EFFECT OF FOREIGN PORTFOLIO FLOWS ON THE GROWTH OF CAPITAL MARKET IN KENYA

BY

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DECLARATION

I declare that this project is my original work and has never been submitted for a degree in any other university or college for examination/academic purposes.

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

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DEDICATION

This research project is wholeheartedly dedicated to my beloved mother and father who have been my source of inspiration and have given me strength.

I am and will forever be grateful for your endless love, support and encouragement.

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My deepest gratitude goes to God who has provided all that was needed to complete this project and the program for which it was undertaken for. There was never lack or want. Throughout this entire study, He took care of everything that would have stopped me in my tracks and strengthened me through and through.

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ABBREVIATIONS

AEs	Advanced Economies
AFC:	Asian Financial Crisis
AfDB	African Development Bank
ANOVA	Analysis Of Variance
ATS:	Automated Trading System
CBK	Central Bank of Kenya
CMA:	Capital Market Authority
EMs:	Emerging Markets
ERER	Equilibrium Real Exchange Rate
FDI:	Foreign Domestic Investment
GDP:	Gross Domestic Product
ICT	Information and Communication Technology
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KNBS:	Kenya National Bureau of Statistics
OECD	Organization for Economic Co-operation and Development
PPP	Purchasing Power Parity
SPSS	Statistical Package for Social Sciences
WITS	World Integrated Trade Solution

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ABSTRACT

The objective of the study was to establish the effect of portfolio flows on the growth of the capital market in Kenya. The study used descriptive research design because it sought to establish how emerging market portfolio flows is related with growth of the capital markets in Kenya. Data from CMA, CBK, KNBS, KIPPRA, Ministry of Finance, public libraries, national budget and other government records and World Integrated Trade Solution (WITS) was collected as the study's secondary data. The collected data was sorted in Ms Excel and the analysed using the Statistical Package for Social Sciences (SPSS version 25.0). The study used quantitative analysis through descriptive statistics such as central tendency measures to generate relevant percentages, frequency counts, kurtosis and skewness and mean and standard deviation. Inferential statistics was also adopted where the study conducted regression analysis to establish the association between portfolio flows and growth of the capital market in Kenya. The findings of the study were that foreign direct investment (FDI) is positively and significantly related to growth of the capital market in Kenya, that real exchange rate is positively and significantly related to growth of the capital market in Kenya and inflation rate and real GDP growth rate as control variables are significantly related to growth of the capital market in Kenya. The study concluded that Portfolio debt (bonds) inflows is positively and significantly related to growth of the capital market in Kenya, that portfolio equity inflows is positively and significantly related to growth of the capital market in Kenya, that foreign direct investment (FDI) is positively and significantly related to growth of the capital market in Kenya and that real exchange rate is positively and significantly related to growth of the capital market in Kenya. The study recommends that measures should be put in place to ensure that inflows of short term capital are not disruptive as they lead to appreciation of the currency, making the country uncompetitive , and increase in interest rates leading to high costs of credit and affects investment. The study also recommends that foreign investors liquidate their positions due to so many factors including but not limited the expectations and sentiments of foreign investors, terrorism, political instability and sovereign risk. The study recommends that the government should put in place measures that discourage foreign outflows.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The equity securities (shares) and debt securities (bonds) medium of buying and selling so that long term financing can be raised is called capital market. The venues and stock markets are used as tradeable assets that are involved in the broad spectrum of capital market. Capital market which is a highly specialized and organized financial market that represents the facilities and institutional arrangements for the sale and purchase of medium- and long-term funds. The capital market comprises of a primary market and a secondary market. The primary market deals with the issue of new securities. Issuers exchange financial securities for long term funds (Omar, Abduh & Sukmana, 2013).

The primary market allows the formation of capital in the country and for accelerated industrial and economic development. In this way newly issued financial assets are bought and sold (Nassr & Wehinger, 2016). Securities are issued to members of the general public and it is the most popular method of raising long-term funds; the rights issue where instead of going public and calling the general public to buy its shares a company issues a certain number of shares that are proposed to existing shareholders as a pre-emptive right (Kaya, Schildbach & Hoffmann, 2015).

In the capital market, capital resources are raised using capital market instruments. The most frequently used capital market instruments include preferential shares preferential rights and equity shares (Valdez & Molyneux, 2015). Then there are also non-voting equity shares which are shares that result in additional issuance of shares by a company which is done without changing the interests of the existing shareholders; warrants which are a financial instrument which provides buyers the right to buy shares in a company at a given price during a certain fixed period; and debentures which are documents that show that a company has borrowed a certain amount of money that will be repaid following some agreed to terms and conditions (Mwijuka, 2016).

A country's economic growth can be contributed by portfolio flows globally. Trade flow and direct investments are facilitated by financial markets that are increasingly effective, which also contribute to the high living standards that are present in the world.

On the other hand, the volatility of portfolio flows has disrupted financial markets and economic activity. Therefore, identifying the drivers of portfolio flows into emerging market economies could shed light on potential solutions to help emerging market economies reach higher living standards, while pointing to the sources of volatility that may be outside their control (Hwa, Raghavan & Huey, 2017).

The relationship between equity investment and total portfolio investment is significant when compared to the debt investment equities and total portfolio flows which is weak. South Africa's inward investment increase substantially due to Exchange control reform and global financial integration (Hassan, 2016). Demand for exports, imports and domestic currency are determined by unanticipated currency fluctuations. Most of the investments developing countries have are not well financed due to lack of national savings which is a major problem. In the 1980s though the commercial bank lending dried up which forced the developing countries to reform their investment policies so that they could attract foreign capital stable reforms; FDI also became another easy way where the countries could be given foreign capital without much risks in debts involved. FDI is therefore the greatest alternative source for the capital inflows for bank loans (Lawal, Kazi, Adeoti, Osuma, Akinmulegun & Ilo, 2017).

1.1.1 Foreign Portfolio Flows

A developed market is the country's main feature of an emerging market, but this market does not have all the standards meant for a developed market. Emerging markets are being developed greatly from the frontier markets in Kenya, which have continued to attract investment globally. Portfolio inflows can have two effects in emerging markets; lowering the cost of capital for the economies and helping in financing their growth (Hassan, 2016). According to Nyaga (2017), foreign portfolio investments have benefits to the developing and emerging markets. Foreign direct investment net inflows were high in 1970s supported by high economic growth and favourable market size, but this declined in 1980s mainly due to uncertainty caused by policy reversals, especially implementation of structural adjustment (Nyaga, 2017).

Portfolio flows are theoretical bundles there are also non-voting equity shares which are shares that result in additional issuance of shares by a company which is done without changing the interests of the existing shareholders; Capital flows are an

important feature in the analysis of the vulnerability of financial systems in emerging market economies. Other portfolios in the market include Aggressive Portfolio, income portfolio and speculative portfolio flows (Sakyi, Villaverde, & Maza, 2015).

1.1.2 Growth of the Capital Market in Kenya

The capital markets are regulated by the Capital Markets Authority (CMA); as defined in the Capital Markets Act (Cap. 485) of the Kenyan laws (CMA, 2015). Markets in Kenya have grown rapidly and have shown a great capital rise in capacity in the past years. However, the capital markets in Kenya have faced a lot of challenges slowing its growth (Daily nation, 13 June, 2018). The capital markets have also been having the challenge of an illiquid corporate bond market.

When there is exchange, the hybrid bond market model helps in on and off trading through the introduction and implementation of bonds after a consultancy is procured by CMA. Local currency bonds are done by AfDB insurers as focused by CMA, as markets are inspired by corporate companies that are large and with balance sheets (Daily Nation, May 14, 2019).

1.1.3 Foreign Portfolio Flows and Growth of the Capital Markets

Portfolio flows have benefits to the development and growth of capital markets. The reason given is that investors' participation in the domestic market leads to a lower risk premium of stocks. This induces local investors to offload their stocks as prices increase. They thus proceed to acquire stocks of other companies trading at lower costs, increasing the overall market portfolio equity inflows at the security exchange. As this continues, there is growth of the capital market through resource mobilization and confidence of investors to source for capital through the stock market. The sourcing may be by initial public offers, private settlement or selling of debt securities such as corporate bonds (Jassaud & Kang, 2015).

Portfolio flows to developing countries and capital market have been increasing over time. The increase in foreign portfolio investments in the developing countries is attributed to a number of factors. These factors include the opening up of the capital markets in the early 1990s, which resulted to a shift in external financing from

long term bank loans and official development assistances to private capital inflows (Kaya, Schildbach & Hoffmann, 2015).

1.1.4 Capital Market in Kenya

Capital mobilization has not been well determined by capital market in Kenya, though economic growth can be increased through these funds if they are properly organised (Nassr & Wehinger, 2016). Growth of GDP is maintained through urgent need to add the supply of capital. Citizens can be transferred to the foreign corporations' business ownership through capital market as the medium in Kenya. The stock market is developed through capital market functions which is very efficient. Appropriate investments have been channelled and savings mobilized in the stock market in Southeast Asia by the emerging capital markets (CMA Report, 2019). In Kenya, the capital market has gone through several liberalization reforms from the mid-1990s. This has led to opening up of the market to foreign investment (Nyaga, 2017). As a result, there have been more foreign investors looking for high returns and diversification in Kenya and who have invested through the Nairobi Securities Exchange (NSE) enabling the country to enjoy the benefits associated with foreign portfolio investment. First, with foreign portfolio inflows, the country has seen a decrease in the cost of capital. Secondly, the decreasing costs of capital are enabling companies to finance their growth by listing in Nairobi Securities Exchange.

1.2 Research Problem

Despite numerous efforts to stabilise and enable growth of the capital markets, most of them have been small, underdeveloped and illiquid. Capital markets in developing countries are in isolation, their volumes to trade are low, have low global competition, their national regulations and their capital mobility leads to face barriers as their infrastructure is under developed. The undue unpredictability of stock prices often poses a challenge in the efficient performance of the financial markets and eventually negatively affects the market, which is evident in past occurrences (Omoke, 2010).

As per to Rodrik (2014) in his research on effect of emerging market portfolio flows on capital markets growth in UK found that emerging market portfolio flows have a positive impact on growth of capital markets. On contrary, Bayrakdaroglu, Ege and Yazici (2013) in their article on how emerging market portfolio flows plays a role in

growth of capital markets in Turkey established that emerging market portfolio flows has a limited impact on growth of the Turkish capital markets. Moreover, Obamuyi (2013) in his study in Nigeria on effect of emerging market portfolio flows on growth of capital markets found that emerging market portfolio flows have no significant effect on growth of capital market. Therefore, it is not clear whether emerging market portfolio flows have or don't have an effect on the growth of capital market.

Capital mobilization has not been well emphasized by capital markets in Kenya, thus economic growth can result from capital being properly organized (Ali, 2014). The growth of capital markets have been slowed by challenges they are facing in Kenya. The international investors are being attracted to Kenya but corruption in the country is the major cause of slow flow of foreign capital in the economy (CMA Report, 2019).

Recently the Capital Markets Authority (CMA) have focused on reduction of cheats at the Nairobi Securities Exchange (NSE) which has been a threat to capital markets growth to (CMA Report, 2019). The capital markets have also been having the challenge of an illiquid corporate bond market (Daily Nation, 14 May, 2019). Various studies have been conducted in relation to growth of the capital market in Kenya such as Ozurumba (2012), Nyang'oro (2013), Nyaga (2017) and Gatuhi (2015).E. However, none of the studies focused on impact of portfolio flows on the growth of the capital market in Kenya, a gap that this study sought to bridge.

1.3 Objectives of the Study

The objective of the study was to establish the effect of portfolio flows on the growth of the capital market in Kenya.

1.4 Value of the Study

The study will be important to various stakeholders, chief among them being: To contribute to the existing body of knowledge on the growth of the capital market in Kenya. Investors will also be better placed to manage and further help develop the economy.

The capital markets regulatory authorities will use the information to advise the Government on policymaking and areas local market may be seeking Foreign Direct Investments. Policies must encourage capital growth to attract investors. The

information will also help policymakers better manage the economy and be more efficient in developing stock markets.

Moreover, the research will be of great value to researchers and academicians. This study will contribute to the limited literature that exists in Kenya in regard to the effect of portfolio flows on the growth of the capital market in Kenya and thus, serve as a source of reference for further research. The recommendations for future research will also help researchers to carry out more studies to extend the understanding growth of the capital market in Kenya.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews and analyses previous studies and other related literature. It opens with an attempt to define some aspects of portfolio flows on the growth of the capital markets. The section in this chapter will be Theoretical foundation, empirical studies, summary of the literature and research gap and conceptual framework.

2.2 Theoretical Foundation

This section looks at the theoretical underpinning of the study by specifically reviewing the purchasing power parity, Adam Smith's theory of absolute advantage and the comparative advantage theory.

2.2.1 Purchasing Power Parity (PPP)

The relative national price of a foreign country relative to the level or volatility and exchange rate between a country's relationships is involved in Purchasing power parity (PPP). The domestic currency's unit of purchasing power is the same in the other economy when it is changed to the foreign currency in the absolute PPP exchange rate as stated by PPP (Ahmad, Draz & Yang, 2015). The PPP indicated that the two currencies nominal exchange rate should have an equal ratio (Vives, 2017).

The PPP theory indicates that when a currency of one country buys a basket of goods, the same basket of goods should also cost the same in the foreign country and that exchange rates should be equal in the two countries between buying and selling so that parity can be seen in the two country's currency (Jolliffe & Prydz, 2015). Two currencies exchange rates and their level of difference is determined by their nominal exchange rates which leads to changes in the national price as relative to PPP. The factors include; low power, breaking of structures, error terms which are either stationary or non-stationary and cross sectional dependence that is neglected when usage of exchange rate panel is applied (Jolliffe & Prydz, 2015).

2.2.2 Adam Smith's Theory of Absolute Advantage

Modern economics was founded by Smith (1776) among others and he was among the famous thinkers who were in favour of the establishment of free international trade. Smith (1776) argued that for successful trading to take place between two countries, the two countries must gain from each other and from the process. When one country has an absolute advantage in production of certain goods, the other county advantages from importing of the goods and in return they export the goods that they are absolute good at therefore both economies advantage from each other through the exchange of outputs with each gaining absolute disadvantage.

There will be rise in output of commodities when the resources available are well utilized in free trade. The laissez-faire policy was advocated for by Smith as he believed that all countries would advantage from free trade. There would be maximum welfare and resources would be well utilized under free trade. Most of the investments developing countries have are not well financed due to lack of national savings which is a major problem (Dunkley, 2016).

2.2.3 The Comparative Advantage Theory

The absolute advantage theory based the idea of how to divide labour which then indicated that specialization in production was important in the trade theory. Smith (1776) wrote a book called "The Wealth of Nations' where he explained the advantages that would lead to international trade between all countries and the development that would result from free trade. The international trade's classical theory was created by David Ricardo as generally agreed, despite the fact that there were many ideas on trading before he created the theory.

The theory indicates that international trade is determined by the difference in comparative costs of production in goods. The production techniques are reflected in this difference (Feenstra, 2015). The theory concludes that whatever one country produces is used by the other country while it also provides to the country whatever they produce which bolsters the goals of both nations and thus growth in trade. David Ricardo theory indicates that countries advantage from one another from the goods that they produce then trade with each other despite one not being very productive.

2.3 Determinants of Growth of Capital Market

The public foreign exchange reserves are the major foreign assets that are the structural net private debtors of portfolio flows. The EM domestic assets remain held by foreign investors while their key financial centres are concentrated in the AEs. International trade has been assessed through facilitation of the foreign portfolio investment to promote innovate ways by some governments. Capital markets are growing drastically due to the changes in the environment in trading due to various such as technology, for example in Mexico where the international markets were involved in issuing of bonds.

2.3.1 Portfolio Debt (Bonds) Inflows

The debt crisis was the starting point of the government finding ways to repay foreign loans that had been imposed previously to find a permanent resolution. In 1994, the establishment of the latter of the sovereign credit ratings took place, which led South Africa into re-entering into the international bond markets. Access to International borrowing has provided to the government so that even other borrowers can be able to access the international capital. This step is crucial as most of the borrowers are able to access funds which is key in public sector financing for most of the countries (Bakari, 2017).

Volatility has been experienced less in equity investment than in the South African Foreign portfolio investments. The domestic bond market net transactions and gross volume have a great disparity between monthly flows and the net annual volatility. Since 1997, there has been per quarter basis that are negative in the debt securities of the Net portfolio investment, the South African alternative assets proceeds on investment were chosen for the South African capital outflows as translated by (Najeeb, Bacha & Masih, 2015).

Domestic bonds sales are purchased by non-residents due to repayment of international bonds associated with portfolio debt investment flows. The local debt securities non-resident investment are accounted for by the portfolio debt investment's volatile pattern. There is high liquidity in the domestic bond, where international investors' positions are turned over by interest rates provided by scope (Berensmann, Dafe & Volz, 2015).

2.3.2 Portfolio Equity Inflows

In the past years, the equity inflows volume has varied, where the non-resident's portfolio equity investment has accumulated as a long term and substantial outcome. There was a 37% increase from 7% in GDP in 1994 and 2017 to a drop of 26% in 2008 after the global crisis. The South African equities are held for a long time by investors as it appeared in the reports (López, *et al*., 2018).

Volatile capital flows and frequent international crises are a result of small emerging economies managed by macroeconomic risks and other regulation forms recognized by the approach. Costly policy reversals have continued to be avoided by the sequenced approach, especially when there are periodic domestic currency crises. The 2008 to 2009 global crisis that took place in South Africa was moderately impacted by prudential regulation of foreign exposure as indicated by the government (López, *et al*., 2018).

All other financial markets are covered and organized in the Portfolio investment covers. The financial infrastructure, frameworks for regulations, market-making dealers and a sufficient volume of buyers and sellers are all involved in Portfolio investment. Regulated markets and less public activities are involved in portfolio investment to ensure that shares in hedge funds acquisition is done, private equity funds and venturing of capital (Lin, Kim & Lee, 2015).

2.3.3 Foreign Direct Investment

The countries with very high income close their technology gap through sources of finance such as foreign direct investment, upgrading of managerial skills, and development of export materials and improvement of the efficiency of the economy. Trade has grown rapidly the same as FDI in the past decade for the same reasons (Vives, 2017). FDI which is one of the major effects of large capita is one of the less desirable macroeconomic effects that widens current account deficits. Most of the developing countries are dealing with issues on deficit problems on their current accounts that have led to international capital flows surge in most of the countries.

Portfolio flows have benefits to the development and growth of capital markets. The reason given is that investors' participation in the domestic market leads to a lower risk premium of stocks. This induces local investors to offload their stocks as prices increase (Sunde, 2017). They thus proceed to acquire stocks of other companies trading at lower costs, increasing the overall market portfolio equity inflows at the security exchange. As this continues, there is growth of the capital market through resource mobilization and confidence of investors to source for capital through the stock market. The sourcing may be by initial public offers, private settlement or selling of debt securities such as corporate bonds (Adams, Klobodu & Lamptey, 2017).

2.3.4 Exchange Rates

The currency value is an important factor influencing equity prices and business profitability. The importance of the currency value has been due to the high rise in capital movements and world trade (Akong'a, 2014). Exchange rate changes influence the competitiveness of international companies as it affects the prices of exports and imports. For this reason, the value of a currency affects the overall performance of a company as its affects the flow of cash in the future. For economic theory, variations in investment of a company and its impact is seen in the financial performance of that particular company. Consequently, movements in a firm's operations influence stock returns. Given the long-term view of an investor the share returns will be affected due to the fluctuations of the exchange rate. Exchange rate fluctuations affects translation, transaction and economic exchange risk exposure leading to operating cash flows and firm value changes (Akong'a, 2014).. The stock market is very volatile and what happens in the macro-economic environment is evidently experienced in the share movements. A weak currency can make investor incur huge losses after the translation to the desired currency. A depreciation in the currency leads to a depressed security market (Jamil & Ullah, 2013).

Exchange rate risk occurs as a result of investing in foreign stock markets. Higher exchange rate uncertainty leads to a high-risk premium. With the drastic exchange rate changes, higher investment returns are demanded because of the high expected risk. This leads to a decline in the stock market performance due to lowered discounted value of expected future cash flow (Rabai & Khakan, 2016). This exchange rate risk

exposure is as a result of investing in foreign stock markets. In such a case, higher exchange rate will tend to highly result to the local stock market volatility thus highly affecting the local stock market performance. The inverse is experienced in the foreign stock market performance. This comes as a result of the exchange rate being more correlated with the performance of the local stock market than the foreign market performance (Nyongesa & Muchoki, 2016).

2.3.5 Inflation

Inflation is a macro-economic factor that a number of scholars have identified to influence the business environment (Kimani & Mutuku, 2013). Inflation is the sudden increase in the prices of products both goods and services in an economy which leads to fall in purchasing power or value of money (Ahmad & Naseem, 2011). The effect of inflation was realized if the inflation was anticipated. This is because the markets have sufficient time to adjust their interest rates accordingly. High rates of inflation can have very adverse effects to the securities market. Many market participants will lack the purchasing power to invest in the securities market leading to low market portfolio equity inflows. The lower the number of investors in the stock markets the lower the demand of the shares leading to low prices. The low prices discourage the shareholder from participated due to fear to incur losses (Ariss, 2014).

High inflation rates can also affect the purchasing power of consumers in the economy. Therefore they may use most of, if not entirely, their income in consumption and thus may not have money left for savings to be deposited in banks which in turn reduces the cash reserves and limits the ability to issue loans (Ahmad & Naseem, 2011). This leads to reduced profitability.

2.3.6 Gross Domestic Product Growth

The annual financial value calculated from the final goods and services is called Gross domestic product (GDP). The amount of goods and services' total output of the economic growth is GDP. The production of goods and services by an economy and the value created for a period of time is also termed as GDP. More valuable ways that resources are rearranged leads to economic growth. Nominal terms are used in measuring of economic growth for example by use of inflation which leads to increase in GDP (Byrne & Fiess, 2016).

Development aspects are measured through monetary terms which result to economic growth. Here is both negativity and positivity in economic growth. When there is shrinking in economic growth, then it is said to be negative. Recession and depression in the economy is also termed as negative growth. Gross domestic product is also used in measuring of Gross national product (GNP) as an alternative. Economic growth results from institutions and markets that function well, augment technological innovation and capital accumulation. Thus GDP growth rates are enhanced by higher returns from projects and allocation of capital (Laichena & Obwogi, 2015).

2.4 Empirical Review

Previuosly studies has been done on growth of the capital markets such as Ozurumba (2012) studied the effects foreign portfolio flows have on stock returns in Nigeria. He used linear regression analysis to capture the effects of foreign portfolio flows as well as inflation on the returns in the securities exchange and Granger causality to analysis the direction of causality between the variables.

Chepkoiwo (2011) did a study on factors affecting the development of emerging capital markets based on the case of Nairobi Stock Exchange. The study establishes both the external (macro-economic and social cultural factors) and market (legal, regulatory and Institutional) factors which have constrained the development of the Stock Market. However, there are some variables which didn't clearly show the above relationship, namely macroeconomic stability-inflation and private capital inflows. Using the regression analysis, the study established that liquidity of the stock market, quality of the institution, capital's income, inflation stability, domestic savings, capital flows and development of the bank are the determinants of stock market development.

Nyang'oro (2013), study on the effects of portfolio flows on stock market performance shows that the returns at Nairobi Securities Exchange are affected by portfolio flows. Using arbitrage pricing theory(APT) in the study, Nyang'oro found that foreign portfolio flows push stock prices up when they come in, which may be due to rising demand. The paper also found that exchange and interest rates are significant in determining stock market performance, which he linked to market portfolio equity inflows. With higher prices and stability of interest rates, there are more inflows of foreign investors in the country.

Further, Nyaga (2017) did a study on Effects of Foreign Portfolio Flows on the Capital Market in Kenya. This research paper aims at studying the foreign portfolio investment and how they related to market portfolio equity inflows in Kenya. The paper uses the neoclassical theories of capital flows in developing the analysis. The study uses secondary data in carrying out the analysis. For this purpose, times series monthly data from 2007 to 2015 is used. On the basis of stationary ordinary least square model is used to examine how foreign portfolio investment, interest rates, exchange rate, and returns in foreign and domestic markets influence and affect market portfolio equity inflows in Kenya. The study shows that there is a significant positive impact of foreign portfolio investment on market portfolio equity inflows in the Kenyan capital market.

In addition, Omoke (2010) did a study on the relationship between capital market development and economic growth in Kenya. Causal research design was used for this study. The population of the study was all the listed firms at the Nairobi Stock Exchange for the period 2004-2009. The Central bank of Kenya provided economic growth figures for the same period. There are 47 listed firms at the Nairobi stock exchange. The sampling procedure for this study was simple random sampling. The researcher used financial institutions that had been listed in the NSE in the years between 2004 and 2009 to come up with the sample size. The sample size for this study was therefore 8 financial institutions and the sample period was 2004-2009. Secondary data was used for this study. The data collected for the study was analyzed using a multivariate regression model. Statistical package for social sciences (SPSS) version 17 was used to aid in analysis of the data. The independent variables of this study are market portfolio equity inflows, trading volume, and change in stock market prices. Where Y was economic growth indicated by GDP per capita growth and GDP growth rate, X1 was market portfolio equity inflows, X2 was trading volume, and X3 was change in stock market prices. This study concludes that capital market development affects the growth of the financial sector. This study also revealed that market portfolio equity inflows, change in stock market price and trading volume affect economic growth

NSE was investigated by Gatuhi (2015) on how its stock market Performance was influenced by macroeconomic environment. How stock market performance was influenced by exchange rate, Interest rates, inflation and Money supply was established as the study objectives in Kenya. The study used the companies that were active in NSE

between January 2004 to November 2014 and a causal research design was also adopted. The study also made use of Time Series Regression model to examine how the variables related. Stock market performance was positively influenced by inflation while all other sectors were influenced negatively. The Automobile sectors' stock market Performance was negatively influenced by money supply and all other sectors were positively influenced as the study concluded.

2.5 Summary of Empirical Literature and Research Gap

Various studies have been conducted in relation to growth of the capital market in Kenya. For instance, Ozurumba (2012) studied the effects foreign portfolio flows have on stock returns in Nigeria, Chepkoiwo (2011) did a study on factors affecting the development of emerging capital markets based on the case of Nairobi Stock Exchange, Nyang'oro (2013), the effects of portfolio flows on stock market performance show that the returns at Nairobi Securities Exchange are affected by portfolio flows and Nyaga (2017) did a study on Effects of Foreign Portfolio Flows on the Capital Market in Kenya. In addition, Gatuhi (2015) did a study on influence of macroeconomic environment on the stock market Performance at the NSE. However none of the studies focused on impact of portfolio flows on the growth of the capital market in Kenya, a gap that this study seeks to bridge.

2.6 Conceptual Framework

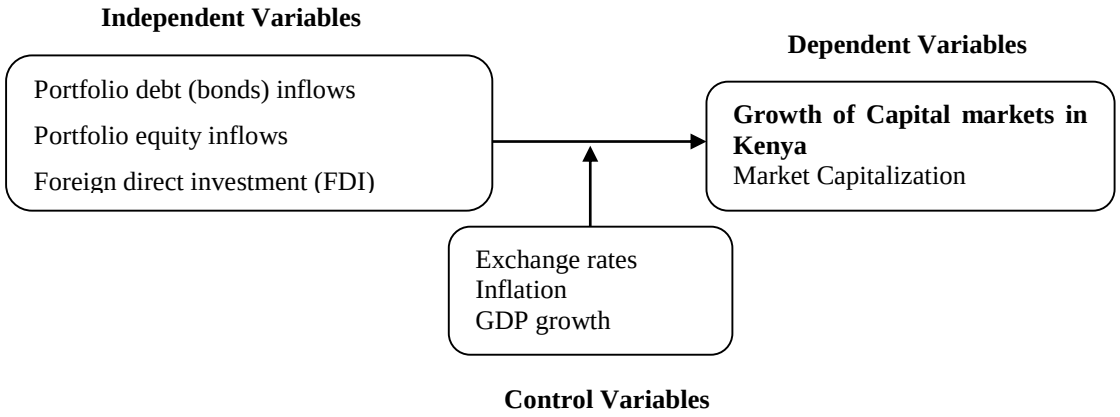

Figure 1: Conceptual Framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter includes the various stages that was followed to complete the study. Therefore, the chapter comprise of the following subsections: research design, target population, sample population, data collection and analysis techniques.

3.2 Research Design

The research problems answers are generated through an outlined plan or scheme known as a research design according to Lewis (2015). The investigation's structure and plan is the research design. A quantitative comparative design was adopted by the study to quantify the variables' relationship. In particular, the study used descriptive research design because it seeks to establish how emerging market portfolio flows is related with growth of the capital markets in Kenya.

3.3 Data Collection

Data from CMA, CBK, KNBS, KIPPRA, and Ministry of Finance, public libraries, national budget and other government records and World Integrated Trade Solution (WITS) was collected as the study's secondary data. The researcher collected secondary data form all the reviewed variables under study. The secondary data was from 2009 to 2018 a period of 10 years. The monthly data collected included Growth of the capital market, Portfolio debt (bonds) inflows, Portfolio equity inflows and foreign direct investment (FDI).

3.4 Diagnostic tests

The Augmented Dickey-Fuller (ADF) tests were used to establish the presence of a unit root through the stationarity test that was conducted. Presence of a unit root was determined when a null hypothesis of less that 5% p-value was implied. The tabulated critical value helped compare the DF_T statistic calculated. There was rejection of the unit root null hypothesis if the table value was negative of DF_T statistic. The unit root

of null hypothesis were more rejected when there is stronger evidence of a DF test statistic that is more negative.

To find out whether the variables had a long term or short term relationship was conducted through the VAR analysis before Cointegration prior. The presence of cointegration was detected using the Johansen test. The data was concluded not to be normally distributed f the there is a less than 0.05 p-value obtained. Mulicolinearlity was tested using all the variable's VIF values. Multicollinearity symptoms were found when the variable was found to have a less than 10 VIF value.

3.5 Data Analysis

The collected data was sorted in Ms Excel and the analysed using the Statistical Package for Social Sciences (SPSS version 25.0). The study used quantitative analysis through descriptive statistics such as central tendency measures to generate relevant percentages, frequency counts, kurtosis and skewness and mean and standard deviation. Inferential statistics was also adopted where the study conducted regression analysis to establish the association between portfolio flows and growth of the capital market in Kenya.

3.5.1 Analytical Model

To calculate the relationship between market portfolio flows and growth of the capital market in Kenya the study adopts a regression formula:

$$Y = \beta o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon$$

Where;

Y is the Growth of the capital market in Kenya

$\boldsymbol{\beta_0}$, is the constant; $\boldsymbol{\beta_1, \beta_2}$ **and** $\boldsymbol{\beta_3}$ are the regression coefficients

$\mathbf{X_1}$ is the Natural logarithm of Portfolio debt (bonds) inflows

$\mathbf{X_2}$ is the Natural logarithm of Portfolio equity inflows

$\mathbf{X_3}$ is the Natural logarithm of foreign direct investment (FDI)

$\mathbf{X_4}$= Real Exchange Rate

$\mathbf{X_5}$ = Inflation Rate

$\mathbf{X_6}$= Real GDP growth rate

$\boldsymbol{\varepsilon}$ is the error term

Measurement of the variables is shown in Appendix II

3.5.2 Tests of significance

To measure the extent to which the variations in Growth of the capital market in Kenya are explained by portfolio flows, the study used the coefficient of determination (R^2). The study was also computed F-statistic and t-statistics at 95% confidence level to test whether there is any significant relationship between portfolio flows and growth of the capital market in Kenya.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1 Introduction

This chapter illustrates sections that give the analysis of the data collected concerning the relationship between foreign portfolio flows and growth of capital market in Kenya, its presentation (in tables) and the subsequent interpretation of the findings that were drawn.

4.2 Descriptive Statistics

This presents the general description of the study variables characteristics including the Mean, standard deviation (Std. Dev), Skewness and Kurtosis.

Table 4. 1: Descriptive Statistics

	N	Min	Max.	Mean	Std. Dev.	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Capital market growth	120	7.66	8.67	8.064	0.404	.361	.221	-1.755	.438
Portfolio debt (bonds) inflows	120	13.15	14.82	13.885	0.546	.290	.221	-1.306	.438
Portfolio equity inflows	120	4.13	10.32	8.557	1.139	-1.482	.221	2.909	.438
Foreign direct investment (FDI)	120	5.31	5.80	5.550	0.108	-.057	.221	-.429	.438
Real Exchange Rate	120	7.47	10.53	9.084	0.952	.053	.221	-1.461	.438
Inflation Rate	120	3.93	17.07	8.074	3.607	1.285	.221	.510	.438
Real GDP growth rate	120	1.70	10.30	5.591	1.593	.266	.221	1.114	.438

From the findings, the study revealed that capital market growth had a mean of 8.064, portfolio debt (bonds) inflows had a mean of 13.885, portfolio equity inflows had a mean of 8.557, foreign direct investment (FDI) had a mean of 5.550, real exchange rate had a mean of 9.084, inflation rate had a mean of 8.074 and real GDP growth rate had a mean of 5.591. On skewness the results showed that capital market growth, Portfolio debt (bonds) inflows, real exchange rate, inflation rate and real GDP growth rate are asymmetrical to the right around their mean. On the kurtosis, all the variables exhibited negative kurtosis except portfolio equity inflows, inflation rate and real GDP growth rate.

4.3 Diagnostic Tests

The conducted diaagnostic tests were to evaluate the model assumptions and investigate whether or not there are observations with a large, undue influence on the analysis. The study conducted stationarity test/ unit root test, cointegration test, normality test, multicollinearity and autocorrelation.

4.3.1 Stationarity Test/ Unit Root Test

The study conducted a stationarity test to establish the presence of a unit root using Augmented Dickey-Fuller (ADF) tests. The findings are as shown in Table 4.2.

Table 4. 2: Stationarity Test/ Unit Root Test

	Critical value at 95%	DFT statistic	P-value
Growth of the capital market in Kenya	-2.661	-3.170	0.001
Natural logarithm of Portfolio debt (bonds) inflows	-2.661	-3.236	0.043
Natural logarithm of Portfolio equity inflows	-2.661	-4.647	0.000
Natural logarithm of foreign direct investment (FDI)	-2.661	-3.654	0.006
Real Exchange Rate	-2.661	-3.095	0.002
Inflation Rate	-2.661	-4.725	0.000

From the findings, the p-values for all the variables were less than 0.05 and the DFT statistic were more negative than their corresponding critical values. This is an

indication that null hypothesis that there is a unit root was rejected and study concluded that the variables did not have unit roots.

4.3.2 Autocorrelation

The study conducted Breusch Godfrey LM test to confirm if there is autocorrelation. The findings are shown in Table 4.3.

Table 4. 3: Autocorrelation Results

F-Statistic	18.308	Prob. (6,113)	.000
Obs*R-square	40.936	Prob. Chi-Square (2)	.001

From the findings, it's clear that p-values for the Chi-square statistic is less 0.05 and hence the residuals of the empirical model are not auto correlated.

4.3.3 Cointegration Test

The study used Johansen test to detect presence of cointegration. The findings are as shown in Table 4.3.

Table 4. 4: Cointegration Test Results

	Eigen Value	**Trace Statistic**	**Critical value at 95%**	**P-value**
Natural logarithm of Portfolio debt (bonds) inflows	0.134	23.45	26.09	0.000
Natural logarithm of Portfolio equity inflows	0.094	61.23	62.12	0.001
Natural logarithm of foreign direct investment (FDI)	0.307	21.09	26.90	0.009
Real Exchange Rate	0.068	18.78	19.11	0.011
Natural logarithm of Portfolio debt (bonds) inflows	0.193	27.32	28.92	0.010

From the findings, the study shows that all the variables had their p values less than 0.05 and hence the study concluded that variables exhibit long-run or short run relationship.

4.4 Pearson Correlation Analysis

According to Ward (2013), correlation technique was used to analyze the degree of association between two variables. Pearson correlation coefficient was used to determine the strength and the direction of the relationship between the dependent variable and the independent variable. The analysis using Pearson's product moment correlation was based on the assumption that the data is normally distributed and also because the variables are continuous.

Table 4. 5: Correlation Matrix

		Growth of the capital market	Portfolio debt (bonds) inflows	Portfolio equity inflows	Foreign direct investment (FDI)	Real exchange rate	Inflation rate	Real GDP Growth Rate
Growth of the capital market	Pearson Correlation	1						
	Sig. (2-tailed)	.						
Portfolio debt (bonds) inflows	Pearson Correlation	. 724	1					
	Sig. (2-tailed)	.023	.					
Portfolio equity inflows	Pearson Correlation	.711	.513	1				
	Sig. (2-tailed)	.027	.026	.				
Foreign direct investment (FDI)	Pearson Correlation	.822	.423	.327	1			
	Sig. (2-tailed)	.028	.012	.018	.			
Real exchange rate	Pearson Correlation	.672	.533	.520	.431	1		
	Sig. (2-tailed)	.001	.009	.002	.014	.		
Inflation rate	Pearson Correlation	.616	.501	.412	.418	.312	1	
	Sig. (2-tailed)	.006	.000	.002	.014	.003	.	
Real GDP Growth Rate	Pearson Correlation	.706	.478	.512	.339	.417	.278	1
	Sig. (2-tailed)	.042	.009	.002	.014	.001	.000	.

As per findings in Table 4.5, there is a positive relationship between growth of the capital market and portfolio debt (bonds) inflows as shown by coefficient of 0.724, a positive relationship between growth of the capital market and portfolio equity inflows as shown by coefficient of 0.711, a positive relationship between

growth of the capital market and foreign direct investment (FDI) as expressed by coefficient of 0.822, a positive relationship between growth of the capital market and real foreign exchange as expressed by coefficient of 0.672, a positive relationship between growth of the capital market and inflation rate as illustrated by a coefficient of 0.616 and a positive relationship between growth of the capital market and real GDP growth rate as expressed by coefficient of 0.706. This shows all variable were significant in determining the growth of the capital market in Kenya.

4.5 Regression Analysis

Inferential statistics was also adopted where the study conducted regression analysis to establish the association between portfolio flows and growth of the capital market in Kenya. To calculate the relationship between market portfolio flows and growth of the capital market in Kenya the study adopts a regression formula:

$$Y = \beta o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon.$$

Table 4. 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.796[a]	.633	.614	.25093

From the findings as represented by the adjusted R^2, the independent variables that were studied explained 61.4% of the variations in growth of the capital market in Kenya. This therefore means the six variables contributed 61.4% of the variations in growth of the capital market in Kenya while other factors not studied in this research contributes 38.6%.

Table 4. 7: ANOVA Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.294	6	2.049	32.541	.000[b]
	Residual	7.115	113	.063		
	Total	**19.409**	**119**			

The findings were found to be ideal in making the study's conclusions as established by the ANOVA statics in the regression model that showed a 0.05% significance level as it was less than 5%. The critical value was less than the calculated value (=2.4205) an indication that portfolio flows and growth of the capital market in Kenya.

Table 4. 8: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.564	0.855		2.999	.004
	Portfolio debt (bonds) inflows	0.767	0.293	0.618	2.618	.012
	Portfolio equity inflows	0.736	0.214	0.598	3.439	.000
	Foreign direct investment (FDI)	0.825	0.239	0.713	3.452	.001
	Real exchange rate	0.658	0.278	0.581	2.367	.021
	Inflation rate	0.643	0.204	0.459	3.152	.002
	Real GDP Growth Rate	0.712	0.189	0.661	3.767	.000
a. Dependent Variable: Growth of the capital market in Kenya						

The coefficient of regression in table 4.8 above was used in coming up with the model below:

$$\mathbf{Y = 2.564 + 0.767X_1 + 0.736X_2 + 0.825X_3 + 0.658X_4. + 0.643X_5 + 0.712X_6}$$

Where:

X_1 = Portfolio debt (bonds) inflows; X_2 = Portfolio equity inflows; X_3= Foreign direct investment (FDI); X_4 = Real Exchange Rate; X_5= Inflation Rate; X_6 = Real GDP growth rate. From the findings, taking all factors constant at zero, growth of the capital market in Kenya was 2.564. The data findings also illustrates that taking all other independent variables at zero, a unit growth in Portfolio debt (bonds) inflows will lead to a 0.767 increase in growth of the capital market in Kenya; a unit increase in portfolio equity inflows lead to a 0.736 increase in growth of the capital market in Kenya; a unit increase in foreign direct investment (FDI) will translate to a 0.825 increase in growth of the capital market in Kenya; a unit increase in real exchange rate will lead to 0.658 increase in growth of the capital market in Kenya; a unit increase in inflation rate will lead to 0.643 increase in growth of the capital market in Kenya; a unit increase in real GDP growth rate will lead to 0.712 increase in growth of the capital market in Kenya. As per the model, all the variables were vital as their P- value was less than 0.05.

4.6 Interpretation of the Findings

From the above regression model, the study found out that, Portfolio debt (bonds) inflows; Portfolio equity inflows; Foreign direct investment (FDI); Real Exchange Rate; Inflation Rate and Real GDP growth rate had a positive and significant relationship with growth of the capital market in Kenya. The study concluded that the intercept was 8.422 for all years.

The six independent variables that were studied (Portfolio debt (bonds) inflows; Portfolio equity inflows; Foreign direct investment (FDI); Real Exchange Rate; Inflation Rate and Real GDP growth rate) explain a substantial 61.4% of growth of the capital market in Kenya as represented by adjusted R^2 (0.614). This consequently meant that the four variables add to 61.4% of liquidity ratio, while other factors not studied in this research contribute 38.6% of growth of the capital market in Kenya. This is in line with Bakari (2017) who argues that access to International borrowing has provided to the government so that even other borrowers can be able to access the international capital. This step is crucial as most of the borrowers are able to access funds which is key in public sector financing for most of the countries.

The study found that Portfolio debt (bonds) inflows with a coefficient of 0.767 meant that it is positively and significantly related to growth of the capital market in Kenya. This is in line with Najeeb, Bacha and Masih (2015) who argues that domestic bonds sales are purchased by non-residents due to repayment of international bonds associated with portfolio debt investment flows. The local debt securities non-resident investment are accounted for by the portfolio debt investment's volatile pattern.

The study established that portfolio equity inflows as shown by a coefficient of 0.736 means that it is positively and significantly related to growth of the capital market in Kenya. This concurs with López, *et al*. (2018) who argues that volatile capital flows and frequent international crises are a result of small emerging economies managed by macroeconomic risks and other regulation forms recognized by the approach. Costly policy reversals have continued to be avoided by the sequenced approach, especially when there are periodic domestic currency crises or there is a global financial crisis

The study established that foreign direct investment (FDI) with a coefficient of 0.825 meant that it is positively and significantly related to growth of the capital market in Kenya. This is in line with Vives (2017 who noted that FDI which is one of the major effects of large capita is one of the less desirable macroeconomic effects that widens current account deficits. Most of the developing countries are dealing with issues on deficit problems on their current accounts that have led to international capital flows surge in most of the countries.

The study established that real exchange rate with a coefficient of 0.658 meant that it is positively and significantly related to growth of the capital market in Kenya. The study also established that a unit increase in inflation rate will lead to 0.643 increases in growth of the capital market in Kenya and that unit increase in real GDP growth rate will lead to 0.712 increases in growth of the capital market in Kenya. This conforms to Akong'a (2014) who noted that exchange rate changes influence the competitiveness of international companies as it affects the prices of exports and imports. For this reason, the value of a currency affects the overall performance of a company as its affects the flow of cash in the future.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter covers a summary, conclusion and recommendations of the findings on effect of portfolio flows on growth of the capital market in Kenya. This chapter presents the summary of the findings, conclusions of the study, recommendations of the study, limitation of the study and suggestions for further studies.

5.2 Summary

Despite numerous efforts to stabilise and enable growth of the capital markets, most of them small, underdeveloped and illiquid. Capital markets that are in isolation, their volumes to trade are low, have low global competition, their national regulations and their capital mobility leads to face barriers as their infrastructure is under developed. The undue unpredictability of stock prices often poses a challenge in the efficient performance of the financial markets and eventually negatively affects the market, which is evident in past occurrences

A quantitative comparative design was adopted by the study to quantify the variables' relationship. The target population for this study was the Capital Market in Kenya comprising of both the debt and equity markets over a ten year period from 2009 to 2018. The research used secondary information that was obtained from Data from CMA, CBK, KNBS, KIPPRA, and Ministry of Finance, public libraries, national budget and other government records and World Integrated Trade Solution (WITS). The collected data was therefore sorted, coded and analytically arranged in a way that can facilitate it. The study found that the independent variables contribute to 61.4% of growth of the capital market in Kenya and that a unit increase in Portfolio debt (bonds) inflows leads to 0.767 increases in growth of the capital market in Kenya. From the findings, the study concludes that Portfolio debt (bonds) inflows is positively and significantly related to growth of the capital market in Kenya . The study concluded that portfolio equity inflows is positively and significantly related to growth of the capital market in Kenya.

The study established that foreign direct investment (FDI) is positively and significantly related to growth of the capital market in Kenya. The study established that real exchange rate is positively and significantly related to growth of the capital market in Kenya. The study also established inflation rate and real GDP growth rate as control variables are significantly related to growth of the capital market in Kenya.

5.3 Conclusion

The study established that real exchange rate with a coefficient of 0.658 meant that it is positively and significantly related to growth of the capital market in Kenya. The study also established that a unit increase in inflation rate will lead to 0.643 increases in growth of the capital market in Kenya and that unit increase in real GDP growth rate will lead to 0.712 increases in growth of the capital market in Kenya. Exchange rate changes influence the competitiveness of international companies as it affects the prices of exports and imports. For this reason, the value of a currency affects the overall performance of a company as its affects the flow of cash in the future.

5.4 Limitations

The study was limited to foreign portfolio flows only as the determinant of capital market growth in Kenya and yet there are many factors which affect growth of capital market like stock market liquidity. The study was also limited to capital market in Kenya only. The study was limited to CMA only and the study was also limited to 10 year period from year 2009 to year 2018.

The study was limited to secondary data, which was collected from CMA, CBK, KNBS, KIPPRA, and Ministry of Finance, public libraries, national budget and other government records and World Integrated Trade Solution (WITS). The research considered the relationship between portfolio flows and growth of the capital market in Kenya. However, there are other factors that might be significantly related to growth of the capital market in Kenya.

The quality of data was another limitation, whereby the study employed secondary data that is already obtained and accessible unlike primary data that is a first-hand information whose quality can be enhanced. Secondary data once they are recorded cannot be altered,

therefore if errors were made in arriving at that amount then there are no chances of rectifying and therefore the result can be affected by those errors.

5.5 Recommendations

The study recommends that measures should be put in place to ensure that inflows of short term capital are not disruptive as they lead to appreciation of the currency, making the country uncompetitive, and increase in interest rates leading to high costs of credit and affects investment. Hence, with the growing volume of short-term capital flows into the country, focus should be on how well the inflows can be harnessed to support growth, while at the same time ensuring macroeconomic stability.

The study also recommends that foreign investors liquidate their positions due to so many factors including but not limited the expectations and sentiments of foreign investors, terrorism, political instability and sovereign risk. The study recommends that the government should put in place measures that discourage foreign outflows.

The study further recommends improvement of the participation of local investors in the capital market. The capital market regulator, CMA, should increase investor education and awareness campaigns for local investors so that their participation at the stock market can increase. Active participation of local investors is necessary to drive liquidity and bring confidence to the market and this may further attract the foreign investors, creating a mutually beneficial cycle. In addition, increased participation of the local investors will make the stock market to withstand the shock of unexpected foreign portfolio outflows.

Monetary authorities should ensure macroeconomic stability prevails, especially in the exchange rate and interest rates as this will reduce uncertainty and improve confidence in the stock market fuelling further participation of the foreign investors.

The study also recommends favourable legal and taxation rules. FDI inflow should be encouraged to develop stock market and economy as well and measures should be put in place to ensure continued flow of Foreign Portfolio Equity Investments into the stock market. The government should ensure that certain regulations such as the recently re-introduced capital gains tax do not unnecessarily interfere with the operations of the

stock market as this may make the market less competitive as compared to other markets in the emerging economies.

5.6 Recommendations for Further Research

The study established that 61.4% of the variations in growth of the capital market in Kenya was attributed to foreign portfolio flows and control variables. Therefore, there a need to conduct another study based on other factors affecting growth of capital market which have not been covered in this study like stock market liquidity.

The study used secondary data. Primary data should also be used to see if the same result findings still hold. This study targeted Capital markets. Further research should be done targeting to establish the relationship between the portfolio flows and financial performance.

Finally, further research should involve a panel data that cuts across more than 20 years. The current study only focused 1999 to 2018 data. This study was done in Kenya only and hence future researchers should extend the population of the study to cover East Africa region.

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APPENDICES

Appendix I: Secondary Data Collection Sheet

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Value of the Exports										
Value of the Imports										
Portfolio debt (bonds) inflows (country's debt that has been borrowed from foreign lenders including commercial banks, governments or international financial institutions)										
Portfolio equity inflows										
Actual FDI inflow										
Market portfolio equity inflows										

Appendix II: Measurement of the Variables

Y is the Growth of the capital market in Kenya measured by market capitalisation.

Market capitalisation = (Cost per share) x (Number of shares)

$$Growth = \frac{Market\ capitalisation_{(t)} - Market\ capitalisation_{(t-1)}}{Market\ capitalisation_{(t-1)}}$$

β_0, is the constant; β_1, β_2 **and** β_3 are the regression coefficients

X_1 is the Natural logarithm of Portfolio debt (bonds) inflows

X_2 is the Natural logarithm of Portfolio equity inflows

X_3 is the Natural logarithm of foreign direct investment (FDI)

X_4= Real Exchange Rate

X_5 = Inflation Rate

X_6= Real GDP growth rate

ε is the error term

Appendix III: Secondary Data

		Portfolio debt flows			Portfolio equity flows			FD1(US$ MILLIONS)	FDI		Inflation rate		Real exchange rate		Real GDP		CMA Growth
		values	Ln		values	Ln		values	Ln								
2018	JAN	2,723,734.27	14.81751		16469.21	9.709248		308.2	5.730749		4.69		7.895		6.6		7.71
2018	FEB	2,709,008.39	14.81209		10847.33	9.291674		307	5.726848		4.59		7.9533		5.6		7.7
2018	MARCH	2,654,689.44	14.79184		5812.66	8.667794		312.4	5.744284		4.53		8.0261		5.8		7.69
2018	APRIL	2,605,334.58	14.77307		4232.89	8.35064		318.2	5.76268		4.53		7.9626		5.9		7.69
2018	MAY	2,611,403.10	14.7754		8904.91	9.094358		307.4	5.72815		4.63		7.7861		6.7		7.68
2018	JUNE	2,601,071.15	14.77143		8233.93	9.016019		329.4	5.797273		4.95		7.7851		6.4		7.68
2018	JULY	2,560,199.43	14.7556		62.28	4.13164		308.4	5.731398		5.2		7.6751		6.6		7.67
2018	AUG	2,573,126.24	14.76063		5711.10	8.650167		321.5	5.772998		5.61		7.6372		5.3		7.67
2018	SEPT	2,562,178.53	14.75637		8512.55	9.049297		287.3	5.660527		6.24		7.5605		6.1		7.66
2018	OCT	2,512,430.94	14.73676		6214.82	8.734692		301.8	5.709765		6.89		7.5244		7		7.69
2018	NOV	2,563,074.05	14.75672		16047.49	9.683308		309.5	5.734958		7.4		7.4739		6.8		7.68
2018	DEC	2,377,522.47	14.68157		6168.19	8.727161		297.7	5.696086		7.79		7.5431		7		7.68
2017	JAN	2,349,284.44	14.66962		4464.76	8.403971		280.3	5.63586		7.98		7.5786		4.4		7.7
2017	FEB	2,357,226.48	14.673		5683.46	8.645315		271.7	5.604699		8.15		7.673		4.6		7.7
2017	MARCH	2,353,124.93	14.67125		8354.97	9.030612		291.1	5.673667		8.33		7.6947		4.8		7.69
2017	APRIL	2,310,198.99	14.65284		3413.08	8.13537		296.4	5.69171		8.4		7.7254		5.3		7.71
2017	MAY	2,309,775.39	14.65266		8129.56	9.003262		279.9	5.634432		8.36		7.8541		5.7		7.7
2017	JUNE	2,305,538.33	14.65082		2317.52	7.748253		281.6	5.640488		8.21		8.1018		3.9		7.7
2017	JULY	2,294,735.88	14.64613		5075.73	8.532226		297.2	5.694405		8.13		8.1426		4.6		7.71
2017	AUG	2,187,224.33	14.59814		2100.88	7.650112		291.2	5.67401		7.84		8.044		5.4		7.71
2017	SEPT	2,167,254.83	14.58897		6561.53	8.788979		266.6	5.585749		7.2		8.0912		4.9		7.7
2017	OCT	2,159,068.94	14.58519		8280.64	9.021676		278.3	5.6287		6.76		8.0714		5.6		7.71
2017	NOV	1,993,173.80	14.50524		1788.51	7.489138		278.2	5.62834		6.43		8.046		5		7.71
2017	DEC	1,992,795.15	14.50505		353.55	5.868025		266.9	5.586874		6.26		8.0568		4.6		7.7
2016	JAN	1,896,443.05	14.45549		7716.35	8.951097		239.5	5.478553		6.3		8.1029		6.6		7.72

2016	FEB	1,834,914.33	14.42251		2774.54	7.92824		244.2	5.497988		6.43		8.1473		6.7		7.7
2016	MARCH	1,844,474.96	14.42771		18024.97	9.799513		239.9	5.480222		6.48		8.4206		5.3		7.71
2016	APRIL	1,849,019.87	14.43017		5697.56	8.647793		235.1	5.460011		6.5		8.389		6.1		7.71
2016	MAY	1,803,260.48	14.40511		2580.59	7.855773		239.8	5.479805		6.47		8.5433		7		7.7
2016	JUNE	1,797,696.38	14.40202		6817.81	8.827294		239.4	5.478136		6.44		8.9049		5.9		7.72
2016	JULY	1,803,256.30	14.4051		18007.50	9.798544		239.7	5.479388		6.46		8.9898		6		7.71
2016	AUG	1,680,631.83	14.33468		7559.14	8.930513		238.9	5.476045		6.59		9.2786		4.8		7.71
2016	SEPT	1,685,269.16	14.33744		1801.46	7.496353		253.5	5.535364		6.72		9.6357		4		7.72
2016	OCT	1,665,578.04	14.32568		1938.49	7.569665		238.8	5.475626		6.88		10.127		5.8		7.7
2016	NOV	1,646,555.21	14.3142		9054.21	9.110985		231.9	5.446306		6.87		9.3676		5.9		7.72
2016	DEC	1,654,744.49	14.31916		1591.56	7.37247		238.7	5.475208		6.77		8.6663		6.7		7.71
2015	JAN	1,615,184.20	14.29496		5699.10	8.648064		261	5.56452		6.58		8.6343		6.4		7.71
2015	FEB	1,562,515.56	14.26181		8513.57	9.049417		261	5.56452		6.42		8.3176		6.6		7.72
2015	MARCH	1,490,713.76	14.21477		6201.88	8.732608		256	5.545177		6.31		8.2897		5.3		7.71
2015	APRIL	1,550,232.74	14.25392		16147.43	9.689516		258	5.55296		6.29		8.3188		6.1		7.71
2015	MAY	1,530,678.61	14.24122		6668.02	8.805078		241	5.484797		6.34		8.4384		7		7.72
2015	JUNE	1,473,143.70	14.20291		2436.57	7.798347		271	5.602119		6.54		8.4789		5.6		7.71
2015	JULY	1,408,613.59	14.15812		3982.82	8.289745		261	5.56452		6.63		8.414		5.8		7.72
2015	AUG	1,381,156.98	14.13843		12164.69	9.406293		262	5.568345		6.65		8.4075		4.8		7.71
2015	SEPT	1,326,835.19	14.09831		2805.46	7.939323		261	5.56452		6.69		8.4613		5.1		7.71
2015	OCT	1,278,107.87	14.06089		2074.55	7.6375		269	5.594711		6.63		8.5112		4.9		7.72
2015	NOV	1,296,748.46	14.07537		4442.90	8.399063		258	5.55296		6.63		8.5629		5		7.72
2015	DEC	1,163,350.79	13.96682		5366.94	8.588013		281	5.638355		6.74		8.5994		5.8		7.71
2014	JAN	1,170,696.28	13.97311		353.44	5.867714		282.7	5.644386		6.88		8.69		5.9		7.73
2014	FEB	1,088,951.54	13.90073		1791.20	7.490641		281.9	5.641552		6.97		8.7446		6.4		7.71
2014	MARCH	1,088,832.15	13.90062		10276.86	9.23765		282.8	5.64474		7.08		8.5818		5.6		7.72
2014	APRIL	1,087,827.67	13.89969		15480.92	9.647364		283.4	5.646859		7.19		8.4189		5.2		7.72
2014	MAY	1,090,984.32	13.90259		15576.02	9.653488		282.1	5.642262		7.33		8.4146		7		7.71
2014	JUNE	1,089,655.77	13.90137		12122.10	9.402786		282.9	5.645093		7.19		8.5488		5.3		7.94

2014	JULY	1,085,928.57	13.89795		7632.59	8.940183		285.8	5.655292		7.05		8.6859		5.2		8.12
2014	AUG	957,893.23	13.77249		9494.42	9.15846		282.1	5.642262		6.85		8.7493		4.2		8.28
2014	SEPT	950,981.15	13.76525		1453.81	7.281943		286	5.655992		6.58		8.7413		5.1		8.41
2014	OCT	940,402.99	13.75406		3865.35	8.259808		282.1	5.642262		6.39		8.531		4		8.53
2014	NOV	937,328.35	13.75079		8282.86	9.021944		282.3	5.64297		6.21		8.6103		5.7		8.54
2014	DEC	920,500.71	13.73267		8567.20	9.055696		282.1	5.642262		6.01		8.6309		5.2		8.54
2013	JAN	922,369.15	13.7347		10659.24	9.274182		278.3	5.6287		5.72		8.6214		6.7		8.55
2013	FEB	912,234.31	13.72365		11214.20	9.324936		278.2	5.62834		5.39		8.6278		6.8		8.56
2013	MARCH	887,991.23	13.69672		1089.80	6.993749		266.9	5.586874		5.05		8.6489		6.1		8.56
2013	APRIL	889,313.51	13.69821		720.50	6.579945		239.5	5.478553		4.75		8.6716		6.1		8.57
2013	MAY	887,560.00	13.69623		8170.92	9.008337		244.2	5.497988		4.5		8.7412		6.9		8.58
2013	JUNE	875,230.00	13.68224		22331.49	10.01375		239.9	5.480222		4.44		8.7612		5.6		8.58
2013	JULY	843,562.27	13.64539		4923.54	8.501783		235.1	5.460011		4.56		8.7773		5.8		8.59
2013	AUG	832,238.14	13.63187		1086.38	6.990606		239.8	5.479805		4.96		8.8106		4.8		8.6
2013	SEPT	816,796.56	13.61315		20294.51	9.918106		239.4	5.478136		5.61		8.8836		5.1		8.6
2013	OCT	812,700.17	13.60812		12885.49	9.463857		239.7	5.479388		6.33		8.9227		6.3		8.61
2013	NOV	826,267.68	13.62467		1907.50	7.553549		238.9	5.476045		7.24		8.9963		4.8		8.62
2013	DEC	833,609.46	13.63352		3798.07	8.242248		253.5	5.535364		8.2		9.0444		5.8		8.62
2012	JAN	821,972.82	13.61946		15944.10	9.676844		262.1	5.568726		9.38		9.1358		4.7		8.63
2012	FEB	824,583.12	13.62263		14880.32	9.607795		261	5.56452		10.67		9.1489		4		8.63
2012	MARCH	812,307.84	13.60763		7284.93	8.893563		256	5.545177		12.04		9.1727		3.8		8.64
2012	APRIL	802,457.33	13.59543		1575.69	7.362449		258.3	5.554122		13.29		9.3438		5.7		8.65
2012	MAY	771,760.00	13.55643		10140.16	9.224259		241	5.484797		14.33		9.6389		4.7		8.65
2012	JUNE	767,390.00	13.55075		3182.76	8.065504		271	5.602119		15.27		9.7705		4.8		8.66
2012	JULY	774,550.00	13.56004		2134.40	7.665941		261.2	5.565286		15.97		10.1196		3.9		8.66
2012	AUG	721,040.00	13.48845		13540.81	9.513463		262	5.568345		16.4		10.2431		3.8		8.67
2012	SEPT	700,900.00	13.46012		10594.56	9.268096		261	5.56452		16.5		10.5275		4.9		7.73
2012	OCT	676,330.00	13.42444		113.82	4.734618		269	5.594711		16.45		10.2779		4.9		7.74
2012	NOV	663,050.00	13.40461		4813.34	8.479147		258	5.55296		15.93		10.2168		4.5		7.73

2012	DEC	686,718.48	13.43968		18045.39	9.800646		281.6	5.640488		15.1		10.2195		5.5		7.73
2011	JAN	685,607.92	13.43806		2178.22	7.686263		228.2	5.430222		14.02		10.2313		7		7.74
2011	FEB	728,645.25	13.49894		7847.37	8.967934		211.2	5.352806		12.82		10.1932		6.9		7.74
2011	MARCH	810,011.60	13.6048		399.46	5.990114		210.1	5.347584		11.49		10.1485		6.1		7.73
2011	APRIL	799,834.03	13.59216		16355.04	9.702291		209.4	5.344246		10.18		10.1228		6.1		7.75
2011	MAY	768,510.85	13.55221		2606.42	7.865733		202.5	5.31074		9		10.0732		6.9		7.73
2011	JUNE	744,486.60	13.52045		105.42	4.657952		210.4	5.34901		7.88		10.1145		5.6		7.74
2011	JULY	722,888.31	13.49101		4665.16	8.447877		210.6	5.349961		6.88		10.1332		5.8		7.74
2011	AUG	675,887.12	13.42378		19488.75	9.877593		214.4	5.367843		5.96		10.141		4.8		7.73
2011	SEPT	652,675.73	13.38884		3448.51	8.145698		219.9	5.393173		5.2		10.1271		5.1		7.95
2011	OCT	642,847.92	13.37366		5539.58	8.619674		210.4	5.34901		4.49		10.1323		6.9		8.14
2011	NOV	630,400.03	13.35411		5486.45	8.610037		211.7	5.35517		4.05		10.1748		4.8		8.29
2011	DEC	615,604.98	13.33036		2079.21	7.639743		210.6	5.349961		3.93		10.2132		7.2		8.42
2010	JAN	599,930.46	13.30457		3139.14	8.051704		210.3	5.348535		3.96		10.3747		6.8		8.54
2010	FEB	599,251.46	13.30344		351.40	5.861925		215.2	5.371568		4.02		10.3644		8.2		8.55
2010	MARCH	598,080.46	13.30148		17910.52	9.793144		244.2	5.497988		4.12		10.2853		7.9		8.55
2010	APRIL	594,223.00	13.29501		15526.03	9.650273		239.9	5.480222		4.4		10.3325		6.1		8.56
2010	MAY	566,166.88	13.24664		10706.56	9.278612		235.1	5.460011		4.69		10.3262		9.6		8.57
2010	JUNE	562,941.95	13.24093		7261.89	8.890395		239.8	5.479805		5.03		10.3491		5.6		8.57
2010	JULY	565,452.00	13.24538		13176.23	9.48617		239.4	5.478136		5.43		10.3877		8.7		8.58
2010	AUG	541,976.71	13.20298		4227.58	8.349385		239.7	5.479388		5.85		10.3556		9.5		8.59
2010	SEPT	537,424.84	13.19454		19082.07	9.856504		238.9	5.476045		6.32		10.312		8.8		8.59
2010	OCT	538,157.99	13.19591		30377.62	10.32146		253.5	5.535364		7.03		10.3388		9		8.6
2010	NOV	525,369.18	13.17186		13869.86	9.537473		262.1	5.568726		7.88		10.3571		10.3		8.52
2010	DEC	525,552.75	13.17221		9894.40	9.199724		261	5.56452		8.64		10.3095		10.2		8.53
2009	JAN	588,970.31	13.28613		3091.97	8.036564		244.2	5.497988		9.24		10.2918		3.2		8.53
2009	FEB	521,232.48	13.16395		2524.75	7.833897		239.9	5.480222		10.24		10.14		2		8.45
2009	MARCH	523,899.66	13.16906		4163.30	8.334063		235.1	5.460011		11.42		10.1181		3.8		8.46
2009	APRIL	524,982.60	13.17112		9144.86	9.120947		239.8	5.479805		12.41		10.0611		3.6		8.46

2009	MAY	530,075.39	13.18077		14236.65	9.563575		239.4	5.478136		13.42		10.0663		2.1		8.37
2009	JUNE	532,144.51	13.18467		5293.02	8.574144		239.7	5.479388		14.35		10.1003		1.7		8.38
2009	JULY	535,143.70	13.19029		18021.46	9.799319		238.9	5.476045		15.11		10.0672		2.2		8.39
2009	AUG	517,929.10	13.15759		11779.18	9.374089		253.5	5.535364		15.93		10.0613		2.7		8.29
2009	SEPT	511,981.59	13.14604		19734.15	9.890106		262.1	5.568726		16.72		10.0834		3.2		8.3
2009	OCT	513,623.00	13.14924		20904.27	9.947709		261	5.56452		17.07		10.1076		2.6		8.31
2009	NOV	514,635.34	13.15121		5632.39	8.636289		256	5.545177		16.87		10.2357		3		8.2
2009	DEC	512,475.65	13.14701		11492.44	9.349445		258.3	5.554122		16.56		10.2292		2.3		8.21