EFFECT OF FINANCIAL LIBERALIZATION ON STOCK MARKET RETURNS AT THE NAIROBI SECURITIES EXCHANGE

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DECLARATION

This proposal is my original work and has not been presented for any award in any university.

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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 family for their unwavering support, patience,

understanding and encouragement to seek great heights academically.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
ATS	Automated Trading System
CBK	Central Bank of Kenya
CMA	Capital Market Authority
EMH	Efficient Market Hypothesis
GARCH	Generalized Auto Regressive Conditional Heteroskedasticity
GDP	Gross Domestic Product
JSE	Johannesburg Stock Exchange
KNBS	Kenya National Bureau of Standards
NSE	Nairobi Securities Exchange
OLS	Ordinary Least Squares
SPSS	Statistical Package for Social Sciences
VAR	Vector Auto Regressive

ABSTRACT

Financial market reforms aim to improve the financial system of a country. These reforms should, in particular, include policies that should induce higher stock market returns. Most of the relevant literature has proposed that financial liberalization creates financial market efficiency, thereby generating savings, investment and higher returns. The objective of this research was to determine the effect of financial liberalization on stock market returns at the NSE. The study was based on financial liberalization theory, market microstructure theory and trading cost theory. 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 returns at the NSE. The data was obtained on a quarterly basis for a duration of ten years (from January 2013 to December 2022). A descriptive research approach was utilized in the research, with a multivariate regression model utilized in examining the link between the research variables. The research findings depicted a 0.596 R-square value, signifying that the selected independent variables can describe 59.6 percent of the variance in stock market returns at the NSE, whereas the other 40.4 percent was attributable to other factors not surveyed in this research. The F statistic was significant at a 5% level with a p=0.000. This proposes that the model was satisfactory for explain stock market returns at the NSE. Further, the results demonstrated that financial liberalization had a positive and significant influence on stock market returns at the NSE. Interest rate and inflation had no significant influence on stock market returns at the NSE. Public debt had a significant negative influence on stock market returns at the NSE. 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 returns 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 returns. Future studies can focus on other determinants of stock market returns at the NSE.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The effect of financial liberalization on stock market returns tend to be presented as either positive or negative (Ashraf, 2017). Wang and Luo (2019) argued that financial liberalization, by equalizing access to credit, reduces variations in expected returns. Bensethom (2021) document that increasing degree of financial liberalization broadens investor base and by so doing enhance stock market returns. 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 the liquidity of stock markets which in return enhances stock market returns.

This study was anchored on financial liberalization theory by Mcknonn and Shaw (1973) which explains the role of financial liberalization in stock market returns. Financial liberalization facilitates financial liquidity which addresses the basic issue of enhanced stock market returns. Other supporting theories include market microstructure theory by Bekaert and Harvey (2003) which predicts a positive relationship between financial liberalization and stock market returns, microstructure research is especially interested in transaction costs and liquidity, which differ greatly across emerging markets. The trading costs theory attributed to Amihud and Mendelson (1986) looks at trading costs that are as a result of trading a stock. Real markets experience frictions which affect the asset prices hence should be incorporated when determining asset prices.

The current study focused on the Kenyan stock market. This choice arose because the Kenyan market has been liberalized and this was expected to enhance stock market returns of listed firms at the Nairobi Securities Exchange (NSE). However, Koskei

(2017) note that international portfolio equity purchases that proxy financial liberalization have no effect on stock market returns of listed financial institutions in Kenya. Adeyeye, Aluko, Fapetu and Migiro (2017) note that understanding impact of financial liberalization on stock market is important for decision making by investors as neo-classical economists believe that financial liberalization reduces stock market volatility while the post-Keynesian economists argue that financial liberalization increases volatility of the stock market. NSE offers a good context to investigate the hypothesized relationship between financial liberalization and stock market returns.

1.1.1 Financial Liberalization

Wu *et al.* (2017) presents a definition of financial liberalization as consisting of the deregulation of the foreign sector capital account, the domestic financial sector, and the stock market sector viewed separately from the domestic financial sector. According to Adeyeye *et al*. (2017), the liberalization of the stock market refers to the elimination or removal of repressive policies existing in the market. Stock market liberalization creates a paradigm shift from administratively controlled system to a market-based system. In the Credit markets, financial Liberalization refers to a reduction in the role of government, and an increase in the role of the market, in allocating credit (Abiad, Oomes & Ueda, 2015).

The rationale for financial liberalization has been based on two potential benefits. First is quantity effect, manifested in higher levels of savings and investment in an economy, and secondly, quality effect, manifested in a more efficient allocation of capital (Abiad, Oomes & Ueda, 2015). McKinnon (1973) and Shaw (1973) explain that financial liberalization may mitigate financial repression in protected financial markets, allowing the real interest rate to rise to its competitive market equilibrium. Also, removal of

capital controls allows domestic and foreign investors to engage in more portfolio diversification, thereby reducing the cost of capital, and increasing the availability of funds.

In regards to operationalization, Claesens *et al*. (2019) classifies financial liberalization in terms of foreign assets and foreign liabilities in a given country and illustrate that financial liberalization process increases efficiency of the financial system by weeding out inefficient financial institutions and creating greater pressure for a reform of the financial infrastructure and alleviating information asymmetry issues. Abiad *et al*. (2015) introduces a financial liberalization index which takes into account credit controls, interest rate controls, entry barriers for banks, regulations, privatization, and restrictions on international financial transactions. The current study operationalized financial liberalization in terms of a country's foreign assets to GDP and foreign liabilities to GDP as applied in literature by Claesens *et al*. (2019) and Abiad *et al.* (2015).

1.1.2 Stock Market Returns

Moyo, Nandwa, Oduor and Simpasa (2016) defined return as the quantified measure of profits earned in an investment over an ownership period. It takes the form of capital gains or dividend earnings by the investors. Bicaba *et al.* (2015) described the components of return as the periodic cash gains on investments or variations in the asset invested price (capital gain or loss) and dividends. Stock market returns can also be defined as the gain or loss incurred by investors trading on securities. The return can either be in form of a dividend or a capital gain (Mpofu, 2018).

Taofik and Omosola (2018) explain that returns on stock market returns indicate how effective and efficient the stock markets in allocating equities and shares based on available and preferred market information. The variations in prices of stock raises the levels of uncertainty of investors which subsequently affect the stocks' supply and demand. Naghavi and Lau (2016) stated that the return on the stock market is the motivation and the key reward of the investment process. Investors use it to take a comparison of the availed investments alternatives to be undertaken.

Stock market returns have been operationalized differently by the previous researchers. According to Mugambi and Okech (2016), stock return is the loss or gain in the value of a share over a specific time frame represented in percentage form. It entails capital gains and other incomes accrued by the investor from the stock performances and often measured using market indexing. Market capitalization is one of the measurements of stock performance; it measures the stock market size and stock market liquidity which is investors' ease of buying or selling securities. Other measures according to Daferighe and Sunday (2017) include the Turnover ratio which refers to the comparison index for the level of transaction costs and market liquidity rating and the All Share Index thus reflecting the stock market's condition and performance. The current study adopted holding period yield as a measure of stock market return as applied in the literature by Mugambi and Okech (2016).

1.1.3 Financial Liberalization and Stock Market Returns

The financial liberalization concept is often used to describe an atomized financial system, with no financial repression. It results from adopting appropriate policies, such as comparing real rates of returns to real finance stock. In contrast, shallow systems results from the challenges faced in the relative financing process. Huang, Shi and Wu

(2018) contend that an improved monetary system has the potential to create opportunities for institutions to make profits and from bill dealers to industrial banks and insurance firms. Financial depth positively influences growth through the improvement potential of investments. This link further confirms the positive role that financial liberalization has on stock market returns.

The consequences of financial liberalization on stock market returns tend to be presented as either positive or negative (Ashraf, 2017). The literature supporting the neoliberalism ideology describes the possibility of positive effects of liberalization by conditioning the openness of capital markets. This category of literature points out that removal of statutory foreign investment restrictions alone is not sufficient to benefit from financial liberalization. The inspiration tools should exist to encourage foreign investment, such as availability of information, investor protection, country risk (Naghavi and Lau, 2016) and compatibility between different 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.

Neoclassical theory by McKinnon and Shaw (1973) 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 the functioning of the local financial system.

1.1.4 Nairobi Securities Exchange

NSE was founded in 1954 as an association of voluntary brokers and was registered under the societies Act before it privatization in 1988. To enable live trading, NSE introduced the Automated Trading Systems (ATS) where it served traders on the first come first serve basis. To facilitate the trading of government securities the ATS was linked to the Central Depository System and the Central Bank of Kenya. In February 2018, NSE all share Index was announced as way of providing investors with a good measure of performance of the NSE. The NSE has continually had several changes and innovations not forgetting the removal of the aggregate foreign ownership limit of the NSE listed firms in 2015. Capital Market Authority (CMA) regulates NSE and is also mandated to license it. Listing and prospecting of issued and traded at the NSE is subjected to approval by CMA (NSE, 2021).

Concerning stock market returns, Nairobi Securities Exchange has experienced periods of high and low returns on shareholders investments since it was established in 1954. Among other factors like the prevailing political environments in the economy, macroeconomic factors like inflation and interest rates have been noted to be one of the major causes of variations in stock returns in the NSE. Even though the NSE is in general considered highly liquid market and more active in terms of trades as compared to most of the other markets in the sub-Saharan Africa and East Africa, the high level of volatility is still considered a huge challenge facing the Kenyan securities market with increased level of volatility specifically experienced in the equity and bonds secondary markets (CMA, 2020).

1.2 Research Problem

Financial market reforms aim to improve the financial system of a country (Ashraf, 2017). These reforms should, in particular, include policies that should induce higher stock market returns. Most of the relevant literature has proposed that financial liberalization creates financial market efficiency, thereby generating savings, investment and higher returns (Wu, Chen, jeon & Wang, 2021). Various other authors have criticized financial liberalization policies and claimed that past financial crises are in fact linked with such policies (Benthesom, 2021).

The Kenyan market has been liberalized and this was expected to enhance stock market returns of listed firms at the NSE. However, Koskei (2017) note that international portfolio equity purchases that proxy financial liberalization have no effect on stock market returns of listed financial institutions in Kenya. Adeyeye, Aluko, Fapetu and Migiro (2017) note that understanding impact of financial liberalization on stock market is important for decision making by investors as neo-classical economists believe that financial liberalization reduces stock market volatility while the post-Keynesian economists argue that financial liberalization increases volatility of the stock market. NSE offers a good context to investigate the hypothesized relationship between financial liberalization and stock market returns.

Globally, studies have focused on market liberalization and returns relationships with mixed findings. Naghavi and Lau (2016) and Roy and Shijin (2017) cite differences in returns in the short run 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 studies have mostly focused on other determinants of stock market returns without addressing financial liberalization. The few available studies also provide mixed findings. Ochenge, Ngugi and Muriu (2020) explore the dynamic relationship between aggregate foreign equity inflows and aggregate liquidity of the Kenyan stock market. The study discovers a one-way causality link from inflows to liquidity and that foreign investors promote rather than impede local liquidity. This study presents a conceptual gap as it focused on only one aspect of financial liberalization. Onyango (2019) aimed to establish the effects of financial liberalization on the liquidity of securities exchange market in Kenya. It was established that foreign exchange variability, liberalization index, market volatility, and capital inflow did have significant effect upon the securities exchange market in Kenya. Rono (2018) established a strong and significant stock market liquidity and stock market returns correlation at the NSE.

From the above reviewed local, regional and global studies, it evident most studies provide conflicting findings with some oscillating from negative to positive and other indicating no relationship at all. The studies also were carried using different methodologies in varying contexts making it difficult to generalize the findings to a particular context. In addition, the available studies have not documented the interactions among financial liberalization and stock market returns hence an empirical literature gap. It was important to conduct a study in NSE relating to these variables as

the level of financial intermediation in the country is low and access to financial services remains limited. This led to the research question: What is the effect of financial liberalization on stock market returns at the NSE?

1.3 Research Objective

The objective of this study was to determine the effect of financial liberalization on stock market returns at the Nairobi Securities Exchange.

1.4 Value of the Study

This study's results will contribute to the existing theoretical and empirical literature on financial liberalization and stock market returns. The findings will also help in theory development as they will offer insights on the shortcomings and relevance of the current theories to the variables of the study. Subsequent studies may also be carried out based on the recommendation and suggestions for further research.

The findings are hoped to be of benefit to the investment managers who are tasked 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 in understanding how financial liberalization affects their stock market returns.

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 effects on the economy. This will aid in the advancement of financial development and improve the overall economy.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter explains the theories on which financial liberalization and stock market returns is based. It further discusses the previous empirical studies, knowledge gaps identified and summarizes with a conceptual framework and hypotheses showing the expected relationship among the study variables.

2.2 Theoretical Framework

This segment examines the theories that underpin the study of financial liberalization and stock market returns. The study reviewed the theory of financial liberalization, market microstructure theory and the trading cost theory.

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 financial liberalization concept is often used to describe an atomized financial system, with no financial repression. It results from adopting appropriate policies, such as comparing real rates of returns to real finance stock. In contrast, shallow systems results from the challenges faced in the relative financing process. Huang, Shi and Wu (2018) contend that an improved monetary system has the potential to create opportunities for institutions to make profits and from bill dealers to industrial banks and insurance firms. Financial depth positively influences growth through the improvement potential of investments. This link further confirms the positive role that financial liberalization has on stock market returns.

The criticism of the theory of financial liberalization was first done by Yao, Wu and Kinugasa (2015), who noted the major role that the financial system played in economic

development was free from controls on rates of interest and quantities common at the time. In addition, Karimo and Ogbonna (2017), another critic of theory of financial liberalization, indicates that the need for high stock market returns is what creates demand in the financial sector. The theory of financial liberalization is used to explain the role of financial liberalization in market liquidity and in essence stock market returns. Financial liberalization facilitates financial liquidity which addresses the basic issue of enhanced stock market returns. The theory is relevant to the current study as it explains how financial liberalization enhances stock market liquidity which in return translates to stock market returns.

2.2.2 Market Microstructure Theory

Market microstructure theory by Bekaert and Harvey (2003) predicts a positive relationship between financial liberalization and stock market returns, microstructure research is especially interested in transaction costs and liquidity, which differ greatly across emerging markets. The different frictions in the market are the basis of the market microstructure theory (Cohen, Maier & Schwartz, 1986).These frictions can be distinguished into two groups: the real frictions, which are shortfalls in the organization of the market and take up real resources and have an effect on all participants in the market in the same way, while informational friction reallocates wealth between participants in the market making market liquidity an additional factor for market participants to consider when making decisions (Stoll, 2000).

Liberalizing policies are intended to make the market system less incomplete and less imperfectly competitive by removing some restrictions on free trade and competition. The desirability of such policies is the topic of the third theorem of neoclassical welfare economics, concerning the gains from trade and other forms of liberalization. With

globalization and international capital flows, financiers roam every corner of the world searching for the last drop of profits. This class has gained enormous power by undermining others, in particular labor. Today, capital does not need to move at all; the simple threat of moving undermines the fallback position of labor. Thus, to correct this imbalance of power a set of progressive policies is needed to control international flows and to achieve sustained full employment and greater equality of income and wealth.

2.2.3 Trading Cost Theory

The trading costs theory attributed to Amihud and Mendelson (1986) looks at trading costs that are as a result of trading a stock. Real markets experience frictions which affect the asset prices hence should be incorporated when determining asset prices. Amihud and Mendelson (1986) assessment on how costs associated with the transaction affect stock prices concluded that stocks with larger bid-ask spreads, had higher returns. In addition, they established that trade associated costs can either increase or decrease as a result to variations in time of transactional costs. Transaction costs causes the market to be segmented, as short-term investors hold comparably more liquid stocks in comparison to long-term investors. However, even though most investors have the option to avoid stocks with higher costs of transaction, Amihud and Mendelson (1986) found that the stock return expected has a positive relation to transaction costs. Additionally, investors who hold their stocks for longer periods can get a premium as a result of illiquidity exceeding forecasted transaction costs through holding stocks with higher spreads (Amihud, Mendelson & Pedersen, 2015).

According to Kato and Loewenstein (1995), there are several problems associated with transaction costs dimension of liquidity. Some of the problems included that in periods with long time spans, costs associated with transacting process are hard to obtain for

testing. In addition, Karpoff and Walkling (1988) and Bhushan (1994) noted that the bid-ask spread which is the most used measure for market width appeared to be inaccurate. The relevance of the theory to the foregoing study is that it shows how financial liberalization enhances market width which then explains levels of stock market returns.

2.3 Determinants of Stock Market Returns

The elements that drive stock market performance can be internal as well as external, and they determine the level of output. Internal factors vary from firm to firm and influence returns in different ways. Such elements arise as a result of management's actions, which are taken in cooperation with the board. Financial liberalization, interest rates, exchange rate, inflation, public debt, unemployment, and other external factors all contribute to stock market returns (Athanasoglou et al., 2005).

2.3.1 Financial Liberalization

Abdulkarim and Ali (2019) argue that financial liberalization is essential for directing money to efficient purposes and allocation of risk to people who can utilize them, and this boosts stock market returns. 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 influence in increasing stock market returns.

The literature supporting the neoliberalism ideology describes the possibility of positive effects of liberalization by conditioning the openness of capital markets. This category of literature points out that removal of statutory foreign investment restrictions alone is not sufficient to benefit from financial liberalization. The inspiration tools should exist to encourage foreign investment, such as availability of information, investor

protection, country risk (Naghavi and Lau, 2016) and compatibility between different 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.

2.3.2 Interest Rates

Interest rate greatly affects the pricing of goods and services both regionally and abroad. The supply of money in the economy can greatly affect the levels of interest. For instance, when there is plenty of money in the economy, the interest rates are more likely to reduce and this will affect how a firm performs in the market. This will subsequently boost the market which will become more attractive for foreigners in the country (Barksenius & Rundell, 2012).

Interest rates determine progress of the economy. According to Barnor (2014), an unexpected change in interest rates has an impact on investment decisions, and as a result, investors tend to alter their savings arrangements, moving from capital market to fixed profit instruments. As per Khan and Sattar (2014), interest rate has a positive or negative impact on performance depending on the movement. Savings are discouraged by a reduction in deposit interest rates and an increase in consumption.

2.3.3 Inflation Rate

Rates of inflation can affect the economy of a country substantially. For instance, during times of price movements and increments, prices of property will increase. Therefore, when inflation in an economy rises, the general cost of goods is likely to increase. This will subsequently affect how firms perform financially. Therefore, many investors who engage in sale of goods and services in the market usually include an allowance for inflation (Biller, 2007).

Higher rates of inflation will translate to prices being higher for consumers slowing down business and thus reduce firms' earnings. Prices that are high also trigger a regime that has higher interest rate (Hendry, 2016). According to Fama (1970), inflation is likely to be negatively associated with real economic activity, and as a result likely to be positively related to the market performance. Thus, growth ought to be associated negatively with the expected price level, with interest rates at the short-term representing the international fisher effect.

2.3.4 Public Debt

According to Keynesian theory, governments may counteract economic downturns through private sector borrowing and then spending the proceeds back into the private sector (Eze & Ogiji, 2016). An economy's gross expenditure has an impact on economic growth and stability, hence borrowing by the government to fund the expenditure does not bad harm economy (Bal & Rath, 2016).

The Ricardian's theory proposes a debt-growth correlation that is neither positive nor negative (Lwanga & Mawejje, 2014). According to this theory, the fiscal deficit is irrelevant since it just serves to smooth off expenditure or income disruptions (Renjith & Shanmugam, 2018). This theory is based on the idea that growing government debt entails increasing anticipated taxes with a current value equivalent to the debt's current worth.

2.4 Empirical Review

Local as well as global researches have determined the link between financial liberalization and stock market returns, the objectives, methodology and findings of these studies are discussed.

2.4.1 Global Studies

Adeyeye et al. (2017) investigates the effect of financial liberalization on the volatility of an emerging stock market in Africa, with particular focus on the Nigerian stock market. The study adopts four variants of GARCH model namely symmetric GARCH model, asymmetric GARCH or threshold GARCH model, power GARCH model and exponential GARCH model. The estimation results reveal that financial liberalization has a significant positive impact on return volatility, thus indicating that it increases stock market volatility. Also, the study finds no evidence of asymmetry in the stock market. The study presents 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) presents an investigation into the effects of financial openness on stock market efficiency in emerging markets after controlling for certain level of institutional development. The results demonstrate that there is a threshold effect in the liberalization–efficiency relationship. Specifically, the study found that the impact of financial liberalization on informational efficiency of the stock market was positive and significant only after a certain threshold level of institutional development had been attained. Below this level, the effect of financial liberalization on stock market efficiency was negative. The study presents a conceptual gap as it focused on efficiency which is different from stock market returns.

Wang and Luo (2019) examines the effect of financial liberalization on bank risk-taking, using bank-level data of 169 Chinese banks from 2000-2016. Empirical results show that bank stability increases with the development of financial liberalization. The study also provide evidence indicating that banks with larger size, longer operating periods, and state ownership are more salient with the development of financial

liberalization. However, such positive effects of financial liberalization on bank stability may be weakened by worse macroenvironment gauged by low economic growth, poor law enforcement, and instable political conditions. The study presents a contextual gap as it was conducted in a developed economy.

Atsin and Ocran (2019) sought to investigate the relationship between financial liberalization and stock market returns in four Sub-Saharan African stock markets using quarterly data for the period 1975 - 2016. The analysis focused on three dimensions of liberalization in isolation, which are capital account liberalization, stock market liberalization and financial sector liberalization. Hence, the empirical analysis uses three Bayesian VAR models for each market studied. The results from the investigation show a positive correlation between stock market returns and the liberalization of stock markets and the financial sector in all four countries. This study presents a conceptual gap as it focused on stock market returns which is a different concept from stock market returns.

Bensethom (2021) researched on the potential effects of liberalization process and global financial crisis on stock market volatility. The sample comprises three Asian emerging markets (Philippines, Korea and Indonesia) over the period from December 1987 to September 2016. Using the GARCH models, the findings show several interesting facts. First, the GARCH processes perform better than the linear GARCH models, since they take into consideration the regime changes in the conditional volatility. Second, whatever the nonlinear model used (GARCH models), financial liberalization has reduced the conditional volatility. Overall, the results confirm that Asian region cannot fully benefit from financial liberalization, because the negative effects of these crises can minimize the benefits of this process. This study presents a

contextual gap as it was conducted in Asian economies whose economic and social setting is different from Kenya.

2.4.2 Local Studies

Makau, Onyuma and Okumu (2015) study had mixed results raising a question on the status of the turnover rate acting as a proxy of liquidity. They studied influence of cross-border listing on stock liquidity among the East African countries in which volume traded and stock turnover rate was used as the liquidity measure. Averages for both the pre- and post- cross-listing trading volume and turnover rate was calculated and later taken through a five percent level paired t-test to test for their significance. Although in most of the results, the effects of liquidity was not statistically significant, their general conclusions were that cross listing can boost the firm's stock liquidity with the liquidity proxy determining the direction of the effect that is a positive or negative direction. The study presents a conceptual gap as it did not consider financial liberalization and it is effect on stock market returns.

Kahuthu (2017) sought to investigate if stock market liquidity has any influence on stock returns of companies listed at NSE from 2017 - 2016. The study used descriptive research design. The findings showed that market depth was insignificant to stock returns whereas the market width was significant to the stock returns. Moreover, majority of market participants alleged that market width and depth were both significant to stock return. In addition, liquidity was significant to stock returns. The study reveals a methodological gap as it was based on OLS which has its shortcomings.

Rono (2018) sought to investigate the influence of stock market liquidity on returns at NSE. The predictor variable was stock market liquidity as measured by monthly stock trading volumes. The study employed a correlational research design and multiple

linear regression model was adopted to analyze the relationship between these variables. The results revealed that stock market liquidity has a strong and significant correlation with stock market returns at the NSE. The study presents a conceptual gap as it did not consider financial liberalization and it is effect on stock market returns.

Onyango (2019) aimed to establish the effects of financial liberalization on the liquidity of securities exchange market in Kenya. The study identifies the position of stock market liquidity at Nairobi security exchange during the period from 2000 to 2015. For measurements of liquidity at NSE the study used four measuring tools: foreign exchange variability, liberalization index, market volatility, and capital inflow. Also, the study aimed at establishing the moderating effect of market risk on the stock market liquidity. The model adopted for testing the relationship in a simple regression model. It was established that foreign exchange variability, liberalization index, market volatility, and capital inflow did have significant effect upon the securities exchange market in Kenya. The study presents a conceptual gap due to way in which financial liberalization was operationalized.

Ochenge, Ngugi and Muriu (2020) explore the dynamic relationship between aggregate foreign equity inflows and aggregate liquidity of the Kenyan stock market using transactional foreign trading data and several liquidity measures. They employ vector autoregression with monthly gross foreign inflows, local stock market liquidity and returns over the period 2011–2018. The study discovers a one-way causality link from inflows to liquidity and that foreign investors promote rather than impede local liquidity. This study presents a conceptual gap as it focused on only one aspect of financial liberalization.

2.5 Summary of the Literature Review and Research Gaps

The theoretical reviews showed the predicted relation between financial liberalization and stock market returns. Major influencers of stock market returns have been discussed. From the reviewed studies, there is a knowledge gap that needs to be filled. From the studies reviewed, there are varied conclusions regarding the relation between financial liberalization and stock market returns. The differences from the studies can be explained by conceptual, contextual and methodological gaps.

Conceptually, most of the studies conducted locally have operationalized financial liberalization in different ways, with the majority choosing for a restricted definition. This presents conceptual gaps that the current study intends 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 the effect of financial liberalization on financial performance. The current study will consider a 10-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.

2.6 Conceptual Framework

Displayed in figure 2.1 is the predicted relation between the variables. The predictor variable is financial liberalization given by country's foreign assets and liabilities. It is theoretically hypothesized that an increase in financial liberalization leads to a rise in market liquidity as there are more buyers and sellers of financial securities and this also increases demand which eventually translates to higher stock market returns. The control variables are 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 returns given by NASI.

Independent variables   **Dependent variable**

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┌─────────────────────────────┐
│ Financial liberalization    │
│   • Log of total foreign    │
│     assets and liabilities  │
└─────────────────────────────┘

┌─────────────────────────────┐
│ Control Variables           │
│ Interest rate               │
│   • Average lending rate    │
│ Inflation                   │
│   • Inflation rate          │
│ Public debt                 │
│   • Log total debt          │
└─────────────────────────────┘
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┌─────────────────────────────┐
│ Stock market returns        │
│                             │
│   • NASI                    │
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└─────────────────────────────┘
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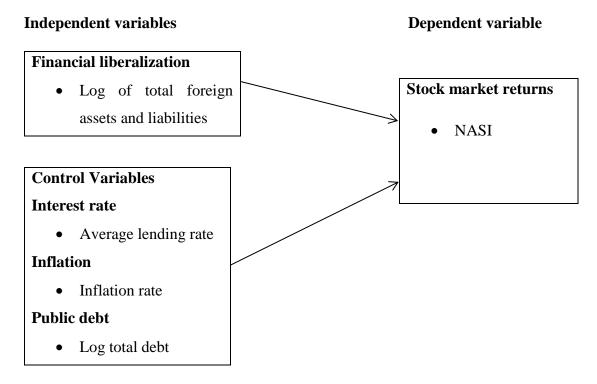
Figure 2.1: The Conceptual Model

Source: Researcher (2022)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter describes the approaches utilized in accomplishing the study objective which was to determine how financial liberalization affects stock market returns at the NSE. In particular, the study highlights the; the design, data collection, and analysis.

3.2 Research Design

A descriptive design was adopted to determine how financial liberalization and stock market returns at the NSE relate.   This design was appropriate since the nature of the phenomena is of key interest to the researcher (Khan, 2008). It was also sufficient in defining the interrelationships of the phenomena. This design also validly and accurately represented the variables thereby giving sufficient responses to the study queries (Cooper & Schindler, 2008).

3.3 Data Collection

This study relied on secondary data. The secondary data was retrieved from KNBS publications, CBK and from the CMA website. The quantitative data collected 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 NASI was obtained from CMA website. Data on inflation was collected from KNBS on a quarterly basis. The secondary data was collected for a period of 10 years from January 2013 to December 2022 on a quarterly basis.

3.4 Data Analysis

SPSS software version 24 was used to analyze the data. Tables and graphs presented the findings quantitatively. Descriptive statistics were employed in the calculation of

measures of central tendency and dispersion and combined with standard deviation for every variable. Inferential statistics relied on correlation and regression. Correlation determined the magnitude of the relation between the study variables and a regression determined cause and effect among variables. A multivariate regression linearly determined the relation dependent and independent variables.

3.4.1 Diagnostic Tests

Relevant diagnostic test for this study included; multicollinearity, normality, unit root, homoscedasticity and autocorrelation. Diagnostic tests that measure data reliability included test retest correlation which measures the consistency in the same group of data at different times by graphing the data in a scatterplot and computing Pearson's correlation coefficient.

3.4.2 Analytical Model

The following equation was applicable:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \varepsilon$$

Where: Y = Stock market returns given by NASI 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 total foreign assets and 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

Parametric tests determined the general model and variable's significance. The F-test determined the model's relevance and this was achieved using ANOVA while a t-test determined the relevance of every variable.

CHAPTER FOUR: DATA ANALYSIS, DISCUSSIONS 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 returns for the period between January 2013 and December 2022.   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 returns	40	.3	.3	.307	.0155
Financial liberalization	40	6.1857	6.8772	6.532190	.2256496
Interest rate	40	5.8	18.0	9.694	2.8334
Inflation rate	40	4.0	16.8	8.074	3.6064
Public debt	40	14.3989	15.9840	15.278854	.4844492
Valid N (listwise)	40				

Source: Research Findings (2023)

4.3 Correlation Analysis

Pearson correlation was employed to establish the relationship linking stock market returns at the NSE 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 returns	Financial liberalization	Interest rate	Inflation rate	Public debt
Stock market returns	Pearson Correlation	1				
	Sig. (2-tailed)					
Financial liberalization	Pearson Correlation	.622**	1			
	Sig. (2-tailed)	.000				
Interest rate	Pearson Correlation	.071	.042	1		
	Sig. (2-tailed)	.664	.796			
Inflation rate	Pearson Correlation	.232	-.458**	-.304	1	
	Sig. (2-tailed)	.149	.003	.056		
Public debt	Pearson Correlation	-.570**	.994**	.057	-.456**	1
	Sig. (2-tailed)	.000	.000	.725	.003	

**. Correlation is significant at the 0.01 level (2-tailed).
b. Listwise N=40

Source: Research Findings (2023)

From the study's findings, a strong positive that is statistically significant link exists between financial liberalization and stock market returns (r = .622, p = .000). The correlation results further bare a strong negative as well as significant statistical connection between public debt and stock market returns (r = -.570, p = .000). The rate of interest displays a not significant positive interrelationship to stock market returns at the NSE (r = .071, p = .664). Inflation displayed a weak positive and not significant link with stock market returns at the NSE (r = .232, p = .149).

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 (2023)

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
Stock market returns	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 (2023)

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	.772ᵃ	.596	.550	.0104	1.512

a. Predictors: (Constant), Public debt, Interest rate, Inflation rate, Financial liberalization

b. Dependent Variable: Stock market returns

Source: Research Findings (2023)

From the null hypothesis, no first-order serial/auto correlation exists. The 1.512 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
stock market returns	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 (2023)

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	.772[a]	.596	.550	.0104	1.512
a. Predictors: (Constant), Public debt, Interest rate, Inflation rate, Financial liberalization					
b. Dependent Variable: Stock market returns					

Source: Research Findings (2023)

The R squared indicator indicates how the explanatory variables may describe variations in the response variable. As indicated in Table 4.8, the 0.596 R square, indicating that changes in financial liberalization, interest rate, inflation, and the public debt account for 59.6 percent of the stock market returns at the NSE. 40.4 percent of the stock market returns variation to Kenya is explained by other variables that were not examined in this research. The correlation coefficient (R) of 0.712 showed a strong link amongst predictor factors and stock market returns.

The value of P obtained by ANOVA is 0.000, 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 stock market returns at the NSE.

Table 4.8: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.006	4	.001	12.893	.000[b]
	Residual	.004	35	.000		
	Total	.009	39			
a. Dependent Variable: Stock market returns						

b. Predictors: (Constant), Public debt, Interest rate, Inflation rate, Financial liberalization

Source: Research Findings (2023)

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 stock market returns at the NSE. Table 4.9 summarize the findings.

Table 4.9: Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.442	.071		6.255	.000
	Financial liberalization	.325	.068	4.733	4.812	.000
	Interest rate	.001	.001	.141	1.225	.229
	Inflation rate	.000	.001	.113	.882	.384
	Public debt	-.131	.031	-4.090	-4.172	.000
a. Dependent Variable: Stock market returns						

Source: Research Findings (2023)

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

The following regression was estimated:

$$Y = 0.442 + 0.325X_1 - 0.131X_2$$

Where,

Y = stock market returns

X_1 = Financial liberalization

X_2 = Public debt

Using the constant = 0.442, we can see that if selected independent variables (financial liberalization, interest rates inflation, and public debt) were rated zero, the stock market returns would increase by 0.442. Increasing financial liberalization by one unit would increase stock market returns by 0.325 units while increasing the public debt by one unit yields the stock market returns to decline by 0.131. 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 stock market returns in the Kenyan context. Independent variables included financial liberalization and control variables were interest rate, inflation together with public debt. This research tried to show stock market returns being a dependent variable. Stock market returns were 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 strong positive that is statistically significant link exists between financial liberalization and stock market returns. The correlation results further bare a strong negative as well as significant statistical connection between

public debt and stock market returns. The rate of interest displays a not significant positive interrelationship to stock market returns at the NSE. Inflation displayed a weak positive and not significant link with stock market returns at the NSE.

The independent variables accounted for 59.6% of variances in stock market returns, 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 stock market returns at the NSE.

This research is in agreement with Atsin and Ocran (2019) who looked into the link between liberalization and stock market returns 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 OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The major motive of this research was to investigate the way financial liberalization influences the stock market returns at the NSE. 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 stock market returns at the NSE. 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 10 years compiled quarterly data.

The Pearson model showed a strong positive that is statistically significant link exists between financial liberalization and stock market returns. The correlation results further bare a strong negative as well as significant statistical connection between public debt and stock market returns. The rate of interest displays a not significant positive interrelationship to stock market returns at the NSE. Inflation displayed a weak positive and not significant link with stock market returns at the NSE.

The independent variables accounted for 59.6% of variances in stock market returns, 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 stock market returns at the NSE.

The regression results further discovered that if selected independent variables (financial liberalization, interest rates inflation, and public debt) were rated zero, the stock market returns would increase by 0.442. Increasing financial liberalization by one unit would increase stock market returns by 0.325 units while increasing the public debt by one unit yields the stock market returns to decline by 0.131. 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 stock market returns at the NSE. The research finds that higher financial liberalization leads to a significant increase in stock market returns at the NSE while higher public debt leads to a decline in stock market returns at the NSE. The research also finds that while interest rate and inflation have an impact on stock market returns, the impact is not statistically meaningful.

The study concludes that the factors under research – financial liberalization, interest rate, inflation and the public debt – affect stock market returns by describing 59.6% of the variations. This means that the non-model variables are responsible for 40.4% of variations of stock market returns in the country. It is therefore substantial to infer that the outlined factors affect the stock market returns 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 stock market returns at the NSE implying a rise in financial liberalization can have a positive effect on stock market returns. 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 stock market returns and possibly also other areas of the economy.

Outcomes show that public debt possesses a negative and considerable effect on stock market returns at the NSE implying a rise in public debt can have a negative effect on stock market returns. 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 returns.

5.5 Limitations of the Study

This research embraced a 10 years' period (2013-2022). 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 stock market returns at the NSE. 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.

While the study considered these independent and control variables, there are other factors that affect stock market returns that were not studied. 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

stock market returns will enable policymakers make decision on the steps to take in order to control their stock market returns.

Because of unavailability of data, this study focused on the latest 10 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	Stock market returns	Financial liberalization	Interest rate	Inflation rate	Public debt
2013	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
2014	1	0.3130	6.2251	5.8333	7.8500	14.5825
	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
2015	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
2016	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
2017	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

Year	Quarter	Stock market returns	Financial liberalization	Interest rate	Inflation rate	Public debt
2018	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
2019	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
2020	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
2021	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
2022	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