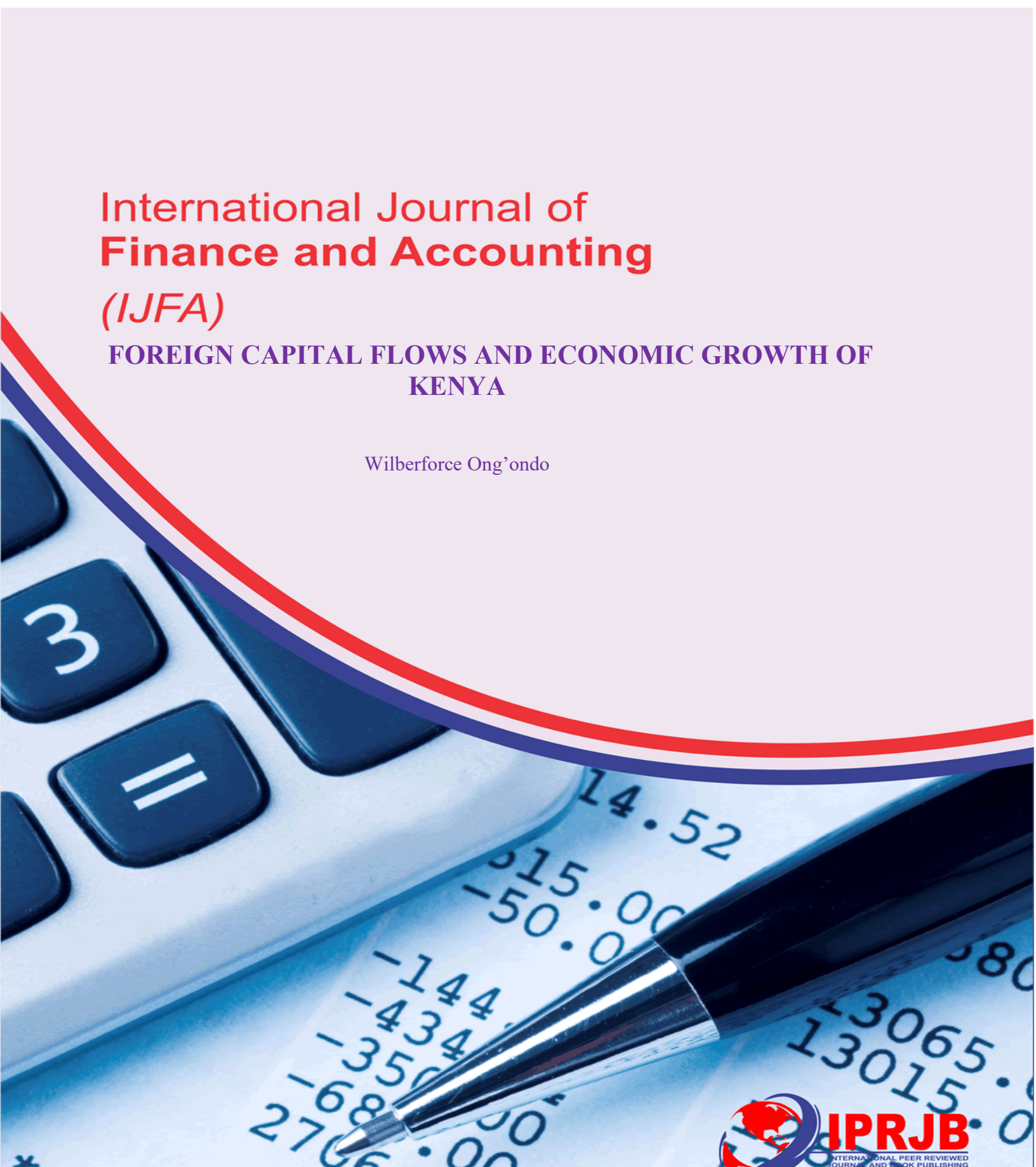# International Journal of
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## FOREIGN CAPITAL FLOWS AND ECONOMIC GROWTH OF KENYA

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# FOREIGN CAPITAL FLOWS AND ECONOMIC GROWTH OF KENYA.

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## ABSTRACT

The purpose of the study was to establish the effects of foreign capital flows on economic growth of Kenya. The study employed a quantitative research design. The target population of this study was Kenya since it is the Center of analysis. Considering that the population is one country, Kenya, secondary data was collected over a period of 25 years from 1993 to 2017. Therefore, the number of observations was $X * 25 = 25$. The research conducted a census on Kenya using secondary data from Nairobi Securities Exchange (NSE), Capital Markets Authority (CMA), Kenya National Bureau of Statistics (KNBS), Central Bank of Kenya, World Bank and United Nations Conference on Trade and Development (UNCTAD). Data over time was analyzed using a time series model and trend analysis. Model test and correlation analysis were done before conducting regression and univariate regression analysis. The study found that, when external commercial borrowing is increased by one US dollar, annual GDP will increase by 395.990% when all other factors are kept constant. The opposite also applies. But, if external commercial borrowing is zero, annual GDP will decrease by USD *8,151,662,920.94* when all other factors are kept constant. Additionally, when Foreign Portfolio investment is increased by one US dollar, annual GDP will increase by *805.37%* when all other factors are kept constant. The opposite also applies. But, if Foreign Portfolio Investment is zero, annual GDP will remain to be USD *25394237979* when all other factors are kept constant. Also, when FDI is increased by one US dollar, annual GDP will increase by 3026.30% when all other factors are kept constant. The opposite also applies. But, if FDI is zero, annual GDP will still increase by USD 18493289187.3 when all other factors are kept constant. Further results revealed that when Non-Resident Kenyan Deposits are increased by one US dollar, annual GDP will increase by 3738.65% when all other factors are kept constant. The opposite also applies. But, if Non-Resident Kenyan Deposits is zero, annual GDP will remain to be USD 4869680695.47 when all other factors are kept constant. The study recommends that the Government pursues policies that will attract and favour net increases in Foreign Direct Investments, Foreign Portfolio Investments, External Commercial Borrowings and Non-Resident Kenyan deposits into the country.

**Keywords:** *cash flows, economic growth, direct investments, portfolio investments, commercial borrowings*

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# 1.0 INTRODUCTION

## 1.1 Background of the study

Foreign capital plays a significant role in any economy regardless of the level of development of the specified economy. For the developed countries Foreign Capital is necessary to support sustainable development and for the developing countries it is used to increase accumulation and rate of investments to create conditions for accelerated economic growth. As economies become more open and integrated with the rest of the world, capital flows continue significantly to influence the transformation of the developing economies (Levin, 2001). Capital inflows are also necessary for macroeconomic stability as they affect a wide range of macroeconomic variables such as exchange rates, interest rates, foreign exchange reserves, domestic monetary conditions as well as savings and investments.

Capital flow in the forms of portfolio and foreign direct investment is not only an engine for globalization but also a catalyst for economic development for developing economies, (Stiglitz & Andrew, 1981), (Tesar, 1991), (Tobin, 1983) and (Wade & Veneroso, 1998). Capital inflows can help developing countries with economic development by furnishing them with necessary capital and technology. Additionally, it contribute to filling the resource gap in countries where domestic savings are inadequate to finance investment. Further, they allow the recipient country to invest and consume more than it produces when the marginal productivity of capital within its borders is higher than in the capital rich regions of the world. Capital inflows facilitate the attainment of the millennium development goals (MDGs) and other national objectives for economic empowerment and development.

For the Frontier countries like Kenya, Foreign Capital is useful in carrying out reforms and crossing to open economy (Edwards,2004) and also to helping to cross the past long-term problems and enabling the creation of conditions for stable and continuous growth of GDP, (Razin ,2001) as well as the integration into the world economy, (Boskovska,2006) and (Lensik,1999). The Kenyan economy has undergone through developments such as the era of controls that existed prior to the 1990s, the liberation that came in the 1990s, the Global Economic Crisis of 2008 as well as the current economic integration era characterized by the Free Trade Areas.  Liberalization of trade in Kenya included the Financial market liberalization, External trade liberalization, Foreign exchange market liberalization, Domestic price decontrols, Capital account liberalization and Domestic marketing liberalization.

## 1.2 Statement of the problem

Foreign capital flows can have a positive or negative effect on the economic growth of a country depending on the economic circumstances of the specific economy, (Yang,2009).  The Kenyan economy is hoping to improve from a frontier status and become an emerging market economy. The Government and other stakeholders are committing a lot of resources aimed at attracting more capital inflows into the economy to spur the much-needed economic growth. Some of the resources committed to this cause are borrowed through external commercial loans, Quarterly Economic and Budgetary Review – 2017/2018 www.treasury.go.ke and Annual public debt management report - 2018, while others are legal reforms, aimed at attracting non-resident diaspora deposits, with tax

implications in form of lost revenues to the Government. The returns on these commitments are yet to be realized.

Theoretical literature according to the Endogenous Growth Model states that international capital flows can positively affect economic growth by increasing investments rates in cases where the capital is used to finance investments and not consumption and if investments made by local savings are not crowded out by foreign capital. The theory further highlights the negative side that foreign capital may lead to more instability in the financial market rather than increasing growth inducing effects if a country's economy is immature. (Rodrik & Subramanian, 2008) argue that capital accumulation of less developed countries is insufficient not because they save less but because they do not have enough investment opportunities and therefore foreign capital will send a negative impact on their economic growth by reducing the return on investments (ROI) through appreciation of foreign exchange rates and weakening their international competitiveness.

Empirical studies have also revealed mixed results with some suggesting that foreign capital flows have a positive impact on economic growth while others found that foreign capital flows have a negative effect on economic growth as well. (Kim &Yang, 2009) found out that in Korea, the capital inflows bore more significant effects on the stock market but limited effects on the other components of the economy. Narayan (2013) found out a positive relationship between economic growth and Foreign Direct Investments (FDI) as well as economic growth and Foreign Portfolio Investments (FPI) in India while (Tswamuno et al, 2007) found the net portfolio investments having no positive effect on economic growth and at the same time the stock market turnover having a negative effect on economic growth in South Africa.

The Government's hope that the investments in infrastructure development will spur economic growth that will eventually pay off the borrowed capital as well as the cost of capital and leave the country in a better economic position is yet to be realized. More so, given the mixed conclusions based theoretical and empirical studies, it is not clear whether the country is at the right stage of development and is therefore ripe for absorbing the foreign capital inflows that will result in economic growth.  It is therefore important to find out the effects of foreign capital flows on growth of the Kenyan economy. This study looks at the effects of Foreign Direct Investments, Foreign Portfolio Investments, External Commercial Borrowings and non- Resident Kenyan deposits on the economic growth of Kenya between the years 1993 and 2017.

## 1.3 Purpose of the Study

To establish the effects of foreign capital flows on economic growth of Kenya.

## 2.0 LITERATURE REVIEW

## 2.1 Economic Growth

Capital inflows might result in increased asset prices either by directly affecting the demand for assets, through money supply and liquidity which in turn might boost asset prices and by generating economic booms in capital receiving economies leading to increases in asset prices (Kim &Yang, 2009). However, other factors such as improved economic performance, monetary expansion and low interest rates could also affect asset prices in emerging markets. In investigating the effects of capital inflows on domestic asset prices in (Korea, Kim & Yang, 2009) found the

influence of capital inflow shocks to be more significant on the stock market but limited in other parts of the economy.

(Tswamuno, Pardee & Wunnava, 2007) also observed the relationship between real per capita GDP and capital account liberalization using the ordinary least square (OLS) estimation technique on quarterly data from 1975:3 to 2005:1. They found that while post-liberalization net foreign portfolio investment (FPI) had no positive effect on economic growth, post-liberalization stock market turnover had a negative effect on economic growth in South Africa.

## 2.2 Foreign Direct Investments

In 2011, Adeniyi, Omisakin, Egwaikhide and Oyinlola, 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.

Adams, S. (2009) analyzed the impact of foreign direct investment (FDI) and domestic investment (DI) on economic growth in Sub-Saharan Africa for the period 1990–2003. The results show that DI is positive and significantly correlated with economic growth in both the OLS and fixed effects estimation, but FDI is positive and significant only in the OLS estimation. The study also found that FDI has an initial negative effect on DI and subsequent positive effect in later periods for the panel of countries studied. The sign and magnitude of the current and lagged FDI coefficients suggest a net crowding out effect. The review of the literature and findings of the study indicate that the continent needs a targeted approach to FDI, increase the absorption capacity of local firms, and cooperation between government and MNE to promote their mutual benefit.

## 2.3 Foreign Portfolio Investments

Narayan (2013) examined the causal relationship between foreign capital inflows and economic growth in India. Using the pair-wise Granger causality test (1969), he specifically examines the causal relationship between foreign capital inflows and economic growth in India. The important observations emerge from pair-wise Granger causality test, which shows there is the long-run equilibrium relationships exist between the following pairs of variables viz., economic growth and Foreign Direct Investment (FDI), economic growth and Foreign Portfolio Investment (FPI).

In their study (Chukwuemeka et al ,2012), modelled the determinants of Net Foreign Portfolio Equity Investment (FPEI) for the Nigerian stock market and converted the data for the period 1981-2010 into quarterly series then used the finite distributed lag model of time series analysis to observe which ones would be long-run determinants of FPEI for the Nigerian stock market. Among other observations, the study discovered that FPEI has a positive long-run relationship with market capitalization for the Nigerian Stock Market.

## 2.4 External Commercial Borrowing

Checcherita-Westphal *et al*., (2012), investigated the average impact of government debt on per-capita GDP growth in twelve euro area countries over a period of about 40 years starting in 1970. They found a non-linear impact of debt on growth with a turning point – beyond which the government debt-to-GDP ratio had a negative impact on long-term growth – at about 90–100% of GDP. Confidence intervals for the debt turning point suggested that the negative growth effect of high debt may start already from levels of around 70 to 80% of GDP. The channels through which government debt was found to have a non-linear impact on the economic growth rate were private saving, public investment and total factor productivity.

(Ndikumana & Boyce, 2011) estimated the magnitude and timing of capital flight from 33 sub-Saharan African countries from 1970 to 2004 and analyzed its determinants, including linkages to external borrowing. The results confirmed that sub-Saharan Africa was a net creditor to the rest of the world, in that the subcontinent's private external assets exceed its public external liabilities: total capital flight amounted to $443 billion (in 2004 dollars), compared to the external debt of $195 billion. Econometric analysis indicated that for every dollar in external loans to Africa in this period, roughly 60 cents flowed back out as capital flight in the same year, a finding that suggested the existence of widespread debt-fueled capital flight. The results also showed a debt-overhang effect, as increases in the debt stock spurred additional capital flight in later years.

## 2.5 Non-Resident Kenyan Deposits

The rate of accumulation of capital is influenced by remittances. Remittances reduce capital cost in the country of origin in addition to quickening the accumulation rate of both physical and human capital. This may lead to a rise in supplementary borrowing and hence higher levels of debt. Remittances may also have a part in reducing volatility and steadying the economy and as a result reduce the risk premium that is demanded by investors. Remittances affect the growth of the labour force. Gains from remittances have an effect that is negative in the cooperation of the labour force by substituting income from remittance for income from labour and by generating more recreation with the achievement of reduced work. Total factor productivity of growth is influenced by remittances. According to (Barajas et al, 2009), the effectiveness of investment is influenced by remittances and is dependent on who makes the decision on investment. A decision made by the person receiving the funds on behalf of the person sending the funds will not be as effective as a decision that is made by a proficient financial broker in cases of official capital streams. Large financial development may be brought about by remittances. However, changes in exchange rates can also emerge. 'Dutch disease' which is appreciation in currency and hence a decline in exports can also emerge as a result of streaming in of funds.

Giuliano & Ruiz-Arranz, (2009), studied one of the links between remittances and economic growth and in particular how local financial sector development influences a country's capacity to take advantage of remittances. Using a newly-constructed dataset for remittances covering about 100 developing countries, they found that remittances boosted economic growth in countries with less developed financial systems by providing an alternative way to finance investment and helping them overcome liquidity constraints.

## 3.0 RESEARCH METHODOLOGY

The study employed a quantitative research design. The target population of this study was Kenya since it is the centre of analysis. Considering that the population is one country, Kenya, secondary data was collected over a period of 25 years from 1993 to 2017. Therefore, the number of observations was X * 25 = 25. Target population refers to the specific group relevant to a particular study, (Mugenda & Mugenda, 2003). The research conducted a census on Kenya using secondary data from Nairobi Securities Exchange (NSE), Capital Markets Authority (CMA), Kenya National Bureau of Statistics (KNBS), Central Bank of Kenya, World Bank and United Nations Conference on Trade and Development (UNCTAD). Data over time was analyzed using a time series model and trend analysis. Model test and correlation analysis were done before conducting regression and univariate regression analysis. A clear data analysis framework was formulated for empirical analysis to be performed in order to effectively meet the set objectives for the research. The variables included in the model were the GDP, Foreign Direct Investments, Foreign Portfolio Investments, External Commercial Borrowings and Non-Resident Kenyan Deposits.

## 4.0 RESULTS

### 4.1 Correlation analysis

The study performed correlation analysis on the variables for the period as reported in table 4.1 below;

**Table 4.1 Correlation Matrix**

| Variable | External Commercial Borrowings | Foreign Direct Investments | Foreign Portfolio Investments | GDP | Non-Resident Kenyan Deposits |
|---|---|---|---|---|---|
| **External Commercial Borrowings** | 1.000000 | 0.533019 | 0.461846 | 0.899761 | 0.901643 |
| **Foreign Direct Investment** | 0.533019 | 1.000000 | 0.360938 | 0.680835 | 0.665799 |
| **Foreign Portfolio Investments** | 0.461846 | 0.360938 | 1.000000 | 0.461400 | 0.456255 |
| **GDP** | 0.899761 | 0.680835 | 0.461400 | 1.000000 | 0.945530 |
| **Non-Resident Kenyan Deposits** | 0.901643 | 0.665799 | 0.456255 | 0.945530 | 1.000000 |

Correlation coefficients indicate the degree of relationship between variables where a perfect 100% relation has a correlation coefficient of 1. None of the variables is negatively related, therefore all variables are positively correlated. GDP and Non-Resident Kenyan Deposits are

strongly related since they have a correlation coefficient of 0.945530 which is closer to 1, followed by External Commercial Borrowings which has a correlation coefficient of 0.899761, Foreign Direct Investments with 0.680835 and finally Foreign portfolio investments with the least degree of relationship to GDP, with 0.461400 correlation coefficient.

## 4.2 Trend Analysis

The study performed annualized trend analysis on the variables for the period of study. The results are plotted in figure 4.1 below;



**Figure 4.1: Annual Trend Analysis for the study variables in USD millions**

### 4.3 Regression Analysis

The study performed Linear Regression, based on the assumption that the variables under consideration are linearly related. Since the data under consideration is time series, where some series are I (1) and I (2), Series must be transformed so that results cannot be spurious. The data is transformed by differentiation to make the data stationary and then regression estimates can be generated. If the serial correlation is present, which can be shown by very high R-Squared and very low Durbin Watson statistics, Robust OLS estimates are estimated to take care of Autocorrelation. Table 4.2 below shows the results of OLS estimates.

### Table 4.2 Ordinary Least Squares Estimates

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| External Commercial Borrowing | -0.377359 | 0.910163 | -0.414606 | 0.6836 |
| Non-Resident Kenyan Deposits | 2.459654 | 3.164497 | 0.777266 | 0.4477 |
| Foreign Direct Investments | 2.398504 | 1.318514 | 1.819097 | 0.0866 |
| Foreign Portfolio Investments | 0.567803 | 0.477000 | 1.190363 | 0.2503 |
| $\alpha$ | 1.71E+09 | 6.36E+08 | 2.687901 | 0.0156 |
| | | | | |
| R-squared | 0.365164 | Mean dependent var | | 2.88E+09 |
| Adjusted R-squared | 0.215791 | S.D. dependent var | | 2.65E+09 |
| S.E. of regression | 2.35E+09 | Akaike info criterion | | 46.18654 |
| Sum squared resid | 9.36E+19 | Schwarz criterion | | 46.43451 |
| Log-likelihood | -503.0519 | Hannan-Quinn criter. | | 46.24495 |
| F-statistic | 2.444644 | Durbin-Watson stat | | 1.560338 |
| Prob(F-statistic) | 0.086262 | | | |

The model under consideration is equation 4.1 below;

$$y = \alpha + \beta_1 x_{1t} + \beta_2 x_{2t} + \beta_3 x_{3t} + \beta_4 x_{4t} + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (4.1)$$

The estimated Output of equation 4.1 from results shown in Table 4.4 is presented in equation 4.2 below.

$$y = -0.377358774181 * x_{3t} + 2.45965434525 * x_{4t} + 2.39850399383 * x_{1t} + 0.567803041394 * x_{2t} + 1709107754.74 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (4.2)$$

Where

$y$ = GDP

$x_{1t}$ =Foreign Direct Investments

$x_{2t}$= Foreign Portfolio Investments

$x_{3t}$= External Commercial Borrowing

$x_{4t}$ = Non-Resident Kenyan Deposits

From table 4.6 above, $R^2$ of the model is 0.365164 which is too low indicating that the model explains only 36.51% of the variations in the dependent variable while 63.49% of the variation in GDP is explained outside the model. But when the degrees of freedom are taken care of as shown by the Adjusted $R^2$ = 0.215791, which is far too low, indicating that the model explains 21.58% of the variation in the dependent variable. The values of Akaike info criterion = 46.18654, Durbin-Watson Statistics = 1.560338 and Schwarz criterion = 46.43451 are too high. Therefore, the model is poor, and the study opted to kill the model. The model is poor because the variables are highly correlated as indicated in Table 4.1. The study then proceeded with the regression analysis independently per variable. Therefore, the study proceeded with univariate regression as follows;

## 4.4 External Commercial Borrowings and GDP

The regression between external commercial borrowings and GDP is shown in table 4.3

**Table 4.3 Regression between GDP and External commercial borrowings**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| External Commercial Borrowings | 3.959902 | 0.409462 | 9.670976 | 0.0000 |
| α | -8.15E+09 | 4.18E+09 | -1.951760 | 0.0638 |
| R-squared | 0.809570 | Mean dependent var | | 2.82E+10 |
| Adjusted R-squared | 0.800914 | S.D. dependent var | | 2.00E+10 |
| S.E. of regression | 8.93E+09 | Akaike info criterion | | 48.74267 |
| Sum squared resid | 1.75E+21 | Schwarz criterion | | 48.84085 |
| Log-likelihood | -582.9121 | Hannan-Quinn criter. | | 48.76872 |
| F-statistic | 93.52777 | Durbin-Watson stat | | 0.161605 |
| Prob(F-statistic) | 0.000000 | | | |

The model under consideration is equation 4.3;

$$y = \alpha + \beta_1 x_{1t} + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.. (4.3)$$

Where:

$y$ = GDP

$x_{1t}$ =External commercial Borrowings

$\varepsilon_t = The\ error\ term$

$\alpha, \beta_1,$ are model parameters to be estimated by the study.

The resultant estimation equation is 4.4 below;

$y = 3.95990170329 * x_{1t} - 8151662920.94$…………………….. (4.4)

From the model estimates, $R^2 = 0.809570$ which means that the model explains 80.96% of the variations in the dependent variable while 19.04% of the variations in the dependent variable are explained outside the model. The coefficients of the model are significant at 5% level of significance, meaning that the estimates can be relied upon in policy making and that changes in the independent variable directly affects the dependent variable. The constant term is not significant at a 5% significance level. About the general significance of the model, as indicated by F-statistics, the model is significant at 5% significance level since P-values 0.000 < 0.05. From the model, when external commercial borrowing is increased by one US dollar, annual GDP will increase by 395.990% when all other factors are kept constant. The opposite also applies. But, if external commercial borrowing is zero, annual GDP will decrease by USD *8,151,662,920.94* when all other factors are kept constant. This result, however, differs from the study by (Muinga, 2014) who examined the relationship between external public indebtedness and economic growth in Kenya using data from 1970 to 2010. He employed Ordinary Least Square (OLS) and found out that external debt and interest payments on external debt payments contributed negatively to economic growth in Kenya. His results showed that any percentage increase in external debt holding other factors constant will reduce the GDP hence slow economic growth.

## 4.5 Foreign Direct Investments and GDP

The regression results are shown in table 4.4 below;

**Table 4.4 Regression estimates for GDP against FDI**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| Foreign Direct Investment | 30.26305 | 6.941129 | 4.359961 | 0.0003 |
| α | 1.85E+10 | 3.78E+09 | 4.889471 | 0.0001 |
| | | | | |
| R-squared | 0.463536 | Mean dependent var | | 2.82E+10 |
| Adjusted R-squared | 0.439151 | S.D. dependent var | | 2.00E+10 |
| S.E. of regression | 1.50E+10 | Akaike info criterion | | 49.77839 |
| Sum squared resid | 4.94E+21 | Schwarz criterion | | 49.87656 |
| Log-likelihood | -595.3406 | Hannan-Quinn criter. | | 49.80443 |
| F-statistic | 19.00926 | Durbin-Watson stat | | 0.599038 |
| Prob(F-statistic) | 0.000250 | | | |

The model under consideration indicated in equation 4.5 below;

$y = \alpha + \beta_2 x_{2t} + \varepsilon_t$   …………………………………… (4.5)

Where:

$y$ = GDP

$x_{2t}$= Foreign Direct Investments

$\varepsilon_t = The\ error\ term$

$\alpha, \beta_2$, are model parameters to be estimated by the study.

The resultant estimation equation is 4.6 below;

$$y = 30.2630493186*x_{2t} + 18493289187.3 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(4.6)}$$

From the model estimates, $R^2 = 0.463536$ which means that the model explains 46.35% of the variations in the dependent variable while 53.65% of the variations in the dependent variable are explained outside the model. The coefficients of the model are significant at 5% level of significance since P-values < 0.05, meaning that the estimates can be relied upon in policy making and that changes in the independent variable directly affects the dependent variable. The constant term is also significant at a 5% significance level. About the general significance of the model, as indicated by F-statistics, the model is significant at 5% significance level since P-values < 0.05. From the model, when FDI is increased by one US dollar, annual GDP will increase by 3026.30% when all other factors are kept constant. The opposite also applies. But, if FDI is zero, annual GDP will still increase by USD 18493289187.3 when all other factors are kept constant. This is similar to the study by (Okafor et al., 2015) who studied the effects of Net Foreign Direct Investment and Net Foreign Portfolio Investments on economic growth in Nigeria using data spanning from 1987 to 2012 with OLS and Granger causality econometric procedures. The findings of the study indicated that FDI and FPI have a significant positive impact on economic growth in Nigeria.

## 4.6 Foreign Portfolio Investments and GDP

The regression results are shown in table 4.6 below

The model under consideration was indicated by linear equation 4.7 below;

$$y = \alpha + \beta_3 x_{3t} + \varepsilon_t \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(4.7)}$$

Where:

$y$ = GDP

$x_{3t}$= Foreign Portfolio Investments

$\varepsilon_t = The\ error\ term$

$\alpha, \beta_3$, are model parameters to be estimated by the study.

**Table 4.5 Regression estimates for GDP against Foreign Portfolio Investment**

Dependent Variable: GDP

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| Foreign Portfolio Investment | 8.053664 | 3.301581 | 2.439335 | 0.0232 |
| α | 2.54E+10 | 3.88E+09 | 6.546926 | 0.0000 |
| | | | | |
| R-squared | 0.212890 | Mean dependent var | | 2.82E+10 |

| | | | |
|---|---|---|---|
| Adjusted R-squared | 0.177112 | S.D. dependent var | 2.00E+10 |
| S.E. of regression | 1.82E+10 | Akaike info criterion | 50.16175 |
| Sum squared resid | 7.25E+21 | Schwarz criterion | 50.25993 |
| Log-likelihood | -599.9411 | Hannan-Quinn criter. | 50.18780 |
| F-statistic | 5.950356 | Durbin-Watson stat | 0.464407 |
| Prob(F-statistic) | 0.023238 | | |

The resultant estimation equation is 4.5 below;

$$y = 8.05366376102 * x_{3t} + 25394237979 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..(4.8)$$

From the model estimates, $R^2 = 0.212890$ which means that the model explains 21.29% of the variations in the dependent variable while 78.71% of the variations in the dependent variable are explained outside the model which is less than 50%. The coefficients of the model are significant at 5% level of significance since P-values < 0.05, meaning that the estimates can be relied upon in policy making and that changes in the independent variable directly affects the dependent variable. The constant term is also significant at a 5% significance level. About the general significance of the model, as indicated by F-statistics, the model is significant at 5% significance level since P-values 0.023238 < 0.05.  From the model, when Foreign Portfolio investment is increased by one US dollar, annual GDP will increase by *805.37%* when all other factors are kept constant. The opposite also applies. But, if Foreign Portfolio Investment is zero, annual GDP will remain to be USD *25394237979* when all other factors are kept constant.

This study having established that increases in Foreign Portfolio Investments resulted in a positive growth of the GDP, differs from (Tswamuno, Pardee & Wunnava ,2007) who observed, using the ordinary least square (OLS) estimation technique on quarterly data from 1975:3 to 2005:1, that post-liberalization net foreign portfolio investment (FPI) had no positive effect on the economic growth of South Africa. However, the results are similar to the study by (Okafor et al., 2015) who studied the effects of Net Foreign Portfolio Investments on economic growth in Nigeria using data spanning from 1987 to 2012 with OLS and Granger causality econometric procedures and found that FPI has a significant positive impact on economic growth in Nigeria.

### 4.7 Non-Resident Kenyan Deposits and GDP

To regress GDP on foreign portfolio investments we use the linear equation 4.9 below;

$$y = \alpha + \beta_4 x_{4t} + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.. \quad (4.9)$$

Where:

$y$ = GDP

$x_{4t}$ = Non-Resident Kenyan Deposits

$\varepsilon_t = The\ error\ term$

$\alpha, \beta_4$ are model parameters to be estimated by the study.

Regression results are shown in table 4.6 below;

**Table 4.6 Regression estimates for GDP against Non-Resident Kenyan Deposits**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| Non-Resident Kenyan Deposits | 37.38651 | 2.744251 | 13.62357 | 0.0000 |
| $\alpha$ | 4.87E+09 | 2.19E+09 | 2.227579 | 0.0365 |
| R-squared | 0.894028 | Mean dependent var | | 2.82E+10 |
| Adjusted R-squared | 0.889211 | S.D. dependent var | | 2.00E+10 |
| S.E. of regression | 6.66E+09 | Akaike info criterion | | 48.15656 |
| Sum squared resid | 9.76E+20 | Schwarz criterion | | 48.25473 |
| Log-likelihood | -575.8788 | Hannan-Quinn criter. | | 48.18261 |
| F-statistic | 185.6017 | Durbin-Watson stat | | 0.818432 |
| Prob(F-statistic) | 0.000000 | | | |

The resultant estimation equation is 4.10 below;

$$y = 37.3865090437* x_{4t} + 4869680695.47 \ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.( 4.10)$$

From the model estimates, $R^2 = 0.894028$ which means that the model explains 89.40% of the variations in the dependent variable while 10.60% of the variations in the dependent variable are explained outside the model which is an indication of a strong relationship between GDP and Non-resident Kenyan Deposits. The coefficients of the model are significant at 5% level of significance since P-values 0.000 < 0.05, meaning that the estimates can be relied upon in policy making and that changes in the independent variable directly affects the dependent variable. The constant term is also significant at a 5% significance level. About the general significance of the model, as indicated by F-statistics, the model is significant at 5% significance level since P-values 0.000 < 0.05. From the model, when Non-Resident Kenyan Deposits are increased by one US dollar, annual GDP will increase by 3738.65% when all other factors are kept constant. The opposite also applies. But, if Non-Resident Kenyan Deposits is zero, annual GDP will remain to be USD 4869680695.47 when all other factors are kept constant. These findings are similar with (Giuliano & Ruiz-Arranz,2009) who studied one of the links between remittances and economic growth using a dataset for remittances covering about 100 developing countries. They found out that remittances boosted economic growth in countries with less developed financial systems by providing an alternative way to finance investment and helping them overcome liquidity constraints. The findings also agree with the Institute of the Chartered Accountants in England and Wales Q3 2018 Report – https://www.icaew.com/technical/economy/economic-insight/economic-insight-africa which state that diaspora remittances are a key economic driver for most African countries.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Conclusions

The study concluded that increases in FDI, Foreign Portfolio Investments, External Commercial Borrowings and non-resident Kenyan deposits positively increased GDP. However, the rates of GDP growth resulting from 1 USD increase in each variable differed accordingly. GDP growth

resulting from a dollar increase in non-resident Kenyan deposits was the highest at 3739% followed closely by GDP growth resulting from a dollar increase in FDI at 3026%. Increases in GDP resulting from a dollar increases in FPI and ECB respectively were lowest at 805% and 396%. The study also found out that if Non-Resident Kenyan Deposits are zero, annual GDP will remain to be USD 4,869,680,695.47 when all other factors are kept constant. But, if external commercial borrowing is zero, annual GDP will decrease by USD *8,151,662,920.94* when all other factors are kept constant. It was also established that if Foreign Portfolio Investment is zero, annual GDP will remain to be USD *25,394,237,979* when all other factors are kept constant and if FDI remained zero, annual GDP will still increase by USD 18,493,289,187.3 when all other factors are kept constant.

## 5.2 Recommendations

The study recommends that the Government pursue policies that will attract and favour net increases in Foreign Direct Investments, Foreign Portfolio Investments, External Commercial Borrowings and Non-Resident Kenyan deposits into the country.

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