EFFECT OF SELECTED MACROECONOMIC VARIABLES ON CAPITAL MARKET DEVELOPMENT IN KENYA

BY

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DECLARATION

I declare that this research project is my own work and it has not been submitted for any degree or examination in any other university.

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

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DEDICATION

This research project is dedicated to my family, friends and workplace colleagues for their prayers, encouragement, endurance and moral support throughout the time of study.

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LIST OF ABBREVIATIONS

CBK   Central Bank of Kenya

CMA   Capital Market Authority

GDP   Gross Domestic Product

NSE   Nairobi Securities Exchange

US   United States

ABSTRACT

Capital markets operate in a macroeconomic environment which has the potential of influencing its activities, operations, its development and its overall profitability. The study sought to determine the effect of selected macroeconomic variables on capital market development in Kenya. The study made use of secondary data from the capital markets authority and the Central Bank of Kenya. Data was analyzed on the basis of the mean and the F test statistic was computed at 5% significance level and Analysis of Variance (ANOVA). From the regression model, the study found out that the selected macroeconomic variables namely; economic growth, interest rates, inflation rates and exchange rates influenced capital market development. The study found out that the four independent variables that were studied which included economic growth, interest rates, inflation rates and exchange rates explain 53.7% of capital market development. The study therefore concludes that selected macroeconomic variables significantly affects capital market development in Kenya. The study recommends that policy makers consider macroeconomic environment as the leading determinant of capital market development in Kenya in making the policies which affect the capital markets in Kenya.

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

Capital markets are critical in the financial markets since they act as a way of channeling the finances to efficient parties the economy which contributes to overall economic growth. They achieve this by providing the monies to enhance investment in an economy. Capital market is pivotal in the general prosperity of industries. Macroeconomic factors which constitute inflation rates, interest rates, and exchange rates directly influences the capital market development (Singh, 2014).

Theoretically, capital market development is linked with macroeconomic behavior. According to the flow oriented model (Dornbusch & Fisher, 1981), the changes in exchange rates alters the foreign investment which in turn affects the balance of trade. Arbitrage pricing theory by Ross (1977) on the other hand presupposes that the total risk is composed of the diversified risks and non-diversified risks. The non-diversified risks are as a result of macroeconomic variables which directly affects the capital market development.

Capital market in Kenya is key in the general growth prosperity of the financial markets in Kenya. The capital market was identified as a key economic pillar to propel the attainment of the vision 2030 (Kimani & Amadi, 2013). Capital markets in Kenya facilitates the trading of long-term funds which include ordinary shares, loans, bonds, warrants, preference shares and debentures. Capital market development in Kenya has been affected by various macroeconomic variables which include inflation rates, interest rates and political instability which have slowed down its development.

1.1.1 Selected Macroeconomic Variables

Macroeconomic variables are the factors which management has no control over and are considered external factors. They are the factors beyond the business entity but they greatly influence their activities operations. The major macroeconomic variables include the inflation rates, exchange rates, inflation rates and the general economic growth. Economic growth measures the aggregation of various economic activities in various sectors. Interest rate is the cost attached to the borrowed capital for a given period of time. Macroeconomic variables influences the overall prosperity capital markets. The economic growth as one of the major components of macroeconomic variables has a potential of influencing the growth and development of capital markets (Singh, 2014).

Good economic conditions means high trading activities which include the investment activities, poor economic conditions negatively affects the capital market development as a result of minimal investment activities, high volatility of market returns and minimal trading of securities in an economy. Exchange rates have a potential effect of influencing the growth and development of the capital markets. When exchange rates depreciate, the activities in the financial markets decreases, exchange rate appreciation leads to an increase in the activities in the financial market and this is an indicator of capital market development in an economy (Liu, 2001).

Macroeconomic variables are measured by the inflation rates, exchange rates, economic growth and interest rates. Exchange rate is measured by the rate at which one currency exchanges for another, interest rates is measured by the average lending rates by the commercial banks and economic growth is measured by gross domestic product.

Subedi (2015) in his study used the level of economic growth and inflation rates as the proxies for macroeconomic variables. Muthama (2016) used money supply, inflation rates and exchange rates as proxies for macroeconomic variables. A research by Graham et al. (2012) on the effect of macroeconomic variables on capital market development used inflation rates, economic growth and exchange rates as measures of macroeconomic variables.

1.1.2 Capital Market Development

Capital market development is characterized by the presence of international integration, foreign investors participation, fair pricing of securities, market friendly regulations, trading of many securities which include the shares, bonds and derivatives, low volatility of market returns and clear regulations which do not conflict in the financial markets. Capital market is critical to general economic growth hence the need to recognize its significance. Capital market development is a critical component of financial sector development because it supplements the role which is played by the banking sector in economic development (Singh, 2014).

According to Liu (2001) Capital markets are critical in the provision of market liquidity which is helpful in the implementing of the projects which require longer period of time with returns in the long run. In Africa, 80% of African countries have security exchanges which is a sign of capital market development. In Kenya, Nairobi securities Exchange was set up in 1954 with the basic function of raising of funds for investment in longer assets. Withan (2014) noted that globally, the domestic markets of various countries have grown tremendously this has been due to the increase in the income levels.

Robinson (2016) in his study in India measured capital market development by the return on stock and change in market prices. Makau (2015) in his research used the gross domestic growth rate as the proxy of the stock market performance. A study by Imala (2015) on the effect of macroeconomic variables on capital market development in Nigeria used the change in stock market prices and return on stock as the measures of capital market development.

1.1.3 Selected Macroeconomic Variables and Capital Market Development

Macroeconomic environment influences the capital market activities. For example, if the rates of interest are very high, firms are discouraged on financing various activities through loans, these firms normally resort to equity financing and this promotes capital markets development. According to the arbitrage pricing theory, the non-diversifiable component of the total risk constitutes the macroeconomic variables which have the potential of influencing the capital market development like any other entity. Macroeconomist theory argues that the low volatility of market returns are as a result of changes in the macroeconomic environment hence macroeconomic variables directly influences the capital market development (Singh, 2014).

A study by Kinyua (2014) sought to assess the impact of various market development in Kenya. From the study, it was evident that the inflation rates and lending rates had significant effect on the capital market development in Kenya. Dorotti (2015) in his study on effect of macroeconomic development in Pakistan concluded that macroeconomic variables negatively affected the development of the capital market in Indonesia. Wekesa (2015) concluded that economic growth and exchange rates as the major components of macroeconomic environment significantly affected the capital market activities in Kenya.

1.1.4 Capital Market Development in Kenya

Kenya is known with vibrant economic activities ranging from agriculture, tourism and investment activities. It is the second largest county in East Africa by population with coastline on the Indian Ocean. Kenya is endowed with great features for example the mountain highlands and Great Rift Valley. In Kenya capital market commenced in 1990 which was by an act of parliament. Capital market in Kenya has been critical to the economic growth.

The capital markets master plan, one of the flagship projects under the financial service theme of a phase of vision 2030, charts the direction of the Kenyan capital markets over a longer period ending 2023.The investment activities especially in the capital markets have been affected by the inflation rates which stands at 4.35% on average. The interest rate cap has too affected the capital market development. Fluctuations in the exchange rates has also affected the capital market development in Kenya negatively (CBK, 2017).

1.2 Research Problem

Capital market is critical in any economy due to benefits associated with it which includes the mobilization of funds for investment. Capital market acts as a key driver in the economy with efficient capital markets have potential economic growth. However, the development of the capital markets is determined by the macroeconomic environment. The arbitrage pricing theory explains that capital market like any other entity is prone to the effects of macroeconomic variables. Macroeconomist theory argues that the low volatility of market returns are as a result of changes in the macroeconomic environment.

Macroeconomic environment in Kenya has been a key driver in the Kenyan capital market. With the thriving Kenyan agricultural sector and emerging mining, minerals and extracting sector, the capital markets master plan targets a fully functional development and regulated spot and derivative market organized with an efficient price discovery mechanism to help realize the full potential of emerging economic sector. The Nairobi Securities Exchange has so far been licensed to set up a derivative exchange and is working with stakeholders to ensure the institutions and infrastructure necessary are in place to have stable and resilient capital markets.

Several studies have been done on macroeconomic variables and the capital market development, Ying (2015) concluded that macroeconomic variables specifically the inflation rates and exchange rates slowed down the capital markets in Philippine, a study by Malik (2014) confirmed that various macroeconomic variables shaped the performance of capital markets in India after he surveyed the capital markets performance in India from 2009 to 2013 Kentur (2016) concluded that macroeconomic environment had insignificant effect on the capital market performance.

Omar (2016) concluded from his findings that the inflation rates and interest rates negatively affected the capital market performance in Kenya. A study by Rono (2016) however, concluded that macroeconomic variables have a significant influence on the capital market performance in Kenya. From the literature reviewed, little studies have been done on selected macroeconomic variables and their effect on capital market development. Considering how the capital market in Kenya has been transformed since the successful launch of capital markets master plan which is mandated at ensuring capital markets drives the national growth, there is need for this study. Strength of this study was also the choice of the period of study

which was longer than the previous studies and a representative sample. Therefore, the current study was to answer this research question; what is the effect of selected macroeconomic variables on capital market development in Kenya.

1.3 Research Objective

The objective of this study was to determine the effect of selected macroeconomic variables on capital market development in Kenya.

1.4 Value of the Study

This study is of great use to the capital markets authority. As the regulatory body of the capital markets in Kenya. They will take into consideration the influence of various macroeconomic variables which include inflation rates, exchange rates and interest rates which have the potential effect of accelerating or slowing down the capital markets development in Kenya.

To the academicians, it acts as a source of empirical literature. Researchers wishing to conduct a study on macroeconomic variables and the capital market development will find this study very useful when reviewing the previous studies on macroeconomic variables and capital market development.

To the investors, this study will provide the insights on the investment decisions by the investors in capital markets. They will be able to analyze the market trends as a result of the influence of the macroeconomic variables in the trading of capital market instruments.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter entails the literature on macro-economic variables, highlights on the theoretical review, determinants of capital market development, the empirical literature, conceptual framework and ends with the summary of the literature review.

2.2 Theoretical Review

The following theories are related to capital market development and they include; Arbitrage Pricing Theory (Ross, 1977), Macroeconomist Theory, (Walter, 1979) and Flow Oriented Model (Dornbusch & Fisher, 1981).

2.2.1 Arbitrage Pricing Theory

The theory of arbitrage pricing was proposed by Ross (1977). According to this theory, the positive relationship exists between the risk of the asset and their expected returns. The arbitrage pricing theory was a modification of the capital asset pricing model and this model links returns to several variables in a linear form. These factors are inclusive of the macroeconomic variables. The arbitrage pricing theory assumes that investors in any market will always prefer more wealth to less wealth with certainty. According to APT, despite the fact that a variety of forces can influence the return of firms, the effects eventually cancels out only on the formation of a portfolio which is well diversified.

The arbitrage pricing model employs several factors in its multi variable model and each variable in the model is represented by a beta coefficient which measures the risk of each variable. The arbitrage pricing theory is comprised of the diversifiable risks and non-diversifiable risks in the market. The non-diversifiable risks are as a result of macroeconomic

variables which cannot be diversified in the market. These variables are likely to affect the capital market development with regard to the arbitrage pricing theory, capital market like any other entities are prone to the effects of these macroeconomic factors (Ross, 1977).

2.2.2 Macroeconomist Theory

This theory was proposed by Walter Robinson in 1979 to deviate from the common applications of factor analysis in the determination of the various variables that are likely to affect the returns of the assets in the market. The macroeconomic variables have been measured by some scholars and found evidence that the fair pricing of securities are as a result of the changes in the macroeconomic variables which include lending rates and the exchange rates. This is supported by the research by Fama (1978) who concluded that any changes in inflation rates are fully reflected in the stock prices.

The macroeconomist theory attempts to analyze the low volatility of market returns as a result of the changes in the various changes in the macroeconomic variables. This approach posits that capital market activities are influenced by the changes in interest rates and other macroeconomic variables. This approach is based on equilibrium theory which assumes the interrelations which exists between the various sectors as critical to understanding of the macroeconomic movements which assets that everything does depend on everything else. The relevancy of this theory cannot be underestimated since it determines how capital market development is affected by these macroeconomic variables (Fama, 1978).

2.2.3 Flow Oriented Model

The model was put forth by Dornbusch and Fisher in 1981. According to this model, the changes in exchange rates as a macroeconomic variable alters the foreign investors'

participation which in turn affects the balance of trade. Foreign investors' participation as a major indicator of capital market development is therefore affected by interest rate changes. The stock prices of the firms are also affected by the changes in the exchange rates. This means that any changes in exchange rates will affect the capital market development. According to the flow oriented approach the competitiveness of firms are also as a result of stock prices changes.

According to the Flow Oriented Model, the appreciation of exchange rates causes a decline on quantity of exports because they will be expensive for the buyers in the international market. The ultimate effect will be the loose of the competitiveness of the goods in the international market. Consequently their returns will decrease due to low activities in the capital market. This model is relevant to this study because it relates exchange rates changes as a major component of macroeconomic variable and capital market development and it claims that exchange rates changes leads to low activities in the capital markets (Dornbusch &Fisher, 1981).

2.3 Determinants of Capital Market Development

Capital market development is influenced by the following factors namely; legal and regulatory framework, market openness, market information and efficiency and level of economic growth.

2.3.1 Legal and Regulatory Framework

Legal and regulatory framework is about the various legislations put in place which are aimed at protecting the investors in the capital markets. The property rights are clearly defined by these rules and regulations which also support any private agreements which are key in the

operational and functioning of the capital markets. Proper regulations in the capital markets is also key in ensuring the creditors are protected and to larger extent it will protect the minority investors in the capital markets. Proper regulatory mechanisms directly affects the payment of dividends by the firms. For the capital market to develop the state must ensure that the legal and regulatory environment is favorable. The laws and regulations put in place should not be prohibitive in nature.

2.3.2 Market Information and Efficiency

Availability of information in the market is critical in the development of the capital markets since it directly influences the activities and operations of the stock exchange. When the information is freely available, it promotes confidences in the market and the pricing efficiency of the securities. According to Pagano (1995), in the capital markets, information asymmetries is common and this calls for the disclosure requirements for all the public entities in ensuring the financial information is availed to the investors this will enhance any interim companies in the industry. Enough disclosure of information is key especially to the forms who intend to raise finances form the general public because it is able to gain the confidence of the investors in the capital market. Market efficiency will ensure no insider trading which is a barrier to the capital market due to its destabilization effect in the long run.

2.3.3 Market Openness

In a typical capital market, a market can either be open or closed. Market openness is in relation to foreign investors. Excessive regulation to the entry of foreign investors can adversely affect the development of capital markets. Every territory has set its own rules to deal with the influence of foreign investment but excessive barriers tend to discourage the investors. For example in Kenya the investors are compelled in ensuring the locals own up to

25% of ownership stake in the foreign investment firms. A study by Levine (2001) on market openness in the United Kingdom confirmed that only 20 out of 35 practiced market openness. This was as a result of various restrictions which range from foreign ownership to national limitations on the overall foreign ownership.

2.3.4 Level of Economic Growth

It is evident that those countries which are more developed, their capital markets are more efficient compared to less developed countries. The monetary policy which is the control of money supply and the fiscal policies which is the management of revenue and expenditure and the economic stability of a country directly influences the capital markets. Using the monetary policy, when the level of economic activities are low the amount of money can be increased to accelerate the rate of economic activities by the expansionary policy. When an economy is stable, the level of capital market development is very high. The levels of income also influences the development of capital markets, high income levels means high investments in capital markets hence development in the capital markets compared with low levels of income which discourages investments in capital market hence the slow development. The size of an economy also influences capital market development.

2.4 Empirical Review

Several studies have been carried with the aim of shedding light on the impact macroeconomic variables on the performance of capital market development. Ying (2015) investigated the impact of macroeconomic variables on the capital market development in Philippine between 2010 and 2014using annual time series data. The researcher used the Granger Causality Test to determine causality. The results indicated a unidirectional causality between selected macroeconomic variables and capital market development.

Subedi (2015) in his study on the impact of macroeconomic variables on the capital market development in Pakistan used the level of economic growth and inflation rates as the proxies of macroeconomic variables between the years 2010 and 2014. The results of the study showed that all the variables were co-integrated; that all macroeconomic variables have a long run and simultaneous effect on the capital market performance.

Dorotti (2015) conducted a study to investigate the effect of macroeconomic factors on capital market development in Pakistan. Unlike (Palene & Mittalsine, 2011) who used quarterly time series data over 15 years, Dorotti (2015) used monthly time series data from January 1991 to December 2011 (20 years). The results established that macroeconomic variables negatively affected the development of the capital market. The study also indicated no causality running from exchange rates to the stock market.

Kaloki (2016) conducted a study to establish the impact of various macroeconomic variables on stock market performance in Kenya from 2010 to 2014. Linear regression model was used in the analysis. From the analysis, he concluded that economic growth and exchange rates as the major components of macroeconomic environment significantly affected the stock market performance in Kenya.

Graham et al. (2012) sought to investigate the relationship between stock market development in Pakistan and selected macroeconomic variables which were inflation rates, economic growth and exchange rates. The researchers used monthly data from 2003 to 2010. The results showed that only GDP had a significant positive impact on the Karachi Stock Exchange Returns (KSE 100 Index).

Muthama (2016) in his study on the effect of macroeconomic variable on the performance of the NSE used money supply, inflation rates and exchange rates as proxies for macroeconomic variables. In his study, secondary data on the selected variables was used and linear regression model and discovered that inflation rate and exchange rate had a significant effect on the performance of the NSE.

In her study, Kinyua (2014) sought to assess the impact of various macroeconomic variables on capital market development in Kenya. The study used the secondary data for the study variables which included; inflation rate, exchange rate, economic growth and interest rates between 2009 and 2013 and concluded that economic growth and exchange rates as the major components of macroeconomic environment significantly affected the capital market development in Kenya.

Rono (2016) conducted a study to establish the impact of macroeconomic variables on stock market performance in Kenya between 2010 to 2015 he used quarterly time series data on inflation rate, exchange rate, economic growth and interest rates in the analysis with the help of the regression model and concluded that exchange rate, economic growth and interest rates have a significant influence on the capital market performance in Kenya.

From the findings of the studies, researchers came up with different results on the effect of macroeconomic variables on capital market development. Some studies concluded that macroeconomic variables significantly affected the capital market development. Some studies however proved that macroeconomic variables were insignificant on the capital market development. Therefore, this study is carried out to unearth the truth on the effect of macroeconomic variables on the capital market development.

2.5 Conceptual Framework

This study analyzed the effect of selected macroeconomic variables on the capital market development in Kenya. The independent variable was selected macroeconomic variables while capital market development was the dependent variable. The independent variable include the inflation rate which was measured by the quarterly consumer price index, exchange rate was measured by the average Kenyan shilling per unit of the US dollar on quarterly basis, interest rates was measured by the average lending rates by commercial banks on quarterly basis and economic growth was measured by gross domestic product on quarterly basis and the dependent variable was the capital market development and was measured by the trading volume.

Independent Variable   **Dependent Variable**

```
┌─────────────────────────────┐              ┌─────────────────────────────┐
│  Selected Macroeconomic     │              │                             │
│  Variables                  │              │                             │
│                             │              │  Capital market development │
│     .Inflation rate         │─────────────▶│      .Trading volume        │
│                             │              │                             │
│     .Exchange rate          │              │                             │
│                             │              │                             │
│     .Economic growth        │              │                             │
│                             │              │                             │
│     .Interest rate          │              │                             │
└─────────────────────────────┘              └─────────────────────────────┘
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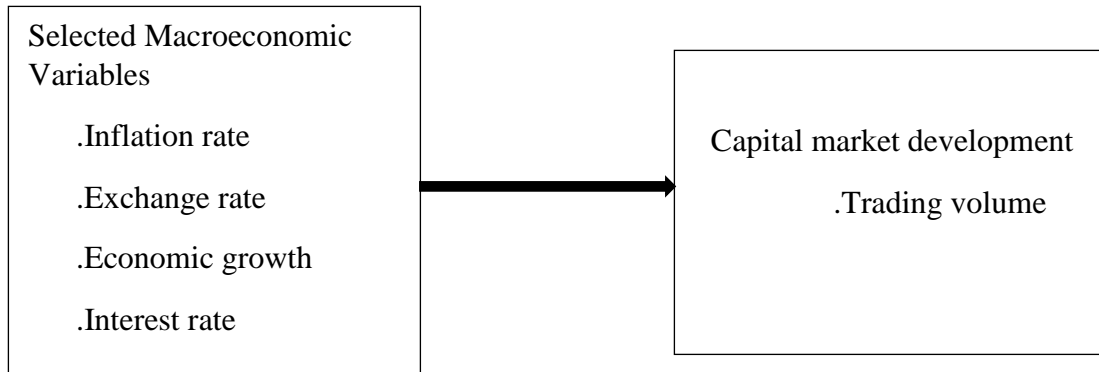
Figure 2.1: Conceptual Framework

2.6 Summary of Literature Review

The literature review encompasses the theories that were reviewed which included, Arbitrage Pricing Theory Ross (1977), Macroeconomist Theory Walter Robinson (1979) and Flow Oriented Model Dornbusch and Fisher (1981). The determinants of capital market development were also discussed and they include legal and regulatory framework, market

information and efficiency, market openness and level of economic growth. The chapter also looked at studies by Ying (2015), Subedi (2015), Omar (2016), Kentur (2016), Kaloki (2016), Dorotti (2015), Graham et al. (2012) and Muthuma (2016) and the conceptual framework. From the literature reviewed little studies have been done on the effect macroeconomic variables on capital market development, more research has been done on capital market performance and the period of the study was short. This study therefore aimed at addressing those research gaps in conducting this research.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter outlines the research methodology which was utilized in conducting this study and they include research design, target population, data collection and data analysis.

3.2. Research Design

Research design alludes to the methods utilized to accomplish the targets of the research. This study employed a descriptive research design. This type of design is applicable in obtaining information about the current status of the phenomenon with respect to variables or conditions in a situation. This research design summarizes the various variables under the study.

3.3 Population

A population entails a collection of items to be investigated Mugenda (2005). The population of this study was the capital market in Kenya as at December 2017.

3.4 Data Collection

This research relied on the secondary data which was collected from CMA, NSE and CBK for a 10-year period from 2008 to 2017. Data that was collected included, inflation rates, exchange rates, gross domestic product, interest rates and trading volume.

3.5 Data Analysis

Mugenda (2005) defined data analysis as the process of bringing order and meaning to the information collected. Secondary data was collected, coded and tabulated according to each dependent and independent variable and analyzed using the descriptive statistics in terms of the mean values.

3.5.1 Diagnostic Tests

The diagnostic test that was carried out on the data to ensure it suits the basic assumptions of classical linear regression model included; Kurtosis and Skewness of the distribution of data which tested for normality. The symmetry of the distribution of the information is given by the skewness whereas information about the peakedness is given by kurtosis (Frank, 1992). Autocorrelation was tested by Durbin Watson.

3.5.2 Analytical Model

To show the relationship between the independent and dependent variables, the following multiple linear regression model was used; $Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + e$

Where Y is the capital market development as measured by the trading volume, β_0 is the free term of the equation. $\beta 1, \beta 2, \beta 3 \ and \ \beta 4$ are the coefficients of independent variables and they measure the responsiveness of Y to unit change in variable x.

Y= Capital market development= Trading volume

x_1 = Inflation rate= quarterly consumer price index.

x_2 = Exchange rate= Kenya shilling per unit of the US dollar on quarterly basis.

x_3 = Economic growth = Natural logarithm of gross domestic product.

x_4 = Interest rate=lending rate

ε = the error term

3.5.3 Test of Significance

An F-test and t test at 5% significance level were conducted to determine the strength of the model, and the effect of selected macroeconomic variables on capital market development in Kenya.

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1 Introduction

This section presents the analysis of the data obtained. This study used the secondary data in the analysis. In section 4.2 data was analyzed in terms of descriptive statistics and in section 4.3, data was analyzed in terms of inferential statistics which included correlation analysis, regression analysis and the analysis of the variance and section 4.4 presents discussions of the findings.

4.2 Descriptive Statistics

The independent variables analyzed here included the inflation rates, exchange rates, economic growth and interest rates while the dependent variable was the trading volume. The means, standard deviations, the minimum values, the maximum values of the variables under study were tabulated as shown below.

Table 4.1: Descriptive Statistics Analysis

Variable	N	Minimum	Maximum	Mean	Standard deviation
Trading volume	40	4.59	6.62	5.97	0.52
Inflation rates	40	3.2	19.93	9.82	5.76
Exchange rates	40	62.65	103.89	87.26	11.6
Economic growth	40	13.43	13.95	13.66	0.17
Interest rates	40	13.61	22.82	19.45	2.43

From the findings, the minimum number of trading volume was 4.59 units, the maximum number was 6.62, the mean was 5.97 and the standard deviation was 0.52 which was a sign of a small variation of the trading activities. The minimum value of inflation rate was 3.2, the

maximum value was 19.93, the mean value was 9.82 and the standard deviation was 5.76 which was an indication of a high variability. The minimum value of exchange rates was 62.65, maximum number was 103.89 and the standard deviation was 11.6 which was an indication of high variability. The minimum value of interest rates was 13.61, the maximum number was 22.82 and the standard deviation was 2.43 which was an indication of a small variability. Economic growth showed a slight variability with the standard deviation of 0.17.

4.3 Diagnostic Tests

Initial data assessment to find out if it has a normal distribution was done. There was no departure from an assumption of normality that was extreme as indicated by the measures as shown in table 4.2. Therefore this confirmed the data was suitable for analysis by the use of parametric tests. Autocorrelation was tested by Durbin Watson and the value was 1.58 which confirmed no autocorrelation.

Table 4.2: Tests for Normality

Scale	N	Skewness		Kurtosis	
		statistic	Std. Error	statistic	Std. Error
Trading volume	40	-1.489	0.374	1.557	0.733
Interest rate	40	-1.053	0.374	1.288	0.733
Inflation rate	40	-0.709	0.374	-1.179	0.733
Economic growth	40	-1.489	0.374	1.557	0.733
Exchange rate	40	-0.264	0.374	-0.479	0.733

4.4 Correlation Analysis

To establish the relationship between the macroeconomic variables and capital market development, correlation analysis was performed and the results were tabulated below.

Table 4.3: Pearson Correlation Matrix

	Trading volume	Inflation rates	Exchange rates	Economic growth	Interest rates
Trading volume	1				
Inflation rates	-0.655	1			
Exchange rates	0.606	-0.457	1		
Economic growth	0.559	-0.539	0.880	1	
Interest rates	-0.253	0.334	-0.618	-0.648	1

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

The results of the correlation analysis above shows that a negative relationship exists between the inflation rates and the capital market development as measured by the trading volume and the relationship is significant since the correlation coefficient was -0.655 and the p-value was 0.000 which is less than 0.05. From the analysis it was evident that exchange rates are strongly related with the trading volume and the effect was significant since the correlation coefficient was 0.606.

4.5 Regression Analysis

Table 4.4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin Watson
1	0.764	0.584	0.537	0.35616	1.58

The value of the correlation coefficient from the table above is 0.764 which implies that a strong positive relationship exists between the study variables. The adjusted R square is 0.537 this implies that 53.7% of the influence of the exchange rates, interest rates, economic growth and inflation rate is explained by the model.

Table 4.5: Summary of One Way ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.241	4	1.560	12.301	0.000
	Residual	4.440	35	0.127		
	Total	10.681	39			

The results in table above shows the value of F statistic was 12.301 at 5% level of significance and the statistic was significant, the P-value was 0.000 which is less than 0.05 implying that the overall model was significant.

Table 4.6: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.12	10.136		0.702	0.487
	Inflation rates	-0.046	0.012	-0.508	-3.924	0.000
	Exchange rates	0.027	0.010	0.595	2.570	0.015
	Economic growth	-0.291	0.775	-0.094	-0.375	0.710
	Interest rates	0.048	0.031	0.224	1.552	0.130

The findings of the regression analysis show that the rate of inflation is inversely related to capital market development. It implies that any unit increase in the inflation rates will lead to a decline in capital market development by 0.046. The study further confirmed that economic growth is inversely related to capital market development which implies that a unit increase in economic growth will lead to a decrease in capital market development by 0.291 units. Interest rates were found to directly and positively related with the capital market development. Increase in interest rates will cause an increase in capital market development.

The standardized beta coefficient of inflation rates was -0.508 which means that inflation rates have a strong effect on the capital market development. The standardized beta coefficient of exchange rates was 0.595 which implies that exchange rates have a moderate effect on capital market development. The standardized beta coefficient of economic growth was- 0.094 meaning a strong effect of economic growth on capital market development. The standardized beta coefficient of interest rates was 0.224 which implies that interest rates have a moderate effect on capital market development.

4.6 Interpretation of the Findings

The results of the descriptive statistics shows that on average, the level of economic activities rose steadily as shown from the gross domestic product. This was due to high economic activities which contributed to the increase in the GDP. The rates of inflation produced mixed signals with varying rates over the years understudy with the highest average inflation rate in the year 2008 attributable to postelection violence. The interest rates also recorded mixed results up to 2016, however they remained at the same rate in 2017 as a result of the interest rate cap. From the regression analysis results the research established a number of macroeconomic variables that affect the capital market development and they include inflation rates, interest rates, exchange rates and economic growth and the intercept for all these factors was found to be 7.12 for the years analyzed and were able to explain their effect on the capital market development up to 53.7% as shown by adjusted R square. This implies that the four independent variables inputs 53.7% on the capital market development and the remaining 46.3% is contributed by the factors not studied.

This research found out that inflation rates negatively influences capital market development. Economic growth was found to be negatively related to capital market development this means that as the level of economic activities increase capital market development increases also. Interest rates were found to be positively related with capital market development which implies that as the rate of interest increases, capital market development increases. Exchange rates were found to be positively related with capital market development. In general, macroeconomic variables affect capital market development in Kenya. This study concurs with the study by Kentur (2016) who concluded that macroeconomic variables significantly affected capital market performance in Peru.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary, conclusion, recommendations for policy, limitations of the study and recommended areas for further research.

5.2 Summary of the Findings

The objective of this study was to establish the effect of selected macroeconomic variables on the capital market development in Kenya. The study established that a strong positive relationship exist between exchange rates and capital market development because exchange rates promotes international trade which in turn promotes the development of the capital markets. The appreciation of a country's currency will guarantee a favorable exchange rates which will promote capital market in the economy. Economic growth was found to be strongly related to capital market development. Economic growth was indicated by the growth in the gross domestic product which is an indication of the growth of various components in an economy which include consumption, expenditure, government spending and net exports. All these activities were found to significantly affect the development of capital markets in Kenya.

Interest rates were found to be negatively related with capital market development in Kenya. However, the relationship was not significant. When the rate of interest is low in the economy, more investment activities are evident and one such investment is in the capital markets. High investments in capital market is an indication of capital market development. When the rate of interest is very high, capital markets investments are discouraged.

In Kenya, the interest rate cap encouraged the development of capital markets since people are able to borrow cheaply from the financial institutions to invest in the capital markets. The rates of inflation were found to be negatively related with the capital market development since it led to a decrease in purchasing power and higher borrowing costs which negatively affects the capital markets. On the other hand, low inflation rates encourages capital markets due to high purchasing power.

The ANOVA was employed to determine how strong the model was in the analysis. Based on the analysis of the regression statistics, the research concluded that the four factors which include exchange rates, interest rates, economic growth and inflation rate were explained by the model. The four independent variables were able to explain their influence on the capital market development up to 53.7% and the rest is contributed by other factors not considered in this study meaning the model was significant.

5.3 Conclusions

From the study, a strong negative relationship was found to exist between inflation rates and trading volume, the correlation coefficient was found to be -0.655 which was also significant because the P value of 0.000 was found to be statistically significant ($P<0.05$). A negative relationship exists between interest rates and trading volume, the correlation coefficient was -0.253 and again the relationship was not significant. The P value was 0.114 which is greater than 0.05. A positive relationship exist between exchange rates and capital market development because the correlation coefficient was 0.606 and the relationship was strong. This relationship was significant ($p<0.05$). A positive relationship exist between economic growth and capital market development because the correlation coefficient was 0.559, this relationship was significant ($p<0.05$).

From the descriptive statistics it was evident that economic growth had increased over the years. The major contributing factors include the main economic pillars which are geared towards the attainment of vision 2030 in Kenya. The Capital Markets Master Plan (CMMP), one of the two flagship projects under the financial services theme of a phase of Vision 2030, charts the direction of the Kenyan capital markets over a 10-year period ending in 2023. It positions Kenyan capital markets as the continental gateway to African capital market investment. The rates of interest charged by the commercial banks over the years analyzed were found to vary significantly, however due to interest rate cap, uniformity in the interest rate in Kenya has been impressed. In the last decade, the highest average inflation rate was recorded in 2008, attributable to the post-election violence in the period after the disputed election in December 2007, rising global oil prices and the depreciation of the Kenyan shilling also contributed to high levels of inflation in the subsequent years.

Based on the outcome of this research, it concludes by saying that selected macroeconomic variables affects capital market development in Kenya. This is based on the fact that a number of variables studied proved the existence of a relationship between selected macroeconomic variables and capital market development and they included interest rates, economic growth, inflation rates and exchange rates. This is in agreement with Rono (2016) who concluded that exchange rate, economic growth and interest rates have a significant influence on the capital market performance in Kenya.

5.4 Recommendations

From the outcome of the study, it was evident that selected macroeconomic variables have a significant influence on the capital market development. This implies that macroeconomic

environment is key in the survival of capital markets and their development which calls for close monitoring and supervision.

From the outcome of this research, the study recommends the setting a side of more finances which will facilitate the collection and analysis of data. This will ensure the financial challenges in research are dealt with. This will also guarantee the completion of the research in time.

The study recommends the allocation of enough time for the entire research excise. Sufficient time will ensure step by step research operations and process without interruptions. In so doing, the research will be conclusive and objective unlike when working under pressure to meet the deadlines.

5.5 Limitations of the Study

The choice of the variables was limited, this was based on the fact that the research was interested on the selected macroeconomic variables. This means that the results of this study may not conclusively prove their influence on capital market development.

Time constraint, considering the fact that this study relied on data from the multiple sources which included the Central Bank of Kenya, Capital Markets Authority and Nairobi Securities Exchange, more time was needed for the entire exercise of data collection and analysis. But despite the limited available time, it was well utilized to achieve the intended objective of the study.

The entire research process excise needed more financing which ranged from the data collection, data analysis, writing materials and printing of the research work which called for

total sacrifice to achieve the objectives. Despite the limited financial resources, the entire research process was successful.

The data that was employed in this study was only the secondary data which was not able to capture, the qualitative aspects of capital market development which are also significant for example transparency and openness in the capital markets.

5.6 Suggestions for Further Research

This study recommends that a similar study be conducted but now in the Eastern Africa region which involves the incorporation of Rwanda Stock Exchange, Uganda NS Exchange and Dar es Salaam Stock Exchange and see how macroeconomic variables affect their performance.

This study recommends that a study be conducted to assess the effect of selected macroeconomic variables on stock market performance in Kenya. It will be interesting to know whether various macroeconomic variables will affect the performance of various stocks at Nairobi securities exchange.

This study examined the effect of selected macroeconomic variables on capital market development in Kenya. From the study findings, the study recommends that in the near future, a research to be conducted which should incorporate all the macroeconomic variables and test their influence on capital market development.

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APPENDIX I: DATA

Year	Q	Inflation	Interest rates	Exchange rate	ln trading volume	ln GDP
2008	Q1	18.61	20.02	67.88	4.589548805	13.4742688
	Q2	17.87	21.89	65.93	4.74961679	13.4405494
	Q3	18.73	22.76	63.03	4.829433111	13.4256097
	Q4	17.83	20.34	62.65	4.727564794	13.4472198
2009	Q1	18.34	21.09	79.58	6.067105273	13.5115722
	Q2	18.82	22.78	79.81	5.495527536	13.4428688
	Q3	19.35	22.82	79.25	5.763622475	13.4279301
	Q4	19.93	19.55	78.45	4.920710587	13.4495397
2010	Q1	3.97	21.45	76.49	6.020222058	13.5753238
	Q2	3.49	20.03	76.98	6.044365299	13.4777471
	Q3	3.20	18.65	77.58	5.819637727	13.4663221
	Q4	4.51	19.62	78.94	6.257456838	13.4690106
2011	Q1	9.19	22.70	82.21	5.846929984	13.6481101
	Q2	14.48	19.54	86.33	6.296833039	13.5507869
	Q3	17.32	18.76	94.85	5.970062141	13.5425976
	Q4	18.93	20.04	91.52	6.035002849	13.5788321
2012	Q1	16.72	20.34	83.54	6.297551211	13.6937589
	Q2	10.05	20.30	84.76	6.083656233	13.6156262
	Q3	5.32	19.73	84.61	6.191400882	13.5993097
	Q4	3.20	18.15	85.71	6.4314921	13.6216418

2013	Q1	4.11	17.73	86.50	6.547258756	13.7501676
	Q2	4.91	22.34	84.98	6.282079814	13.6580942
	Q3	8.29	18.57	87.17	6.034667704	13.6433148
	Q4	7.15	18.96	86.15	6.52874708	13.6676316
2014	Q1	6.27	19.45	86.33	6.61785742	13.7963295
	Q2	6.43	22.56	87.43	6.540380438	13.7308599
	Q3	6.60	18.87	88.49	6.258318717	13.7047594
	Q4	6.02	20.44	90.04	6.21875947	13.6983207
2015	Q1	6.31	19.38	91.81	6.107557266	13.7519872
	Q2	6.87	21.34	97.01	6.256996865	13.7885516
	Q3	5.92	18.73	103.89	5.764846216	13.7551112
	Q4	8.01	20.13	102.08	6.279815146	13.8448799
2016	Q1	6.45	17.87	101.90	6.518010949	13.9058694
	Q2	5.80	18.06	101.04	6.279402837	13.9026126
	Q3	6.34	19.45	101.34	5.759248717	13.8722453
	Q4	6.35	18.92	101.73	6.249743555	13.8691821
2017	Q1	10.23	13.61	102.85	6.072168575	13.9533019
	Q2	9.21	13.66	103.50	6.023156994	13.949327
	Q3	7.06	13.69	103.13	6.083747422	13.9181872
	Q4	4.50	13.63	103.10	6.116112852	13.9212498