667 | 4.0333 | 14.6930 |
| 2003 | 1 | 0.2580 | 5.7944 | 18.0000 | 4.1567 | 14.7740 |
| | 2 | 0.2822 | 5.7971 | 18.0000 | 6.0133 | 14.8404 |
| | 3 | 0.2790 | 5.8017 | 15.3333 | 9.0200 | 14.8875 |
| | 4 | 0.2846 | 5.8193 | 11.6667 | 12.7767 | 14.9339 |
| 2004 | 1 | 0.3083 | 5.8448 | 9.5000 | 15.8267 | 14.9933 |
| | 2 | 0.3140 | 5.8518 | 8.8333 | 16.2900 | 15.0610 |
| | 3 | 0.2874 | 5.8515 | 8.5000 | 14.2967 | 15.1083 |
| | 4 | 0.2992 | 5.8590 | 8.5000 | 10.6967 | 15.1415 |
| 2005 | 1 | 0.2062 | 5.8748 | 8.5000 | 7.2567 | 15.1923 |
| | 2 | 0.3109 | 5.8748 | 8.5000 | 5.0433 | 15.2653 |
| | 3 | 0.3192 | 5.8646 | 8.5000 | 4.5633 | 15.3090 |
| | 4 | 0.3278 | 5.8672 | 8.5000 | 5.3867 | 15.3341 |
| 2006 | 1 | 0.4227 | 5.8784 | 8.5000 | 6.2033 | 15.3848 |
| | 2 | 0.4908 | 5.8743 | 9.0000 | 6.8267 | 15.4274 |
| | 3 | 0.6366 | 5.8732 | 11.5000 | 7.2367 | 15.4490 |
| | 4 | 0.8698 | 5.8846 | 11.5000 | 6.9767 | 15.4728 |
| 2007 | 1 | 0.8257 | 5.9011 | 11.5000 | 6.6667 | 15.4992 |

| Year | Quarter | SMD | Financial liberalization | Interest rate | Inflation rate | Public debt |
|-------------|----------------|------------|---------------------------------|----------------------|-----------------------|--------------------|
| | 2 | 0.7815 | 5.9029 | 10.8333 | 6.6567 | 15.5501 |
| | 3 | 0.6535 | 5.9019 | 10.5000 | 6.3900 | 15.6059 |
| | 4 | 0.5616 | 5.9072 | 10.5000 | 6.4367 | 15.6131 |
| 2008 | 1 | 0.3491 | 5.9175 | 10.0000 | 6.8400 | 15.6514 |
| | 2 | 0.3112 | 5.9266 | 10.0000 | 6.5900 | 15.6850 |
| | 3 | 0.3155 | 5.9356 | 10.0000 | 6.4700 | 15.7186 |
| | 4 | 0.3009 | 5.9390 | 10.0000 | 6.4033 | 15.7521 |
| 2009 | 1 | 0.3074 | 5.9396 | 9.5000 | 6.4833 | 15.7857 |
| | 2 | 0.2992 | 5.9644 | 9.0000 | 7.7233 | 15.8193 |
| | 3 | 0.3035 | 5.9925 | 9.0000 | 8.3233 | 15.8529 |
| | 4 | 0.3225 | 6.0100 | 9.0000 | 8.1533 | 15.8864 |
| 2010 | 1 | 0.2776 | 6.0301 | 9.0000 | 7.3600 | 14.1327 |
| | 2 | 0.2753 | 6.0483 | 9.0000 | 5.6833 | 14.1750 |
| | 3 | 0.2758 | 6.0565 | 9.0000 | 4.7033 | 14.2507 |
| | 4 | 0.2693 | 6.0803 | 8.8300 | 4.6033 | 14.2479 |
| 2011 | 1 | 0.2728 | 6.1020 | 9.0000 | 7.3600 | 14.2431 |
| | 2 | 0.2719 | 6.1167 | 9.0000 | 5.6833 | 14.2939 |
| | 3 | 0.2708 | 6.1378 | 9.0000 | 4.7033 | 14.3339 |
| | 4 | 0.2716 | 6.1561 | 8.8300 | 4.6033 | 14.3880 |
| 2012 | 1 | 0.3094 | 6.1890 | 6.9167 | 16.8333 | 14.3989 |
| | 2 | 0.3103 | 6.1878 | 6.7500 | 15.9200 | 14.4545 |
| | 3 | 0.3112 | 6.1857 | 6.0000 | 13.3933 | 14.5112 |
| | 4 | 0.3121 | 6.2078 | 6.0000 | 10.3000 | 14.5505 |
| 2013 | 1 | | 6.2251 | | | 14.5825 |

| Year | Quarter | SMD | Financial liberalization | Interest rate | Inflation rate | Public debt |
|-------------|----------------|------------|---------------------------------|----------------------|-----------------------|--------------------|
| | | 0.3130 | | 5.8333 | 7.8500 | |
| | 2 | 0.3139 | 6.2486 | 6.0833 | 5.8667 | 14.6232 |
| | 3 | 0.3148 | 6.2534 | 6.5000 | 4.7067 | 14.6780 |
| | 4 | 0.3157 | 6.2775 | 15.1667 | 4.0333 | 14.6930 |
| 2014 | 1 | 0.3166 | 6.3022 | 18.0000 | 4.1567 | 14.7740 |
| | 2 | 0.3175 | 6.3192 | 18.0000 | 6.0133 | 14.8404 |
| | 3 | 0.3183 | 6.3331 | 15.3333 | 9.0200 | 14.8875 |
| | 4 | 0.3192 | 6.3508 | 11.6667 | 12.7767 | 14.9339 |
| 2015 | 1 | 0.3201 | 6.3746 | 9.5000 | 15.8267 | 14.9933 |
| | 2 | 0.3210 | 6.3811 | 8.8333 | 16.2900 | 15.0610 |
| | 3 | 0.3219 | 6.4163 | 8.5000 | 14.2967 | 15.1083 |
| | 4 | 0.3228 | 6.4451 | 8.5000 | 10.6967 | 15.1415 |
| 2016 | 1 | 0.3237 | 6.4656 | 8.5000 | 7.2567 | 15.1923 |
| | 2 | 0.3246 | 6.4857 | 8.5000 | 5.0433 | 15.2653 |
| | 3 | 0.3255 | 6.5115 | 8.5000 | 4.5633 | 15.3090 |
| | 4 | 0.3264 | 6.5409 | 8.5000 | 5.3867 | 15.3341 |
| 2017 | 1 | 0.3273 | 6.5615 | 8.5000 | 6.2033 | 15.3848 |
| | 2 | 0.3281 | 6.5759 | 9.0000 | 6.8267 | 15.4274 |
| | 3 | 0.2940 | 6.5979 | 11.5000 | 7.2367 | 15.4490 |
| | 4 | 0.2849 | 6.6296 | 11.5000 | 6.9767 | 15.4728 |
| 2018 | 1 | 0.2758 | 6.6486 | 11.5000 | 6.6667 | 15.4992 |
| | 2 | 0.2967 | 6.6595 | 10.8333 | 6.6567 | 15.5501 |
| | 3 | 0.2876 | 6.6815 | 10.5000 | 6.3900 | 15.6059 |
| | 4 | 0.2785 | 6.7000 | 10.5000 | 6.4367 | 15.6131 |

| Year | Quarter | SMD | Financial liberalization | Interest rate | Inflation rate | Public debt |
|-------------|----------------|------------|---------------------------------|----------------------|-----------------------|--------------------|
| 2019 | 1 | 0.2994 | 6.7094 | 10.0000 | 6.8400 | 15.6514 |
| | 2 | 0.2903 | 6.7198 | 10.0000 | 6.5900 | 15.6850 |
| | 3 | 0.2812 | 6.7312 | 10.0000 | 6.4700 | 15.7186 |
| | 4 | 0.3021 | 6.7533 | 10.0000 | 6.4033 | 15.7521 |
| 2020 | 1 | 0.2929 | 6.7776 | 9.5000 | 6.4833 | 15.7857 |
| | 2 | 0.2838 | 6.7807 | 9.0000 | 7.7233 | 15.8193 |
| | 3 | 0.3047 | 6.7914 | 9.0000 | 8.3233 | 15.8529 |
| | 4 | 0.2956 | 6.8191 | 9.0000 | 8.1533 | 15.8864 |
| 2021 | 1 | 0.2865 | 6.8472 | 9.0000 | 7.3600 | 15.8210 |
| | 2 | 0.3074 | 6.8593 | 9.0000 | 5.6833 | 15.9270 |
| | 3 | 0.2983 | 6.8660 | 9.0000 | 4.7033 | 15.9360 |
| | 4 | 0.2892 | 6.8772 | 8.8300 | 4.6033 | 15.9840 |

