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Private Capital Inflow, Financial Development and Economic Growth in Kenya

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Abstract
Private capital inflows have become an increasingly significant source of investment in developing countries, especially in Sub-Saharan Africa indicating the high degree to which the countries have become integrated into the global economy. This study sought to investigate the impact of private capital inflow and financial development on economic growth in Kenya, using a panel data analysis between 1970 to 2014. Specifically the study sought to investigate the causality between foreign direct investment, portfolio investment and cross-border interbank borrowing on economic growth; to analyze the effects of foreign direct investment, portfolio investment and cross-border interbank borrowing on economic growth; to examine the effects of financial development on economic growth and to examine the effects of macroeconomic variables on economic growth. The study was based on the Auerback-Kotlikoff (AK) dynamic life-cycle simulation model. The analysis was undertaken by employing Johansen cointegration test, vector error correction modeling approach and Granger Causality technique to investigate the causality between foreign direct investment, portfolio investment and cross-border interbank borrowing and economic growth. The ordinary least squares estimation was used to determine the effect of foreign direct investment, portfolio investment, cross-border interbank borrowing and financial development on economic growth. The study found that there was a unidirectional causality from foreign direct investment to economic growth and from economic growth to cross-border interbank borrowing. The standardized regression coefficient (β) value of the computed scores of foreign direct investment was (0.077276) with a t-test of 1.530526 and was statistically significant at 5 percent level with a (p-value=.0134).Though the coefficient of the log of portfolio investment as a ratio of gross domestic product was positive (β=0.015372, p-value=0.6405), but statistically insignificant. On the other hand the coefficient of log of cross-border interbank borrowing as a ratio of gross domestic product was positive (β=0.059199, p-value=0.4456) but statistically insignificant. The coefficient of gross domestic capital formation as a ratio of GDP which was the proxy for financial development was negative and statistically significant (β=-0.382785, p-value=0.0031).The coefficient of government expenditure on goods and services as a ratio of GDP was positive and statistically significant (β=0.086873, p-value=0.0042). The coefficient of secondary and tertiary institutions enrolment as a ratio of the total population which was used as a proxy for human capital was negative and statistically significant (β=-0.513306, p-value=0.0039).The coefficient of inflation which was used as a proxy for macroeconomic stability was negative and statistically significant (β=-.077303, p-value=0.0419).The coefficient of sum of total exports and total imports as a ratio of GDP which was used as a proxy for openness was positive and statistically significant (β=.151853, p-value=0.0042).This study found evidence that capital inflows foster higher economic growth, above and beyond any effects on the investment rate, but only for economies where financial sector has reached a certain level of development. The results thus suggest that the domestic financial sector plays a pivotal role in ensuring that international capital flows does indeed promote economic growth in Kenya. Future research should also conduct longitudinal studies that would provide definite information about cause-and-effect relationships as well as the changes in study variables over time. The findings of this study will form a basis for the formulation of policies relating to private capital inflows through the adoption of sound monetary and fiscal policies as well as market- oriented reforms that will include trade and capital market liberalization. It will also contribute to the existing body of knowledge in the field of private capital inflows and economic growth in developing countries.
Keywords: Private Capital Flow, Auerback-Kotlikoff (AK) model, Cross-Border Interbank Borrowing and Economic Growth

1.0 INTRODUCTION

Private capital inflows have become an increasingly significant source of investment in developing countries. The past 20 years have witnessed a profound change in the types of non-resident investors who provide funding to emerging market economies (EMEs) and the financial instruments through which emerging market (EM) corporations borrow from abroad. Until the beginning of the new millennium, private capital flows to EMEs were mainly intermediated by large global banks, and EMEs were subjected to massive volatility in their external payments balances, exchange rates and domestic financial systems. But since the early 2000s the role of bank- intermediated credit has declined, as the base of investors willing to take on exposure to EM corporate debt has become much larger and more diverse. These structural changes have encouraged a vast growth in

flows of funds, not only from the mature economies to EMEs as a group, but also among EMEs themselves (Knight, 2016). Several economic studies at the aggregate level have long argued that countries benefit from foreign investment but the debate is far from settled Javorcik (2004) document considerable productivity gains from FDI and show various channels of productivity spillovers from multinational companies to domestic firms. Li and Liu (2005) find that FDI tends to affect growth directly as well as indirectly through its interaction with human capital. Kose et al (2009) find robust evidence that portfolio equity inflows and FDI improves total factor productivity growth (TFP), but foreign debt has a negative impact on TFP growth.

Foreign capital has been at the forefront of economic globalization. Foreign capital flows take the form of foreign direct investment, foreign portfolio investments, other (loans and equity) financial investments, remittances. In the wake of the economic crisis that began in 2008, understanding these flows and their economic ramifications for host countries has become more important than ever. The International Monetary Fund (IMF) has stated that ―the key policy challenge will be attracting and harnessing healthy capital flows to restore economic growth (Brogger,2010).The worldwide boom in cross-border capital flows has been directed toward industrial economies, especially the United States, reflecting optimism about technological trends. The share of developing countries in these flows however declined sharply after the global financial crisis. (World Bank,2010).Over the past years, there has been an increasing attention to the impact on growth of different types of private capital inflows.To overcome the high poverty levels and improve the standard of living in developing countries there is need for a substantial inflow of external resources in order to fill the savings and foreign exchange gaps. It is for this reason that the effect of private capital inflows on economic growth has received a lot of attention especially in the recent past following the global financial crisis of 2008 (Macias and Massa, 2009).

Most African countries experienced anaemic growth after independence in the 1970s through to the early 1990s. Easterly and Levine (1997) described Africa as a growth tragedy. It must be noted, however, that the growth dynamics in Africa have changed since the early 1990s. Many of the world's fastest growing economies are now in Africa and most African countries are growing faster than countries in the developed world and are experiencing growth rates higher than the world average. All major capital flows to Africa have increased considerably since 1980, especially FDI, which increased eightfold over the period 1980 – 2003 (Ndikumana and Verick, 2008).

Since the early 2000s cross-border capital flows have undergone dramatic changes in three identifiable phases. Firstly, from the early 2000s onwards, there was a large scale expansion of cross-border flows which was brought to an abrupt halt by the global financial crisis that started in 2007. During the acute phase of the crisis, from approximately 2007 to 2009, there was a sharp contraction in flows and a severe rise in their costs as strong risk aversion swept global financial markets. After this acute phase receded, global cross-border capital flows recovered, but with high levels of volatility, including due to repeated shock events, such as the Eurozone-crisis and the unprecedented monetary easing in advanced economies, especially in the United States. The broad trends that can be seen in these flows reflect predominantly "push" factors in the global economy (Massa, 2013). Bank lending, however, contracted sharply in response to the crisis, falling from a peak of $853 billion in 2007 to a mere $9 billion in 2008. Subsequently, banking lending has been volatile with peaks and troughs throughout the period, including a net outflow in 2012. This pattern reflects the shock of the crisis and subsequent risk retraction experienced by international banks in advanced economies, including losses from credit shocks in real estate markets and the Euro-crisis, as well as regulatory reforms that curtailed leverage. However, contraction in bank credit in Europe was offset by growth in Asia (Caruana, 2013)

Portfolio flows have also grew pre-crisis, but experienced a sharp contraction during the crisis before returning to strong, but volatile, post-crisis growth. Expansion of portfolio flows was particularly strong in 2010 and 2011, with a sharp contraction in 2012, before resuming in 2013. These factors reflected push factors in advanced economies as investors, including those in the shadow banking systems, sought yield opportunities outside of advanced economies where quantitative easing ("QE") drove down interest rates, as well as periodic speculation relating to the reversal of quantitative easing, especially in early 2013 (Massa,2013). Capital flows to developing countries can bring both benefits and costs to recipients First, capital inflows can be helpful for economic development through higher investment, second FDI can bring with it technology transfer and improve higher skilled labor composition and is hence very important for developing countries. Third, capital inflows may cause improvement in the financial development through increasing access to different financial services. Fourth, capital flows can help countries to smooth consumption over time and achieve higher levels of consumption. And lastly, different instruments of capital flows may help countries achieve better international diversification. (Efremidze, et al. 2015)

Consistent with this view, Alfaro, et.al (2004) provide evidence that strong financial markets are necessary institutions that a country must have for FDIs to have a positive influence on economic growth. They document that countries with good domestic financial markets benefit more from FDI inflows. Okada (2013), reports that financial openness leads to increases in international capital inflows only in countries with higher

quality institutions. Countries that possess high-quality institutions also tend to have better external capital structure (Faria and Mauro, 2009). An important conclusion derived from this extant literature is that weak institutions may not only discourage capital flows but also lower economic growth, as weak institutions have been shown to impede development. (Rodrik and Subramanian, 2009). A recent study by Bekaert, et al. (2011) shows that both financial and institutional development explains the heterogeneity in the capital stock and total productivity growth effects following capital account liberalization. Kose et al. (2011) stress the key role of domestic financial development in improving the cost– benefits trade-off from capital flows. They document that countries with good domestic financial markets benefit more from FDI inflows. Further, Macias and Massa (2009) examine if slowing capital flows due to the recent global financial crises is likely to reduce economic growth in Africa. They find that FDI and cross border bank lending exert a positive and significant impact on economic growth. Similarly, Choong et.al (2010) show financial markets matter in the link between capital flows and economic growth. Recently, Kendall (2012) provides evidence that banking sector development is a necessary condition for economic growth at the district level.

In addition to foreign direct investment, the most significant component of private capital flows has been in the area of portfolio investment. With the increased liberalization of domestic financial markets in most developing countries and the opening up of these markets to foreign investors, private portfolio investment now accounts for a significant and currently rising share of overall net resource flows to developing countries. Basically, portfolio investment consists of foreign purchases of stocks (equity), bonds, certificates of deposit, and commercial paper. As usual, the middle-income countries have been the favored destination of these flows, with sub-Saharan Africa all but neglected. As in the case of the FDIs of multinational corporations, the benefits and costs of private portfolio investment flows to both the investor and the developing country recipient have been subjects of vigorous debate. From the investor's point of view, investing in the stock markets of middle-income countries with relatively more developed financial markets permits them to increase their returns while diversifying their risks. From the perspective of recipient developing countries, private portfolio flows in local stock and bond markets are a potentially welcome vehicle for raising capital for domestic firms. Well-functioning local stock and bond markets also help domestic investors diversify their assets (an option usually open only to the wealthy) and can act to improve the efficiency of the whole financial sector by serving as a screening and monitoring device for allocating funds to industries and firms with the highest potential returns. But from the macro policy perspective of developing-country governments, a key issue is whether large and volatile private portfolio flows into both local stock and short-term bond markets can be a destabilizing force for both the financial market and the overall economy. Some economists argue that these flows are not inherently unstable. Developing countries that rely too heavily on private foreign portfolio investments to camouflage basic structural weakness in the economy, as in Mexico, Thailand, Malaysia, and Indonesia in the 1990s, are more than likely to suffer serious long-term consequences. Like multinational corporations, portfolio investors are not in the development business. If developed-country interest rates rise or perceived profit rates in a developing country decline, foreign speculators will withdraw their "investments" as quickly as they brought them in. What developing countries need is true long-run economic investment (plants, equipment, physical and social infrastructure, etc.), not speculative capital. A number of developing countries now combine incentives for the former and disincentives for the latter. Controls were strengthened in the years following the global financial crisis as potentially destabilizing "hot money" poured into several middle income countries in response to low interest rates in developed countries. In summary, private portfolio financial flows have risen and fallen dramatically in recent decades. Their volatility and the fact that they respond primarily to global interest-rate differentials, as well as to investor perceptions of political and economic stability, make them a very tenuous foundation on which to base medium- or long-term development strategies. Asia's financial collapse in 1997, Russia's in 1998, Brazil's currency turmoil in 1999, Argentina's crisis in 2001–2002, and the dramatic downturn in flows to developing countries in 2009 underlined the fragility of global capital markets. Rather, developing countries need to focus first on putting fundamental conditions for development into place, because evidence shows that both MNCs and portfolio investors follow growth rather than lead it (World Bank, 2010).

1.1 Statement of the Problem

Most developing countries have found themselves with declining bank credit and official aid flows. Data from the Organization for Economic Co-operation and Development (OECD), (2009) shows that in Africa, Kenya is ranked number 34 in aid dependence (a ratio of aid to GDP). By 2007, Kenya's percentage aid dependence was 4.71 percent. Its East African neighbours, Uganda and Tanzania, were ranked number 9 and 10 respectively. This implies that Kenya does not greatly depend on official aid and has to turn to private capital flows to replace the dwindling aid flows. Though Kenya, like other developing countries, might not have embraced private capital inflows it has to accept it as a replacement for the declining official aid. This is also supported by the success story of the Asian tigers (Vinh, 2010). However, there have been debates about the exact benefits of foreign private capital inflows in the context of globalization. Multinational enterprises (MNEs) and FDI have

been targets of attack. The argument has been that MNEs are big and their sales exceed the GDP of some of the African countries. Also, there are no trickle-down effects from FDI, and MNEs pay abysmally low wages. Consequently, this study seeks to examine whether the presence of good financial markets is necessary for private capital flows to have the desired positive effect on economic growth.

Although there is virtually no disagreement on whether financial development is good for growth from both exogenous and endogenous growth perspectives, there appears to be no agreed indicator for financial development. Since the channel of transmission, from financial development to growth depends on the measure of financial development used, many authors have reached different conclusions, depending on the indicator used to proxy for financial development. Furthermore, the relevance of each channel of transmission is country specific, due to differences in political, legal and other institutional differences across pace and time. The implication of this is that country case studies that use large number of indicators for financial development have significant potential of increasing our understanding of the growth effects of financial development. Though few would dispute the contribution of financial development to the growth of output and employment, current knowledge about the precise channels through which these effects occur in practice is still limited. The relative roles of financial development in facilitating new firm entry, expansion of incumbent firms, and technological upgrading, remain to be fully understood. Furthermore, in a globalized environment, where capital flows across countries and financial intermediaries operate across boundaries, the dual objectives of financial development and financial stability could potentially be even harder to achieve. Globalization allows the financial sector to develop as banks and other financial intermediaries benefit from capital and know-how from foreign providers, and it also gives households and firms access to financial services from abroad, all of which should further efficiency and growth. At the same time, however, it exposes both the financial and nonfinancial sectors to outside shocks that can result in significant instability. (Beck and Levine, 2004)

International capital flows have increased dramatically in recent years, but their impact on developing countries has not been clear. Whereas capital flows have been associated with higher growth in some countries, they have also been associated with a higher incidence of crises. Further, Khan and Senhadji, (2003) argue that conclusions based on cross-sectional analysis are unreliable and have several econometric problems. First, these results are sensitive to the sample of countries chosen. In other words, it is inappropriate to draw policy implications from findings obtained from cross-country studies that treat different economies as homogeneous entities. Second, cross-sectional studies do not take advantage of time-series variation in the data. Finally, the issue of causality cannot be handled formally in cross-sectional studies (Khan and Senhadji, 2003). The macroeconomic findings on growth and FDI must be viewed skeptically, however. Existing studies do not fully control for simultaneity bias, country-specific effects, and the routine use of lagged dependent variables in growth regressions. This research therefore proposes a time series approach to fill this gap and go a step further to explore the how private capital flows and financial development have the expected impact on economic growth. Consequently, the study extended its initial analysis to examine whether the presence of good financial markets is necessary for private capital flows to have the desired effect on economic growth.

1.2 Objectives

The general objective of this study was to examine the relationship between various components of private capital inflows and financial development on economic growth in Kenya. The specific objectives of the study were:-

i. To investigate the causality between FDI, portfolio investment and cross-border interbank borrowing on economic growth.
ii. To examine the effects of FDI, portfolio investment and cross-border interbank borrowing on economic growth.
iii. To establish the effects of financial development on economic growth
iv. To assess the effect of macroeconomic variables on economic Growth.

2.0 LITERATURE REVIEW

2.1 Theoretical Review

The theoretical anchoring for this study is the Auerbach-Kotlikoff (AK) Dynamic Life-Cycle Simulation Model. The model was developed by Pagano (1993), who used it to illustrate the potential effects of financial development on growth in a closed economy (Baillui, 2000). An endogenous-growth framework highlights the potential effects of changes in financial variables (i.e., financial development and capital flows) on steady-state growth through their influence on capital accumulation.

According to Van den Berg and Lewer (2007) the AK model was developed as a response to the outcome of the neoclassical theory which states that, in the absence of technological development, economic growth would in the end be deemed to be equal to zero. The new growth theories are different from the neoclassical growth theories in the sense that they focused on the creation of technological knowledge and its

diffusion and innovation efforts that react to economic incentives that are regarded as major engines of growth. The model goes on to emphasize the role of R&D, human capital accumulation and externalities, (Romer, 1996). Thus the link between capital flows and growth can be examined using a simple endogenous-growth model called the AK model which is an endogenous-growth framework that stresses the likely results of changes in financial variables (i.e., financial development and capital flows) on steady-state growth through their influence on capital accumulation. Bailliu (2000) sited Pagano (1993), when he used the AK model to illustrate the possible effects of financial development on growth and the framework was widened further to integrate international capital flows. From their closed-economy version of the AK model, the aggregate production of the economy is given by:

$$Y_t = AK_t, \tag{2.1}$$

where output is a linear function of the aggregate capital stock. According to Romer (1989), this type of production function can be viewed as a reduced form for either a framework in which the economy is competitive with external economies or one in which Kt is assumed to be a composite of physical and human capital, as in Lucas (1988), where the two types of capital are reproducible with identical technologies.

Assuming that there is no population growth in this model and the economy produces only one good that can either be consumed or invested and by also assuming that the capital stock depreciates at a rate of δ per period, gross investment equals;

$$I_t = K_{t+1} - (1-\delta)K_t \tag{2.2}$$

In addition to the above, financial intermediaries play an important role in converting savings into investment and in the closed-economy version of the model; capital market equilibrium requires that the portion of savings by domestic residents left after financial intermediaries have taken their share must equal gross investment. Consequently equilibrium in the capital market ensures that;

$$\phi S_t = I_t. \tag{2.3}$$

Upon using the above equations and dropping the time indices, the growth rate of output, g, can therefore be written as follows;

$$g = A\left(\frac{I}{Y}\right) - \delta = A\phi s - \delta, \tag{2.4}$$

In equation (4) above, s denotes the gross savings rate. This equation shows the steady-state growth rate of a closed-economy AK model with financial intermediation and it discloses two main channels through which financial development can affect economic growth. From the above statement, it is however apparent that financial development occurs as a result of increased financial intermediation, even though it may possibly be influenced by other factors such as financial innovation or government policies. Furthermore, Bencivenga & Smith, (1991) added the risk-sharing role of banks in the endogenous growth model, they pointed out that when banks engage in increased intermediation, they are likely to become more competent at what they do, as a result the spread between their lending and borrowing rates falls. This then results in an increase in the proportion of savings channeled to investment; accordingly, g will increase in equation (4) as a result of an increase in .

Overall, banks are classic examples of financial intermediary institutions since they connect surplus and deficit agents when they transform bank deposits into bank loans. The use of these financial intermediaries reduces the costs of lending and borrowing. However, financial intermediation supports investment processes by mobilizing household and foreign savings for investment by firms thereby ensuring funds are allocated to the most productive use, spreading risk and providing liquidity. Basically, banks that engage in financial development support the growth process and greater intermediation results in strong externalities that are positive for instance, information and liquidity provision, (FitzGerald, 2006).

Bailliu (2000) noted that an increase in financial intermediation can influence growth if it improves the distribution of capital by allocating funds to those projects where the marginal product of capital is highest. In this model, an improvement in the allocation of capital translates into higher growth, because it increases the general productivity of capital. The framework can therefore be extended to include international capital flows. If capital flows in, on net, then a larger pool of savings will be available for investment than in the absence of capital flows. Therefore, in the presence of international capital flows, the capital market equilibrium becomes;

$$\phi^*(S_t + NCF_t) = I_t^*, \tag{2.5}$$

Where NCF_t represents net international capital flows. The steady-state growth rate is now given by;

$$g^* = A^*\frac{I^*}{Y} - \delta = A^*\phi^*\frac{(S+NCF)}{Y} - \delta = A^*\phi^*s^* - \delta. \quad (2.6)$$

The steady-state growth rate of the AK framework with financial intermediation and international capital flows depicted in equation (2.5) can now be compared with the growth rate of the closed-economy AK model with financial intermediation (equation 2.6). From the model the comparison will bring to light the different channels through which capital flows can manipulate economic growth in this simple endogenous-growth model. Capital flows can encourage growth if they lead to an increase in the investment rate. Therefore, g* will be higher than g if s* is larger than s, all things being equal. For the savings rate to increase in the presence of international capital mobility, capital must flow in on net (i.e.*NCFt* >0), and capital flows must be used to fund investment and not consumption. This may not hold in reality since capital flows can also be used to fund consumption, (Bailliu, 2000). Primarily, capital flows can encourage growth if they raise the investment rate. Accordingly, g* will be higher than g if s* is larger than s, all else being equal. For the savings rate to increase in the presence of international capital mobility, capital must flow in on net (i.e), capital flows have to be used to fund investment and not consumption, and investment financed by foreign capital must not crowd out domestically financed investment.

Subsequently, capital flows can promote economic growth if they lead to investments that are connected to positive spillovers. The possible advantages that capital flows can entail by generating positive externalities have been stressed in the Foreign Direct Investment (FDI) literature, even though those types of benefits could also arise with other types of capital flows. Blomström (1991) discusses the diverse paths through which positive externalities associated with FDI can arise. Firms with foreign contribution frequently have significant connections with domestic firms, they can however, influence the industrial structure of the host economy, thus helping key sectors of the economy by making them more competitive and export-oriented.

Foreign investment influences the rest of the economy if employees switch to locally owned firms or become entrepreneurs. Since many new technologies are developed and adapted by firms in industrialized countries, foreign investment may be the most significant way for developing economies to get access to them. In the framework presented in this section, if capital flows lead to investments that create positive spillovers, then this will boost the social marginal productivity of capital, so that A* will tend to be higher than A, all else being equal. Capital flows exert a positive influence on economic growth when they lead to an increase in domestic financial intermediation. It was shown how an increase in financial intermediation in the context of a closed economy could foster higher growth when the intermediation forces the local banks to be more efficient at converting savings into investment especially to the productive projects. Therefore, when capital flows are intermediated by domestic financial institutions this usually has a positive effect on growth by making the banking sector in the local economy more proficient and better at selecting productive investment projects (i.e., A*>A).

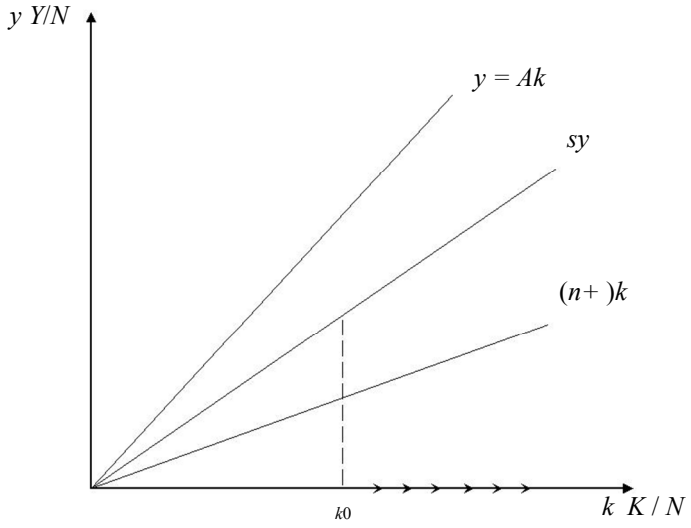

Figure 2.1. The AK model
Source: Adapted from Freitas, 2016

Figure 2.1 describes the dynamics of the AK model. The horizontal axis measures the capital labour ratio (*k*). The vertical axis measures output per capita (y). The top line shows the production function in the intensity form; the middle line corresponds to gross savings per capita; the lower of the three lines is the break-even investment line. Since the production function is now linear in k, the locus representing gross savings never crosses the break-even investment line. This means that there is no steady state: as long as *sA*>*n*+ , per capita

output will grow forever. The pitfall of the AK model is that the assumption of diminishing returns plays a very central role in economic thinking.

The theory is relevant to the study because it demonstrates that the level of domestic financial development plays a role in the process of linking capital inflows and economic growth. In addition, this model foretells that the country with the more developed financial system will have a higher growth rate, for the reason that its financial sector is more proficient at transferring the foreign funds into fruitful investments, and better able to distribute them to the most productive investment projects.

2.2 Empirical Literature Review

2.2.1 Private capital flows and Economic Growth

It is widely acknowledged that the financial system plays a vital role in economic growth in developing countries by mobilizing and intermediating the required financial resources for structural transformation. Cross-border private capital flows are an important part of this mobilization of resources because of their potential contribution to higher investment rates, the facilitation of capital market deepening and technological transfer, which can have positive effects on growth potential and levels of development (World Bank, 2014).

In addition, volatility of cross-border capital flows, which has increased for all types of flows with the growth and liberalization of the global financial system and the integration of developing countries into that global system has been associated with economic problems. These have included macroeconomic disruptions in relation to trade, exchange rates and inflation and boom-bust cycles in financial markets, as well as financial and economic crises (Massa, 2013; Griffith-Jones, 2013). Much of the focus of both research and policy to date has focused on large MICs because of their increasing integration with the financial markets of advanced economies and because of their repeated experience of financial crisis, including through contagion effects during the global financial crisis. In addition, they are increasing important in their own right in international and regional financial markets and policy-making.

In the early 1990s, developing experienced massive inflows of private capital, through a process of rapid financial sector liberalization (Goldin and Reinert, 2013). Nevertheless, private flows collapsed after 1997 and then started to recover in the early 2000s.Since then they experienced an extraordinary surge reaching peak values in 2007, before the 2008-09 global financial crisis hits. After a partial rebound in 2010, private capital flows declined again in 2011 due to the euro zone crisis but they are expected to recover in 2013 (Massa et al. 2012a, 2012b). Note that the magnitude of increases and decreases of private capital flows over time has been different across types of flows. For example, during the 2008-09 global financial crisis portfolio equity flows experienced dramatic drops and even reversed in some developing countries, while foreign direct investment (FDI) remained more resilient to the adverse shocks of the crisis (Te Velde et al. 2010).

The composition of private capital flows has also changed quickly. While in the 1970s and 1980s bank lending was the most important component of foreign capital for developing economies, since the 1990s FDI and portfolio investment (equity and bond flows) became dominant. It is further worth noting that also, over the last few years, bond flows are becoming an increasing important part of private capital flows in developing regions such as Sub-Saharan Africa (SSA), where most of LICs are located. Indeed, as highlighted by Stiglitz and Rashid (2013) and Hou et al. (2013), in SSA there was a rapid scaling up of bond flows between 2011 and 2013.

Several studies have been conducted on the empirical relationship between FDI's and economic growth. Some of these studies have shown that FDIs positively influence economic growth in the host countries. Aurangeb and Haq, (2012) investigated the impact of foreign capital inflows on economic growth of Pakistan. The data used in this study were collected from the period of 1981 to 2010. Unit root test confirms the stationary of all variables at first difference. The multiple regression analysis technique was used to identify the significance of different factors. Results indicate that the all three independent variables are having positive and significant relationship with economic growth (GDP). The Granger-Causality test confirms the bidirectional relationship between remittances and external debt, gross domestic product and external debt, foreign direct investment and external debt, and foreign direct investment and remittances. On the other side, the study found unidirectional relationship from gross domestic product to foreign direct investment. It is concluded that the foreign capital inflows are very important for the growth of any economy.

Adefabi (2011) found that FDI can affect growth positively in a sample of 24 sub-Saharan African countries over the period 1970-2006, but not through the accumulation of human capital. Strong support for the hypothesis that FDI has a positive impact on economic growth in low-income countries is also provided by Seetanah and Khadaroo (2007). Through different econometric techniques including random effect panel analysis and GMM, the authors show that FDI is an important element in explaining economic performance of Sub-Saharan African countries. A similar result is also obtained by Ndambendia and Njoupouognigni (2010) for a sample of 36 SSA countries over the period 1980-2007, as well as by Abdullahi et al. (2012) for a sample of 15 selected African countries from 1990 to 2009.

Obiechina and Ukeje (2013) examined the impact of capital flows (foreign direct investment), exchange

rate, export and trade openness on economic growth of Nigeria as well as the causal long-run relationship among the variables, using time series data from 1970 – 2010. The unit root test confirmed the series to be stationary at I (1), while the Johansen Co-integration test suggested the existence of at least one Co-integration vector among the variables. Using Engle-Granger 2-Step procedure, it was observed that all the variables, except the FDI are statistically significant and influence economic growth in the short-run dynamic equilibrium model. Exogeneity test confirmed that FDI has weak exogeneity with economic growth. In addition, the Pairwise Granger causality revealed the existence of uni-directional causality between economic growth and FDI, and uni-directional and bi-directional causality among some of the variables. In the same vein, Ahmadi and Ghanbarzadeh, (2011) investigated the casual relationship among GDP, exports and FDI in MENA countries, over the period 1970-2008. They found out that there is bidirectional causality relationship between all variables in these countries.

Olusanya (2013) examined the impact of Foreign Direct Investment inflow and economic growth in a pre and post deregulated Nigerian economy, a Granger causality test was use as the estimated technique between 1970 - 2010. However, the analysis de-aggregates the economy into three period; 1970 to 1986, 1986 to 2010 and 1970 to 2010, to test the causality between foreign direct investment inflow (FDI) and economic growth (GDP). However, the result of the causality test shows that there is causality relationship in the pre-deregulation era that is (1970-1986) from economic growth (GDP) to foreign direct investment inflow (FDI) which means GDP causes FDI, but there is no causality relationship in the post-deregulation era that is (1986-2010) between economic growth (GDP) and foreign direct investment inflow (FDI) which means GDP causes FDI. However, between 1970 to 2010 it shows that is causality relationship between economic growth (GDP) and foreign direct investment inflow (FDI) that is economic growth drive foreign direct investment inflow into the country and vice versa.

Umoh, et.al, (2012) set out to empirically investigate the relationship between foreign direct investment and economic growth in Nigeria between 1970 and 2008.The proposed that there is endogeniety i.e., bi-directional relationship between FDI and economic growth in Nigeria. Single and simultaneous equation systems are employed to examine if there is any sort of feedback relationship between FDI and economic growth in Nigeria. The results obtained show that FDI and economic growth are jointly determined in Nigeria and there is positive feedback from FDI to growth and from growth to FDI. The overall policy implication of the result is that policies that attract more foreign direct investments to the economy, greater openness and increased private participation will need to be pursued and reinforced to ensure that the domestic economy captures greater spill overs from FDI inflows and attains higher economic growth rates.

Fambon (2013) captures the impact of foreign capital inflows (which include foreign aid and foreign direct investment) on economic growth in Cameroon. Using the autoregressive distributive lag approach to Co-integration and time-series data for the period 1980–2008, the results of the study indicate that the domestic capital stock and foreign direct investment have positive and significant impacts on economic growth in the short and long terms, while the impact of the labour force on growth was significantly negative in both terms, a result that may be attributable to the fact that Cameroon is a developing country with an unlimited supply of labour whose increase has a detrimental effect on the country's growth.

Anwar and Nguyen (2011) in their study, focused on the case of Vietnam by using a panel data involving 19 main trading partners during the period of 1990-2007 in particular pre, during and post the Asian financial crisis. They reached the conclusion that FDI has a strong and positive impact on economic growth especially after the Asian crisis through increasing net-exports in Vietnam although there was insignificant impact of FDI in boosting trade before and during the crisis. A comparable conclusion is reached by Dhakal, et.al (2010) in a study involving three selected countries of South Asia and covering the period from 1971 to 2006. They found both similarities and differences which exist in the previous literature. FDI has a positive impact on economic growth in India, Sri Lanka, and Pakistan. For instance, In India, FDI boosts the growth in the economy via increasing exports and imports to the country but there is an insignificant relationship between FDI and GDP.

Chatterjee and Turnosky (2005) investigated the link between foreign aid and economic growth and welfare in a small open economy. The study found external transfer to impinge on the recipient's macroeconomic performance by affecting resource allocation decisions and relative prices. The study further stressed that endogeneity of the labour-leisure choice and the adjustment of the real wage rate plays a crucial role in the propagation of foreign aid shocks and that another crucial determinant of the efficacy of foreign aid is externalities associated with the public good that aid helps public finance. The study showed further that transitional adjustment to a foreign aid shock is dependent crucially on the elasticity of substitution in production and the relative importance of the labor-leisure choice utility.

There are studies that find no effect of FDI on growth in low-income countries. Adams (2009) examined 42 Sub-Saharan Countries over the period 1990-2003 and found that FDI had no significant positive impact on economic growth when using a fixed effects panel analysis. By using OLS and least absolute deviation (LAD) estimation methods, in the same vein Adhikary (2011) examined the linkage between FDI and

economic growth rates in Bangladesh over the period 1986-2008, using time series analysis. His results revealed that FDI had a significant positive effect on changes in real GDP, and that there is a unidirectional causality running from changes in FDI to economic growth rates. Similar results are obtained by Iftikhar (2012) who uses an extended sample of data over the period 1975-2009 and finds that there is a one-way causality relationship from FDI to economic growth in Bangladesh. On the other hand, Rahman (2009) finds no significant long-run causal flows from FDI to real GDP of Bangladesh. No direct causal relationship between GDP growth and FDI in the case of Bangladesh is also found by Dhakal et.al (2007). These results are in line with those obtained by Shimul, et.al (2009) and Hossain and Hossain (2012), who also find no long-run relationship between FDI and economic growth in Bangladesh, although there seems to be evidence of a short run dynamic relation.

Esso (2010) examined the relationship between FDI and economic growth in the case of ten SSA countries, including 3 LICs (i.e. Congo, Kenya and Liberia). Results showed that there is a long-run relationship between FDI and economic growth in low-income countries such as Kenya and Liberia, and that causality runs from FDI to economic growth in Kenya but not in Liberia where growth causes FDI. In the case of Congo, no long-run relationship is found between FDI and economic growth. A long-run positive relationship between FDI and economic growth in Liberia is also found by Adnan (2011), according to whom a 1 percent increase in FDI increases economic growth by about 0.06 percent. By using a panel Granger causality analysis, Tekin (2012) showed that FDI Granger-causes GDP in Benin and Togo, while GDP Granger-causes FDI in Burkina Faso, Gambia, Madagascar and Malawi. By assessing the causal relationship between FDI and growth in five African countries (Ghana, Kenya, Nigeria, South Africa and Zambia), Ahmed, et.al (2011), found that only in the case of Kenya FDI has a negative impact on economic growth. Finally, Lamine and Yang (2010) found that in Guinea there is evidence of the existence of causality running from GDP to FDI, but not vice versa. By using cointegration analysis and Granger causality tests, Rusuhuzwa and Baricako (2009) showed that FDI does not have a significant impact on economic growth in Burundi and Rwanda, probably due to the fact that the share of FDI in the two countries are still limited.

Rodrik and Subramanian (2008) argued that capital accumulation of less developed countries is insufficient not because they save less but because they do not have enough investment opportunities. Under such circumstances, more foreign capital inflow into their markets, they argue, will send a negative impact on their economic growth by reducing return on investment (ROI) through the appreciation of foreign exchange rates and by weakening their international competitiveness.

Mucuk, et.al (2014) examined the long run relationship between foreign portfolio investment and economic growth for Turkish economy over the period 1990-2012 within framework of cointegration. The cointegration test findings indicate that there is no relationship between these variables in the long run. According to this result, foreign portfolio investments should not only support consumption but also should be used in more productive areas.

Ekeocha, et.al, (2012) examined the impact of capital inflows on economic growth of developing economies in Nigeria, 1986-2012. The authors ascertained that the long run determinants of foreign portfolio investment (FPI) in Nigeria such that appropriate policies will be pursued to attract same in the long run. FPI has grown recently in proportion relative to other types of capital inflows to Nigeria before the wake of global financial crisis. Incidentally, there is no empirical regularity regarding the determinants of FPI. This study tries to add to the stock of knowledge by modelling the long-run determinants of FPI in Nigeria over the period of 1981-2010 converted into quarterly series. The variables considered are, market capitalization, real exchange rate, real interest rate, real gross domestic product and trade openness. The study applies time series analysis specifically the finite distributed lag model and discovers that FPI has a positive long-run relationship with market capitalization, and trade openness in Nigeria.

Shen, et.al, (2010) established that FDI has a positive effect on growth, while portfolio investment (i.e. bond and equity flows) has a negative effect on growth. Mody and Murshid (2011) analysed the impact of net private capital inflows (i.e. the sum of net direct investment, net portfolio flows, and other net private capital flows) on growth in a sample of 61 countries including LICs in Latina America and the Caribbean as well as in sub-Saharan Africa. Their findings showed that private capital inflows are associated with higher growth in countries with low growth volatility.

Duasa and Kassim (2009) examined the relationship between foreign portfolio investment and Malaysia's economic performance. They used time-series data for the period 1991-2006 and employed the Granger Causality test and the Toda-Yamamoto Non-Causality test to establish the direction of causality between the foreign portfolio investment and economic growth. In addition they used the simulating variance decomposition and impulse response functions for further inference. The study found that economic growth causes changes in foreign portfolio investment.

2.4 Macroeconomic Variables and Economic Growth

Conceptually, the study was based on the premise that private capital inflow and financial development influence

economic growth but this influence is intervened by a number of macroeconomic factors, namely: government expenditure, human capital, macroeconomic stability and trade openness.

2.4.1 Government Expenditure and Economic Growth

Government policy typically plays an essential role in the macroeconomic performance of countries. Apart from defining the legal and regulatory structure for economic activity, governments pursue a number of spending initiatives designed to promote output growth and employment. At the same time, government expenditures may interfere with the efficient workings of the economy and thus have a negative impact on economic performance. Thus, both the theoretical predictions and empirical findings on the macroeconomic effects of changes in government expenditure are mixed. It is of interest therefore to identify the overall impact of government spending on economic performance.

Chen and Lee (2005) used the Hansen's threshold regression model using the quarterly data of Taiwan from 1979 Q1 to 2003 Q3 and confirmed that all three classifications of government expenditure as a ratio to GDP: total government expenditure, government investment spending, and government consumption expenditure, have threshold effects. The optimal government size found for these expenditures is 22.8, 7.3, and 15.0 percent, respectively. Afonso and Furceri, (2010) analyzed the impact of government size using various components of government expenditures in OECD and EU countries. Their findings suggested that total expenditure has a negative impact on the real per capita GDP for both the OECD and EU countries. The components of total spending appear to have diminishing effects for both countries. Both subsidies and government consumption have a significantly negative impact on growth, government investment does not significantly affect growth, and only transfers have a positive and significant effect only for the EU countries.

Pushak, et al. (2007) also investigated the nonlinear hypothesis for a group of 25 transition economies between 1992 and 2004. Using spline regressions, they experimented with a number of plausible threshold values for government size. They eventually settled on a threshold value of 35 percent, which is approximately equal to the sample median. They found that at expenditure levels of 35 percent of GDP or higher, public spending negatively affects growth. However, at levels below 35 percent, public sector size had no robust measurable effect.

In a meta-analysis of 41 studies exploring the impact of fiscal policies on long-run growth, Nijkamp and Poot (2004) found that 17 percent of studies showed positive relationships between different measures of fiscal policy and economic growth; 29 percent showed negative relationships; and 54 percent were inconclusive. While they found indications of strong effects of education and infrastructure spending on growth, there was no similar impact of fiscal variables in general. This is not surprising considering mixed effects of different fiscal aggregates, as well as the composition of spending and financing methods used.

In case of Ethiopia, Teshome (2006), observed the impact of various components of government spending on the growth of real GDP for the period 1960- 2003 using Johansson Maximum Likelihood Estimation procedure. In the co integration analysis it was found that there is single cointegrating vector which implies that there is long-run relationships among the variables. The long run result shows that expenditure on human capital has a significant positive impact on growth of real GDP. Besides, private consumption had significant positive impact on economic growth. Government investment expenditure was not significant, which probably reflects the inefficient and poor quality nature of public investment. Public investments in transportation and communication along with capital accumulation have shown evidence of positive growth effects. Haque and Kim (2003), using fixed and random effects approaches in a panel of 15 developing countries for the period 1970-1987, showed that investment in transportation and communication had a positive impact on economic growth. Likewise, using panel data for 28 developing countries for 1981-1991, Dessus and Herrera (2000) found that public capital accumulation had a positive long-run growth effect.

Bose et al (2003) simultaneously examined public expenditure by sector (education and health) and type (investment and consumption) for 30 developing countries. They found evidence that human capital investments in health and education as well as overall capital spending have positive effects on growth. However, when they incorporated a government budget constraint, only total capital spending and investment in education have positive growth effects. In another study, Gupta et al. (2005), analyzing data on 39 low income countries during the 1990s, demonstrated that higher wages could retard growth, whereas higher capital and nonwage expenditure could stimulate it. Therefore, the findings of Bose et al. (2003) and Gupta et.al (2005) contrast those of Devarajan, et.al (1996) for developing countries.

Similarly, Baldacci, et.al (2008) tested a panel of 120 developing countries for the period 1975-2000 and illustrated that social spending on human capital, education and health, can cause higher economic growth. In addition, Baffes and Shah (1998) investigated the relationship between sectoral allocation of public spending and economic growth using a sample of 21 low and medium income countries from 1965 to 1984. They concluded that human capital investment had the largest growth effect followed by modest and positive effect for infrastructure investment, while military investment showed negative effect in half the countries considered in the study.

Fasano and Wang (2001) examined the relationship between public expenditure and non-oil GDP for the Gulf Cooperation Council (GCC) countries for the period 1980-1999. They did not find strong support that an increase in either capital or current public expenditure tends to slow or speed growth. Similarly, Landau (1997) found in a study covering 84 developing countries for the period 1970-1989 that government expenditure on human capital (education and health) has no statistically significant impact on economic growth.

This negative effect also held for each of the components Fedderke, et.al (2006) and Albala-Bertrand and Mamatzakis (2001) used a VECM framework to examine the effects of infrastructure investment on long-run growth in South Africa and Chile, respectively. Both studies showed evidence of a positive growth effect of productive public expenditure in infrastructure. Using a similar methodology, M'Amanja, et.al (2005) examined the case of Kenya for the period 1964-2002 and found that public investment has a positive impact on growth.

2.4.2 Human Capital and Economic Growth

The origin of the concept of human capital dates back to the late 18th century, when British economist and philosopher, Adam Smith, published his landmark *Wealth of Nations* (Siqueira, 2007). In his publication Smith suggested that humans are productive capital and, as such, are an important input to economic growth and development. Similar to the way that physical capital contributes to the productivity of a business, humans could also improve their productivity through education and training.

Baldwin and Borrelli (2008) studied the relationship between human capital and income at the state level. The researchers sought to replicate various national and international studies that indicate a strong quantitative relationship between income and human capital. The authors applied quantitative methods including regression analysis in their analysis of state data from 1988-2005. They conclude that spending on higher education attracts an educated workforce, which, in turn, increases the overall income levels of the area. Levernier (2003) supported the conclusion through a linear regression model to examine the causes of Southern poverty and to identify differences in rural and non-rural counties. The researcher found that educational attainment is significantly related to income levels of localities, but that rural counties experience different relationships with education levels than non-rural counties.

Gupta and Chakraborty (2004) developed an endogenous growth model of a dual economy where human capital accumulation was the source of economic growth. Their findings revealed that increases in primary and secondary levels of education contribute to an increase in productivity. In another study Li (2005) used regression analysis to study human capital's role in promoting rural income growth. He then used a modified Carlino-Mills two-equation system to analyze human capital's effect on job growth and population growth. The researcher also examined the elderly population in rural areas to determine what effect the age of the population had on education spending (Li, 2005) concludes that rural citizens are less likely than non-rural citizens to spend money on elementary and secondary education.

2.4.3 Macroeconomic Stability and Economic Growth

The investigations into the existence and nature of the link between inflation and growth have experienced a long history. For instance there are many possible reasons why inflation might affect the finance-growth relationship. More precisely, inflation could alter the link between finance and growth. Inflation could affect the financial system's ability to accumulate capital - the amount of investment. In particular, when inflation is sufficiently high, the ability of financial intermediaries to raise capital may decrease, and thus the positive effect of financial development on capital accumulation may diminish. Empirical studies were devoted to finding the effects of inflation in high-inflation countries. These studies repeatedly confirmed that inflation had a significant negative effect on economic growth, at least at sufficiently high levels of inflation.

Barro (2013) examined the simultaneous effects of inflation and inflation uncertainty on a large sample of countries, provides contradicting results. He found that the inflation level (even at low rates) had a negative and significant impact on growth, while inflation uncertainty had no significant relation with growth after controlling for the important growth drivers (including institutions. The researcher argues that inflation (even at low levels) can distort economic progress because of its distortionary impact on relative prices and thus on the efficiency of market allocations.

In contrast, Han and Mulligan (2008) found an insubstantial link between inflation and public expenditures for a sample of 80 countries over the period from 1973 to 1990. Their study separated the changes in public expenditures into two components, permanent and transitory public expenses, and found a very weak negative relationship between permanent government expenditures and inflation. Nevertheless, the effects of inflation on transitory expenditures, such as defense spending in wartime, turn out to be slightly positive. Hence, the effect of public expenditures on growth that appear through inflation can either be a burden or can be unaffected by price changes. In the same vain Bruno and Easterly (1995) studied inflation-growth relationship for 26 countries over the 1961- 1992 period. They found a negative relationship between inflation and growth when level of inflation exceeds some threshold. At the same time they showed that impact of low and moderate inflation on growth is quite ambiguous. They argued that in this case inflation and growth are influenced jointly by different demand and supply shocks thus no stable pattern exists.

Khan and Senhadji (2001) investigated the inflation-growth interaction for both developing and developed countries applying the technique of conditional least squares. They used the panel data set on 140 countries (both industrial and developing) over the period 1960-1998. The authors employed the method of non-linear least squares to deal with non-linearity and non-differentiability of the inflation threshold level in growth regression. As a result, they obtained estimates of the threshold levels of 1-3% for developed and 11-12% for developing countries, which turned out to be very precise. The authors mentioned that the total negative effect of inflation may be underestimated due to the fact that they controlled investment and employment, so the main channel of impact is productivity. Nevertheless, this study asserted the idea that low inflation is a good thing for the economy because it has favorable influence on growth performance.

Hwang and Wu (2011) using growth accounting equation as basis of their model examine the possible threshold effect of inflation on economic growth in China. They find that the inflation threshold effect is highly significant and robust. Above the 2.50 percent threshold level, every 1 percentage point increase in the inflation rate impedes economic growth by 0.61 percent; below this threshold, every 1 percentage point increase in inflation rate stimulates growth by 0.53 percent. This indicates that inflation harms economic growth whereas moderate inflation benefits growth in China.

Singh and Kalirajan (2003) using the annual data from India for the period of 1971–1998 analyzed the threshold effect of inflation economic growth. The findings clearly suggest that the increase in inflation from any level has negative effect on economic growth and substantial gains can be obtained by focusing the monetary policy towards maintaining price stability. Andres and Hernando (1997) obtain a significant negative relationship between inflation and economic growth during long periods. Inflation reduces the level of investment as well as the efficiency with which factors of are used. It has a negative temporary impact on long term growth rates, which in turn generates permanent fall in per capita income. They conclude that the long run cost of inflation is large and the effort to keep inflation down will pay off in terms of better economic growth.

There are some empirical studies on the relationship between inflation and growth in Africa. Tabi and Ondoa (2011) examined the link between economic growth, inflation and money in circulation. They analyzed the major importance of monetary variables on economic growth in Cameroon. Using data from 1960-2007, they constructed VAR model to identify the possible link between the variables mentioned above. The result showed that money in circulation causes growth and growth causes inflation. The interesting conclusion is that increase in money in circulation does not necessarily induce an increase in general price level. Chimobi (2010) sought to ascertain if there is relationship between growth and inflation using Nigeria's consumer price index from 1970-2005. He concluded that there is no long run relationship between inflation and economic growth in Nigeria but shows that inflation has an impact on growth. Nell (2000) studies the cost and benefit of inflation by dividing the South Africa's inflationary experience into four episodes. The empirical results suggest that there is nonlinear relationship between inflation and economic growth.

2.4.4 Trade Openness and Economic Growth

The term "trade openness" can be defined as the world's integration among countries. According to Osabuohien (2007), openness is likened to a situation where nations of the world join together so that they have free movement of labor, capital and free trade. Furthermore, the effect of trade is commended on that it increases competition and enhances efficiency. Trade openness is, therefore, assumed to be an important source of economic growth.

The study by Villaverde and Maza (2011) conducted for a sample of 101 countries during the period 1970-2005 also showed that economic globalization (for which trade openness is one of the main indicators) leads to a higher economic growth and simultaneously, to worldwide income convergence. More recently, Busse and Königer (2012) argued that the effect of trade in dynamic panel estimations depends crucially on the specification of trade. They concluded that openness has a positive and highly significant impact on economic growth, especially for developing countries. Further Chang, et al. (2009) after their examination of the impact on trade openness to economic growth, among 82 countries (22 developed and 60 developing) during 1960-2000, concluded that trade openness affects positively economic growth, especially in developing countries rather than developed ones.

Gurgul and Lach (2014) examined the linear and non-linear causalities between the international trade and economic growth in the Polish economy using quarterly data for the periods 1996-2008 and 1996-2009 separately to capture for the effect of the 2008/2009 financial global crisis. The authors estimated a restricted VAR model involving GDP, exports and imports. The findings of linear Granger causality tests revealed existence of a relationship between the export growth rate and growth in GDP in both time periods, while no direct causality was found between GDP growth rate and imports growth rate. However, based on the weak evidence of casual linkage between GDP and import growth rates in the pre-crisis period, one can only imagine the existence of some indirect links. In addition, the impulse response analysis performed revealed that a shock from exports caused a positive response in GDP over the next three quarters.

Safdari, et.al (2011) studied the causality relationship between exports and economic growth for

thirteen (13) Asian Developing Countries for the period 1988 to 2008. Applying Panel Vector Error Correction Model based on Wald test, they found that there was sufficient evidence to accept the null hypothesis that export did not Granger cause economic growth, while Wald test statistics showed that economic growth Granger cause exports, hence an indication of unidirectional causality from economic growth to exports, supporting the growth-driven exports (GDE) hypothesis.

Abdulai and Jaquet (2002) tested the export led growth hypothesis in Ivory Coast using time series data for the period 1961-1997. They examined both the short-run and long-run relationship between economic growth, exports, real investments, and labor force. Testing for cointegration and using the ECM, the authors found that there was evidence of one long-run equilibrium relationship among all the four variables. Exports were also found to granger cause economic growth both in the short-run and in the long-run.

Matadeen, et.al (2011) examined the relationship between trade openness and economic growth in Mauritius using time-series data for the period 1989-2009. The researcher examined the nexus through a Vector Error Correction Model (VECM) to determine the causal links. They found that openness enhances growth and also trade openness indirectly promotes economic growth by boosting private physical capital in the short-run. A study by Bajwa and Siddiqi (2011) investigated the casual link between trade openness and economic growth for four South Asian countries, that is, Bangladesh, India, Pakistan and Sri-Lanka using Panel cointegration and fully modified ordinary least squares (FMOLS) technique for periods 1972 to 1985 and 1986 to 2007. The motive was to determine what happened before and after the implementation of South Asian Association for Regional Co-operation (SAARC). The results showed that from 1972 to 1985 there existed a short-run unidirectional causality and from 1986 to 2007 a short-run bi-directional causation existed. Finally, a positive long-run causality existed between the variables.

Obadan and Okojie (2010) used annual time-series data covering the period 1980 to 2007 to examine the effects of trade on economic growth and development in Nigeria. Variables used included growth rate of GDP, openness, exchange rate, foreign direct investment, domestic investment and political stability. The results showed that trade openness had a positive impact on economic growth in Nigeria and a strong negative impact on growth due to political instability. It was concluded that Nigeria's export base which solely depend on petroleum should be diversified to include agricultural and solid minerals export.

Marelli and Signorelli (2011) used panel data model from 1980 to 2007 with an instrumental variable approach for two countries namely; China and India by focusing on trade dynamics, degree of openness, FDI flows and specialization patterns and also estimate the links between openness and growth, for the two countries in terms of their integration in the global economy. Results showed that both countries in the short-run had high degree of openness despite being hit by big economic shocks like the 2008-09 global crisis, but concluded that there was a positive and statistically significant growth effects of opening up and integrating in the world economy. The robust growth of the two "giant" nationals is currently helping the entire world economy recovery because they experienced a small deceleration in their growth paths during the first global impact of the crisis.

A study by Yeboah, et.al (2012), used alternative panel models from 1980 to 2008 to examine the relationship between trade and productivity. The Cobb-Douglas production function estimated the impact of FDI, exchange rate, capital-labour ratio and trade openness on GDP for 38 African countries. The results showed that 17 countries growth was above average while majority countries were below average returns-to-scale. This confirmed a positive relationship between trade openness and GDP. A study by Ahmadi and Mohebbi (2012) examined the effect of trade openness on economic growth in Iran using OLS method for estimation parameters from 1971 to 2008. Results indicated significant positive effect of trade openness on economic growth in Iran and concluded that oil revenue and investment growths have a significant positive effect on economic growth in Iran

Choong, et*.al.*(2010) investigated how FDI, portfolio investments and foreign debt flows promote economic growth in developed and developing countries through the channel of domestic stock markets. They found that portfolio investment and foreign debt have a negative effect on growth whilst FDI has a significantly positive effect. Even though portfolio investment and foreign debt had negative effects on economic growth, the coefficients of the interaction terms were positive and significant implying that the development of the stock market benefits the recipient country.

Osinubi and Maghionyeodiwe (2010) analyzed the direction and significance of the effect of foreign private investment on economic growth in Nigeria using secondary data for the period 1970-2005. They found that FPI, domestic investment growth and net export growths were positively related to economic growth in Nigeria. On the other hand, in Asia, Vihn (2010) used a panel dataset from emerging Asian countries of South Korea, Indonesia, Malaysia, Thailand and Philippines over the period 1908-2001 to investigate the relationship between net private capital inflows and economic growth. The study employed the GMM estimation and found that net capital inflows contribute to economic growth for the countries sampled.

Duasa (2009) studied the relationship between FPI and real GDP using the Granger causality test and Toda and Yamamoto's 1995 non-causality test to establish the direction of causation between FPI and economic

growth (GDP). The study used quarterly data for the period from 1991 to 2006, and found evidence that economic growth caused changes in the FPI and its volatility and not vice versa. The findings suggested that economic performance is the major pull factor in attracting FPI into the country. The study also found that economic growth causes the FPI inflow but not its volatility. However, neither the FPI nor its volatility caused economic growth. Thus, the findings of this study suggested that FPI or its volatility was not a crucial factor in determining the economic performance of Malaysia.

In another study, Durham (2004) examined the effects of FDI and equity foreign portfolio investment (EFPI) on economic growth using data of 80 countries from 1979 through 1998. The study used instrumental variables (IV) estimation and entails a five-equation two-stage least-squares (2SLS) system. The results largely suggested that lagged FDI and EFPI did not have direct, unmitigated positive effects on growth, but some data were consistent with the view that the effects of FDI and EFPI are contingent on the absorptive capacity of host countries, with particular respect to financial or institutional development. Moreover, extreme bound analysis (EBA) of significant results indicate that the estimates are robust compared to other empirical studies on growth.

Leong and Wickramanayake (2004) investigated the impact of changes in economic variables on the level of inward portfolio investment in Australia, and found that there is a negative relationship between exchange rates, foreign interest rates and inward portfolio investment. They concluded that the majority of factors which influence Australia's portfolio investment inflows are exogenous and include foreign interest rates and foreign scale variables.

Massa and Macias (2009) examined the long-run relationship between economic growth and four different private capital inflows (cross-border bank lending, FDI, bonds flows and portfolio equity flows) on a sample of selected Sub-Saharan African countries over the period 1980-2007. They used a panel co integration regression on pooled data. The study found that FDI and cross-border bank lending have statistically significant and positive impact on SSA growth. A drop by 10 percent of FDI may lead to 0.5 percent decline of SSA's income per capita, whereas a 10 percent decrease in cross-border lending may lead to a decrease in growth of about 0.7 percent

De Vita and Kyaw (2009) examined the impact of FDI and portfolio investment flows on economic growth of a sample of 126 developing countries for the period 1985-2002. According to their findings, only developing countries that have reached a minimum level of economic development and absorptive capacity are able to capture the growth enhancing effects of both forms of investment inflows.

On the other hand, Durham (2003), sampled of 88 countries from 1977 through 2000 and examined the impact on growth of bond foreign portfolio investment (BFPI),total foreign portfolio investment (FPI) and other foreign investment (OFI), which includes cross-border bank lending. The results suggested that FPI, BFPI and OFI have no effect on economic growth, even though there is some evidence that OFI may have a negative impact on economic growth depending on the level of financial and legal development of the recipient country.

2.3 Financial Development and Economic Growth

Economic growth in a developing economy rest on an efficient financial sector, that pools domestic saving and mobilizes foreign capital for productive investments. In the developing countries, industries need more funds to increase their investment so that they can meet globalization constraint. Empirically, a plethora of studies extant in the literature have investigated the relationship between financial depth and economic growth, albeit having mixed results on the impact and direction of causality. But generally, most studies based on cross-section and panel data affirm the fact that financial development exerts a positive influence on growth.

Odhiambo, (2011) studied the dynamic causal relationship between financial deepening and economic growth in Tanzania using a multivariate model. The study included foreign capital inflows as an intermittent variable between financial deepening and economic growth, thereby creating a simple tri-variate model. Using the newly introduced ARDL-bounds testing procedure, the study finds a distinct unidirectional casual flow from economic growth to financial depth in Tanzania. This applies irrespective of whether the causality is estimated in the short run or in the long-run. Other results show that there is a bi-directional causality between financial development and foreign capital inflows, and a prima-facie unidirectional causality from foreign capital inflows to economic growth. The study, therefore, concludes that financial development in Tanzania follows growth, irrespective of whether the causality is estimated in a static or dynamic formulation.

Adeniyi, et al.(2015) examined the causal linkage between foreign direct investment (FDI) and economic growth - in Cote' d'Ivoire, Gambia, Ghana, Nigeria and Sierra Leone - with financial development accounted for over the period 1970-2005 within a trivariate framework which applies Granger causality tests in a vector error correction (VEC) setting. Three alternative measures of financial sector development - total liquid liabilities, total banking sector credit and credit to the private sector - were employed to capture different ramifications of financial intermediation. The results support the view that the extent of financial sophistication matters for the benefits of foreign direct investment to register on economic growth in Ghana, Gambia and Sierra Leone depending on the financial indicator used. Nigeria, on the other hand, displays no evidence of any short-

or long-run causal flow from FDI to growth with financial deepening accompanying.

Choong et al. (2010) examined how FDI, portfolio investments and foreign debt flows promote economic growth in developed and developing countries through the channel of domestic stock markets. They find that portfolio investment and foreign debt have a negative effect on growth whilst FDI has a significantly positive effect. Even though portfolio investment and foreign debt have negative effects on economic growth, the coefficients of the interaction terms are positive and significant implying that the development of the stock market benefits the recipient country. Regarding the negative relation observed between debt flows and economic growth, Alfaro, et.al (2004) suggested that the apparent 'puzzle' in the literature may be no puzzle at all. They explain that the data fits the neo-classical prediction better than previously thought and that the puzzling results emanate from the fact that the capitals flows data include financing from other sovereigns and aid data. They therefore conclude that sovereigns and official donors invest in low return countries, most likely for political considerations.

It has also been shown by Ang (2008) that better developed financial systems allow an economy to exploit the benefits of foreign direct investment more efficiently. The author used Thailand as a case study to examine the role of FDI and financial development in the process of economic development. The estimation uses an unrestricted error-correction model to avoid omitted lagged variable bias, and an instrumental variable to correct for endogeneity bias. Using annual firm series data from 1970-2004 the results show that financial development stimulates economic development whereas foreign direct investment impacts negatively on output expansion in the long-run.

In another study, Zang and Kim (2007) examined the causal link between financial development and economic growth in East Asian countries. By applying the Sims-Geweke causality technique on a large panel data set provided by Levine et al (2000), the authors in sharp contrast to Levine et al. (2000) find no evidence of any positive unidirectional causal link from financial development indicators to economic growth. On the contrary, the authors find substantial evidence that economic growth precedes financial development. According to Levine (2004), financial development involves improvements in the (i) production of *ex ante* information about possible investments, (ii) monitoring of investments and implementation of corporate governance, (iii) trading, diversification, and management of risk, (iv) mobilization and pooling of savings, and (v) exchange of goods and services. Each of these financial functions may influence savings and investment decisions and hence economic growth. Since many market frictions exist and laws, regulations, and policies differ markedly across economies and over time, improvements along any single dimension may have different implications for resource allocation and welfare depending on the other frictions at play in the economy.

However, in a study by Chee-Keong and Chan(2011) observe otherwise. In a review of literature on the finance–growth relationship, they conclude that "the development of theoretical models and the use of regressions in the investigation of finance–growth relationship have shown reliably that there is a positive long-run (short-run) relationship (causality) between financial development and economic growth. One of the results suggested that financial development is a crucial factor in promoting economic growth not only in developed countries, but also in developing countries.

Sedik and Sun (2012) analyzed the short-to-medium term effects of liberalizing capital flows on macroeconomic performance and risks to financial stability for a sample of 37 emerging market economies (EMEs) over the period 1995-2010. They go further to analyze the position of China in the same context as the other 37 EMEs. They proxy financial openness with two new dejure measures although the restrictiveness indices are based on the IMF"s AREAER. The first restrictiveness index is similar to the Schindler index (Schindler, 2009) and comprises 21 categories of restrictions, including restrictions on equity, bond, money market and collective investment scheme instruments, financial credit and direct investment by direction. They use the second dejure index as a robustness check and this is an average of binary indicators of 62 categories of capital transactions. It includes items such as all capital transactions, foreign exchange and domestic currency accounts of residents and non-residents, regulatory measures related to the financial sector and repatriation and surrender requirements. The evidence from the data supports the argument that financial openness can explain macroeconomic performance and financial stability risks, at least partially. Specifically, the paper finds evidence that capital account liberalization is associated with higher GDP per capita growth and lower inflation. Also, financial integration is found to be associated with higher returns on equity and lower bank capital adequacy ratios thereby suggesting potential risks to financial stability in events of spontaneous reversals in capital flows.

Kargbo and Adamu (2009) examined the relationship between financial development and economic growth in Sierra Leone for the period 1970–2008. Their results corroborate the finance-led growth hypothesis in Sierra Leone with financial development exerting a significant positive growth effect. More importantly they show that investment is an important avenue through which financial development feeds economic growth. Odhiambo (2009) examined the dynamic relationship between interest rate reforms, financial development and economic growth. The author concludes that the causal relationship between financial depth and economic growth exhibit a demand-following path.

Using panel data for 40 developing countries from 1975–95, Bailliu (2000) found evidence that capital inflows foster economic growth, above and beyond any effects on the investment rate, but only for economies where the banking sector has reached a certain level of development. Soto (2000) showed that FDI and EFPI flows exhibit a positive, significant and robust correlation with income growth in developing countries whereas short and long-term bank related inflows show significant negative correlation with growth. However, the negative relationship holds only when domestic banks have low capitalization ratios. Durham (2004) found that the positive effect of FPI on growth is contingent on financial development and legal variables or comparative institutions. In particular, they find that FPI inhibits growth in countries with comparatively small equity markets and pervasive corruption.

Beck and Levine (2004) applied the panel econometric techniques along with new data to re-examine the relationship between stock markets, banks, and economic growth. They examined whether measures of stock market and bank development each have a positive relationship with economic growth after controlling for simultaneity bias and omitted variable bias. They use data for 40 countries, averaged over 5 years from 1976 to 1998, and employ generalized method of moments (GMM) estimators for panel data analysis. Both stock markets and banks are found to be jointly significant in affecting economic growth in their panel estimation, thus suggesting that stock markets provide different financial services from banks.

Levine et al. (2000) in a study on 71 countries for the period 1960–1995 using indicators of financial development such as ratio of liquid liabilities to GDP, ratio of assets of deposit money banks to assets of deposit money banks plus central bank domestic assets and ratio of credit issued to private enterprises to nominal GDP, concluded on a positive nexus between financial development and economic growth in the countries investigated.

Abida et al. (2013) examined the causal linkage between foreign direct investment (FDI), financial development, and economic growth in a panel of 4 countries of North Africa (Tunisia, Morocco, Algeria and Egypt) over the period 1980-2011. The study moves away from the traditional cross-sectional analysis, and focuses on more direct evidence of the channels through which FDI inflows can promote economic growth of the host country. Using Generalized Method of Moment (GMM) panel data analysis, the study found strong evidence of a positive relationship between FDI and economic growth. The results evidenced that the development of the domestic financial system is an important prerequisite for FDI to have a positive effect on economic growth. The policy implications of this study appeared clear. Improvement efforts need to be driven by local-level reforms to ensure the development of domestic financial system in order to maximize the benefits of the presence of FDI**.**

Afzal (2007) examines the impact of globalization on the economic growth of Pakistan over the period 1960-2006. Afzal (2007) uses a stock of capital flows (ratio of the sum of capital inflows and capital outflows to GDP) as a proxy for financial integration and the ratio of the sum of imports and exports to GDP to measure international interdependence (trade openness). Using the Johansen approach to cointegration analysis, he observes that financial integration and trade openness are co-integrated, implying that they have a long run relationship with economic growth. Similarly, the results from Afzal (2007) Error-correction model support the co-integration outcome. The study suggests that, for the given dataset financial integration and trade openness do not have short-run effects on economic growth. However, they tend to have a long –run relationship with economic growth. The outcome of Afzal (2007) supports the view that public sector investment and human resource development are very instrumental in fostering economic growth.

3.0 RESEARCH METHODOLOGY

3.1 Research Design

This study adopted a descriptive research design. Specifically the study adopted a non-experimental time series research design. Time series data was collected for the period 1970-2014 and then was subjected to time series property tests. Granger Causality test was used to investigate the causality between foreign direct investment, portfolio investment and cross-border interbank borrowing and economic growth. Ordinary Least Squares estimation was done to determine the effect of foreign direct investment, portfolio investment, cross-border interbank borrowing and remittances on economic growth. In addition impulse response functions were estimated to trace the effect of a one-time shock to each one of the independent variables on the current and future values of economic growth; and variance decomposition to separate the variations in economic growth into component shocks to the independent variables.

3.2 Model Specification

The model specified was developed from the theoretical framework presented in the previous chapter with variables identified from the reviewed literature. The first objective of this study was to determine the causality between private capital inflows and economic growth in Kenya. To achieve this objective a Granger Causality test was carried out. Granger Causality is a statistical hypothesis test for determining whether one time series is useful in forecasting another (Granger, 1969). That is, a time series X is said to Granger cause Y if it can be

shown that X values provide statistically significant information about future values of Y. If a time series is stationary, then the test is performed using the level values of two (or more) variables.
The log of the series was I(0), thus the following set of equations was estimated:

$$\ln g_t = \alpha_0 + \sum_{1}^{n} \alpha_i \ln g_{t-i} + \sum_{1}^{n} \rho_j \ln PCI_{1-j} + \varepsilon_{1t} \quad \text{.....(3.9a)}$$

$$\ln PCI_t = \lambda_0 + \sum_{1}^{n} \lambda \ln PCI_{t-i} + \sum_{1}^{n} \delta_j \ln g_{t-j} + \varepsilon_{2t} \quad \text{.....(3.9b)}$$

Where n is the maximum number of lagged observations included in the model,α's, β's, λ's and δ's are parameters, and lng is the log of GDP growth. lnPCI is the log of private capital inflows comprising of foreign direct investment, portfolio investment and cross-border interbank borrowing. 3.9a postulates that current economic growth is related to past values of itself as well as those of foreign direct investment, portfolio investment and cross-border interbank borrowing. Similarly, 3.9b postulates that current foreign direct investment, portfolio investment and cross-border interbank borrowing are related to their past values as well as those of economic growth.

Equation 3.9 was estimated with the expectation of three results. First, that foreign direct investment, portfolio investment and cross-border interbank borrowing granger cause economic growth or economic growth granger cause foreign direct investment, portfolio investment and cross-border interbank borrowing (a unidirectional relationship). Secondly, foreign direct investment, portfolio investment and cross-border interbank borrowing granger cause economic growth and in turn economic growth granger cause foreign direct investment, portfolio investment and cross-border interbank borrowing (bi-directional relationship). Lastly, that foreign direct investment, portfolio investment and cross-border interbank borrowing does not granger cause economic growth and economic growth does not granger cause foreign direct investment, portfolio investment and cross-border interbank borrowing.

The second and third objectives of determining the effect of foreign direct investment, portfolio investment and cross-border interbank borrowing; and financial Development on economic growth were achieved through Ordinary Least Squares estimation. The Ordinary Least Squares estimation included other determinants of economic growth. These variables were selected on the basis that they have been identified in the literature as determinants of economic growth. The variables included were human capital (HC), macroeconomic stability (MS), trade openness (NX), financial development (FD) and government expenditure (G).

Thus the effects of foreign direct investment, portfolio investment, cross-border interbank borrowing and financial development on economic growth were captured by running an ordinary least squares estimation of the following equation:

$$\ln g_t = \alpha_0 + \alpha_1 \ln FDI_t + \alpha_2 \ln PI_t + \alpha_3 \ln IBB_t + \alpha_4 \ln G_t + \alpha_5 \ln FD_t + \alpha_6 \ln MS_t + \alpha_7 \ln NX_t + \alpha_8 \ln HC_t + \varepsilon_t \quad \text{.....(3.10)}$$

where α's are parameters, lng, lnFDI, lnPI, lnIBB, lnG, ln FD, lnMS, lnNX, and lnHC were log of economic growth, log of foreign direct investment as a ratio of GDP, log of portfolio investment as a ratio of GDP, log of cross-border interbank borrowing as a ratio of GDP, log of government expenditure as a ratio of GDP, log of financial development as a ratio of GDP, log of macroeconomic stability, log of trade openness as a ratio of GDP, log of human capital, and $_t$ was white noise. The logs of the variables were stationary at levels and there was no multicollinearity, thus the OLS estimators were consistent. The errors were homoscedastic and serially uncorrelated making the OLS estimators optimal.

In addition to the use of the traditional ordinary least squares regression estimation, the study employed another time-series technique, impulse response function and variance decomposition (together called „innovation accounting") to analyse the dynamic relationship between foreign direct investment, portfolio investment, cross-border interbank borrowing and financial development and economic growth. Impulse response function analysis traces out the time path of various shocks of the endogenous variable to such shocks whereas variance decomposition allows inference over the proportion of the movement in a time series due to its own shocks versus shocks to other variables in the system (Enders, 1995). Based on the above, a Vector Autoregression (VAR) incorporating the growth model of the form 3.11 was built:

$$V_t = A_0 + \sum_{i=1}^{K} A_i V_{t-i} + \varepsilon_t \quad \text{.....} \quad (3.11)$$

Where V_t = (log of economic growth, log of foreign direct investment as a ratio of GDP, log of portfolio investment as a ratio of GDP, log of cross-border interbank borrowing as a ratio of GDP, log of financial

development as a ratio of GDP, log of government expenditure as a ratio of GDP, log of human capital and log of macroeconomic stability), $_t$ = error terms for the variables included and A_1 to A_k are nine by nine matrices of coefficients and A_0 is an identity matrix.

3.3 Operationalization and Measurement of Study Variables

Each research variable was operationalized according to parameters established from earlier researchers.

Economic growth: the average annual growth rate of real gross domestic product in percentage. Data was collected from the World Bank's African Development Indicators and from the Kenya National Bureau of Statistics' economic reviews and statistical abstracts.

Foreign direct investment: an investment to acquire a lasting management (normally 10 percent of voting stock) in a business operating in Kenya by no- Kenyan investors. It was measured as a percentage of gross domestic product. The data was collected from the World Bank's African Development Indicators.

Portfolio investment: portfolio equity flows (the purchase of stocks by a foreign Enterprise) and portfolio bond flows (the purchase of bonds issued by a domestic enterprise or government by a foreigner). It was measured as a percentage of gross domestic product. Data was got from the World Bank's African Development Indicators.

Cross-border interbank borrowing: The expansion of international banking activity in Africa is reflected in the significant increase in foreign bank penetration into the region, thus foreign bank loans from other countries will be used to represent this variable. Loans that were given by foreign banks to domestic banks. This study used net external debt (private) as a proxy for cross-border interbank borrowing. This was measured as a ratio of gross domestic product. Data was got from the World Bank's African Development Indicators.

Human capital: the measure of skills and training of the country's labour force. It was measured by the ratio of secondary and tertiary institutions enrolment in the population. Data was collected from the Kenya Bureau of Statistics Economic Surveys and Statistical Abstracts.

Macroeconomic stability: a measure of macroeconomic performance of the country. Inflation measured in percentage terms was used to capture this. Data was collected from the World Bank's African Development Indicators and the Kenya Bureau of Statistics' Economic Surveys and Statistical Abstracts.

Trade openness is the measure of the volume of trade between Kenya and the rest of the world. It was measured as the sum of exports and imports as a percentage of gross domestic product. Data was collected from the World Bank's African Development Indicators and the Kenya Bureau of Statistics' economic Surveys and Statistical Abstracts.

Financial development measured the development of the financial markets. It was captured by the level of gross domestic capital formation as a ratio of gross domestic product. Data was collected from the World Bank's African Development Indicators and the Kenya Bureau of Statistics' Economic Surveys and Statistical Abstracts.

Public expenditure measured the government's participation in development process. It was captured by the government's expenditure on goods and services as a ratio of gross domestic product. Data was collected from the World Bank's African Development Indicators and the Kenya Bureau of Statistics' Economic Surveys and Statistical Abstracts.

3.7 Time Series Properties

3.7.1 Stationarity Tests

Time series analysis was central to empirical modeling of the effects of private capital flows and financial development on economic growth. The non-random behaviour of the time series data could undermine the usefulness of the standard econometrics methods if it was applied directly without considering time series properties of the data (Russel & Mackinon, 2004; Gujarati, 2004).Using non-stationary series could yield spurious results. It is for this reason that this study conducted stationarity tests for the series. The stationarity tests on the variables were done using the Augmented Dick-Fuller (ADF) and Phillips-Peron (PP) tests. This was due to the fact that, the data generating process was not an AR(1) process. The ADF assumes that the error terms are independently and identically distributed. The PP test is non-parametric and corrects the statistic to conduct for autocorrelation and heteroskedasticity (Gujarat, 2004).

The ADF procedure attempts to retain the validity of the tests based on white – noise errors in the regression model by ensuring that the errors are indeed white- noise. On the other hand, (PP) procedures correct for serial correlation through a parametric correction to the standard statistic (Stock, 1994). The Augmented Dickey Fuller (ADF) test is more preferred to the Dickey Fuller (DF) test since the later has critical values that are bigger in absolute terms and may sometimes lead to a rejection of a correct null hypothesis (Brooks, 2004).

The ADF tests the null hypothesis that / / = 0 against an alternative that / / < 0 in the autoregressive equations:

(i) ADF without intercept and trend

$$\Delta y_t = \rho y_{t-1} + \sum_{i=1}^{K} o_i \Delta y_{t-1} + u_t \quad \text{.....(3.13)}$$

(ii) ADF with an intercept but no trend

$$\Delta y_t = \alpha + \rho y_{t-1} + \sum_{i=1}^{K} \delta_i \Delta y_{t-1} + u_t \quad \text{.....(3.14)}$$

(iii) ADF with both the intercept and trend

$$\Delta y_t = \alpha + \beta_t + \rho y_{t-1} + \sum_{i=1}^{K} \delta_i \Delta y_{t-1} + u_t \quad \text{.....(3.15)}$$

A time series data is said to be stationary if it's mean, variance and autocovariance remain the same no matter at what point we measure them. The ADF is a higher level of the Dick Fuller (DF) test. The DF test involves the estimation of the regression equation:

$$Y_t = \alpha + \rho Y_{t-1} + \varepsilon_t \quad \text{.....} \quad (3.16)$$

Where α and ρ are parameters and $_t$ is white noise. Y is stationary if -1< ρ < 1. If ρ = 1, Y is non-stationary. If the absolute value is greater than 1 (ρ > 1), the series is explosive. Subtracting Y_{t-1} from both sides of 3.16, the DF equation of estimation becomes:

$$\Delta Y_t = \alpha + \lambda Y_{t-1} + \varepsilon_t \quad \text{.....} \quad (3.17)$$

Where λ = ρ -1.
The null hypotheses are: H_0: λ = 0
H_1: λ > 1
The assumption of the DF test is that the error terms are uncorrelated, homoscedastic as well as identically and independently distributed (iid). The ADF corrects the higher order serial correlation by adding lagged differences on the right hand side. Thus:

$$\Delta Y_t = \alpha + \lambda Y_{t-1} + \sum \delta_i Y_{t-i} + \varepsilon_t \quad \text{.....} \quad (3.18)$$

This specification is then tested for:
H_0: λ = 0
H_1: λ > 1
In 3.18 ε_t is I(0) and may be heteroskedastic.
The Phillips-Perron (PP) unit root test corrects any serial correlation and heteroskedasticity in the errors $_t$ non-parametrically by modifying the Dickey-Fuller statistics. The evolution of the Phillips-Perron test came about to overcome the weaknesses of the Augmented Dickey Fuller (ADF) test which assumes that residual errors are statistically independent and have a constant variance. However, the main advantage behind the Phillips- Perron test is that it allows the error disturbances to be weakly dependent and heterogeneously distributed and that it is nonparametric, as no generating model for the time series needs to be specified. This is in contrast to its chief competitor, the (Augmented) Dickey-Fuller test, which is based on an autoregressive specification, at least as an approximation to the underlying model. Phillips and Perron developed this more comprehensive theory of unit root non stationarity. The tests are similar to ADF tests, but they incorporate an automatic correction to the DF procedure to allow for autocorrelated residuals. The first form of the Phillips-Perron unit root test assumes that a zero drift unit root process underlies the observed time series. Under the null hypothesis, the assumed underlying process is shown by the equation below: The basic equation used in the PP test remains the same as the one used in the ADF test. Thus the PP test involves fitting the regression:

$$y_i = \alpha + \rho y_{i-1} + \varepsilon_i \quad \text{.....} \quad (3.19)$$

and the null hypothesis is ρ = 0 against the alternative that ρ ≠ 0. The advantage of the PP tests over the ADF tests is that PP tests are robust to general forms of heteroskedasticity in the error term $_t$. The second advantage is that the user does not have to specify a lag length.

The PP test deals with potential serial correlation in the errors by employing a correction factor that estimates the long–run variance of the error process with a variant of the Newey–West formula. Similar to the ADF test, the implementation of the PP test involves specification of a lag order; in the latter case, the lag order selects the number of lags to be included in the long– run variance estimate. The PP tests allow for dependence among disturbances of AR form, but have been shown to exhibit serious size distortions in the presence of negative autocorrelations. Despite the fact that the PP tests should be more powerful than the ADF alternative, they also exists some critics for instance, the tests can suffer quite severe distortions even in moderately large samples. The same critical values are also used for both the ADF and PP tests. Generally, both the ADF and PP

tests have very low power against I(0) alternatives that are close to being I(1). This means that unit root tests cannot distinguish highly persistent stationary processes from non-stationary processes very well.

3.7.2 Cointegration

Cointegration refers to the existence of a long-run equilibrium relationship between variables. The idea of long-run equilibrium implies that two or more variables may wander away from each other in the short-run but move together in the long-run (Enders, 1995). The use of cointegration technique allowed the study to capture the equilibrium relationship between non–stationary series within a stationary model following Adam (2009). It permitted the combination of the long-run and short-run information in the same model and overcame the problem of losing information which could have occurred when attempting to address non stationary series through differencing (Adam, 2009). Cointegration technique made it possible to capture the information of non-stationary series without sacrificing the statistical validity of the estimated equation (Stock and Watson, 1988).

Two main tests for cointegration, namely Johansen cointegration test and the Granger two-step methods were used. Johansen's methodology, which was expressed as a vector autoregression (VAR) of order *P*, is given by:

$$y_t = u + A_1 y_{t-1} + \dots\dots\dots + A_p y_{t-p} + \varepsilon_t \dots\dots\dots (3.20)$$

where y_t is a n 1 vector of innovations. This VAR can be re-written as

$$\Delta y_t = u + \Pi y_{t-1} + \sum_{i=1}^{\rho-1} \Gamma_i \Delta y_{t-1} + \varepsilon_t \qquad (3.21)$$

Where

$$\Pi = \sum A_i - I \text{ and}$$

$$\Gamma_t = -\sum_{j=t+1}^{p} A_j \dots\dots\dots \qquad (3.22)$$

If the coefficient matrix reduced rank r < n, then there exist n x r matrices and β each with rank *r* ,such that ' and ' y_t is stationary. *r* is the number of cointegrating relationships. The elements of parameters in the vector correction model, are known as the adjustment and each column of is a cointegrating vector. It has been shown that for a given *r*, the maximum likelihood estimator of defined the combination of y_t 1 that yielded the *r* largest canonical correlations of y_t with y_t 1 after correcting for lagged differences and deterministic variables (Johansen, 1995). Johansen proposed two different likelihood ratio tests of the significance of these canonical correlations and thereby the reduced rank of the matrix. The trace test and maximum Eigen value test are shown in equation 3.23.

$$J_{trace} = -T \sum_{i=r+1}^{n} In\left(1-\lambda^{'}\right).$$

$$J_{\max} = -TIn\left(1-\lambda^{'}\right)\dots\dots\dots \qquad (3.23)$$

where T is the sample size and ' is the i^{th} largest canonical correlation. The trace test tested the null hypothesis of *r* cointegrating vectors against the alternative hypothesis of *n* cointegrating vectors. The maximum Eigen value test, on the other hand, tested the null hypothesis of *r* contegrating vectors against the alternative hypothesis of *r* 1 cointegrating vectors. The residual based cointegration test introduced by Engle and Granger (1987) by analogy of equation (3.21) involves testing the significance of the coefficient in the Ordinary Least Squares (OLS) regression of:

$$\Delta u = \rho u_t + \varepsilon_t \quad \dots \quad \dots\dots\dots\dots (3.24)$$

where u_t is the residual. The test postulates that if the residuals from the OLS estimation of the non-stationary variables are stationary, then the series are cointegrated. If the residuals, it exhibited a stationary trend implies that the error-correction model (ECM) could not be run. Instead, estimation could be done on the variables at their first difference. However, the long-run characteristics of the data would be lost. Therefore, the study used the Johansen cointegration method to test for the long-run relationship between the variables.

3.8 Diagnostic Tests

This stage is essential in the analysis of the impact of private capital inflows on economic growth since it validates the parameter estimation outcomes achieved by the estimated model. Diagnostic checks test the stochastic properties of the model, such as residual autocorrelation, heteroskedasticity and normality, to mention a few. The multivariate extensions of the residual tests just mentioned will be applied in this study; thus they are briefly discussed here.

3.8.1 Autocorrelation LM Test

Autocorrelation can be defined as relation between members of a series of observations ordered in time Gujarati, (2004). It arises in cases where the data have a time dimension and where two or more consecutive error terms are related. The Lagrange Multiplier (LM) test used in this study is a multivariate test statistic for residual serial correlation up to the specified lag order. Harris (1995) argues that the lag order for this test should be the same as that of the corresponding VAR. The test statistic for the chosen lag order (m) is computed by running an auxiliary regression of the residuals (μt) on the original right-hand explanatory variables and the lagged residuals ($\mu t-m$). Johansen (1995) presents the formula of the LM statistic and provides detail on this test. The LM statistic tests the null hypothesis of no serial correlation against an alternative of autocorrelated residuals. the normality test checks for skewness (third moment) and excess Verbeek, (2008). Jarque-Bera normality test compares the third and fourth moments of the residuals to those from the normal distribution under the null hypothesis that residuals are normally distributed and a significant Jarque-Bera statistic, therefore, points to non-normality in the residuals.

3.8.2 White Heteroskedacity Test

Different error terms that do not have identical variances, such that the diagonal elements of the covariance matrix are not identical usually result in the occurrence of heteroskedasticity. The error terms are mutually uncorrelated while the variance of μ_i may vary over the observations. The cost of using the usual testing procedures despite the heteroskedasticity is that the conclusions drawn or the inferences made may be very misleading,(Gujarati, 2004). The basis of this test checks whether there is any systematic relation between the squared residuals and the explanatory variables Mukherjee *et al*. (1998). It tests the null hypothesis that there is no heteroskedasticity in which the test statistic should not be significant in the absence of heteroskedasticity and misspecification. This test is an extension of White's (1980) test to systems of equations, as extended by Kelejian (1982) and Doornik (1995). The test regression is run by regressing each cross product of the residuals on the cross products of the regressors and testing the joint significance of the regression. The failure of any one or more of the conditions just mentioned above could lead to a significant test statistic. Therefore, under the null of no heteroskedacity and no misspecification, the test statistic should not be significant.

3.8.3 Residual Normality Test

The residual normality test used in this study is the multivariate extension of the Jarque-Bera, (1980) normality test which compares the third and fourth moments of the residuals to those from the normal distribution. One way of detecting misspecification problems is through observing the regression residuals.

3.9 Data Analysis and Presentation

Data processing involves editing, coding, classification, tabulation and graphical presentation (Hall, 2010). The data collected in research was edited to make it unambiguous and clear as well as for maintaining consistency and accuracy. Data analysis usually involves reducing accumulated data to a manageable size, developing summaries, looking for patterns, and applying statistical techniques (Cooper & Schindler, 2011). Data was analyzed through the use of descriptive statistics and multiple linear regression analysis. The multiple linear regression model was used to estimate the causal relationship between dependent variable (economic growth) and the independent variables.

The first objective of this study was to determine the causality between FDI, portfolio investment and cross-border interbank borrowing and economic growth. This objective was achieved through conducting a Granger Causality test in which equation 3.9 was estimated. It was found that there was a unidirectional causality from FDI as a ratio of GDP to economic growth and from economic growth to cross-border interbank borrowing as a ratio of GDP. There was no relationship between portfolio investment as a ratio of GDP and economic growth.

The second and third objectives were achieved through an OLS estimation of 3.9. In addition, an innovation accounting was conducted to complement the OLS estimation. Impulse response and variance decomposition were carried out to determine the response of economic growth to a shock in any of the determinants of economic growth and the variance attributable to economic growth and other variables respectively. This was achieved through the estimation of equation 3.11

3.9.1 Vector Error Correction Model (VECM)

The VECM applies maximum likelihood estimation to VAR to simultaneously determine the long-run and short-run determinants of the dependent variable in the model. This approach takes into account the short-term adjustments of the variables as well as the speed of adjustment of the coefficients. It therefore measures the speed at which GDP will revert to its equilibrium following a short term shock to each of them. In addition, this approach is appropriate for macroeconomics and financial data as it distinguishes between stationary variables with momentary effects and non-stationary variables with undeviating effects (Brooks 2002).

The VECM specification has the following form:

$$\Delta y_t = \Pi y_{t-1} + \sum_{t=i}^{k} \Gamma_i \Delta y_{t-1} + \varepsilon_{kt} \quad (3.25)$$

Where =($y_t = (y_1 + y_{2t} \dots)$) is the 7×1 vector, Δy_t are all $I(0), \Gamma_i$ are the 7×7 coefficient matrices and are normally and independently distributed error terms.

3.9.2. Impulse Response and Variance Decomposition

The block F-tests and an examination of causality in a VAR will show which of the variables in the model have statistically significant influences on the future values of each of the variables in the system. However, these tests will not reveal whether changes in a value of a given variable have a negative or positive influence on the other variables in the system, or how long it would take for the effect to work through the system (Brooks, 2002). To provide such information Lütkepohl and Reimers (1992) developed impulse response and forecast error variance decomposition analyses for a VAR process with cointegrated variables.

Impulse response analysis traces out the responsiveness of the dependent variable in the VAR to shocks to each of the other variables. A shock to a variable in a VAR not only directly affects that variable, but is also transmitted to all other endogenous variables in the system through the dynamic structure of the VAR. For each variable from the equations separately, a unit or one-time shock is applied to the forecast error and the effects upon the VAR system over time are observed. The impulse response analysis is applied on the VECM and, provided that the system is stable, the shock should gradually die away (Brooks, 2002). There are numerous ways of performing impulse response analysis, but the Cholesky orthogonalisation approach to impulse response analysis, which is a multivariate model extension of the Cholesky factorization technique, is chosen in this study. Unlike other approaches, it incorporates a small sample degrees of freedom adjustment when estimating the residual covariance matrix used to derive the Cholesky factor (Lütkepohl and Poskitt, 1991)

The relationship between real gross domestic product and private capital inflows can be attained from variance decompositions that measure the ratio of forecast error variance in a variable that is explained by innovations (impulses) in itself and the other variables. Variance decompositions gives the proportion of the movements in the dependent variables that are due to their 'own' shocks (innovations), versus shocks to the other variables (Brooks, 2002). Brooks also observed that own series shocks explain most of the forecast error variance of the series in a VAR. The same factorization technique and information used in estimating impulse responses is applied in the variance decompositions.

3.9.3. Correlation and Regression Analysis

Data from correlational research can be interpreted in causal terms based on theories reviewed by the researcher (Jo et al.2010). Multiple correlation (R) was used to measure the correlation between the observed value and the predicted value of the criterion variable. In this case, R Square (R^2) represents the coefficient of determination which indicates the proportion of the variance in the criterion variable which is accounted for by the model.

If a pair-wise correlation coefficient between two independent variables is in excess of 0.8, then there is a serious multicollinearity problem (Gujarat, 2004). Though the ordinary least squares estimators will be unbiased, consistent and their standard errors correctly estimated, the coefficient estimates will not have small standard errors. Gujarat asserts that for a k-variable regression involving explanatory variables X1, X2, ..., Xk (where X1 = 1 for all observations to allow for the intercept term), an exact linear relationship exists if the following condition is satisfied:

$$\lambda_1 X_1 + \lambda_2 X_2 + \dots + \lambda_K X_K = 0 \quad \text{.........} \quad (3.26)$$

Where λ1, λ2, ..., λk are constants such that not all are zero simultaneously. But the term multicollinearity is used to include the case where the X variables are intercorrelated but not perfectly as in:

$$\lambda X_1 + \lambda X_2 + \dots + \lambda_K X_K + V = 0 \quad \text{.........} \quad (3.27)$$

Where Vi is a stochastic error term.

With multicollinearity, the OLS estimators have large variances and covariances, thus the regression coefficients possess large standard errors (in relation to the coefficients themselves). This means that the coefficients cannot be estimated with great precision. Similarly, the t ratios tend to be statistically insignificant though the R2 can be very high. To test for correlation between the independent variables, this study used partial correlation coefficients as suggested by Farrar and Glauber (1967).

Multiple linear regression is a statistical technique that allows the researcher to predict the score on one variable on the basis of scores on several other variables. Many researchers use the term "independent variables" to identify those variables they think will influence some other so-called "dependent variable". Independent variables are known as predictor variables and dependent variables as criterion variables. If two variables are correlated, then knowing the score on one variable enables the researcher to predict the score on the other. The stronger the correlation, the closer the scores will fall to the regression line and therefore the more accurate the

prediction will be.

Multiple Linear regression is simply an extension of this principle, where one variable is predicted on the basis of several others. In multiple regression the researcher does not directly manipulate the independent variables but instead, simply measures the naturally occurring levels of the variables to see if this helps to predict the score on the dependent variable (Coetzee, 2005)

4.0 RESULTS AND DISCUSSION

4.2 Time Series Properties

4.2.1 Unit Root Test Results

Unit Roots tests were conducted by utilizing the Augmented Dickey- Fuller (ADF) tests. The time series variables are in log form; LnGDP, LnFD, LnFDI, LnGE, LnHC, LnIBB, LnMS, LnNX and LnPI. They were tested whether they are integrated of order one. The underlying models include a constant and time trend. The essence of the Augmented Dickey-Fuller (ADF) tests is to verify the null hypothesis of non-stationary, the rejection of which requires a negative and significant test statistic. The optimal lag length of the lagged differences of the tested variable is determined by minimizing the Schwarz Information Criteria (SIC).

The unit root results are presented in Table 4.1. The ADF test showed that human capital was non-stationary but the PP test showed that it was stationary. Therefore the null hypotheses for the presence of unit roots were rejected at 5 percent for the variables: log of economic growth, log of foreign direct investment as a ratio of GDP, log of financial development as a ratio of GDP, log of human capital, log of trade openness as a ratio of GDP, log of government expenditure as a ratio of GDP, log of cross-border interbank borrowing as a ratio of GDP, log of macroeconomic stability and log of portfolio investment as a ratio of GDP. It was therefore concluded that the variables were stationary. Each variable was examined to determine if it is stationary or non-stationary employing the unit roots test. If a time series is found to be non-stationary, subsequently tests were conducted to determine if its first difference is stationary. Using this procedure the order of integration of a time series is determined. Table 4.1 presents the results of Augmented Dickey-Fuller (ADF) test statistics for the log levels and the first differences of the logs of the annual time series data for Kenya for the period 1970 to 2014. All the variables are non-stationery at levels and stationery at first difference. From Table 4.1it is evident that all-time series are integrated of the order of one I(1) in the first differences based on the Augmented Dickey-Fuller(ADF) test.

The Phillip Peron unit root Test (PP test) was run on three truncation lags as suggested by Newey and West (1994). It is evident from the PP test results that all the variables are unambiguously found to be integrated of order one {i.e. I (1)}. The ADF and PP tests unambiguously call for us to reject the null- hypothesis of a unit root for all the variables. Since none of the lags of the ADF test were found to be significant, adding augmentations to the test perhaps weakened it. To avoid over-differencing the variables therefore, we ignore the suggestion by the ADF test that some of the variables are integrated of orders higher than one. Instead, based on the more reliable results of the DF and PP tests, we assume that all the variables are I (1). This assumption is consistent with econometric theory, which postulates that most macroeconomic variables would exhibit unit roots, becoming stationary after first differencing. Otherwise macroeconomic variables would likely be stationary (Enders, 1995). However, including a random walk without drift and trend in a unit root test does not alter the final conclusion, i.e. all the variables are integrated of order one[I(1)].The results are compatible with the hypothesis that stationary characterizes the variables in this study. Given the fact that the variables in logs were stationary then, there was no need to conduct a co integration test. This also implied that the classical ordinary least square regression could be conducted since the results would not be spurious.

Table 4.1: Summary of Unit Root Tests

Variable	Type of test	Form of test	Test statistic	Critical value at 5%	Conclusion
Log of GDP	ADF	C &T-level	-4.168	-2.930	Stationary
	PP	C &T-level	-4.170	-2.930	Stationary
Log of FDI	ADF	C &T-level	-2.005	-3.540	Non-Stationary
	PP	C &T-level	-6.394	-3.524	Stationary
Log of PI	ADF	C &T-level	-2.615	-3.528	Non-Stationary
	PP	C &T-level	-4.088	-3.524	Stationary
Log of IBB	ADF	C &T-level	-2.940	-3.528	Non-Stationary
	PP	C &T-level	-3.539	-3.524	Stationary
Log of GE	ADF	C &T-level	-2.892	-3.528	Non-Stationary
	ADF	Drift	-1.637	-1.684	Non-Stationary
	PP	C &T-level	-3.201	-3.524	Non-Stationary
First difference Log of GE	ADF	C &T-level	-6.469	-3.528	Stationary
	PP	C &T-level	-6.469	-3.528	Stationary
Log of HC	ADF	C &T-level	-0.951	-3.528	Non-Stationary
	ADF	Drift	-0.111	-1.684	Non-Stationary
	PP	C &T-level	-0.982	-3.524	Non-Stationary
First difference Log of HC	ADF	C &T-level	-5.782	-3.528	Stationary
	PP	C &T-level	-5.782	-3.528	Stationary
Log of FD	ADF	C &T-level	-1.947	-3.528	Non-Stationary
	ADF	Drift	-2.018	-1.684	Stationary
	PP	C &T-level	-1.969	-3.524	Non-Stationary
First difference Log of FD	ADF	C &T-level	-5.735	-3.528	Stationary
	PP	C &T-level	-5.367	-3.528	Stationary
Log of MS	ADF	C &T-level	-5.735	-3.528	Stationary
	PP	C &T-level	-5.735	-3.528	Stationary
Log of NX	ADF	C &T-level	-3.072	-3.528	Non-Stationary
	ADF	Drift	-3.098	-1.684	Stationary
	PP	C &T-level	-3.340	-3.524	Non-Stationary
First difference Log of NX	ADF	C &T-level	-7.455	-3.528	Stationary
	PP	C &T-level	-7.455	-3.528	Stationary

Source: Eview's Output, 2017

4.2.2 Correlation Analysis

The test for collinearity between independent variables was conducted and the results are presented in Table 4.2. The result showed that log of financial development as a ratio of GDP, log of foreign direct investment as a ratio of GDP, log of government expenditure as a ratio of GDP, log of human capital, log of cross-border interbank borrowing as a ratio of GDP, log of macroeconomic stability, log of openness as a ratio of GDP and log of portfolio investment as a ratio of GDP as a ratio of GDP were not highly correlated (the absolute values of the coefficients were below 0.8).

Table 4.2: Correlation Matrix for the independent variables of log of economic growth

	LNGDP	LOGFD	LOGFDI	LOGG	LOGHC	LOGIBB	LOGMS	LOGNX	LOGPI
LNGDP	1.000000	-0.133199	0.048975	0.173562	-0.063235	0.004057	-0.368711	0.050998	0.099614
LOGFD	-0.133199	1.000000	0.075246	-0.516221	0.732029	0.064747	-0.044360	0.241205	-0.541477
LOGFDI	0.048975	0.075246	1.000000	-0.170109	0.009847	-0.150951	0.023351	0.236129	-0.159911
LOGG	0.173562	-0.516221	-0.170109	1.000000	-0.518981	-0.065656	0.113967	-0.130114	0.233800
LOGHC	-0.063235	0.732029	0.009847	-0.518981	1.000000	-0.213565	0.051668	-0.097016	-0.182960
LOGIBB	0.004057	0.064747	-0.150951	-0.065656	-0.213565	1.000000	-0.321438	0.048804	-0.134686
LOGMS	-0.368711	-0.044360	0.023351	0.113967	0.051668	-0.321438	1.000000	0.182620	0.059421
LOGNX	0.050998	0.241205	0.236129	-0.130114	-0.097016	0.048804	0.182620	1.000000	-0.283539
LOGPI	0.099614	-0.541477	-0.159911	0.233800	-0.182960	-0.134686	0.059421	-0.283539	1.000000

Source: Eview's Output, 2017

Table 4.2 represents the correlation matrix which represents the short run relationships amongst the variables. The sign of the correlation coefficient defines the direction of the relationship in the short run. A positive correlation coefficient means that as the value of one variable increases, the value of the other variable increases; as one decreases the other decreases. A negative correlation coefficient indicates that as one variable

increases, the other decreases, and vice-versa. Taking the absolute value of the correlation coefficient measures the strength of the relationship. A correlation coefficient of r=.50 indicates a stronger degree of linear relationship. Likewise a correlation coefficient of r=-.50 shows a greater degree of relationship. Thus a correlation coefficient of zero (r=0.0) indicates the absence of a linear relationship and correlation coefficients of r=+1.0 and r=-1.0 indicate a perfect linear relationship.

Table 4.2 shows there is a positive correlation between real GDP and cross-border bank lending with a coefficient of (0.004057). Real GDP is also positively correlated to foreign direct investment with a coefficient of (0.048975). This is supported by the study carried out by Reisen and Soto (2001) who found that FDI and portfolio equity flows exert a significant impact on growth.

There is also a positive correlation between real GDP, trade openness and portfolio investment with coefficients of (0.050998) and (0.099614) respectively. Government expenditure also has a positive correlation with real GDP with a coefficient (0.173562). However, macroeconomic stability, human capital and financial development have a negative impact on growth with coefficients of -0.368711, -0.063235 and -0.133199 respectively. These results are supported by the study done by Macias and Massa (2009), their results showed that these variables have a positive relationship with real GDP except for government expenditure which has a negative yet significant impact on economic growth.

There is a positive correlation between cross-border bank lending, financial development and trade openness with coefficients of (0.064747) and (0.048804), which is relatively stronger for financial development. On the contrary, there is a negative correlation between cross-border lending and foreign direct investment, government spending and macroeconomic stability with coefficients (-0.150951), (-0.065656) and (-0.321438) respectively. There is a negative correlation between foreign direct investment, government expenditure and cross-border bank lending as indicated by the coefficients (-0.170109) and (-0.150951).

There is a positive correlation between portfolio investment, macroeconomic stability and also government expenditure with coefficients (0.059421) and (0.233800), respectively. On the same note, negative correlations with foreign direct investment, financial development, human capital and trade openness are indicated with the coefficients (-0.159911), (-0.541477), (-0.182960) and (-0.283539) respectively.

There is a positive correlation between foreign direct investment, financial development, human capital, trade openness and macroeconomic stability with coefficients (0.075246), (0.009847) (0.236129) and (0.023351), respectively. However, there is a negative correlation between foreign direct investment and government expenditure with a coefficient (0.170109).

4.3 Diagnostic Test Results

The robustness of the model was confirmed by several diagnostic tests such as Breusch-Godfrey serial correlation LM test, Jacque-Bera normality test and Breusch-Pagan-Godfrey Heteroskedasticity test. The diagnostic tests of the model fail to reject the null hypothesis of all the variables are normally distributed, there is no serial correlation between model variables and all model variables are homoscadestic at 5 percent significant level. All the tests revealed that the model has the desired econometric properties, namely, the model‘s residuals are serially uncorrelated, normally distributed and homoscedastic. Therefore, the results reported are valid for reliable interpretation. It is a requirement that for a classical linear model, the error term be normally distributed, with a zero mean and constant variance (Gujarat, 2004). Similarly the residuals should be free of heteroscedasticity and autocorrelation. The tests are shown in Table 4.3

Table 4.3: Diagnostic Tests

Type of Test	**Test Statistic**
The Jarque-Bera Normality Test	Jarque-Bera 5.655915 Probability 0.059134
ARCH LM Test	F-statistic 0.587730 Probability 0.4476
Breusch-Godfrey Serial correlation test	F-statistic 1.024432 Probability 0.3695

Source: Eview’s Output, 2017

The normality test was done using the histogram-normality test. The Jarque-Bera statistic was 5.655915 with a probability of 0.059134. This probability value is above 0.05 and therefore the normality assumption of the residuals could not be rejected at 5 percent level of significance. Thus the regression residuals followed a normal distribution. Autocorrelation was tested using the Breusch-Godfrey serial Lagrange Multiplier Method. The F-statistic was 1.024432 with a probability of 0.3695. This probability was greater than 0.05 which led to the conclusion that the null hypothesis of no serial correlation could not be rejected at 5 percent level of significance. Therefore, there was no serial correlation in the regression residuals.

The Ramsey’s RESET test is a test for specification errors of omitted variables, incorrect functional

form and correlation between the independent variables and the error term. Under such specification errors, the least square estimates will be biased and inconsistent, and conventional inference procedures will be invalidated Startz & Tsang (2010). The RESET test could detect specification errors in an equation which was known *apriori* to be misspecified but which nonetheless gave satisfactory values for all the more traditional test criteria – goodness of fit, test and for first order serial correlation (Startz & Tsang, 2010)

The RESET test was done for the log of economic growth equation that was estimated. The probability values were all greater than 0.05 leading to the conclusion that the null hypothesis that the coefficients of powers of fitted values are all zero could not be rejected at 5 percent level of significance, for up 2 terms for the fitted equation. This implied that the model was well specified.

Recursive estimates were done on the log of economic growth equation to test the constancy or stability in parameters in the model. The test included the recursive residuals test, CUSUM test, CUSUM residual squares test, one-step forecast test and N-step forecast test.The recursive residuals are a plot of recursive residuals about the zero line plus or minus two standard errors at each point. Residuals outside the standard error bands suggest instability in the parameters of the equation (Startz & Tsang 2010). The residuals lie within the two standard error bands. This implied that the parameters were stable.

The CUSUM test is based on the cumulative sum of the recursive residuals. It plots the cumulative residuals together with the 5 percent critical lines. Since the cumulative sum did not go outside the two critical lines, it implied that the parameters were stable. The CUSUM of squares provide a plot of sum of squares against time and the pair of 5 percent critical lines. Because the movement was within the critical lines, it implied that the parameters were stable.

The one-step forecast produced a plot of the recursive residuals and standard errors and the sample points whose probability value was at or below 15 percent, implying that the parameters were stable. The N-step forecast plotted the recursive residuals at the top and significant probabilities in the lower position of the diagram. The movements for both one-step and N-step forecast tests were within the critical lines. This implied that the parameters were stable.

4.4 Causality between Foreign Direct Investment, Portfolio Investment, Cross-Border Interbank Borrowing and Economic Growth

The first objective of this study was to determine the causality between foreign direct investment, portfolio investment, and cross-border interbank borrowing, and economic growth. To achieve this objective, a Granger causality test was carried out and the results are summarized in Table 4.4

Table 4.4: Granger Causality Test Results

Null Hypothesis	F-statistic	Probability
Log of foreign direct investment does not Granger cause log of economic growth	0.60251	0.5526
Log of economic growth does not Granger cause log of foreign direct investment	0.56255	0.5744
Log of portfolio Investment does not Granger cause investment log of economic growth	0.56725	0.5718
Log of economic growth does not Granger cause Log of portfolio investment	0.97876	0.3850
Log of cross-border interbank borrowing does not Granger cause log of economic growth	0.34020	0.7138
Log of economic growth does not Granger cause log of cross-border interbank borrowing	5.40369	0.0086

Source: Eview's Output, 2017

The results indicate that log of portfolio investment does not granger cause log of economic growth and that log of economic growth does not granger cause log of portfolio investment. This implies that portfolio investment has not played an important role in the economic growth of Kenya. Log of economic growth does not granger cause log of foreign direct investment, whereas log of foreign direct investment granger causes log of economic growth at 5 per cent. The log of cross-border interbank borrowing does not granger cause log of economic growth while the log of economic growth granger cause log of cross-border interbank borrowing at 10 percent level of significance. It was concluded that there was a unidirectional causality from foreign direct investment as a percentage of GDP to economic growth and from economic growth to cross-border interbank borrowing as a share of GDP. There was no causality between portfolio investment as a share of GDP and economic growth.

This result supports the findings of Blomström, et al. (2003). who established a unidirectional causal relationship between FDI inflows as a percentage of GDP and growth of per capita GDP for all developed countries. The result also supports the work of Zhang (2001) who found a unidirectional causality from foreign direct investment to economic growth in East Asian countries.

However, this result contradicts the work of Sethi and Sucharita (2009) and Yıldırım and Taştan(2012). who found bidirectional causality from foreign direct investment to economic growth in India and weak bidirectional causality between portfolio investment and economic growth in Turkey respectively. Similarly, these results differ from Magnus and Fosu (2008) who found no causality between foreign direct investment and economic growth in Ghana. This result implies that whereas foreign direct investment may play an important

role in the growth of the Kenyan economy, portfolio investment and cross-border interbank borrowing may not.

4.5 Effects of Foreign Direct Investment, Portfolio Investment and Cross-border Interbank Borrowing on Economic Growth

The second objective of this study was to investigate the effects of foreign direct investment, portfolio investment and cross-border interbank borrowing on economic growth. To achieve this objective, first an OLS estimation was carried out followed by an innovation accounting (impulse response and variance decomposition) to complement the ordinary least squares estimation. Because the logs of all the variables were stationary, an ordinary least squares regression model was estimated. The results of the regression analysis where log of economic growth was the dependent variable are summarized in table 4.3.

Table 4.5: OLS regression results for log of economic growth

Variable	Coefficient	Std. Error	t-statistic	Probability
LOGFD	-0.382785	3.558873	3.174864	0.0031
LOGFDI	0.077276	0.122361	1.530526	0.0134
LOGG	0.086873	1.548920	-2.911625	0.0042
LOGHC	-0.513306	1.390931	3.085205	0.0039
LOGIBB	0.059199	0.076758	0.771238	0.4456
LOGMS	-0.077303	0.919345	-3.347277	0.0419
LOGNX	0.151853	2.532414	3.061053	0.0042
LOGPI	0.015372	0.032639	-0.470967	0.6405
FITTED^2	3.524362	0.562707	1.567138	0.0103
R-squared	0.876400	Mean dependent var	3.935746	
Adjusted R-squared	0.873778	S.D. dependent var	0.176714	
S.E. of regression	0.028616	Akaike info criterion	-4.149808	
Sum squared resid.	0.022109	Schwarz criterion	-3.964777	
Log likelihood	68.32202	Hannan-Quinn criter.	-4.089492	
F-statistic	372.3579	Durbin-Watson stat	1.162582	
Prob(F-statistic)	0.000231			

Source: Eview's Output, 2017

The Estimated Long-Run Static Model (ECM) was estimated and the results are presented in Table 4.5 above. Variations in the independent variables jointly explain about 87 percent of the variations in economic growth. The goodness of the model is good given that the R square and R-square adjusted is 87.64 percent and 87.37 percent respectively. An adjusted R^2 of more than 0.5 indicates that the model has a good fit and can explain the variations in the economic growth. The F-statistic is 372.3579 and is statistically significant at 5 percent level. The standard error of the regression of 0.028616 is small, meaning that the model was well fitting. The remaining 13 per cent of the variations in economic growth could be explained by other endogenous or exogenous factors.

The results show that the coefficient of log of foreign direct investment as a ratio of GDP was 0.077276 and was statistically significant at 5 percent level. It shows that a 10 per cent increase in the ratio of foreign direct investment to GDP will lead to an increase in GDP growth of about 7.72 percent. The result implies that foreign direct investment plays an important role in economic growth of Kenya. This result supports the findings of Willmore (1986) and Aitken and Harrison (1999) that foreign firms were more efficient than domestic ones and that foreign equity was associated with high productivity. Moreover, macroeconomic studies of Balasubramanyam, et.al (1996)., Borensztein, et.al.(1998),Gheeraert and Malek (2005), Esso (2009), Vihn (2009), Macias and Massa (2009) and Murinde and Ryan (2003), show that foreign direct investment has a positive impact on economic growth.

Foreign direct investment affects economic growth through three mechanisms: the size effects, the skill and technology effects and the structural effects (Fortainer, 2007). The size effects have to do with net contributions of FDI to the host country's net savings and investment, the skills and technology effects have to do with the demonstration effects and labour migration whereas the structural effects involve competition and linkages.

The result differs from that of Haddad and Harrison (1993), Carkovic and Levine (2003) who found that FDI had no effect on economic growth in Morocco and other recipient countries. Further to the regression analysis, the study traced the impact of foreign direct investment on economic growth. To this effect, an impulse response analysis was done to trace the path of a one-time shock in foreign direct investment on economic growth. The result is shown in Figure 4.1.

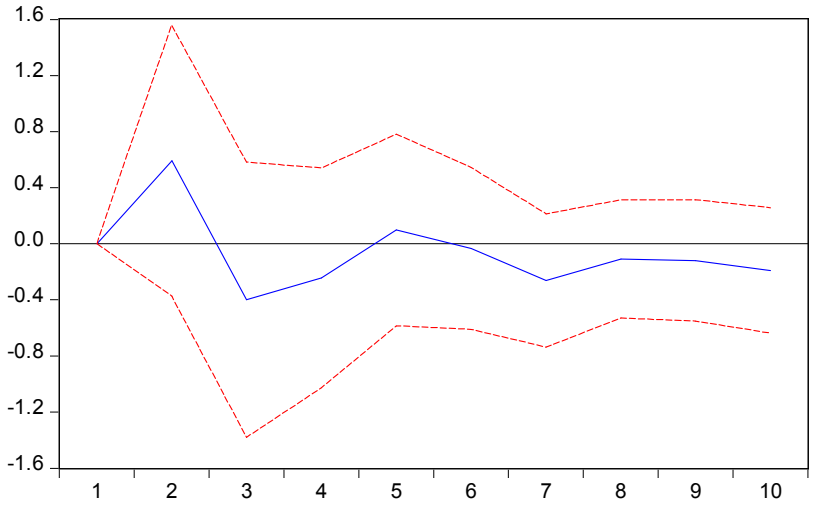

Figure 4.1: Response of economic growth to foreign direct investment (%)

The result shows that a shock in the ratio of foreign direct investment to GDP leads to a decline in the growth rate of economic growth in the second period. The rate of change of economic growth picks up in the third period through the fourth period. By the fifth period, the impact of foreign direct investment fizzles out and economic growth follows its natural path. The result implies that a shock in foreign direct investment has little short term impact on economic growth (it has an effect of less than 2 percent). The response function agrees with the regression result which shows that though FDI has a statistically significant coefficient, this coefficient is inelastic. This means that FDI needs to be complemented by other factors that explain growth.

In addition to the impulse response analysis, to disaggregate the variations in economic growth into component shocks to the exogenous variables, variance decomposition was done and the results are presented in Appendix 5. The results indicate that foreign direct investment explains less than 1 percent of the variations in economic growth in the first three periods and about 2 percent of the variations in economic growth in the fourth period. For the remaining forecast period, foreign direct investment explains less than 2 percent of the variations in economic growth.

Though the coefficient of the log of portfolio investment as a ratio of GDP was positive (0.015372), it was statistically insignificant. However, a positive coefficient is a good show that portfolio investment can play an important role in the growth of the economy. The result differs from the work of Reisen and Soto (2001) and Vihn (2009) who found that portfolio investment had a positive and statistically significant coefficient. However, the result supports the findings of Durham (2003) and Macias and Massa (2009) that portfolio flows had a statistically insignificant coefficient. This could be as a result of Kenya having operated a closed capital account for long till 1991 when it liberalized its current and capital accounts, completely removing all restrictions on the capital account in 1995.Similar to the analysis done on foreign direct investment, an impulse response analysis was carried out for portfolio investment to trace the path of a shock in portfolio investment on economic growth. The impulse response function for economic growth to portfolio investment is shown in Figure 4.2.

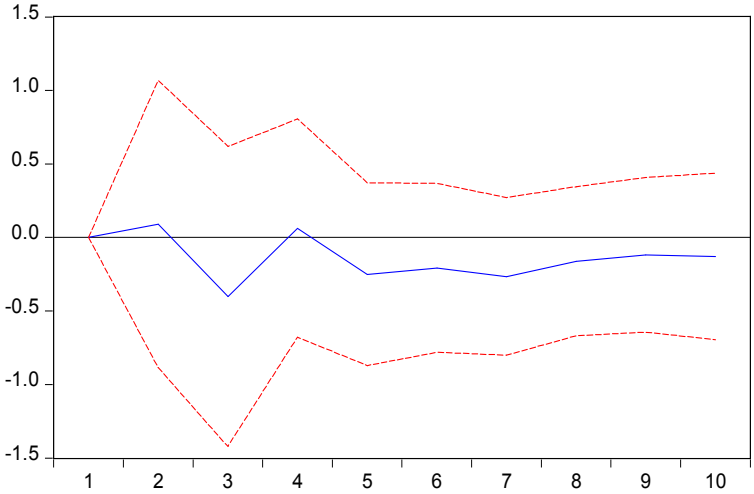

Figure 4.2: Response of economic growth to portfolio investment (%)

The result indicates that a shock in the ratio of portfolio investment to GDP in the first period leads to a fluctuation in economic growth in the second period of about 2.5 percent. The fluctuations in economic growth

tend to be minimal by the seventh period. This implies that a shock in portfolio investment has a minimal impact on economic growth. Further, the variance decomposition results indicate that portfolio investment accounts for about 4 percent of the variations in economic growth in the second and fourth periods. From the sixth period it accounts for about 9 percent of the variation in economic growth. This implies that variations in portfolio investment will have a slightly bigger impact in economic growth than FDI. From the innovation accounting, this study has shown that portfolio investment can play an important role in economic growth of Kenya.

The coefficient of log of cross-border interbank borrowing as a ratio of GDP was positive (0.059199) but statistically insignificant. This implies that cross-border interbank borrowing does not play an important role in the economic growth of Kenya. This could be because Kenya operated a closed capital account for long (Schneider, 2005). The result contradicts the findings of Resen and Soto (2001) who asserted that short-term and long-term bank lending has a negative effect on the economic growth of the recipient country. Similarly, it also contradicts Macias and Massa (2009) who found that cross-border bank lending has a positive impact on economic growth. The result supports the work of Durham (2003) that there was no effect of cross- border bank lending on economic growth.

Apart from the regression results, the impulse response analysis was done to trace the path of a shock in cross-border interbank borrowing on economic growth and the result is presented in Figure 4.3.

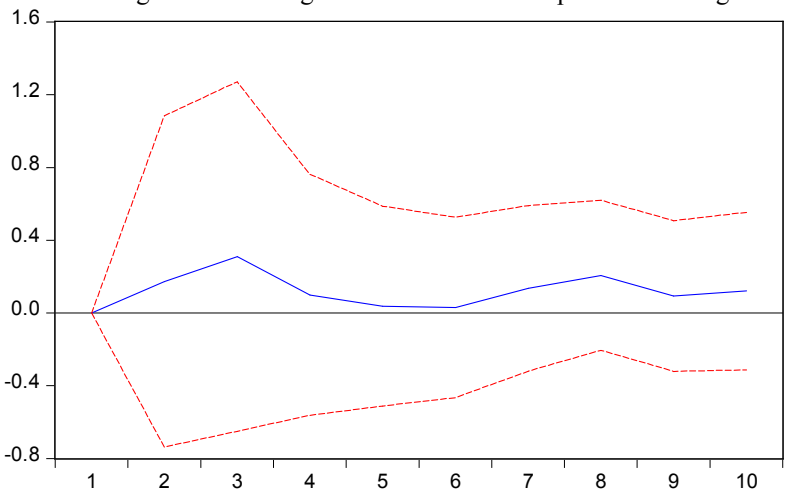

Figure 4.3: Response of economic growth to cross-border interbank borrowing (%)

A shock in cross-border interbank borrowing leads to a decline in economic growth up to the third period. Economic growth then picks up and follows its normal growth path from the fourth period. It is important to note that this shock has a negative effect on economic growth. The implication is that a shock in international lending and borrowing can negatively affect economic growth. Similarly, the variance decomposition results showed that cross-border interbank borrowing accounts for about 9 percent of the variations in economic growth in the third period and about 15 percent of the variations in economic growth in the fourth period. Cross-border interbank borrowing accounts for about 19 percent of all the variations in economic growth for the rest of the forecast period. This implies that any disturbance in the international lending may have long term implications on Kenya's economic growth.Therefore, cross-border interbank borrowing has an impact on economic growth. However, regression estimation had indicated that cross-border interbank borrowing had a statistically insignificant coefficient.

4.6 Effect of Financial Development on Economic Growth

The third objective of this study was to investigate the effect of financial development on economic growth. The regression results in table 4.5 show Log of financial development had a negative and statistically significant coefficient at 10 per cent level of significance. This implies that unsystematic financial development discourages economic growth. A 10 percent increase in financial development as a ratio of GDP would lead to 3.8 per cent decrease in GDP growth. This result contrasts that of Alfaro *et al.* (2003) who found that financial development is important for foreign direct investment in that it leads to higher economic growth. Similarly, Vinh (2010) found that private capital inflows promote economic growth better in countries that have a higher level of financial development. Moreover, Anwar and Nguyen (2011) found that financial development attracted FDI to Vietnam. However, this result supports that of Akinlo (2004) who found a negative relationship between financial development and economic growth in Nigeria suggesting a possibility of capital flight due to capital transfer abroad because of to higher returns there. To complement the regression results, the impulse response analysis was done to trace the path of a shock in financial development on economic growth and the result is

shown in Figure 4.4.

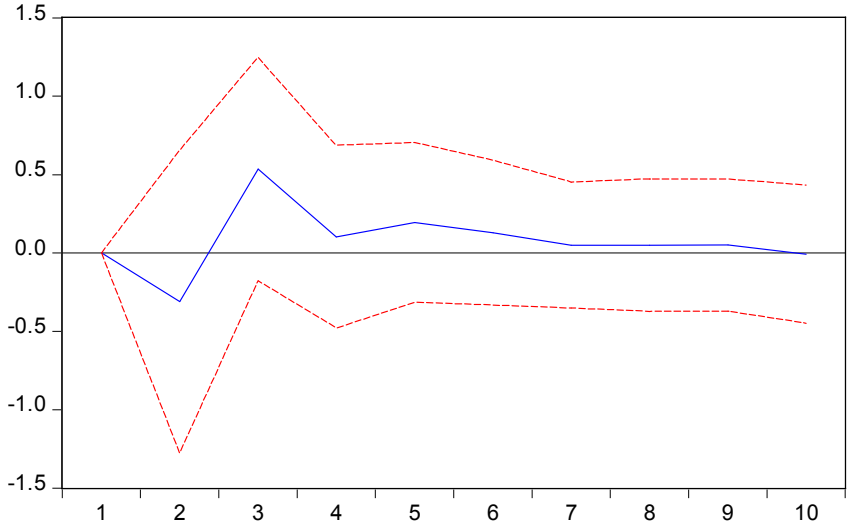

Figure 4.4: Response of economic growth to financial development (%)

Upon impact, financial development leads to fluctuations of at most 1.5 percent from the second period to the seventh period. Thereafter, the fluctuations fizzle out. The shock in financial development leads to a fluctuation of less than 2 percent in rate of growth of the economy within the first five periods. This implies that a shock in financial development has little impact and its effect is felt in the short term.In addition to the impulse response, the variance decomposition results indicate that financial development accounts for about 3 percent of the variations in economic growth from the third year through the entire forecast period. Therefore, financial development accounts for little of the variations in economic growth in Kenya.

4.7 Effect of Macroeconomic Variables on Economic Growth

This study included other variables in the estimation of the economic growth equation. These variables were identified from the literature on economic growth. They included government expenditure, human capital, macroeconomic stability and trade openness. The results are presented in Table 4.3.

The coefficient of log of government expenditure as a ratio of GDP has a negative sign (-0.086873) and is statistically significant at 5 per cent level. This is an indication that government expenditure as a share of GDP discourages economic growth, may be, through "crowding out" of the private sector. This result supports the findings of Baillui (2000), Akinlo (2004), and Ayenwale and Awolowo (2007). Although Anwar and Nguyen (2010) found a positive relationship between government expenditure as a share of GDP and economic growth in Vietnam, the coefficient was not statistically significant. This suggested that government expenditure played a less important role than FDI in the economic growth of Vietnam.

An impulse response analysis function of economic growth to government expenditure is shown in Figure 4.5.

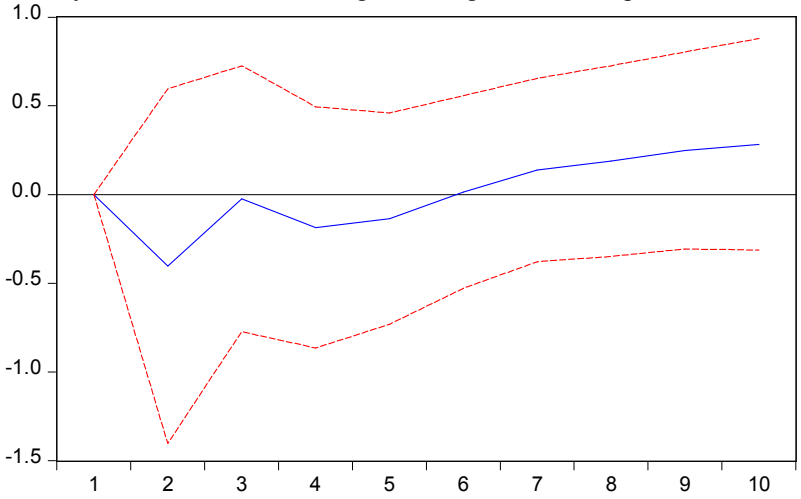

Figure 4.5: Response of economic growth to government expenditure (%)

A shock in government expenditure as a ratio of GDP had some effect on economic growth between the first and third periods (it led to a fluctuation of economic growth of less than 2.5 percent). Economic growth tends to follow its normal growth path from the third period, slightly rises in the fifth period before it stabilizes

from the eighth period. This implies that an innovation in government expenditure has no impact on economic growth over the forecast period. From the variance decomposition, government expenditure accounts for less than 2 percent of the variations in economic growth from the second period through the entire forecast period.

Human capital had a positive and statistically significant coefficient. A 10 percent increase in the ratio of those enrolled in secondary and tertiary institutions to total population would lead to a 6.1 percent increase in economic growth in Kenya. This study supports the work Borensztein, et.al (1998) who found that the effect of FDI on economic growth is dependent on the level of human capital available. Similarly, Carkovic and Levine (2002) found that only countries with high levels of human capital can benefit from technological spillovers. Akinlo (2004) also asserted that a well-educated labour force contributes meaningfully to the management of enterprises which translates to economic growth. Moreover, Anwar and Nguyen (2010) found that the coefficient of education was positive and statistically significant in the economic growth equation while, Ayanwale and Awolowo (2007) found a positive but statistically insignificant coefficient for human capital in the economic growth equation for Nigeria. Nevertheless, from these studies, it is evident that human capital plays an important role in the economic growth of a country. The policy makers in Kenya were right to introduce free primary and secondary education starting 2003 and to provide opportunities for higher learning through the expansion of existing higher education institutions and assisting the needy learners by providing funding for higher education. The impulse response function of economic growth to human capital is shown in Figure 4.6.

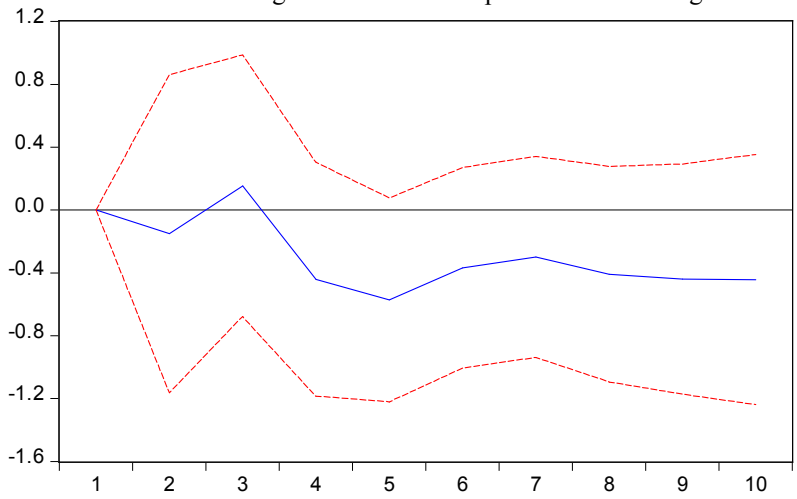

Figure 4.6: Response of economic growth to human capital (%)

A shock in the ratio of enrolment in the secondary and tertiary institutions to the total population in the first period led to a decrease in economic growth in the third period, an increase in the fourth period before fizzling out from the fifth. The shock in human capital in the first period leads to a fluctuation of economic growth of at most 1.5 percent throughout the forecast period. The findings indicate that a shock in human capital has little impact in change in economic growth.

The variance decomposition shows that human capital accounts for about 3 percent of the variations in economic growth in the second, third and fourth period. For the remaining forecast period, human capital accounts for about 4 percent of the variations in economic growth. Thus, human capital accounts for a minimal of the variations in economic growth. Macroeconomic stability had a negative and statistically significant coefficient at 10 percent. This is an indication that an unstable macroeconomic environment discourages economic growth. An increase in inflation rate by 10 percent leads to a decrease in economic growth by 0.6 percent. The result is consistent with the findings of Borensztein, et.al (1998), Ayanwale and Awolowo (2007) and Macias, et.al (2009). Anwar and Nguyen (2010) used real exchange rate as a proxy for macroeconomic stability and found the same result for Vietnam.

The impulse response function of economic growth to macroeconomic stability is shown in Figure 4.7.

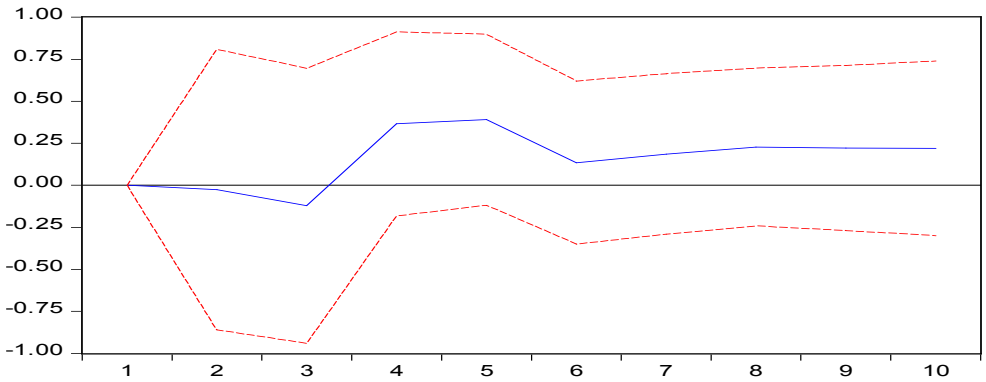

Figure 4.7: Response of economic growth to macroeconomic stability (%)

Figure 4.7 shows that a shock in the rate of change of inflation has a mild impact on the rate of change of economic growth starting in the second period and fizzles out in the eighth period. An innovation in inflation in the first period has a less than 1 percent change in economic growth in the third up to the fifth period. This implies that a shock in inflation has no impact on the growth path of economic growth. Macroeconomic stability accounts for less than 1 percent of the variations in economic growth over the entire forecast period. A shock in macroeconomic stability explains little of the variations in economic growth. From Table 4.5, log of openness has a positive and statistically significant coefficient. This finding is consistent with the findings of Bailliu (2000) that the volume of trade as a share of GDP was important for developing countries. Similarly, Ayanwale and Awolowo (2007) and Macias et al. (2009) found the coefficient of trade to be significant in Nigeria and Africa respectively. Anwar and Nguyen (2010) using exports as a proxy for openness found a positive and statistically significant coefficient for exports in Vietnam. This meant that exports were important in the economic growth of Vietnam. This stresses the need for the Kenyan authorities to work with its trading partners, especially the East African Community, to remove any barriers to trade in order to accelerate economic growth. The impulse response function of economic growth to openness is shown in Figure 4.8.

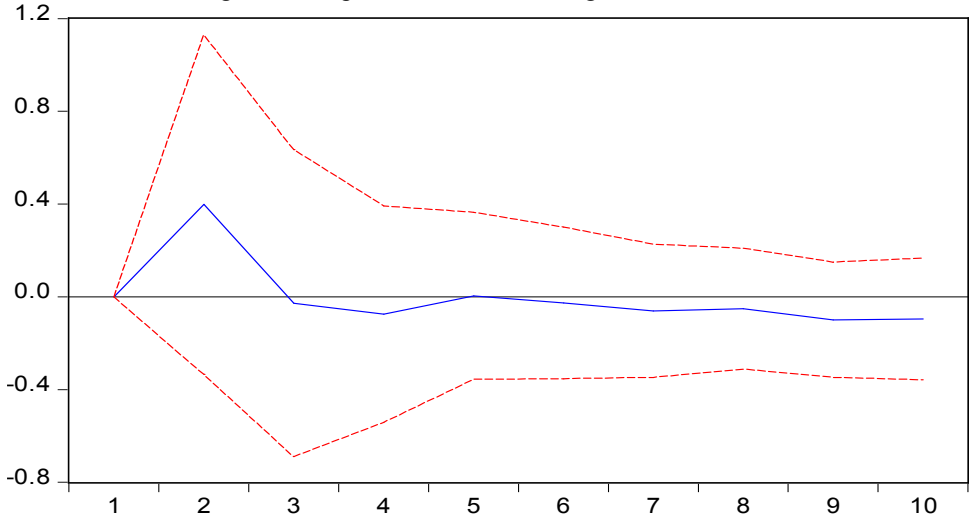

Figure 4.8: Response of economic growth to trade openness (%)

A shock in the ratio of imports and exports to GDP leads to an immediate increase in the rate of change of economic growth. The effect fizzles out in the third period. The impact of the shock in exports and imports on economic growth is minimal (leads to less than 2 percent fluctuation in economic growth) and is short lived (less than three periods). From the second period, openness accounts for about 2 percent of the variations in economic growth through the entire forecast period. Therefore, openness accounts for very little of the variations in economic growth.

5.0 CONCLUSION AND RECOMMENDATIONS

The main objective of this study was to establish the relationship between private capital inflows components, financial development and economic growth. Four specific objectives were developed for the study namely, to investigate the causality between FDI, portfolio investment and cross-border interbank borrowing on economic growth; to analyze the effects of FDI, portfolio investment and cross-border interbank borrowing on economic growth; to examine the effect of financial development on economic growth and to examine the effects of macroeconomic factors (human capital, government expenditure, macroeconomic stability and trade openness)

on economic growth.

The first objective of the study was to investigate the causality between FDI, portfolio investment and cross-border interbank borrowing on economic growth. The study used Granger Causality to investigate the relationship between FDI, portfolio investment and cross-border interbank borrowing on economic growth. The ordinary least squares estimation was used to determine the effects of private capital inflows and financial development on economic growth. The study included other determinants of economic growth in the ordinary least squares estimation of the economic growth equation. In addition, the ordinary least squares estimation was complemented by the impulse response analysis and variance decomposition. Time series data was sourced from the World Bank's African Development Indicators, the Kenya National Bureau of Statistics and the Central Bank of Kenya for the period 1970 to 2014.The study found that there was a unidirectional causality from FDI as a ratio of GDP to economic growth and a unidirectional causality from economic growth to net external debt as a ratio of GDP (a proxy for cross-border interbank borrowing). There was no causality between portfolio investment as a ratio of GDP and economic growth.

The second objective of the study was to establish the effects of FDI, portfolio investment and cross-border interbank borrowing on economic growth. The coefficient of FDI as a ratio of GDP was positive and statistically significant. The standardized regression coefficient (β) value of the computed scores of FDI was 0.077276 with a t-test of 1.530526 and significance level of p-value=.0134. This suggests that FDI plays an important role in Kenya's economic growth. A shock in FDI as a ratio of GDP was found to cause a less than 6 percent fluctuation in economic growth in the first three periods and thereafter fizzles out. Overall, variations in FDI as a ratio of GDP account for less than 6 percent of the variations in economic growth. Portfolio investment as a ratio of GDP was found to have a positive but statistically insignificant coefficient (β=.015372, p-value=.6405). A shock in portfolio investment as a ratio of GDP causes a less than 3.5 percent fluctuation in the first five periods after which economic growth follows its natural growth path. Variations in portfolio investment as a ratio of GDP were found to account for about 4 percent of the variations in economic growth. The coefficient of net external debt as a ratio of GDP which was used as proxy for cross-border interbank borrowing was found to be positive but statistically insignificant (β=.059199, p-value=.4456). A shock in cross-border interbank borrowing as a ratio of GDP causes economic growth to fluctuate by about 2 percent in the third period and the effect declines with time but is felt up to the sixth period. The variance decomposition showed that variations in cross-border interbank borrowing as a ratio of GDP accounted for up to 74 percent of the variations in economic growth.

The third objective of this study was to investigate the effect of financial development on economic growth. To achieve this objective, it was hypothesized that financial development had significant influence on economic growth. The coefficient of gross domestic capital formation as a ratio of GDP which was the proxy for financial development was negative and statistically significant (β=-0.382785, p-value=.0031). This suggests that a well-developed financial sector may not necessarily lead to the economic growth of Kenya. A shock in gross domestic capital formation as a ratio of GDP led to a less than 5 percent fluctuation in economic growth. Variations in gross domestic capital formation as a ratio of GDP accounted for about 1.5 percent of the variations in economic growth from the third period throughout the entire forecast period. The finding added new insights to extant literature on how the interaction between financial development and private capital inflows influences economic performance.

The fourth objective sought to determine the influence of macroeconomic factors (human capital, government expenditure, macroeconomic stability and trade openness) on economic growth. The coefficient of government expenditure on goods and services as a ratio of GDP was positive and statistically significant (β=0.086873, p-value=.0042). This implies that government expenditure if well managed can have a positive impact on the economic growth of Kenya. A shock in government expenditure on goods and services as a ratio of GDP led to a fluctuation in economic growth of less than 5 percent in the second and thereafter fizzled out. Variations in government expenditure on goods and services as a ratio of GDP accounted for less than 5 percent of the variations in economic growth. The coefficient of secondary and tertiary institutions enrolment as a ratio of the total population which was used as a proxy for human capital was negative and statistically significant (β=-0.513306, p-value=.0039). This suggests that an educated labour force may not have significant impact on the economic growth of Kenya. A shock in secondary and tertiary enrolment as a ratio of the total population led to a fluctuation in economic growth of about 1.5 percent in the second period which fizzled out in the fifth period. Variations in secondary and tertiary enrolment as a ratio of the total population accounted for about 6 percent of the variations in economic growth. The coefficient of inflation which was used as a proxy for macroeconomic stability was negative and statistically significant (β=-.077303, p-value=.0419). This implies that inflation has a negative impact on the economic growth of Kenya. A shock in inflation led to a less than 2 percent change in economic growth and variations in inflation accounted for less than 3 percent of the variations in economic growth. The coefficient of sum of total exports and total imports as a ratio of GDP which was used as a proxy for openness was positive and statistically significant (β=.151853, p-value=.0042). This indicates that openness

plays an important role in Kenya's economic growth. The impact of a shock in openness was minimal (it led to less than 4 percent of the fluctuations in economic growth). Variance decomposition showed that variations in the sum of total exports and total imports as a ratio of GDP accounted for about 7.9 percent of the variations in economic growth. The Kenyan government should explore other modalities of foreign capital inflow which can be more productivity to the economic development as well as to mobilize more domestic savings and revenue to reduce much dependence on foreign direct investment.. Further, the study suggested that government of Kenya should continue to pursue a high and sustainable economic growth rate to attract cross-border interbank borrowing. This can be through devoting more resources to development expenditure than is current, opening up to the global economy to tap knowledge and technology, maintain a low inflation rate, and avoid excessive debt. Further research should be conducted on the interaction between private capital inflows and the other variables: for example, FDI and financial development, FDI and openness as explanatory variables in the estimation of the effect of private capital inflows on Kenya's economic growth as explanatory variables. A study that will include the interaction of these variables as explanatory variables of economic growth will complement this study. This will inform policy makers in deciding whether they need to pursue joint or separate policies regarding the variables which determine economic growth.

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