EFFECTS OF FINANCIAL INTEGRATION ON ECONOMIC GROWTH IN KENYA

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FEBRUARY, 2018
DECLARATION

This research project is my original work and has not been presented for a degree award in any other University.

Signature…………………… Date ……………………..

Basilio Waititu Wambugu

K102/Cty/Pt/26477/2013

I confirm that the work reported in this project was carried out by the candidate under my supervision

Signature…………………… Date ……………………..

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Kenyatta University
DEDICATION

I dedicate this project to my lovely parents, sisters, brother and friends who supported and encouraged me during the study period.
ACKNOWLEDGEMENT

I first thank the Almighty for giving me the knowledge, wisdom, and strength to accomplish the project writing process. His Grace and mercies have brought this far. Secondly, I am thankful to my supervisor Dr. S K. Muthoga for his great guidance, encouragement, and support throughout in writing the research project. In fact, his directions and constructive criticism have made this project a success. I also acknowledge the technical support of the School of Economics, Kenyatta University especially Dr. Njaramba and Dr. Mdoe for their advice and encouragement. Thirdly, I am also grateful to my parents, Mr. and Mrs. Wambugu and the entire family for their support and encouragement. They have been very resolute in their support throughout the period. Finally, I say thank you to all friends and well-wishers who have in one way, or the other made this project a success.
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ABBREVIATIONS AND ACRONYMMS

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<tr>
<td>AfDB</td>
<td>African Development Bank</td>
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<tr>
<td>ADF</td>
<td>Augmented Dickey Fuller</td>
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<td>AR</td>
<td>Autoregressive</td>
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<td>ARDL</td>
<td>Autoregressive Distributed Lag</td>
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<td>CAPM</td>
<td>Capital Asset Pricing Model</td>
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<td>CBK</td>
<td>Central Bank of Kenya</td>
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<td>EMEs</td>
<td>Emerging Market Economies</td>
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<td>EAC</td>
<td>East Africa Community</td>
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<td>FA</td>
<td>Financial Autarky</td>
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<tr>
<td>FDI</td>
<td>Foreign Direct Investments</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GLS</td>
<td>Generalized Least Squares</td>
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<td>GMM</td>
<td>Generalized Method of Moments</td>
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<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
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<td>OECD</td>
<td>Organization for Economic Cooperation and Development</td>
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<td>OLS</td>
<td>Ordinary Least Squares</td>
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<td>SAPs</td>
<td>Structural Adjustment Programs</td>
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<td>SDGs</td>
<td>Sustainable Development Goals</td>
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<td>SID</td>
<td>Society for International Development</td>
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<td>SSA</td>
<td>Sub Saharan Africa</td>
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<td>UK</td>
<td>United Kingdom</td>
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<td>UN</td>
<td>United Nations</td>
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<td>Abbreviation</td>
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<tr>
<td>UNCTAD</td>
<td>United Nation Conference on Trade and Development</td>
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<td>USA</td>
<td>United States of America</td>
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<tr>
<td>VAR</td>
<td>Vector Auto Regression</td>
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<tr>
<td>VECM</td>
<td>Vector Error Correction Model</td>
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<td>WAEMU</td>
<td>West African Economic and Monetary Union</td>
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OPERATIONAL DEFINITION OF TERMS

Financial Integration: It is an individual country’s removal of the existing market-based restrictions and administrative barriers on capital movement across borders. It also includes measures to attract foreign capital thus creating a financial market structure and products similar to those of the overseas markets and therefore becomes part of the global market. The study used FDI and portfolio inflows as the measures of financial integration.

Economic growth: This refers to the process of growth in capacity of an economy to produce goods and services from a given period of time to another.

FDI: This refers to the investments inflows in acquiring a long term management’s interest within the organization in an economy other than that of the investor.

Portfolio investment: Refers to security investment which tends to be passive, none of which consists an active management of security issued by the investor.

Private capital inflows consist of net FDI and portfolio investments
ABSTRACT

Kenya has witnessed increased financial integration following capital liberalization in the late 1980s which led to increased foreign private capital flows. Financial integration is considered to complement domestic investment, enhance economic growth and reduce macroeconomic volatility by promoting credit and risk diversification. However, private capital can enhance macroeconomic volatility by exposing domestic market to external volatility. Despite Kenya experiencing increased financial flows, economic growth remains low compared to other economies in Africa experiencing large capital flows. For the past four decades, Kenya has been experiencing volatile and low economic growth even in the phase of increased capital flows in the 2000s hence it is crucial to identify the effects of the country’s financial integration on the economic growth. The motivation was based on the financial integration effects based on economic growth on the conflicting views, specifically to the Kenyan economy when it was operating a managed capital account (1970 to 1992) and when the capital account was liberalized (1992-date). The study covered the period 1970 to 2015 because it is the period in which data was available and the county witnessed significant increase in foreign financial inflows especially in the last decade (2000-2010). Qualitative data for the period 1970 to 2015 was applied in identifying the effects of the foreign direct investments & portfolios investments on economic growth in achieving the first and the second objective of the study. The study made use of three explanatory variables in testing the key performance rate of the Kenyan economy in the global market economy. The study’s third objective involved the investigation of the impacts of the financial integration on growth volatility where Nelson’s EGARCH model was used. The study found that foreign direct investment influences growth. Results from the regression showed that foreign direct investment coefficient as the ratio of gross domestic product per capita was positive and statistically significant while portfolio investment coefficient as the ratio of gross domestic product per capita was positive and statistically insignificant. However, portfolio inflows contribute positively and significantly to economic growth volatility. The study recommends that the government should provide an environment that can attract long term foreign direct investments and maintain stable macroeconomics policies in enhancing growth.
CHAPTER ONE
INTRODUCTION

1.1 Background

Financial integration has increased in developing economies in the past three decades following external financial liberalization in the 1980s. This has led to increased cross-border financial flows following the elimination of capital controls in developed economies in the 1980s and growing nations since the early 1990s, and this has been a major source of potential benefits (Adu, 2013). The capital movement across borders is partly attributed to the search for high rates of return on investment opportunities and to diversify risk globally (Adu, 2013). International capital transactions, during the period 1980 and 1990s, surged from about 5 percent of world GDP to over 20 percent (Chen & Quang, 2012). The removal of capital restrictions in the advanced economies was an acknowledgment of the neoclassical assertion of the potential benefits of financial integration as a whole. As a result of economic liberalization, developing countries are considered to benefit from financial globalization through lowering consumption volatility and complementing domestic investments.

In principle, financial integration and financial globalization are two different concepts but, they tend to have a close relationship. Some literature views financial integration as financial openness. However, these words are used interchangeably since they emphasize cross-border capital mobility. The concept of financial integration is similar to financial liberalization, such that, it proposes that financial markets should be defragmented to enable market forces to ensure an efficient allocation of capital among countries.
Literature suggests that if financial integration is properly organized, it can help increase a country’s savings, lower the of capital cost acquisition through diversification of risk and resource allocation, facilitate the transfer of managerial expertise and technology. Financial integration as observed can as well result in the growth of the financial system. A more established and well-functioning financial system sector can effectively provide funds to any borrower either be government or public with more productive opportunities and can reduce the problem of asymmetric information. Mishkin (2003) argued that financial systems tend not to function as desired since lenders confront issues of asymmetric information and in most occasions tend to lead to adverse selection and moral hazard. According to Stiglitz (2000) financial globalization has the ability of improving the financial infrastructure hence the lenders as well as borrowers function in a more competitive, transparent and effective financial system. Under such type of conditions, issues of asymmetric information tend to be minimal as credit maximization is experienced. Financial globalizations enhances improvement of corporate governance as the corporate’s potential bidders as well as shareholders can lead to a closer monitoring of management (Stulz, 1999).

However, Edison et al., (2002) observed that financial globalization may retard growth in the presence of market distortions, for instance, weak financial sector and poor quality of regulatory institutions. The ultimate effect will be capital flight and other macroeconomic fluctuations. According to Eozenou (2008) financial integration can reduce output volatility if it promotes production diversification but increases output volatility if it promotes production specialization. It is for this reason that the effect of
financial integration on economic growth has gained a lot of attention especially in the recent past following the global financial crisis of 2008 (Blanchard & Milesi-Ferretti, 2010).

On the other hand, economic growth may promote greater financial integration as capital begins to flow to economies where rates of return on investment are high. Typical examples are emerging market economies (EMEs) for instance China, whose impressive development rates have attracted foreign financial inflows leading to a gradual liberalization of their capital restrictions (Kalim, 2009). Financial flows could be considered to be of benefit to receiving economies as they take part in gaining access to less expensive sources of funds for investment thus enhancing growth (IMF, 2011; 2013). Over the last decade, there has been a significant improvement of financial inflows to the Sub Saharan African region which definitely reflects the region’s integration into the world financial market. Kenya posted the highest rise in foreign direct investments (FDI) compared to its peers in Africa and the Middle East that saw diverse project initiated signaling higher integration with other economies. Kenya issued Sovereign bonds of Ksh.250 billion meant to reduce government borrowing from domestic markets to cushion down high-interest rates so as to spur economic growth (Government of Kenya, 2014).

The New Partnership for African Development (NEPAD), in its vision, strives to attract financial inflows in order to attain sustained development and growth. Like most of the developing parts of the globe, Africa also requires substantial inflows of external
resources for it to leapfrog itself to a sustainable level of growth, also to fill the saving and the foreign exchange gaps. As per World Bank (2016), Kenya’s savings has been falling amid increased expenditure for infrastructure, devolution and for transforming the economy into middle income by 2030. To fill the gaps Africa requires financial inflows of external resources to be able to achieve sustainable growth and development (Ajayi, 2006). Only then can an economic growth of 10 percent for the next 14 years be attained and sustained as envisioned in the *Kenya Vision 2030* (Republic of Kenya, 2007).

1.1.1 Overview of Financial Integration

Although there is no universal definition of financial integration, literature suggests that it is basically concerned with the movement of capital across country borders. Prasad *et al.*, (2003) defined financial integration as an individual economy’s linkages to the global capital markets. That is, the degree to which an economy’s capital market is connected to that of other economies and the international community as a whole. Their definition lies within the context of the existence of legal restrictions or other country-specific factors (be it governance, institutional or macroeconomic) which may promote or retard capital flows across country’s borders. McKinnon-Shaw (1973) hypothesis posits that the elimination of credit ceilings and restrictions by the government results in higher real interest rate which raises savings, thereby making funds available for investing and promoting economic growth. The concept of financial integration comes about when the domestic financial market is liberalized to allow foreigners to partake in activities on the domestic financial market. Furthermore, financial integration also arises when government removes barriers to capital mobility so as not to discriminate against foreign creditors in the domestic financial market.
Several studies (Baele et al., 2004; Yabara, 2012) defined financial integration in the context of the law of one price where perfectly integrated financial markets have no restrictions on cross-border transactions, returns on identical assets are equalized across countries, as long as there is no difference in country risks and exchange risk. They believed that financial integration in this context can be achieved without necessarily unifying institutions or markets. For instance, the U.K and U.S.A. and are said to be highly integrated even though these markets have different institutional and legal frameworks. Domestic financial market can be strengthened through financial integration with efficient capital allocation, more investments and growth opportunities. It also facilitates the flows of capital from nations with rich capital to countries with scarce capital. This movement of capital can lower the cost of capital in capital scarce economies leading to increased investments which is a major engine for growth.
1.2 Trends in Foreign Direct Investments, Portfolio Flows and Economic Growth Rate in Kenya

1.2.1 Trends in FDI flows in Kenya

Foreign direct investment in Kenya has been on increase since 1970 as shown below in figure 1.1.

![Net FDI Flows to Kenya (1970-2015)](image)

**Figure 1.1** Net FDI Flows to Kenya (1970-2015)

*Source of Data: World Bank, Global Development Finance Database, 2015*

Despite the numerous economic progress reforms made in 1980 and 1990 in the business environment, Kenya experienced volatile and declining FDI (Mwea & Ngugi, 2004). First, the FDI rose in the 1970s from 99 million Kenya shillings to 628 million Kenya shillings.
shillings in 1979. However, there was an increase in FDI to 155 million Kenya shillings in 1984 before decreasing to 70 million Kenya shillings in 1988. The early 1990s saw FDI decline to a low of 205 million Kenya shillings 1992 before a rise to 8448 million Kenya shillings in 1993. FDI rose from 42 million Kenya shillings in 2001 to 4908 million Kenya shillings in 2007 (UNCTAD, 2016). In general, FDI flows to Kenya have been on the increase reaching 8302 million Kenya shillings in 2014. The latest increase in FDI is attributed to the interest by the Chinese in not only the booming construction industry but also the shift to communications and manufacturing as witnessed in the setting up of Xinhua News and the China Central Television African headquarters in Nairobi (Mwengei, 2013). The second reason for the upsurge is increased exploration of oil activities in Turkana (IMF, 2012) and the establishment of Titanium mining base in Kwale.
1.2.2 Trends in Portfolio flows in Kenya

Portfolio equity flows in Kenya has been increasing since 1970 as shown in figure 1.2

Figure 1.2: Net portfolio Flows to Kenya (1970-2015)


Net portfolio equity flows to Kenya were zero up to 1992 except for the years 1975 to 1977 and 1980. From 1993 net portfolio investments flows to the economy have fluctuated over time. For example, they rose from 46 million Kenya shillings in 2000 to 238 million Kenya shillings in 2005, and then dropped to 30 million Kenya shillings in 2007. There was no net portfolio flows to Kenya from 1970 to 1992 as the country
operated a managed capital account. The large flows between 2003 and 2005 are explained by the liberalization of the communication sector and the establishment of mobile telephone firms in the country.

Kenya enacted an Investment Promotion Act in 2004 so as to facilitate foreign and domestic investment to accelerate economic growth. Through the Act, Kenya encouraged investment by introducing incentives to foreign investors. The aim of the Act was to encourage foreign investments and facilitate the speedy issuance of licenses and permits for foreign investors. This led to significant increase in portfolio flows in Kenya (Republic of Kenya, 2004). In 2007 there was a drop in flows which was attributed the uncertainty of the investment climate because the country was going for a general election which was followed by violence. The resurgence in portfolio flows in 2008 is probably explained by the formation of a new government and therefore a renewed confidence in the political stability of the country.
1.2.3 Trends in Economic Growth Rate in Kenya

Economic growth in Kenya has been fluctuating since independence as shown in figure 1.3

![Graph showing Kenya’s GDP Growth rate (1970-2015)](image)

Figure 1.3: Kenya’s GDP Growth rate (1970-2015)


After the independence in 1963, Kenya experienced high GDP growth rates. This growth was partly attributed to encouragement of agricultural production on small scale, increased public investment and incentives toward private investments. During this period, there was a land redistribution policy that led to high agricultural output.
was a significant slump in Kenya’s economic performance from the 1970s to 2004 when GDP growth was 10 percent below the previous years. The worst years were 1973 to 1975, 1981 and 1991 to 1999, 2001-2003 and 2007-2008. This poor performance in these years is explained by a couple of the external and internal aspects such as severe drought in 1976, 1980 and 1984, oil shock in 1973-1974 which was a major crisis in Kenya, which turned the trend of economic growth thus worsening balance of payments problem (World Bank, 1985).

Similarly, the period 1973-1991 witnessed the economy pursuing the import substitution policy which matched with steep oil prices which made the economy’s manufacturing sector uncompetitive. This was transmitted through external shocks leading to an increase in international interest rate and a decrease in demand for exports resulting in sluggish growth. The attempted coup de tat of 1982 worsened the situation because it led to a massive capital flight (Republic of Kenya, 1983). Some foreign investors pulled their investment out of the country citing insecurity. Failure by the government to fully implement macroeconomics policies and structural reforms in the 1990s, which had started in the early 1980s, led to suspension of both bilateral and multilateral donor’s aid. This was compounded by poor governance.

With this development Kenya commenced retrenchment of the civil servants, privatization and pursued conservative monetary and fiscal policies. There was a further slowdown in GDP in 1997 which was due to adverse weather conditions, poor infrastructure, pre-election violence and depressed investments due to low confidence from the investors. In 2003 the economy showed signs of recovery after a subdued growth in preceding five years. However, full economic recovery was not achieved due to poor inflation, low foreign direct investments and the spill over effects of the previous year's economic downturn. In 2007 the economy benefited from Economic Recovery Strategy and stable macroeconomic policies. The benefits were eroded in the year 2008 when the post-election violence occurred and political uncertainty.

1.3 The Statement of the Problem

The primary objective of the Government of Kenya is to promote economic growth. Although there has been improvement in economic performance in the past ten years, benchmarking Kenya’s economy against its peers such as Tanzania and Burkina Faso who had similar level of development as Kenya ten years ago, shows that Kenya had the lowest per capital GDP growth since 2003 (World Bank, 2016). From 1970 several plans had been developed with the aim of providing various strategies on how to achieve economic growth such as structural adjustment programs in 1980, import substitution in 1990, abolition of import licensing in 1994, Investment Promotion Act of 2004 and the Kenya Vision 2030 in 2007. The Kenya Vision 2030 sought to achieve a 10 percent GDP growth rate by 2012 but this has not been achieved. Kenyan GDP has been growing from 4.6 percent in 2012, 5.6 percent in 2013, 5.3 percent in 2014 and 5.6 percent in 2015 (World Bank, 2016). With 10 percent growth in the GDP, the objective was to transform
the nation into an industrialized state, middle income economy with the income surpassing the world’s current average which is estimated to be US $10000 (Republic of Kenya, 2007).

Together with low economic growth and development, Kenya has also witnessed increased momentum in financial integration. For example, the sovereign bond that the government raised in 2014 of Ksh.250 billion from the international capital market. Kenya also posted the highest FDI in Africa in 2015. Similarly, enacted Investment Promotion Act in 2004 so as to facilitate foreign and domestic investment to accelerate economic growth.

Despite financial integration and growth of the economy’s importance, it remains to be seen whether Kenyans struggle into a more complex integration have resulted in good results based on the enhancement of the economic growth. However, the real benefits of financial integration based on the future expectations of economic growth tends to remain highly controversial (Prasad et al., 2003). Ahmed (2011) for example would support that there existed no touchable evidence based on financial integration that promotes economic growth in Sub-Saharan Africa while Epaulard and Pommeret (2005) agreed with the view based on financial integration that there would a general relationship with the country’s economic growth. IMF (2003) could not establish the relationship between financial integration and growth. In addition, various questions have been asked if it is financial integration which enhances economic growth or its growth that encourages financial integration. A study on regional growth of economy and financial integration by Muthoga (2012) focused on the entire East Africa Countries. This study sought to fill the
above gap by being country specific and also considered the aspect of growth volatility based on financial integration. From the foregoing, the following question arises.

1.4 Research questions

In line with the problem statement, the study sought to address the following questions;

(i) What are the effects of FDI on Kenya’s economic growth?
(ii) What are the effects of portfolio investments on Kenya’s economic growth?
(iii) What are the effects of financial integration on the volatility of economic growth in Kenya?

1.5 Study Objectives.

The general objective of the study was to identity the effects of financial integration on Kenya’s economic growth.

1.5.1 Specific objectives

The specific study objectives were to:

(i) To determine the effect of FDI on Kenya’s economic growth
(ii) To establish the effect of portfolio investments on Kenya’s economic growth
(iii) To establish the effect of financial integration on volatility of economic growth in Kenya

1.6 Significance of the Study

There is growing literature in this area of study, hence the paper sought to contribute empirically to the knowledge on economic growth and financial integration in Kenya. The study attempted to explain the importance of financial integration and the way in
which it promotes the economic growth of the nation. It has a number of importance reasons such as, it would provide empirical as well as theoretical insights into the nature of the association between economic growth and the financial integration within the country. In consistent with the government’s objectives of development, it is crucial in forging a consensus on financial policy reforms as well as their implementations.

The study’s feedback, would update the policy makers on effective policies to formulate to effectively enhance financial integration and the fact that capital flows promote economic growth. The study adds up on the current knowledge based on the topical problems and provide an impetus for more research in regard to the current and future crop of researchers and academicians. The study, aims to help in critically assessing whether financial integration via its responsibility of intermediation can be relied on the growth stimulation.

1.7 Scope and the Limitation of the Study

The study covered the period 1970 to 2015 because it is the period in which data is available and the county witnessed significant increase in financial capital flows. A country’s economic growth is determined by various factors other than private capital inflows. The study considered financial development, inflation and trade openness as other determinants of economic growth.

1.8 Study Organization

The study is structured in five chapters. Chapter 1 provides the study with the key foundation and the primary objectives. Chapter 2 focus on reviewing relevant theoretical and empirical literature. Chapter 3 basically focus on the research designs applied in the
process of the study undertaking. Chapter 4 presents the findings of the study. Chapter 5 contains the study findings’ summary, conclusions formulated from the study, policy implications emanating from the study and finally areas for further research are suggested.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter reviews both theories and empirical works on the effects of financial integration on economic growth.

2.2 Theoretical Literature

The Solow’s Neo Classical growth model theory by Robert Solow (1956) present the fundamental principle of financial integration and economic growth. The theory assumes that the rate of savings, advancement in technology, population are exogenous with capital mobility. The theory also posits that labor and capital inputs are paid their marginal products. Under autarky, economies with low levels of capital have a higher level of per capita growth and tend to converge or catch up to those with higher levels of capital. Financial integration would allow a spontaneous movement of capital induced by real interest rate differential among capital-rich economies and capital-scarce economies, hence providing the necessary foreign savings needed for new domestic investment and growth stimulation. The model considers capital as fully mobile while labor is not and markets are competitive in an open economy. Domestic total investments are assumed not to be equal to savings and production and income is not identical. However, the theory has the following limitations: it consider saving rate as constant; secondly, technological progress and population growth are constant. The theory does not also consider the aspect of capital movements on the volatility of economic growth. This study will borrow from this model in answering research objective one and two.
The theory of the Law of One Price (LOOP), spearheaded by Alfred Marshall and Augustin Cournot (1870) presents the principal fundamental concepts which explain the integration of financial sectors (Http://www.rbi.org.in/scripts/publication). As per the theory, the lack of information as well as administrative obstacles, the returns of risk adjustment assets which are identical should be matched across markets. The theory proposes that assets which tend to have the same risk features need to have similar prices irrespective of their location of their trading. For the LOOP to be tested across countries, the risk properties of the money and the government bond market should be comparable. On the case of the government bonds, when liquidity and credit risks are taken into account, expanding financial integration would define yield convergence. Capital flows forms the premise of this theory. With the absence of arbitrage opportunities, the theory forms the premise of efficient market hypothesis thus increasing financial integration. However, the theory assumes that there are no capital controls and the markets are efficient among countries but different economies have capital controls with inefficient markets.

The Endogenous growth theory posits that the long run growth is driven predominantly by knowledge accumulation by the agents whose aim is profit maximizing (Romer, 1986). The theory argues that FDI have a long-run effect on growth. Lucas (1990) and Romer (1987), amended the Solow neoclassical model theory by including the growth –driving factors of physical capital as well as human capital to explain the role of FDI in developing countries. FDI was modeled as the growth promoting factor through the permanent transfer that accompanies FDI. The knowledge transfer as an externality will
account for non-diminishing returns that results in the long run growth. Thus, if the
determinants of growth such as FDI are made endogenous in the growth model, long-run
effect of foreign direct investments will follow. As a result, a channel whereby technology
spills over from capital-rich countries to capital-scarce economies is the flow of FDI
(Barrow & Sala-i-Martin, 1995; Mankiw, 1992). Not only does FDI contribute to growth
through technology transfers and capital formation, but also does so through knowledge
augmentation in labor training and skill acquisition. The endogenous growth theory
identifies three key channels through which FDI affects growth. First, it increases the
capital accumulation of the host country by introducing new technologies and inputs thus
meeting the saving gap needed for investments. Second, FDI raises competition in the
receiving country by overcoming barriers to entry and decreasing the market power of
the existing corporations. Finally, its raises knowledge level and skills in the host country
through training. Endogenous growth postulates that FDI has a positive effect on growth
by decreasing the cost of research and development through stimulating innovation.
However, the volatility of FDI inflows has a negative effect on growth. Thus, if FDI
inflows are uncertain, research costs are uncertain, which affect incentives to innovate
negatively. Therefore, FDI volatility depresses investment and negatively affects growth.
This theory considers long-term effect of capital flows and the volatility on the growth
which are the key objectives in the current study. However, the theory fails to identify the
role of portfolio flows (short-term flows) which plays an important role in growth but
only centers on long-term capital flows.
The Two-Gap Model of economic growth spearheaded by Chenery (1962) identifies growth requires investment which in turn require savings. Savings can either be foreign or domestic savings. Private capital inflows such as FDI and PI comprises foreign savings. The first and the foremost gap arises when the country’s saving are inadequate to support capital accumulation needed to achieve a given growth target. The other gap identified by the theory is the inadequacy of foreign exchange earning which to acquire the import of capital goods needed. The savings and foreign exchange gap problems are faced in most developing countries. Financial integration would allow a spontaneous movement of capital induced by the saving gap from capital-rich countries to capital-scarce countries. Attracting foreign capital inflows would improve the growth through investments while its volatility can trigger macroeconomic instability. Therefore, the model assumes that increased investment will achieve a higher rate of growth and capital imports tend to rise if investment increases. However, this theory fails to identify the allocation of foreign exchange earnings and savings as the key theme but focuses on their availability.

Similarly, financial integration is expected to lower macroeconomic volatility as it lowers consumption volatility by allowing for risk sharing among households. As a result, it smoothens consumption over time via trade in international assets and this lowers output volatility by promoting production diversification. On the other hand, financial integration is expected to increase macroeconomic volatility as it increases output volatility if it promotes production specialization. This is based on comparative advantage considerations, thereby making countries more susceptible to industry-specific shocks.
and increase consumption volatility if it allows for over trading in international assets (Razin & Rose, 1992, 2003; Evans & Hnatkovska, 2007)

2.3 Empirical Literature

Sutherland (1996) used stochastic dynamic equilibrium business cycle model to explain the association of business volatility cycle and that financial market integration depends on the underlying economy shocks. In addition, Sutherland (1996) investigated that a country’s financial market integration may result into more volatile economic variables. Sutherland (1996) established that increased integration of finance reduces the volatility of interest rate but results to an increased real and nominal volatility. The volatility resulted in increased output volatility and but increases nominal and real exchange rate volatility which lead to increased output volatility and reduced consumption volatility. The study also found that financial market integration with perfect capital mobility stabilizes consumption and output volatility by stabilizing interest rates and exchange rates in the case of demand shocks but increase short-run consumption volatility and nominal exchange rate. Integration reduces short-run output volatility, nominal and real interest in the case of permanent labor shocks. However, the model may give wrong information as it considers two economies while this study considered more than two economies.

IMF (2003) conducted on a study on developing countries on evidence based on empirical nature of the impacts financial globalization on growing economies. The study focused on three areas: whether financial globalization enhanced the development of economic growth in these countries; if there was an impact on economic growth brought by financial
globalization in the countries used, if financial globalization brought effects on the
macroeconomics volatility and the possible conditions that could assist these countries to
achieve the benefit of financial globalization. GMM method of estimation was used to
analyse the panel data for 57 emerging countries over the period 1976-2000. From the
study, it was found that nations that had a high degree of financial integration experienced
a high rate of growth compared to those that experienced a lower degree of integration.
Similarly, there were various channels by which financial globalization could enhance
growth. However, the study could not establish a robust causal relation between financial
globalization and economic growth. The study used de facto measure of financial
integration similar to the current study. However, this study adopted EGARCH method
of estimation and is specific to the Kenyan economy.

Epaulard and Pommeret (2005) investigated the relationship between financial
integration and growth from 32 emerging market and developing countries using GMM
method of estimation. They considered the period 1990 to 1998, where FDI was used as
proxy for financial openness. A stochastic endogenous growth model was used for small
economies where capital would flow from capital-rich economies for investment to the
small economies. The model assumes that financially integrated economies receives FDI
which is converted into productive capital and used for investment. Under autarky capital
move from capital-rich economies to capital-scarce economies. They grouped the
countries into two sub sets: Less Integrated Economies (LIEs) and More Integrated
Economies (MIEs). The empirical evidence revealed that financial integration resulted to
a positive growth. However the gains were not huge but they were significant in terms of
growth under autarky which raised the welfare gain of a country. They concluded that more financial integrated economies experienced higher growth rates compared to less integrated economies. The study used FDI as a measure of financial integration similar to this study. Conversely, the study did not consider the effect of financial integration on the volatility of growth as identified from the research gap of this study.

In a contemporary study done in WAEMU on financial integration, Sy (2006) used price-based measure of financial openness in assessing the degree of financial integration in the WAEMU. Sy (2006) believed the concept of financial openness is closely linked to the law of one price, which states that assets with identical characteristics such as risks and returns, should be priced uniformly irrespective of where they are traded. However, in practice, the theory can only be tested on listed or quoted instruments. Due to limitations, Sy (2006) acknowledged this fact and went on to use bank interest rate spreads instead of stock or bond market prices. The study asserts that bank interest rate levels are reflective of both macroeconomic and microeconomic conditions. The macroeconomic conditions include market interest rate levels whilst the microeconomic condition bear on the bank’s pricing mechanism and market share or power. Sy (2006) argued that the convergence of these spreads could be an indication of greater financial integration while a decline in the levels could be a signal of increased competition. Borrowing from the methodology of Adam et al., (2002), the study estimated beta-convergence and sigma-convergence measures of financial integration. Sigma-convergence measures the degree of integration that is the extent to which the markets are already integrated. To estimate this the study constructed a cross-sectional time series dispersion on bank lending interest rates while
beta-convergence, on the other hand, measured the speed of convergence. The result of the analysis points to the conclusion that convergence on the basis of sigma-convergence has been decreasing. The study used price based measures of financial openness which did not consider the aspect of the volatility of the capital inflows on growth while the current study uses *de facto* measure of financial openness.

Afzal (2007) investigated how financial globalization impacted on growth in Pakistan for the period 1960 to 2006. Afžal (2007) used a stock of capital flows (proportion of the sum of capital inflows and outflows to GDP) as a proxy for financial integration and the proportion of the total sum of exports and imports to GDP to measure trade openness. Following the Johansen procedure co-integration analysis, Afzal (2007) observed that financial integration and trade openness were co-integrated, implying that they had a long run inter-relationship with growth. In addition, the results from Afzal (2007) error-correction model supported the co-integration results. The study suggested that for the given dataset financial integration and trade openness did not have short-run effects on growth but they had a long run relationship with economic growth. The study used *de facto* measure of financial openness similar to this study. However, this study is specific to the Kenyan economy which has lower GDP per capita growth as compared to Pakistan which is a third world country with a higher GDP per capita.

Evans and Hnatkovska (2007) studied the effect of financial integration on macroeconomic volatility and welfare using two-country general equilibrium model. They examined a two-sector (tradable and non-tradable), two economies whereby there
is international trade in bonds, stock and markets are incomplete. They considered equilibrium under financial autarky (FA), low financial integration (LI) and high financial integration (HI). They found that financial integration increases the correlation pattern between inter-temporal marginal rates of substitution for the home country and foreign country indicating increased risk sharing. However, high financial integration reduces consumption and output volatility and improves welfare while low financial integration increases consumption and output volatility and lead to the welfare loss. The welfare loss affects public spending which influences growth if it affects capital formation. Evans and Hnatkovska (2007) used both stocks and bonds to explain the concept of financial integration similar to this study. Nevertheless, the two-country general equilibrium model suffers from the assumption that only two goods are traded with only two economies. However, they used two-country general equilibrium model to explain the effects of integration on macro-economic variables, while the current study uses the Solow neo classical growth model to explain the concept of integration. The study also explored a large sample of household data using price based measure which changes over time. The current study will overcome this weakness by using de facto measure which do not change overtime as opposed to price based measure.

Osada and Saito (2010), used a panel data set of 83 countries to investigate the effects of financial integration on economic growth from 1974-2007. The study proxied the external liabilities and assets stock as a measure of openness using de facto based measure. Osada and Saito (2010), separated liability and asset stocks to four different groups that are equity and debt assets, debt liability; equity and FDI liabilities and debt assets to
objectively identify the types of either the liabilities or assets that had a comparatively greater effect on economic growth. The study employed the system GMM methodology adopted by Kose, et al., (2009) to examine the impacts based on different measures of the financial openness on growth. Control variables such as the growth of population, inflation rate, and the number of years of schooling, institutional quality and trade openness that influence growth were included in the model. The study concluded that the effects of integration on economic growth differ substantially depending on the type of the assets and liabilities. Equity and FDI liabilities had a positive influence while debt liabilities had a negative impact on recipient countries on growth. The results confirmed the prior empirical work (Kose, et al., 2009). However, assets associated with FDI, debt, and equity, would be realized to have enhanced less meaningfully to growth. The authors’ justification based on their results was that a surge based on the macro assets would advance to the displacement of production entities from the nation which are endowed with such assets to other economies with least assets. As a consequence, domestic production would plunge and this downturn could outweigh the growth benefits from other variables of economic.

Furthermore, Osada and Saito (2010), sought to establish whether different countries characteristics had effects on financial integration. They classified the countries basing on their historical characteristics variables such as year of schooling and inflation into two groups namely high group and the low group for the period of the study. Osada and Saito (2010), found out that countries with a higher initial per capita GDP, quality institutions, well governed domestic financial markets, low levels of inflation, greater
trade openness and a higher level of human capital experienced significant growth in equity and FDI. Their evidence confirmed the earlier findings by Kose, *et al.*, (2009) in regard to the need for a given standard of threshold conditions to be attained for a given economy for a better decision of taking any substantial gains from financial integration. Osada and Saito (2010), concluded that economies with well-established domestic financial systems tend to use external funds more productively and those with quality institutions and developed financial systems are more likely to attain more benefits from increasing equity and FDI liabilities. Osada and Saito (2010) used *de facto* measure of financial integration using FDI and equities similar to this study. Nevertheless, their study used panel date for 83 countries while this study used time series date for Kenya and also considered the effect of integration on the volatility of growth using EGARCH model.

Ahmed (2011) took a cursory look at the empirical relationship between growth and financial openness proxied by portfolio equity flows across the 25 countries in the Sub-Saharan region from 1976 to 2008. The study employed GMM methodology adopted by Lane and Milesi-Ferretti (2003) using both reports of IMF’s AREAER *de jure* measure and the stock of external liability and asset aggregation to GDP *de facto* measure as a proxy for financial integration for panel data analysis. The financial openness’s coefficient indicator would turn to be positive in many of the incidences, making the study to find it difficult in establishing a robust link in relation to the financial openness and growth. The study provided views that did not support that financial integration promoted economic growth in Sub-Saharan Africa. However, the study observed that financial openness had enhanced economic growth through indirect channels such as promoting
domestic financial market development and products. Ahmed (2011) also agreed with another strand of literature that, good governance and institutions, lower government expenditure and a relatively sound macroeconomic environment are very instrumental in mitigating the adverse effects of financial globalization. With such mitigation, the volatility of growth is minimized hence promoting growth. The study used portfolio equity flows as measure of financial openness similar to this study. However, the study was conducted in 26 countries in the Sub Saharan Africa while this study focuses on the Kenyan economy.

Sedik and Sun (2012) examined the effects of capital account liberalization flows on macroeconomic behavior and risks to financial stability on the short term to medium term effects. They assembled data for 37 emerging economies over the period 1995-2010. China’s position was also analyzed in the same context as the other 37 emerging economies. The study proxied financial integration with two new de jure measures which were based on the IMF’s AREAER. Schindler index (Schindler, 2009) was used as the restrictive index measure. The measure comprised of 21 categories of restrictions, including restrictions on the bond, equity, money market, direct investment and financial credit by direction. The study employed system GMM methodology to investigate the effects of capital account liberalization on the emerging economies. The study supported the argument that macroeconomic performance could be explained by financial openness and financial stability risks, at least partly but capital account liberalization did encourage financial integration. Clearly, the study found that higher levels GDP per capita growth and lower level of inflation was evidenced by capital account liberalization. Also,
financial integration was found to be associated with higher equity returns and lower bank capital adequacy ratios thereby suggesting possible risks to financial soundness in events of spontaneous reversals in capital flows. They concluded that the spontaneous reversal could affect growth thus eroding the benefits of financial integration. As a result, they proposed that political stability and sound macro-economic policies are key in mitigating such adverse effects of capital reversals. Sedik and Sun (2012) used various types of capital flows as proxies to financial integration similar to this study. However, this study adopted *de facto* measure of integration as it measures the actual quantity of capital that flows across borders compared to *de jure* measure.

Muthoga (2012) investigated the impact that would result from regional financial integration on growth among East Africa countries (EAC) for the period 2000 to 2009. System GMM dynamic panel methodology was applied to assess the cross-country growth and intra-regional trade effects of regional financial integration. Bank interest rate spread, real exchange rates, and government security rates were used as a proxy measure of regional financial integration. The study included control variables such as governmental balance to act as a GDP percentage, the lagged economic rate of growth, the inflation rate and corruption perception index, Rwandan dummy variable and FDI to act as a percentage of GDP. The study established that the region’s (EAC) financial integration significantly accelerated the general EAC’s economic growth thus complemented intra-regional trade among the EAC member countries. However, the study established that the effect of regional financial integration on economic growth differed among member country since they have different characteristics between the
countries. In addition, the effect of regional financial integration on intra-regional trade did not differ among member countries. Muthoga (2012) analyzed the effect of regional financial integration on growth from the context of the Solow neo classical model on the entire East Arica countries similar to the current study. However, the current study used *de facto* measure of financial integration and focused on the Kenyan economy.

Ajudua and Okonkwo (2014) examined the empirical association between globalization as proxied by the degree of openness and growth in Nigeria for the period 1986-2012 using OLS. The causal nexus between globalization and growth was investigated within the background of five -variables. The Johansen Co-integration test was conducted in testing the long-term equilibrium associations as Granger causality test focused in ascertaining the casual association’s between variables. The model was specified by five variables as defined below;

\[ \text{GDP} = f (\text{DO, EX, INF, FDI, GEX}) \]  
\[ \text{2.1} \]

Where DO was the degree of openness, EX was Foreign Exchange Rate, GDP was the growth rate, INF was Inflation Rate, FDI was Foreign Direct Investment, GEX was Government Expenditure. The empirical evidence showed that there existed a causal relationship between growth and globalization, and economic growth and FDI. Nevertheless, Nigeria’s benefit from trade openness centers on crude oil exportation. This implied that variation in real economic growth in Nigeria should be seen from fluctuations in the oil markets (beyond the external shock from the trade and capital flows). However, Nigeria has less advantages in regard to the globalization which is owed to her over independence based on its primary oil mining export as the primary source of earnings, thus neglecting other emerging and possible promising sectors within the economy. The
study concluded that integration can stimulate the rise of economic growth in an economy. However, Nigeria has not benefited a lot from integration due to overreliance of oil export as a major source of export. The study proffered that an enabling environment and prudential government policies are key in giving a county competitive edge in the global financial market in attracting FDI. The study used trade as a measure of globalization. However this study used capital flows as the measure of financial integration.

2.4 Overview of Literature Review

Most of the recent studies adopted cross-country growth regressions to examine the relationship between financial integration and economic growth (Sedik & Sun, 2012; IMF, 2003; Ahmed, 2011; Osaka & Saito, 2010). Other studies like Muthoga (2012) used a panel data model and employed GMM methodology to test the growth effects of regional financial integration. Most of these cross countries studies used GMM method of estimation regressions which virtually suffers from various statistical problems such as the omitted variables bias. Since the empirical growth literature has identified over 20 variables that are significantly associated with growth, some factors that influence economic growth as exogenous are included in cross-section of country regressions. For example developed domestic financial markets, quality institutions and capital market development are endogenous to economic growth. This study is different in that it is country-specific and focuses on the effects of various forms of financial inflows on economic growth; and the effects of financial integration on growth volatility in Kenya.
CHAPTER THREE

METHODOLOGY

3.1 Introduction

This Chapter covers key parts of the study methodology. Section 3.1 introduces the chapter while section 3.2 highlights research design. Theoretical framework is presented in section 3.3 while section 3.4.1 form the basis for the empirical model. The volatility of growth is presented in section 3.4.2 while section 3.5 presents definition and measurement of variables. The chapter concludes with section 3.6 and 3.7 which discusses the data sample size and diagnostic tests respectively.

3.2 Research Design

The paper adopted descriptive design. In addition, the study adopted a non-experimental time series research design. Secondary time series data was collected for the period 1970 to 2015 and then subjected to time series property tests.

3.3 Theoretical Framework

The study explains economic growth from the context of the Solow’s Neo classical growth model which assumes that the rate of savings, advancement in technology, and population are exogenous with capital mobility. The theory also posits that labor and capital inputs are paid their marginal products. Under autarky, economies with low levels of capital have a higher level of per capital growth and tend to converge or catch up to those with higher levels of capital. Financial integration would allow a spontaneous movement of capital induced by real interest rate differential among capital-rich economies and capital-scarce economies, hence providing the necessary foreign savings
needed for new domestic investment and growth stimulation. The national account identity for the economy is given by

\[ Y_t = C_t + I_t + G_t + NX_t \] .................................3.1

Where \( Y_t \) the gross national product of the economy is, \( C_t \) is consumption, \( I_t \) is investments, \( G_t \) is government expenditure and \( NX_t \) is net exports. Equation 3.1 can be extended to an open economy with capital mobility to

\[ Y_t = C_t + I_t + NX_t + rF_t \] .........................................................3.2

Where \( F_t \) holding of the foreign asset and \( rF_t \) is income inflows from capital holdings of the foreign asset. The gross national income, therefore, comprises of \( Y_t + rF_t \). The total national income for the open economy can be given as

\[ Y_t + rF_t = C_t + I_t + G_t + NX_t \] .........................................................3.3

\( NX > 0 \) the country must be building up assets abroad and therefore in general \( r \) is assumed to be constant. From the equation 3.2

\[ NX_t + rF = F_{t+1} - F_t \] .........................................................3.4

Where \( F_t \) the holding of foreign capital assets in the previous period while \( F_{t+1} \) is holding of foreign capital in the following period.

By definition the saving \( S_t \)

\[ S_t = Y_t + rF_t + C_t \] .........................................................3.5

Combining the equation 3.4 and 3.5

\[ S_t = I_t + F_{t+1} - F_t \] .........................................................3.6

Hence saving can be used to accumulate domestic capital (I) or foreign assets as shown below
Where $K_t$ is the initial capital and $K_{t+1}$ is capital after the previous period.

The above equation can be translated to

$$K_{t+1} + F_{t+1} = S_t + K_t + F_t$$

The total wealth in an economy $(V)$ can be defined as domestically owned local $(K)$ and foreign capital $(F)$

$$V_t = K_t + F_t$$ implying

$$V_{t+1} = S_t + V_t$$

Individuals save a constant fraction of total income and in an open economy this can be represented as

$$S_t = s(Y_t + rF_t), \quad 0 < s < 1$$

The Solow growth model also considers a production function of the Cobb-Douglas type at time $t$ given by

$$Y_t = F(K_t, L_t; A) = K_t^\alpha (A_t L_t)^{1-\alpha}$$

where (1) \(0 < \alpha < 1\)

Where $Y_t$ is output in period $t$, $K_t$ is capital stock in period $t$, $L_t$ is labor and $A_t$ is technology level. $L_t$ and $A_t$ are assumed to grow exogenously at rates $l$ and $g$: $L_t = L_o e^{nt}$ and $A_t = A_o e^{gt}$.

Therefore, the effective units of labor, $A_t L_t$ grows at a rate $(n + g)$. From a competitive market and constant return to scale follows

$$Y_t = w_t L_t + rK_t$$
With capital being fully mobile and $r^w$ denoted as the world real rate of interest at one point $r^w=r - r_w$ denoted as the world real rate of interest at one point $r_w=r - \frac{\partial F}{\partial K_t}$ we find $r_w=\alpha A k^{\alpha - 1} \frac{\alpha A}{r^w}$

Wage rate is also constant

$w_t=w - \frac{\partial F}{\partial L_t} = (1-\alpha) A \bar{k}^\alpha$ this implies capital-labor ratio is constant, absent changes in $A$.

When $A$ changes starting with equation I above and substituting in equation 2

$V_{t+1} = s. (Y_t + r^w F_t) + V_t$…………………………………………………………3.13

Equating the above equation to 3.13

$V_{t+1} = s. w_t L_t + (1 + sr^w) V_t$…………………………………………………………3.14

Letting $L_{t+1}=(1+n)L_t$ n>-1 and $V_t=V_t/L_t$ then

$v_{t+1} = \frac{s w_t}{1+n} + \frac{1+sr^w}{1+n} v_t$…………………………………………………………3.15

This is the fundamental law for wealth in an open economy setting. With the net foreign inflows (under autarky) the real rate of return $r^w>r^*$. Using the equation for the GNI per capita, we can convert the law of motion into growth per capita

$Y_{t+1}^n = \frac{n}{1+n} w + \frac{1+sr^w}{1+n} Y_t^n$ ……………………………………………………………3.16

This is a steady state model which predicts the conditional variance. Instead of investing at home, at the rate $r^*$, the country can now invest abroad, and reap the gains $r^w>r^*$. This increases national income. In absence of capital mobility the economy would end up in a low steady state since $r^*$ is high. Thus opening capital flows leads to capital imports which increases GDP and therefore GNI growth. Using equation 3.15 making $w$ as the subject of the formulae and plugging in equation 3.16
\[ Y_t^n = \frac{n+1}{s} \left( \left( V_t + \frac{1}{1+n} V_t \right)^n - \left( \frac{1}{1+n} V_t \right)^n \right) \] .............................................................3.17

Rearranging equation 3.17

\[ Y_t^n = \frac{s}{n} V_t \left( \frac{1 + \frac{1}{1+n} V_t}{1+n} \right) \left( V_t - 1 \right) \] .............................................................3.18

S, k and n are constants since they are exogenously determined by the model. Thus economic growth is determined by the domestic wealth component and the foreign component as represented below

\[ Y_t = F \left( V_t, V_{t-1} \right) \] but \[ V_t = F \left( Y_t, F_t \right) \] . Also \[ V_{t-1} = F \left( Y_{t-1}, F_{t-1} \right) \] and \[ F_t = F \left( \text{FDI, PI} \right) \].

To convert equation 3.2 from the investing country to the recipient country, net private capital inflows (NPCI) are used represented as F and it has two components; FDI and Portfolio Inflows (PI). Therefore GDP growth can be represented as

\[ Y_t = F \left( \text{FDI}_t, \text{PI}_t \right) \] .............................................................3.19

The above equation represents a model which predict economic growth for recipient country.

3.4.1 The Empirical Model and Estimation

The above theoretical model (Equation 3.19) can be modified into an empirical model to include other variables articulated in theoretical arguments and empirical literature by Ajudua and Okonkwo (2014) as determinants of economic growth in a financially integrated economy context as indicated below.

\[ \text{GDP} = f \left( \text{FI, INF, FD, TO} \right) \] .............................................................3.20
Where GDP is real Gross domestic product; FI is financial integration; INF is Inflation rate; FD is financial development and TO is trade openness. In carrying out the empirical analysis, the study followed literature approach used (Edison et al., 2004). Other relevant variables that determine economic growth in a financially liberalized economy context were included to augment the Solow model discussed above.

To achieve the first and the second objective of the study, the following general equation was used based on theoretical arguments and previous empirical work on the financial integration-growth nexus. The specification takes the following form:

\[ Y_t = \beta_0 + \beta_1 FinINT + \beta_2 X_t + \varepsilon_t \]

Where \( y_t \) the logarithm of real per capita GDP, \( FinINT \) is measure of financial integration, \( X_t \) is a vector of explanatory variables and \( \varepsilon_t \) is the error term. The t subscript represents the time period.

3.4.2 Modelling Volatility

To achieve the third objective, the study used Nelson’s Exponential Generalized Autoregressive Conditional Heteroskedasticity (Nelson’s EGARCH) model to estimate an equation for the volatility because it is the best model to estimate volatility since it responds to the shock quickly. To estimate the volatility equation two conditions must be met. The first condition is clustering volatility which means that periods of low volatility are followed by periods of low volatility for extended periods of time. To check for clustering volatility, residuals of the mean model was plotted. The second condition is that the mean model should have an Autoregressive Integrated Moving Average (ARCH)
effect. The LM test for autoregressive conditional heteroskedasticity (ARCH) effect was used to test for the presence of the ARCH effect. Borrowing from Hamori (2000), Ho and Tsui (2003), Fountas, Karanasos, and Mendoza (2004), the study employed symmetric and asymmetric GARCH model to parameterize the time-varying conditional variance of output growth for Kenya. Following these authors, the study used the same approach modeling volatility process as follows;

\[ \sigma_t^2 = \alpha_0 + \sum_{j=1}^{n} \beta_j \sigma_{t-1}^2 + \varepsilon_{t-1}^2 \] …………………………………………3.22

\[ \alpha_i's \ and \ \beta_j's \ are \ non-negative \ parameters. \]

Where \( \sigma_t^2 \) a time-changing weighted average of past squared observations of the GDP, \( \sigma_{t-1}^2 \) is the weighted average of past \( y_t^2 \)'s but also of past \( \sigma_t^2 \) (GDP) and \( \varepsilon_{t-1}^2 \) is the squared mean of the error term. Thus the expected value of any given error term, squared, is equal to the variance of all the error terms taken together (homoscedasticity).

The above model represents an estimated Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model for the growth. After obtaining the conditional variance \( \sigma_t^2 \) which is the Autoregressive Integrated Moving Average (ARIMA) model for \( \varepsilon_t^2 \), any structural break up can be traced from the results. An impulse response analysis was also carried out to trace on one time effects of financial integration on the growth volatility.

To provide a more systematic analysis for a longer sample period, the study adopted EGARCH model introduced by Nelson (1991).

\[ \log(\sigma_t^2) = \alpha_0 + \alpha_1 \frac{\varepsilon_{t-1}}{\delta_{t-1}} + \alpha_2 \frac{\varepsilon_{t-1}}{\delta_{t-1}} + \beta_1 \log(\delta_{t-1}^2) \] …………………………………………3.23
Where asymmetry exists if \( \alpha_2 \neq 0 \) and when \( \alpha_2 < 0 \) it implying negative shocks generate higher volatility than positive shocks of the same magnitude, and vice versa. The coefficient \( \beta_1 \) captures the persistence of shocks in the conditional variance and the log transformation guarantees a positive variance.

The volatility variable estimated using Nelson’s EGARCH model described earlier forms the outcome variable of the third objective. The independent variables in this case are FDI and portfolio inflows. The study uses the OLS estimation technique to determine the effects of FDI and portfolio inflows on economic growth volatility. The control variables included were inflation as macroeconomic stability (IFN), financial development (FD), and trade openness (TO).

3.5 Definition and Measurement of Variables

Financial integration: Refers to an individual economy’s connection to the international financial markets. FDI and portfolio flows are commonly used *de facto* measure of financial integration. Following Edison *et al.*, (2002) and Lane & Milesi-Ferretti (2003) the study adopted foreign direct investment and portfolio flows as proxies for financial integration.

Economic growth: Refers to an average increase in real gross domestic product annually in percentage. Data was sourced from the Statistical Abstracts, World Bank’s Indicators, CBK, and Economic Reviews and from the Kenya National Bureau of Statistics.
**Portfolio Investment Inflows:** Comprises of bond and equity flows. Equity flows refers to the acquisition of stocks by a foreign entity while bond flows refer to the acquisition of bonds issued by a domestic entity or government by a foreigner. It is illustrated in form of percentage measure of GDP. Capital movement forms the foundation of the Solow model. The data and key information was collected from World Bank’s African Development Indicators (WBADI).

**Foreign Direct Investment (FDI):** Refers to an investment accomplished by a foreign investor to earn a long term or lasting management interest (generally 10 percent of voting stock) in an enterprise operating in Kenya. FDI as the other form of capital provides the basic tenet of Solow growth model. This was measured in form of percentage of GDP as the data was collected from WBADI.

**Broad Money Supply or Financial Development (FD):** Equals the logarithm of money supply (M2) as a proportion of the GDP. Financial development level in a country is very central to growth as it directs the ease with which investors and entrepreneurs can access credit for investment activities. Similarly, in the context of the financial openness, it informs investors on the extent to which they can diversify their investment and easily repatriate their investments if the need arises. The money supply (M2) also includes money supply (M1), non-institutional money market accounts and overnight repos at a commercial bank. Generally, an increment in this ratio shows an increase in financial depth. Although low-income countries tend to have extensively low standards of financial
depth, they tend to experience some financial deepening at rates that are much far faster than higher income states.

**Inflation (INF):** Equals the growth rate of the CPI in a country. This is used as a parameter for macro-economic stability and prudential economic management. Theoretically, inflation increases the cost of borrowing for investment activities, leading to a reduction in productivity and staggered growth. Furthermore, inflation in the context of financial globalization will limit capital inflows and rather encourage capital flight since inflation will erode the gains realized from investments made. Investors will move to other economies where inflation is relatively lower for better opportunities.

**Trade Openness (TO):** Equals the total sum value of a country’s exports and total imports as a ratio to the country’s GDP. The positive impact of trade openness on growth is in two ways. First, the export of goods and services abroad earns the country more foreign exchange. As the foreign exchange increases, it improves the country’s current account surplus thereby putting it in a better position to meet its international obligations and even lend to other countries. The Two Gap model argues that an economy trade in order to gain surplus which is needed to fill the foreign exchange gap. A current account surplus is an indication of an increase in net foreign assets. The Neoclassical analysis on welfare gain through comparative advantage argues that reduction of trade barriers increases the level of productivity and trade.
**Economic Growth Volatility:** The study used the conditional variance of economic growth as a measure of volatility of growth. The conditional variance was estimated using Nelson’s EGARCH model.

### 3.6 The Data and sample size

The study used time series data covering the period from 1970 to 2015. Data on portfolio equity, FDI inflows (current KSHS), Gross domestic product per capita growth, and general public spending on education, money supply (M2) as a share of gross domestic product (percentage of GDP) and trade openness are obtained from WDI database of the World Bank. Inflation data, end of period consumer prices (annual percentage), and GDP (current KSHS).

### 3.7 Diagnostic Tests

Various diagnostic tests were conducted. They included Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests to avoid reporting spurious results. The KPSS is directly used to test stationarity and also suitable for small values as compared to ADF test. It also tests the stationary null hypothesis in form of deterministic trend or constant level. The test assumes that time series can be decomposed into the sum of a random walk, a deterministic trend and a stationary stochastic noise. Descriptive statistic was also conducted to test for volatility of the variables. The unit-root test was conducted to ascertain the stationarity of the data set. The LM test for autoregressive conditional heteroskedasticity (ARCH) effect was carried out (Engle, 1982). This was to test that the mean model had an ARCH effect which is a condition for testing volatility.
Inflation Factors (VIF) test was carried out to detect for any multicollinearity in the regression analysis. The number of lagged difference terms included were determined by SIC criteria. The rational is to include as many lagged terms in ensuring the error term is serially uncorrelated. The SIC criterion was carried out to determine the number of lags since it performs better for smaller sample and produces the least probability of under estimation (Khim-Sen, 2004). Lag length selection was done automatically by SIC criterion using SPSS. Hausman-Wu test was conducted to test for endogeneity. Breusch-Godfrey test was used because it is applicable when a lagged dependent variable is used as an explanatory variable and it takes into account higher order of autocorrelation. Lag length selection was done automatically by SIC criterion using SPSS. Hausman-Wu test was conducted to test for endogeneity. Breusch-Godfrey test was used because it is applicable when a lagged dependent variable is used as an explanatory variable and it takes into account higher order of autocorrelation.
CHAPTER FOUR

FINDINGS OF THE STUDY

4.1 Introduction

This Chapter presents the finding of the study. Section 4.1 introduces the chapter while section 4.2 highlights the descriptive statistics. The unit root tests are presented in section 4.3 while correlations results come in section 4.4. The study present findings that respond to the first and second objective in section 4.5 while section 4.6 responds to the third objective.

4.2 Descriptive Statistics

Table 4.1 presents the summary statistic for the study. The main statistics of interest are the mean, minimum and maximum values respectively.

Table 4.1: Descriptive Statistics Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observations</th>
<th>Mean</th>
<th>Std.Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>gdp growth</td>
<td>45</td>
<td>1.248</td>
<td>4.124</td>
<td>-7.92</td>
<td>17.93</td>
</tr>
<tr>
<td>fdi</td>
<td>45</td>
<td>0.598</td>
<td>0.54</td>
<td>0</td>
<td>2.53</td>
</tr>
<tr>
<td>portfolio</td>
<td>40</td>
<td>0.0006</td>
<td>0.003</td>
<td>-0.0013</td>
<td>0.016</td>
</tr>
<tr>
<td>Broad($M_2$)</td>
<td>45</td>
<td>33.967</td>
<td>4.786</td>
<td>25.71</td>
<td>42.61</td>
</tr>
<tr>
<td>inflation</td>
<td>45</td>
<td>12.234</td>
<td>8.256</td>
<td>1.55</td>
<td>45.98</td>
</tr>
<tr>
<td>openness</td>
<td>45</td>
<td>58.123</td>
<td>6.722</td>
<td>47.7</td>
<td>74.57</td>
</tr>
</tbody>
</table>

Source: Authors’ computation using STATA 13 with data from WDI, 2016

Kenya received low levels of portfolio inflows that averaged 0.0006% with the minimum and the maximum inflows recorded being -0.0013% and 0.016%. The mean broad money ratio for the period under review was 33.967% with the maximum of 42.61% and
minimum of 25.71% recorded in 2014 and 1974 respectively. Inflation for the sample period 1970-2015 averaged 12.234% with the minimum and the maximum levels witnessed in 1995 and 1993 at 45.98% and 1.55% respectively. Finally, trade (percentage of GDP) averaged 58.123% with a minimum of 47.7% and a maximum of 74.57% in 1987 and 1974 respectively.

4.3 Stationarity Tests Results

Data analysis that contains non-stationary series may lead to spurious results. To avoid this econometric challenge, the study adopted the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) stationarity test whose results are presented in Table 4.2.

**Table 4.2: Stationarity Test Results**

<table>
<thead>
<tr>
<th>Variable</th>
<th>KPSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>gdp</td>
<td>-0.144***</td>
</tr>
<tr>
<td>fdi</td>
<td>-0.109***</td>
</tr>
<tr>
<td>portfolio</td>
<td>0.156***</td>
</tr>
<tr>
<td>broad</td>
<td>0.071***</td>
</tr>
<tr>
<td>inflation</td>
<td>0.092***</td>
</tr>
<tr>
<td>openness</td>
<td>0.047**</td>
</tr>
</tbody>
</table>

Source: Authors’ computation using Eviews 9 with data from WDI, 2016

The lag length selection for this test was automatic in Eviews 9. The null hypothesis of the KPSS stationarity test is that the series is stationary. Its alternative hypothesis is that the series contains a unit root. From the results, the study fails to reject the null hypothesis of a unit root for all the series in the study i.e. GDP growth, FDI inflows, portfolio inflows,
broad money supply, inflation, and openness to trade at 1% level of significance in levels. This means that the variables are stationary at levels and study proceeds to conduct the subsequent analysis of the variables in levels.

4.4 Correlations Test Results

This study presents the correlation results in Table 4.3. Partial correlations give an indication of possible relationship among variables but are not conclusive. Gujarat (2004) concluded that a correlation coefficient of more than 0.8 in absolute terms may indicate the presence of multicollinearity.

Table 4.3: Correlations Results Variables

<table>
<thead>
<tr>
<th></th>
<th>gdp</th>
<th>fdi</th>
<th>portfolio</th>
<th>broad</th>
<th>inflation</th>
<th>openness</th>
</tr>
</thead>
<tbody>
<tr>
<td>gdp</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fdi</td>
<td>0.15</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>portfolio</td>
<td>0.19</td>
<td>0.20</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>broad</td>
<td>0.26</td>
<td>0.05</td>
<td>0.36</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>inflation</td>
<td>-0.46</td>
<td>0.24</td>
<td>-0.21</td>
<td>-0.14</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>openness</td>
<td>-0.05</td>
<td>0.24</td>
<td>-0.21</td>
<td>0.01</td>
<td>0.45</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Source: Authors’ computation using STATA 13 with data from WDI, 2016

The correlation coefficients presented in Table 4.3 are below 0.8 in absolute terms hence the study did not anticipate challenges associated with multicollinearity in the analysis. From Table 4.3, FDI inflows, Portfolio inflows and the broad money ratio are positively correlated with economic growth as expected. The positive correlation notwithstanding must be noted that the correlation coefficients are low at 0.150, 0.190 and 0.269 respectively. Inflation is negatively correlated with growth as expected too, with a
correlation coefficient of -0.456 in absolute terms. Openness to trade is negatively correlated with growth implying that the economy might be importing more than it exports hence a leakage that hurts growth.

4.5 OLS Regression Results

To meet the first two objectives, the study ran a simple OLS regression whose findings are contained in Table 4.4

<table>
<thead>
<tr>
<th>Table 4.4: Economic Growth Regression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
</tr>
<tr>
<td>---------------</td>
</tr>
<tr>
<td>fdi</td>
</tr>
<tr>
<td>(0.534)</td>
</tr>
<tr>
<td>portfolio</td>
</tr>
<tr>
<td>(80.26)</td>
</tr>
<tr>
<td>broad</td>
</tr>
<tr>
<td>(0.0804)</td>
</tr>
<tr>
<td>inflation</td>
</tr>
<tr>
<td>(0.0447)</td>
</tr>
<tr>
<td>openness</td>
</tr>
<tr>
<td>(0.0642)</td>
</tr>
<tr>
<td>constant</td>
</tr>
<tr>
<td>(4.119)</td>
</tr>
<tr>
<td>observations</td>
</tr>
<tr>
<td>R − Squared</td>
</tr>
<tr>
<td>F statistic</td>
</tr>
<tr>
<td>SE of Regression</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses

Source: Authors’ computation using STATA 13 with data from WDI, 2016

The F test statistic tests the overall soundness of the entire model. From Table 4.4, the F statistic is significant at 1% significance level hence the model is good. To avoid reporting spurious results, the study ran some post regression test to evaluate the soundness of the
specification. Table 4.5 represents the results of the tests. First, the study ran the Breusch-Godfrey LM test for autocorrelation whose null hypothesis is that there is presence of autocorrelation in the model. Its alternative hypothesis is that the model is free from serial correlation. From Table 4.5, the Breusch-Godfrey LM test for autocorrelation is significant at 5% hence the model suffers serial correlation. This study uses the robust command in STATA to correct for this anomaly.

Secondly, this study ran the Breusch-Pagan / Cook-Weisberg test for heteroscedasticity whose null hypothesis is homoscedasticity. The alternative hypothesis for this test is presence of heteroscedasticity. From table 4.5 that the test statistic is insignificant hence the model does not suffer from heteroscedasticity. Lastly, to ensure the model does not suffer from multicollinearity, the study ran the Variance Inflation Factors (VIF) test. The rule of the thumb for this test is that the VIF should be less than 10. Table 4.5 shows that the VIF is within acceptable bounds since it is less than 10 at 1.28.

Having satisfied that the model was fit for purpose, the study proceeded to run the main regression that responds to the first and second objective. The first objective of this study was to determine the effects of FDI inflows on economic growth in Kenya. The results contained in Table 4.5 reveal a positive effect of FDI inflows (percentage of GDP) on economic growth. The FDI inflows coefficient is positive and significant at 10% significance level. Specifically, a percentage point increase in FDI inflows into the economy contributes to almost a percentage point increase in economic growth. This finding is consistent with Osada and Saito (2010) who reported positive contribution of FDI inflows on growth. Ajudua and Okonkwo (2014) found similar results in Nigeria.
However, the results differs from those of Ahmed (2011), who provided that the stock of external liabilities and assets did not promote growth in sub Saharan Africa from the 25 countries’ results.

The second objective of this study was to examine the effect of portfolio inflows (percentage of GDP) on economic growth in Kenya. Concerning this second objective, results in Table 4.4 show that portfolio inflows (percentage of GDP) has negative effect on growth but it is insignificantly different from zero. Portfolio inflows have a negative and insignificant coefficient. This can be explained by the fact that Kenya receives very low portfolio inflows and the years in the sample had zero portfolio inflows recorded. This finding is consistent with Ahmed (2011), who concluded that the effect portfolio inflows on growth was negative but statistically insignificant. Kenya also receives very low portfolio inflows. Portfolio inflows for the sample period averaged a paltry 0.0006% and a maximum of 0.016% of GDP respectively.

This study also included other variables that have been shown in literature as important determinants of growth. From the results in Table 4.4, financial deepening (proxied by broad money supply) contributes positively to economic growth in Kenya. However, this effect is insignificant. On the other hand, inflation hurts growth as shown by its negative coefficient significant at the 1% significance level. Lastly, the effect of openness to trade on economic growth is positive but not significant. It is worth noting that all the variables in this study except FDI inflows and inflation have insignificant effects on growth as shown in Table 4.4.
Table 4.5: Diagnostic Tests

<table>
<thead>
<tr>
<th>Type of Test</th>
<th>Statistic/Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breusch-Godfrey LM test for autocorrelation</td>
<td>5.620 **</td>
</tr>
<tr>
<td>Breusch-Pagan / Cook-Weisberg test for heteroscedasticity</td>
<td>0.74</td>
</tr>
<tr>
<td>Variance Inflation Factors</td>
<td>1.28</td>
</tr>
</tbody>
</table>

*Source: Authors’ computation using STATA 13 with data from WDI, 2016*

4.6 Effects of Financial Integration on Growth Volatility

The third objective of this study was to evaluate the effect of financial integration on economic growth volatility in Kenya. To meet this objective, the study used Nelson’s EGARCH model which is an improvement of the ARCH-GARCH models and among the models for estimating volatility of growth. First the study transformed the data set from a low frequency annual data to a high frequency quarterly data for the subsequent analysis using Eviews software. Two conditions must be met before using ARCH-GARCH model. First, the series must have clustering volatility meaning that periods of low volatility are followed by periods of low volatility for extended periods of time. To check for clustering volatility, residuals of the mean model was plotted. Figure 4.1 shows the residuals plot which appears to have clustering volatility. From the period 1978 to about 1995 it was observed that the periods of low real GDP per capita growth exhibits periods of low volatility followed by the periods of low volatility for that extended period of time. The opposite happens over the period 1997 to about 2008. This means that the data set met the first condition for the ARCH-GARCH model.
The second condition that should be met is that the mean model has to have an ARCH effect. To verify whether the mean model met this condition, the LM test for autoregressive conditional heteroskedasticity (ARCH) effect was carried out. The null hypothesis for the ARCH effect test is that the mean model did not have an ACRH effect. The result of this test is contained in Table 4.6. From the results in Table 4.6, the study rejected the null hypothesis that the mean model does not have an ACRH effect since the coefficient is significant at the 1% significance level. Having been satisfied that the data set meets the clustering volatility and ARCH effect conditions, the study proceeded to
estimate the economic growth volatility equation using Nelson’s EGARCH model appropriate for the data set.

Table 4.6: LM test for autoregressive conditional heteroscedasticity (ARCH)

<table>
<thead>
<tr>
<th>lags(p)</th>
<th>chi2</th>
<th>df</th>
<th>Prob &gt; chi2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>152.386</td>
<td>1</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Source: Authors’ computation using STATA 13 with data from WDI, 2016

This study estimated the economic growth volatility specification in two steps using STATA 13. The first step was to estimate Nelson’s EGARCH model. Secondly, it predicted the conditional variance which is the measure of economic growth volatility. The third objective of this study was to determine the effect of financial integration on economic growth volatility in Kenya. To fulfil this objective, the study run a regression with economic growth volatility as the outcome variable and FDI, portfolio inflows and the other control variables as the predictor variables. Table 4.7 presents the results.
Table 4.7: Volatility of Economic Growth Regression

<table>
<thead>
<tr>
<th>Variables</th>
<th>gdp</th>
<th>t values</th>
<th>p values</th>
</tr>
</thead>
<tbody>
<tr>
<td>fdi</td>
<td>5.95</td>
<td>1.82</td>
<td>0.071</td>
</tr>
<tr>
<td></td>
<td>(3.271)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>portfolio</td>
<td>-1010.694</td>
<td>-1.70</td>
<td>0.091</td>
</tr>
<tr>
<td></td>
<td>(594.394)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>broad</td>
<td>0.214</td>
<td>1.15</td>
<td>0.253</td>
</tr>
<tr>
<td></td>
<td>(0.186)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>inflation</td>
<td>-0.223</td>
<td>-2.21</td>
<td>0.029</td>
</tr>
<tr>
<td></td>
<td>(-0.101)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>openness</td>
<td>-0.22</td>
<td>-0.93</td>
<td>0.353</td>
</tr>
<tr>
<td></td>
<td>(0.236)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>constant</td>
<td>10.052</td>
<td>1.03</td>
<td>0.305</td>
</tr>
<tr>
<td></td>
<td>(9.766)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>observations</td>
<td>160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R - Squared</td>
<td>0.033</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F statistic</td>
<td>1.24</td>
<td></td>
<td>0.0293</td>
</tr>
<tr>
<td>SE of Regression</td>
<td>20.433</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses

Source: Authors’ computation using STATA 13 with data from WDI, 2016

The OLS model used to estimate the effect of financial integration on economic growth volatility in Kenya is reliable as evidenced by the significant F-test statistic. From the results highlighted in Table 4.7, portfolio inflows have a weak negative contribution to volatility of growth.

This may be due to the fact that portfolio flows are usually short term and medium term inflows which are directed toward public debt instruments and the stock exchange. Their inherent capricious nature have proved to be more reversible than any other form of capital inflows in the developing economies. The views are supported by IMF (2012), where portfolio inflows were found to be volatile and prone to spontaneous reversals causing growth volatility.
On the other hand, FDI inflows contribute positively to growth volatility in Kenya but this effect is not significant. This may be explained by the fact that they are long-term in nature and are not prone to spontaneous reversals like portfolio inflows. As a result, the effects of financial integration on volatility of growth in Kenya are not uniform across different types of financial flows. Since Kenya is an emerging market, the ease of capital flow may be subjected to sudden surges, stops or reversals which causes the coefficient of openness to be positive or negative (Sedik & Sun 2012). The control variables have an insignificant contribution to volatility of economic growth in Kenya except inflation which has a negative and significant effect on volatility of economic growth in Kenya.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND POLICY IMPLICATIONS

5.1 Introduction

The chapter presents the study summary, conclusion and policy implications from the study and the area of further research.

5.2 Summary

Most of the studies on financial integration are cross country and assigns more weight on FDI. Moreover, they do not consider the effects of financial integration on economic volatility. The effect of financial integration on growth and volatility of growth has not been adequately investigated in Kenya. To address the shortcoming or the gap in the literature, the study analysed the effect of various proxies of financial integration on growth. The study aimed at enhancing the literature on financial integration-growth nexus by providing a number of proxies for integration in analysing its effects. Specifically, the study considered the *de facto* measure of financial integration which has been used by various studies. The study used time series data and various economic variables in investigating the effects of financial integration on growth as identified by theoretical and empirical literature.

The first objective of the study was to analyse the effect of FDI on economic growth. The study used ordinary least squares method of estimation to evaluate the effect of FDI. Other variables that influence economic growth were included in the OLS growth equation. The study found that FDI inflows positively and significantly contribute to
growth. This is consistent with the literature investigating the effect of integration on growth.

The second objective of the study was to analyse the effect of portfolio inflows on growth. The study used ordinary least squares method of estimation where other determinants of growth were included to evaluate the effect of portfolio inflows on economic growth. Portfolio inflows contribute to growth negatively but this effect is not significant. However the effects are not robust to the growth.

The third objective of the study was to analyse the effect of financial integration on volatility of growth. The study used FDI and portfolio inflows as proxies for financial integration. The study used Nelson’s EGARCH method to determine effects of financial integration on volatility of growth in Kenya. The study used quarterly time series data from WDI database of the World Bank, the CBK and Kenya National Bureau of Statistic. To improve the quality of estimation, the study used a long period (1970-2015) enough to abstract from political shocks, business cycle fluctuations and financial shocks on the long run effects of integration. The study found out that FDI inflows (proxy for financial integration) have a weak positive contribution to volatility of growth in Kenya while portfolio inflows (proxy for financial integration) have a weak negative contribution to volatility of economic growth in Kenya. The control variables have an insignificant contribution to volatility of economic growth in Kenya except inflation which has a negative and significant effect on volatility of economic growth in Kenya.
5.3 Conclusions

Financial integration can play an impetuous role in generating a set of collateral gains that boost growth hence promoting welfare. The global financial crisis experience has reignited intense debate on role of financial integration. Before the crisis there were those who viewed integration as a channel for promoting growth thus the policy toward integration are optimal. However, some lessons needs to be drawn from the global financial crisis which underpin for a cautionary integration process given its potential to result in ugly growth outcome.

The first objective was to determine the effect of FDI on growth. The study found out that FDI inflows positively and significantly contribute to growth. This is in consistent with the theoretical models for growth. FDI is positively correlated with growth to support the hypothesis that higher financial integration is linked with higher economic growth rate. The results imply that the performance of the economy is detrimental in attracting FDI. The choice for investment in a foreign country depend on various factors which includes social stability, economic growth and political stability.

The second objective was to determine the effect of portfolio inflows on growth. The study found that portfolio inflows contribute to growth negatively but this effect is not significant. This may be explained by the fact that Kenya received very low inflows during the study period. Portfolio investments are also unvaryingly short term investments and are frequently not connected to economic growth. The social-political stability in an economy and higher GDP growth rate attract foreign investors to invest and minimizes their risk by diversifying their investment portfolio. Well established institutional set up and minimal domestic risks are more likely to attract more portfolio
investment. The supporting conditions include strong financial institutions and governance as well as stable macroeconomic policies.

The third objective of the study was to establish the effect of financial integration on volatility of growth. FDI inflows (proxy for financial integration) have a weak positive contribution to volatility of growth in Kenya while portfolio inflows (proxy for financial integration) have a weak negative contribution to volatility of economic growth in Kenya hence it does not systematically depress the volatility of growth. However, full opening of the capital account in the absence of supporting conditions can vitiate the realization of the benefits of integration hence making the economy vulnerable to sudden reversals of capital flows resulting to volatility of growth. Quarterly data of various variables was used to enhance the quality of the estimation technique. The results suggest that integration has different growth effect and thus policies should not be applied universally. The control variables have an insignificant contribution to volatility of economic growth in Kenya except inflation which has a negative and significant effect on volatility of economic growth in Kenya.

Financial integration remains an incomplete and ongoing process in African and thus there may need for economies such as Kenya to open their capital market using a more gradual approach (Ahmed 2013). Pre-conditions such as well-developed financial market institutions, relevant regulatory policies and stable macro-economic environment are key to financial integration (Beck, Fuchs, & Uy, 2009). Kenya should adopt an ‘Integrated Approach’ as suggested by IMF (2012) which is consistent with its institutions and financial development. The approach proceeds through successive and overlapping
stages. FDI inflows should be liberalized first which consistent with the results of the study, followed by long-term portfolio investments and lastly short term portfolio investments. Each segment requires deeper and broader accounting, financial and corporate structure reforms (IMF, 2012). However, as Kenya endeavors to achieve financial integration, it should exercise caution due to the dynamic measures to manage financial flows so as to mitigate against the adverse effects of financial integration on growth.

5.4 Policy implications

The Kenya government should provide an enabling environment that attracts FDI. This is evidenced by the study findings that FDI contributes to economic growth significantly. Price liberalization, public enterprise privatization and the booming construction industry by foreign firms is a step towards attracting FDI. The Privatization Commission should hasten the process of privatization so as to attract more foreign firms investing in Kenya. The establishment of Export Processing Zone Authority is a move in the right direction in promoting FDI. Incentives such as tax holiday and joint venture have attracted more FDI. The current development of the infrastructures such Standard Gauge Railway and expansion of major highways will attract more FDI. The government of Kenya through the Central Bank and the Treasury should provide an enabling environment to maintain macro-economic stability as evidenced from the study that inflation has a negative and significant effect on growth. Both monetary and fiscal policies should counter inflation to a moderate state in maintaining stable exchange rate and low interest rates. This will be an added incentive for both local and international private investors. The government
should also endeavor to maintain a stable exchange rate since its depreciation may lead to capital outflow and vice versa. Stable exchange rate instills confidence to investors to invest in the country. They speculate high return, more security on their rights and feel safe to invest in the economy. This leads to better economic growth through improved rights in financial institutions such as stock markets, efficiency in the economy and better infrastructure.

The government should pursue policies that stabilize macroeconomics factors such as interest rate which would reduce volatility of the portfolio inflows thus promoting steady portfolio inflows. High-interest rate attracts foreigners who invest and this reduces their borrowing cost. Any sudden decline in interest rates results in the withdrawal of investment causing volatility on growth. Short capital inflows are paid back within a short time causing GDP per capita to go below the mean or decline. This causes cash crush or decrease in money inflows resulting to high interest rates. The process continues causing volatility on growth. Policies relating to strengthening institutions, increasing more FDI since they are considered as permanent in nature, development of the stock market and improving infrastructures should be pursued to enhance stability in macroeconomics factors. This would reduce growth volatility.

5.5 Contribution to Knowledge

The study has contributed to the understanding of the effects of financial integration on economic growth in Kenya. The study has shed more light on the role played by financial integration on growth using the ordinary least square estimation. The study also used
Nelson’s EGARCH model in explaining the effect of financial integration on growth volatility.

5.6 Areas for Further Research

This study has given more insight on the effect of financial integration on economic growth. More light has been shed on the effect on financial integration on growth volatility. A few areas relating to the subject study requires more research. Further studies may differentiate between the push and pull factors, for example, those related to privatization and those related to policies and developments on the component of financial inflows. Other variables may be included such as real exchange rate which affects growth volatility. This will provide the government and policy makers on the areas to focus on economic growth.
References


Lane, P. R., & Milesi-Ferretti, G. M. (2003).International Financial Integration. *International Monetary Fund Staff Papers*, 50, 82-113.


APPENDICES

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