

## EFFECTS OF CAPITAL FLOWS ON ECONOMIC GROWTH IN KENYA

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### ABSTRACT

**Purpose** -This study investigated the immediate and lagged effects of the various forms of capital flows - FDI flows, portfolio flows and “Other investments capital flows” (which mainly represents corporate, financial institutions and general government borrowings as well as remittances from the diaspora) - on economic growth in Kenya over a 30 year period from 1984 to 2014.

**Methodology** – The study adopted a quantitative research design in the form of an econometric model known as Auto Regressive Distributed Lag Model (ARDLM).

**Findings** -FDI and portfolio investments flows have a negative impact on the GDP growth rate and that their impact is not statistically significant. However, other investments flows, which mainly represent corporate, financial institutions, general government borrowings and remittances from the diaspora, have a positive impact on GDP growth rate and the impact is statistically significant. Based on the study findings, it can be inferred that a significant slowdown or a reversal in capital flows in form of “Other investments capital flows” into Kenya result into significant slowdown in economic growth in the country.

**Implications** -Policy makers may lay much emphasis on attracting portfolio investment flows and “Other investments capital flows”, while investors and firms should consider the upside opportunities that may be created by increase in other investments capital flows and the downside risks that could result from a significant slowdown or a reversal in these forms of capital flows into the country.

**Keywords:** *Capital flows, Economic growth, FDI flows, portfolio investment flows, Private equity, Diaspora remittances, Auto Regressive Distributed Lag Model.*

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## Introduction

According to International Monetary Fund paper authored by Barajas, Chami, Fullenkamp, Gapen and Montiel (2009), per capita income growth is primarily driven by economic performance. The international community has long recognized that developing countries need a substantial inflow of external resources in order to fill the savings and foreign exchange gaps associated with a rapid rate of capital accumulation and economic growth needed to overcome widespread poverty and to lift living standards to acceptable levels (UNCTAD, 2000). Among various developing regions, the need for external financing is nowhere more pressing than in Africa, particularly in sub-Saharan African countries like Kenya.

According to Adams (2005), over the past five years, cross-border capital flows into Africa have been driven up by both easy global monetary conditions and by the continent's own improved macroeconomic performance. Specifically, Kenya has attracted investment in a wide range of sectors including financial and manufacturing. Foreign investors target many sectors of the economy and the current infrastructure development is one of the major attractions. Due to the huge amounts of foreign cash entering the country in the form of FDI and portfolio investment flows (going into the capital market), the overall balance of payment is expected to be positive in the coming years. This study focuses on establishing the effects of capital flows on economic growth in Kenya.

Capital flows refer to the movement of money for the purpose of investment, trade or business production. According to Fratzscher (2011) capital flows occur within corporations in the form of investment capital and capital spending on operations and research and development. On a larger scale, governments' direct capital flows from tax receipts into programs and operations, and through trade with other nations and currencies as indicated by Glytsos (2005). Individual investors direct savings and investment capital into securities like stocks, bonds and mutual funds. Capital flows that are driven by push factors, including international interest rates, may be heavily influenced by business cycles in advanced economies (Calvo, Leiderman, and Reinhart, 2008).

Fratzcher (2011) employed a factor model coupled with a dataset of high-frequency portfolio capital flows to 50 economies (capital flows, push versus pull factors and the global

financial crisis).Fratzscher (2011) found that common shocks – key crisis events as well as changes to global liquidity and risk – have exerted a large effect on capital flows.Ruiz-Arranz (2005) established that capital flows of developing countries as a whole have gone through three distinct phases since the mid-1970s. The period from 1975 to the early 1980s saw a rapid increase in total capital inflow mainly as a result of a surge in syndicated bank lending.Official financing was also sustained, even though its share in the total fell. This expansion came to an abrupt end in the early 1980s with the outbreak of the debt crisis when the share of private inflows in total inflows fell as a result of reduced bank lending.

Kirigia et al. (2006) and Oyelere (2007) found that while capital inflows provide additional financing for productive investment for enhanced economic growth, the capital flows could also exacerbate financial instability, especially if the capital flows do not support increased production and productivity but promote unbridled increase in import and consumption.According to Mougani(2012), barriers to the greater financial integration – one of the preconditions for successful monetary integration – remain high and include capital flow restrictions. The study will therefore seek to find out the effects of these capital flows on the economic growth in Kenya.

Many studies have been carried out to establish the relationship between capital flows and economic growth in various countries and regions. The role of capital inflows on economic growth has been controversial. Whereas some studies like Carkovic (2002), Durham (2003) and Prasad (2006) find that capital inflows have a negative relationship with economic growth, others like Vita and Kay (2009), Macias and Massa (2009) and Vihn (2010) find a positive relationship between capital inflows and economic growth. Bailliu (2000) showed that there is some problem of the explanatory variables. As a result of these mixed findings, there is a need to study and establish the effects (positive or negative) of the recent phenomenon of capital flows on economic growth in Kenya and establish how the capital flows have influenced economic growth in the country.

Despite the important role that capital flows may be playing in strengthening economic growth in Kenya and the effect a reversal in capital flow may have on economic growth in the country, there is limited up to date literature on the relationship between the recent capital inflows and economic growth in the country. This study is motivated by the fact that the 2009

global financial crisis followed by extremely accommodative monetary policies in developed countries, widespread trend of globalization and economic integrations have influenced capital flows, especially to African countries including Kenya. In addition, most of the available studies on the relationship between capital flows and economic growth have focused mainly on other countries or regions over the previous periods, thus requiring a more current and up-to-date study of these concepts in Kenya. Also, there is limited up-to-date literature on studies on the effect of the recent capital flows on the economic growth in Kenya capturing the recent surge in capital flows and this study will seek to fill this gap. Accordingly, there is a need to carry out a study to establish the effects of various forms capital flows and economic growth in Kenya.

### **Objectives of the Study**

The general objective of the study was to investigate the effects of the various forms of capital flows on economic growth in Kenya.

The study focused on the following specific objectives:

- i. To determine the effect of FDI flows on economic growth in Kenya.
- ii. To establish the effect of portfolio flows on economic growth in Kenya.
- iii. To establish the effect of other investments capital flows on economic growth in Kenya.

### **Methodology**

This paper adopted a quantitative research design in which case an econometric model was employed. Besides showing the statistical significance of the relationship between the selected form of capital flows and change in annual GDP, the econometric research method also identified whether the relationship is negative or positive. The reported coefficients estimated how a particular change in the explanatory variables affects the dependent variable. Such detailed empirical analysis was deemed critical for answering the research questions of this study, hence the major motivation for employing the methodology.

The study used available secondary data on FDI flows, portfolio flows and other investment flows as represented by corporate, financial institutions and general government borrowings as well as remittances from the diaspora. The study also used secondary data available regarding change in annual Gross Domestic Product GDP and net capital inflows of the

selected forms of capital flows. The secondary data was obtained from CBK, Institute of International Finance, International Monetary Fund (IMF), World Economic Outlook and World Investment Report and Fact books. The study was carried out over a 30 year period.

Time series capital flow data into the country included change in annual GDP in Kenya over the last 30 years from 1984 up to 2014, as well as data on FDI flows, portfolio flows and other investment flows for the same time horizon. The data used in this study were the annual time series at constant prices for Gross Domestic Product GDP and total net inflows for foreign direct investment portfolio flows and other investment flows.

### **Analytical Model**

The study used the autoregressive distributive lagged model to analyze the data. The descriptive statistical tool was used to describe the data while ARDLM was used to explain how current and present values affect GDP growth rate. This provided the generalization of the findings on the effects of capital flows on economic growth in Kenya.

The ARDLM model was given by:

$$\text{GDP}_t = \beta_0 + \beta_1 \text{GDP}_{t-1} + \beta_2 \ln \text{FDI}_t + \beta_3 \ln \text{FDI}_{t-1} + \beta_4 \ln \text{OIF}_t + \beta_5 \ln \text{OIF}_{t-1} + \beta_6 \ln \text{PIF}_t + \beta_7 \ln \text{PIF}_{t-1} + \varepsilon$$

(i)

Where;

$\text{GDP}_t$  = Economic growth indicator at time  $t$ ;

$\ln \text{FDI}_{t-1}$  = Foreign Direct Investment flows at time  $t$ ;

$\ln \text{OIF}_{t-1}$  = Other Investment flows at time  $t$ ;

$\ln \text{PIF}_{t-1}$  = Portfolio investment flows at time  $t$ .

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$  and  $\beta_7$  = Regression Coefficients

$\varepsilon$  = Error term.

### **Results and Discussion**

The descriptive statistics and the distribution of the variables covering mean value, minimum, maximum, normality (Jarque-Bera) and the standard deviation of GDP growth rate, natural log of foreign direct investments, natural log of other investments flows and natural log portfolio investment flows were analyzed and the result presented in table 3 below.

**Table 3: Descriptive Statistics**

	<b>GDP</b>	<b>LNFDI</b>	<b>LNOIF</b>	<b>LNPIF</b>
<b>Mean</b>	3.673871	21.29783	23.20096	21.16486
<b>Median</b>	4.073	21.07096	23.52018	21.20322
<b>Maximum</b>	8.406	25.22227	26.71121	26.51743
<b>Minimum</b>	-1.08	17.27498	17.9518	18.19754
<b>Std. Dev.</b>	2.446089	1.917318	2.310991	1.67118
<b>Skewness</b>	-0.298708	0.202174	-0.33739	0.909928
<b>Kurtosis</b>	2.285904	2.62307	2.445255	4.87766
<b>Jarque-Bera</b>	1.119667	0.3947	0.985617	8.831752
<b>Probability</b>	0.571304	0.820903	0.610908	0.012084
<b>Sum</b>	113.89	660.2327	719.2296	656.1106
<b>Sum Sq. Dev.</b>	179.5005	110.2833	160.2203	83.78524
<b>Observations</b>	31	31	31	31

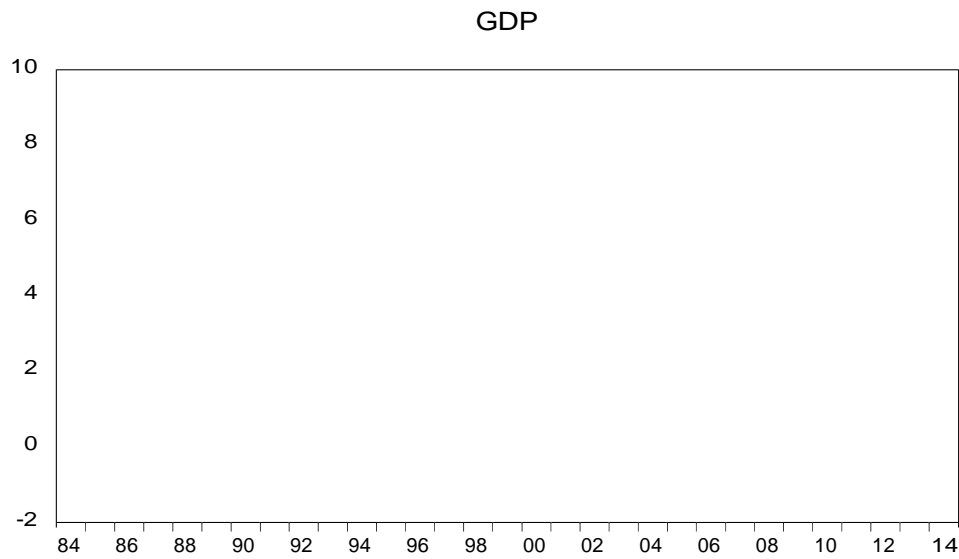
**Source: Research Findings**

From table 3, it is evident that the natural logarithms of all the variables are not dispersed significantly from their mean values as indicated by their relatively small standard deviation values. And on the average, GDP had a mean of 3.67 with a standard deviation of 2.446089.

The Jarque-Bera test, a statistical test that determines whether the series is normally distributed by measuring the difference of the skewness and the kurtosis of the series with those from the normal distribution, was used to test for normality. The Jarque-Bera statistic rejects the null hypothesis of normal distribution for portfolio investment flows. The null hypothesis of normal distribution is however accepted for the GDP, foreign direct investments and other investment flows at the 5% level of significance.

A trend analysis was conducted to detect the movements in the value of the variables over time and to analyze the causes of such movements. Figure 4.1 shows the movements in GDP over time, figure 4.2 shows the movements in FDI over time, figure 4.3 shows the movements in other investments flows over time and figure 4.4 shows the movements in portfolio investments flows from 1984 to 2014.

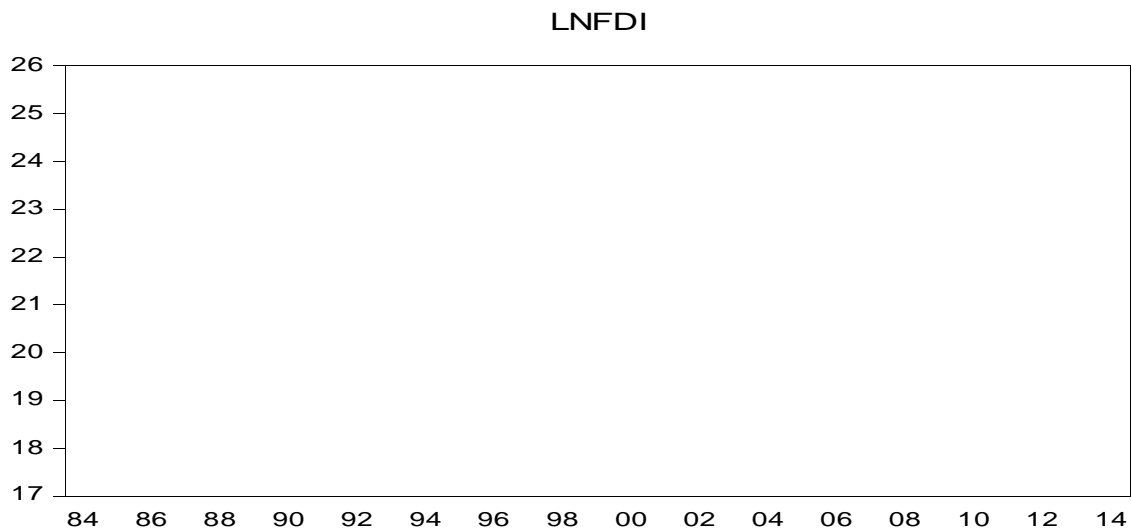
**Figure 2: Trends in GDP**



*Sources: Kenya Bureau of Statistic annual economic survey*

Figure 2 above shows that trends in GDP growth rate have been a mixture of high and low movements for the entire study period.

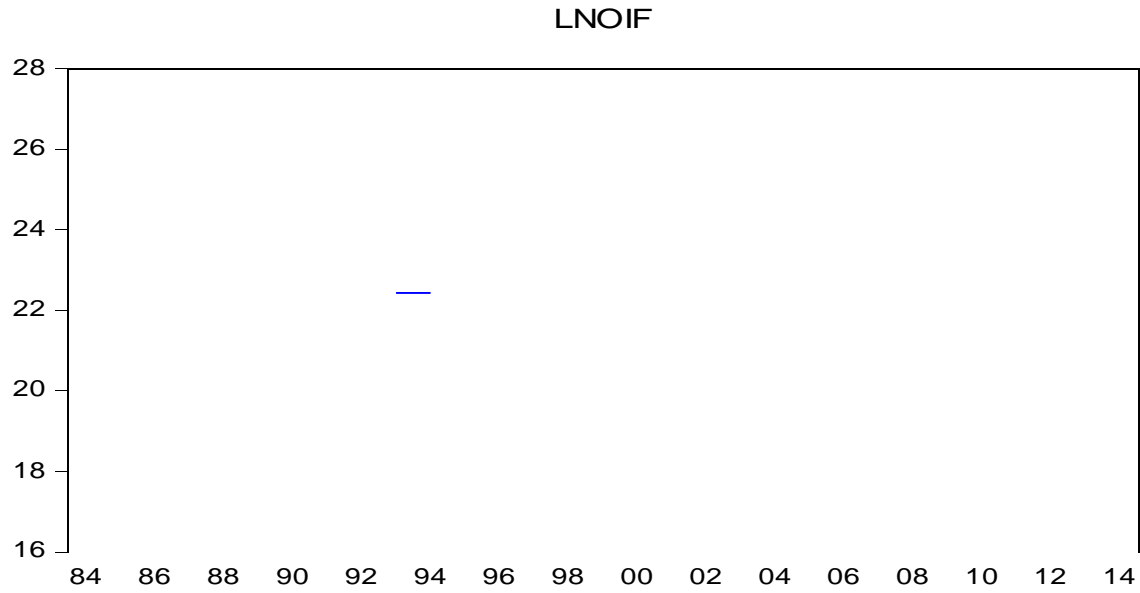
### **Figure 3: Trend in FDI**



*Sources: Kenya Bureau of Statistic annual economic survey*

Figure 3 shows that the value of the FDI has been increasing over time, declining sharply in mid 1988s, slightly in the mid-2000s and rising steadily since mid-2008 to 2014.

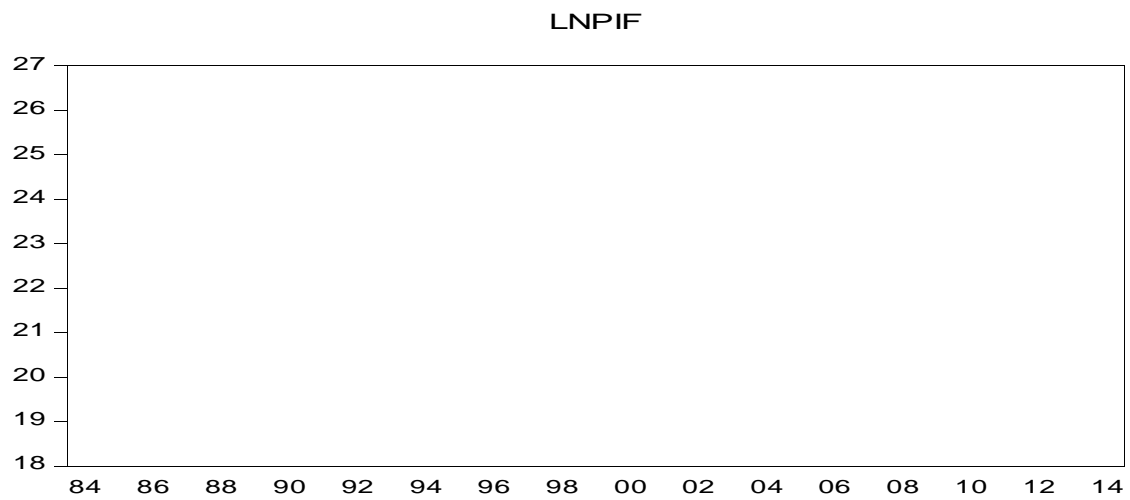
**Figure 4: Trend in Other investments Flows**



*Sources: Kenya Bureau of Statistic annual economic survey*

Other investments flows have had a general upward trend from 1992 – 2008 with a sharp decrease in 2010 and this is clearly depicted in figure 4 above.

**Figure 5: Trend in Portfolio investments Flows**



*Sources: Kenya Bureau of Statistic annual economic survey*



The above figure also depicts a mixture of high and low movements for portfolio investments flows with a sharp increase from 2012 to 2014.

### Correlation Analysis

The Pearson product-moment correlation coefficient is a measure of the strength of a linear association between two variables and is denoted by  $r$ . The Pearson correlation coefficient,  $r$ , can take a range of values from +1 to -1. A value of 0 indicates that there is no association between the two variables. A value greater than 0 indicates a positive association, that is, as the value of one variable increases so does the value of the other variable. A value less than 0 indicates a negative association, that is, as the value of one variable increases the value of the other variable decreases. Table 4 below gives a summary of the correlation between the dependent variable and the explanatory variables. The relationship between GDP growth rate and the natural log of foreign direct investment is weak but positive ( $R=0.229$ ). Portfolio investments flows has a very weak but positive association with the GDP growth rate ( $R=0.179$ ). Other investments flows also has a weak and positive relationship with GDP growth rate ( $R=0.269$ ).

**TABLE 4**  
**Correlation Analysis**

		GDP	lnDIF	lnPI	lnOI
GDP	Pearson Correlation	1			
lnDIF	Pearson Correlation	.229	1		
lnPIF	Pearson Correlation	.179	.548**	1	
lnOIF	Pearson Correlation	.269	.782**	.359*	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

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

### Autoregressive Distributed Lag Model (ARDM)

The study estimated the relationship between FDI flows and economic growth in Kenya in the context of the Autoregressive Distributed Lag Model. Before estimating the model, the optimal lag length of each variable in the model was determined in order to ensure that the model was well specified. The Akaike Information Criterion (AIC) and the Schwartz Bayesian Information Criterion (SBIC) were used to determine the optimal lag length and the long run estimates from the model are as shown in table 5

Table 5 below shows that FDI has a negative impact on the GDP growth rate and that its impact is not statistically significant at the 5% level of significance ( $p = 0.1014$ ,  $p > 0.05$ ). Also, portfolio investments flows have a negative and insignificant impact on the GDP growth rate. However, other investments flows has a positive impact on GDP growth rate and the impact is statistically significant at 5% level of significance ( $p = 0.0471$ ,  $p < 0.05$ ). This illustrates that one unit increase in other investments flow will result to 0.725744 unit increase in GDP growth rate.

**Table 5: Autoregressive distributive lagged model result**

Dependent Variable: D(GDP)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.841684	7.093579	0.118654	0.9067
LNFDI	-0.767030	0.447690	-1.713304	0.1014
LNOIF	0.725744	0.344110	2.109045	0.0471
LNPIF	-0.071566	0.344072	-0.207996	0.8372
D(GDP(-1))	-0.178727	0.195936	-0.912169	0.3720
D(LNFDI(-1))	-0.185023	0.332655	-0.556202	0.5840
D(LNOIF(-1))	0.619374	0.393258	1.574982	0.1302
D(LNPIF(-1))	0.770969	0.323736	2.381471	0.0268
R-squared	0.351266	Mean dependent var		0.041448
Adjusted R-squared	0.135021	S.D. dependent var		2.627910
S.E. of regression	2.444068	Akaike info criterion		4.854155
Sum squared resid	125.4428	Schwarz criterion		5.231340
Log likelihood	-62.38525	Hannan-Quinn criter.		4.972285
F-statistic	1.624391	Durbin-Watson stat		2.363184

Prob(F-statistic)	0.183216
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*Source: Own analysis using Eviews*

The above model describes the dynamic effects of changes of the explanatory variables upon current and future values of the GDP. Coefficient of determinant (R-squared) was established to be approximately 0.35 implying that 35.12% of the total variation in the dependent variable (GDP) is explained by the changes in the explanatory variables in the model (both present and past).

The first lags of GDP and FDI have negative signs and are statistically insignificant, while the first lags of other investments flows and portfolio investments flows both have positive signs, with portfolio investments flows having a statistically significant impact on the GDP. Therefore the lag of portfolio investments flows significantly impacts on GDP growth rate.

The above results also indicate that an increase in FDI by 1% will lead to an immediate decrease the GDP by approximately 0.76% and a decrease of approximately 0.18% after the first period. The results also indicates that an increase in other investment capital flows by 1% will lead to an immediate increase in GDP by approximately 0.73% and a further increase of approximately 0.62% after the first period. The study findings on the effect of FDI flows on economic growth are consistent with the findings of Prasad et. al. (2006) which emphasized the negative correlation between growth and capital flows in developing countries, and conclude that international capital flows may even hurt economic growth in poor countries.

The study findings on the effects of FDI on economic growth contradicts the findings of the International Capital Flows and economic growth study by IMF (2011) which found that inflows of foreign capital promotes growth and also found strong positive role of capital flows on economic growth where volatility threshold is low, but also found that capital flow is associated with slower growth where volatility is high. The study findings on the effect of portfolio and other investment capital flows on economic growth however collaborate the findings of the IMF (2011) study. The study findings also contradict the results of the study by Kennedy N. Ocharo, Nelson W. Wawire, Tabitha K. Ng'ang'a and George Kosimbei (2014) which established that there is a unidirectional causality from FDI as a ratio of GDP to economic growth.

## Conclusions

The objective of this study was to investigate the effects of the various forms of capital flows on economic growth in Kenya as indicated by change in GDP. The study investigated the effects of FDI flows, portfolio flows and “Other investments capital flows” (which mainly represent corporate, financial institutions and general government borrowings as well as remittances from the diaspora) on the economic growth in Kenya over a period of 30 years. The study used secondary data on FDI flows, portfolio flows and other investments capital flows into Kenya over a 30 years period from 1984 to 2014 which was the period of analysis. The secondary data was sourced from the Kenya Bureau of Statistic annual economic surveys as well as economic growth data published by the IMF.

The findings indicated that FDI flow has a negative impact on the GDP growth rate and that its impact is not statistically significant at the 5% level of significance. Also, portfolio investments flows have a negative and insignificant impact on the GDP growth rate. However, other investments flows have a positive impact on GDP growth rate and the impact is statistically significant, with a 1% increase in other investment capital flows leading to an immediate increase in GDP by approximately 0.73% and a further increase of approximately 0.62% after the first period. The first lags of GDP and FDI have negatively impact on GDP growth rate and were also found to be statistically insignificant, while the first lags of other investments flows and portfolio investments flows both had positive impact, with portfolio investments flows having a statistically significant impact on the GDP growth rate. Therefore the lag of portfolio investments flows significantly impacts on GDP growth rate.

The results also indicated that an increase in FDI by 1% will lead to an immediate decrease in GDP by approximately 0.76% and a decrease of approximately 0.18% after the first period.

However, the study results indicated that a 1% increase in portfolio investment flows will immediately decrease the GDP by approximately 0.07% and then increase it by about 0.77% after the first period. These findings are consistent with the findings of Prasad et. al. (2006) which emphasized the negative correlation between economic growth and capital flows in developing countries, and concluded that international capital flows may even hurt economic growth in poor countries. However, the study results contradict the findings of the International Capital Flows and economic growth study by IMF (2011) that found that inflow of foreign capital promotes growth and found a strong positive role of capital flows on

economic growth where volatility threshold is low, but also found that capital flow is associated with slower growth where volatility is high. The study findings also contradict the results of the study by Kennedy N. Ocharo, Nelson W. Wawire, Tabitha K. Ng'ang'a and George Kosimbei (2014) which established that there is a unidirectional causality from FDI as a ratio of GDP to economic growth.

Based on the study findings, it can be inferred that a significant slowdown or a reversal in capital flows in form of "Other investments capital flows" which mainly represents corporate, financial institutions and general government borrowings as well as remittances from the diaspora into Kenya could result in significant slowdown in economic growth in the country. On the other hand, the findings from the study indicate that a slowdown FDI and portfolio capital flows would not affect GDP growth negatively.

### **Recommendations**

Policy makers may therefore lay much emphasis on attracting portfolio flows and "Other investments capital flows". Investors as well as firms should also consider the upside opportunities that may be created by increase in other investments capital flows and the downside risks that could result from a significant slowdown or a reversal in these forms of capital flows into the country.

### **Recommendations for further study**

Further study may need to be done in order to establish whether it is the various forms of capital inflows that promote economic growth or it is economic growth that attracts these forms of capital inflows in Kenya. Even when growth and capital flows are positively correlated, possibility exists that economic growth attracts capital flows and the resulting capital flows enhances growth further meaning that these variables have a mutually reinforcing relationship.

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