

**IMPACT OF CAPITAL FLIGHT ON PRIVATE INVESTMENT IN KENYA**

**By**

**Charles Gachoki**

**X50/68829/2013**

**A research paper submitted to the school of Economics, University of Nairobi, in partial  
fulfillment of the requirements for the award of the degree of Masters of Arts in  
Economics**

**September 2016**

## **DECLARATION**

**I declare that this paper is my original work and has not been submitted for the award of a degree in any other university or institution.**

**CHARLES GACHOKI**

**SIGNATURE:.....**

**DATE:.....**

**This paper is submitted for the award of the degree of Master of Arts in Economics with my approval as the university supervisor.**

**DR. OWEN NYANG'ORO**

**SIGNATURE:.....**

**DATE:.....**

## **ACKNOWLEDGEMENTS**

I would first of all like to thank God for granting me good health and faith during my Masters studies. I am also grateful to my project supervisor, Dr. Owen Nyang'oro for the time and effort he took in reviewing my work and giving constructive suggestions.

I would also like to appreciate the intellectual contributions of the following persons on my paper: Dr. Anthony Wambugu (U.O.N), Dr. Bethwel Kinyanjui (U.O.N), Socrates Majune (U.O.N), Martin Musau (USIU) and all participants of the School of Economics seminar at the University of Nairobi held on 2nd October 2015.

## **DEDICATION**

This project is dedicated to my parents Mr. and Mrs. Gachoki. It is also dedicated to my uncle Mr. Nyaga Kaboi for the inspiration and support he has offered me so far.

## **LIST OF ABBREVIATIONS**

<b>ADF</b>	<b>Augmented Dickey Fuller</b>
<b>AU</b>	<b>African Union</b>
<b>CBK</b>	<b>Central Bank of Kenya</b>
<b>COMESA</b>	<b>Common Market for Eastern and Southern Africa</b>
<b>EAC</b>	<b>East African Community</b>
<b>FDI</b>	<b>Foreign Direct Investment</b>
<b>GDP</b>	<b>Gross Domestic Product</b>
<b>IMF</b>	<b>International Monetary Fund</b>
<b>KBRR</b>	<b>Kenya Bankers Reference Rate</b>
<b>KNBS</b>	<b>Kenya National Bureau of Statistics</b>
<b>PP</b>	<b>Phillips Perron</b>
<b>SSA</b>	<b>Sub Saharan Africa</b>
<b>TOT</b>	<b>Terms of Trade</b>
<b>USD</b>	<b>United States Dollar</b>
<b>VAT</b>	<b>Value Added Tax</b>

## OPERATIONAL DEFINITION OF TERMS

**Private investment** means total value of capital assets plus investments in inventories.

**Capital flight** is the unrecorded capital outflows by residents of a country.

**Real interest rate** is interest rate that has been adjusted and effects of inflation are removed hence the real cost of funds to the borrower is reflected.

**External debt** is the amount of disbursed and outstanding contractual obligations of residents of a country to non-residents.

## **ABSTRACT**

Private investment is the engine of growth in an economy. It is a major source of employment besides positively contributing to national output. Conversely, when capital flight occurs, domestic private savings and resource mobilization is undermined and thus brings about a decline in private investment. This study examines the impact of capital flight on private investment in Kenya. The study offers a summary of why private investment in Kenya is undermined by capital flight due to the resource gap which it creates. Further, it develops an equation to estimate investment which is derived from the flexible accelerator theory of investment. To examine the relationship between capital flight and private investment, time series data from 1970 to 2012 is employed and OLS regression analysis is used. The study found that capital flight has an adverse effect on private investment. Econometric results of this study support the existence of a negative relationship between capital flight and private investments. The study shows that real interest rate, ratio of private credit to GDP, change in terms of trade and external debt also affects private investment.

## TABLE OF CONTENTS

DECLARATION .....	ii
ACKNOWLEDGEMENTS .....	iii
DEDICATION .....	iv
LIST OF ABBREVIATIONS .....	v
OPERATIONAL DEFINITION OF TERMS .....	vi
ABSTRACT .....	vii
LIST OF FIGURES .....	x
LIST OF TABLES .....	xi
CHAPTER ONE .....	1
1.1 Introduction.....	1
1.2 Background to the study .....	2
1.3 Problem Statement .....	6
1.4 Research questions .....	6
1.5 Objectives of the study .....	6
1.6 Justification of the study .....	6
1.7 Contribution of the study .....	7
1.8 Organization of the study.....	7
CHAPTER TWO .....	8
2.0 LITERATURE REVIEW .....	8
2.1 Introduction.....	8
2.2 Theoretical literature .....	8
2.3 Methods of measuring capital flight.....	10
2.4 Capital flight and Private Investment.....	12
2.5 Empirical Literature review .....	13
2.6 Overview of literature.....	16
CHAPTER THREE.....	18
3.0 METHODOLOGY .....	18
3.1 Introduction.....	18
3.2 Theoretical framework .....	18
3.3 Empirical model .....	20
3.4 Description of variables and the expected sign.....	21
3.5 Tests.....	22
3.6 Data sources and type.....	23
CHAPTER FOUR.....	24
4.0 DATA ANALYSIS AND RESULTS .....	24
4.1 Introduction.....	24

4.2 Summary statistics.....	24
4.3 Diagnostic Tests .....	25
4.3.1 Tests for Stationarity.....	25
4.3.2 Test of Multicollinearity .....	27
4.3.3 Autocorrelation.....	27
4.3.4 Heteroscedasticity.....	28
4.3.5 Model specification.....	29
4.4 Relationship between capital flight and private investment.....	29
4.4.1 Test of correlation of the variables .....	29
4.4.2 Test of effect of capital flight on private investment.....	30
CHAPTER FIVE .....	34
5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	34
5.1 Introduction.....	34
5.2 Findings of the study .....	34
5.3 Conclusions of the study.....	35
5.4 Policy Recommendations .....	36
5.4.1 Improve external debt management.....	36
5.4.2 Policy measures to lower capital flight.....	37
5.4.3 Promote home biased investment.....	37
5.3.4 Financial flows regulations reforms .....	37
5.5 Limitations of the Study .....	37
5.6 Suggestions for further areas of research.....	38
References .....	39

## LIST OF FIGURES

Figure 1. 1 Trend of Capital Flight and Private Investment in Kenya, 1970 - 2012 (USD).....	2
Figure 1. 2 Current account balance for Kenya 2005-2011 (billion USD).....	4

## LIST OF TABLES

Table 1.2 Selected Macroeconomic Indicators in Kenya 1982-2011 .....	4
Table 4.1 Summary descriptive statistics .....	24
Table 4.2 Stationarity test.....	26
Table 4.3 Unit root test at 1st differencing variables.....	26
Table 4.4 Test of Multicollinearity.....	27
Table 4.5 Heteroscedasticity.....	299
Table 4.6 Ramsey RESET test results.....	29
Table 4.7 Correlation of the variables.....	30
Table 4.8 Regression results.....	30



# CHAPTER ONE

## 1.1 Introduction

Investment is one of the leading factors that promote economic growth and development in developing countries like Kenya. Long-term solutions to poverty and unemployment may be reached through investment. Conversely, capital flight shrinks the available capital for investment purpose in the economy therefore lowering investment. Deprivation of capital in Africa through capital flight has witnessed increasing attention from policy makers and researchers including Ajayi (1997), Boyce and Ndikumana (2012), and Yalta (2010) among others. The striking paradox is that despite having massive capital inflows, the continent ranks high in capital flight. This study focuses on how capital flight affects private investment in Kenya.

Investors from developed economies responding to investment prospects in less developed economies are said to be foreign direct investors (FDI) while counterparts in under developed economies are said to contribute to capital flight (Ajayi, 1997). For this reason, a general definition of the term capital flight in economics does not exist. This is due to lack of a precise and acceptable measurement and definition of capital flight. Several definitions of have led to different measures<sup>1</sup> of capital flight. Amongst the different definitions and measures, World Bank's residual method which differentiates between recorded sources of funds and recorded uses of funds has received more attention in literature (Gusarova, 2009). In this study, capital flight is taken to be a negative flow and for the purpose of the study we defined as unrecorded capital outflows by the residents of a developing country (Yalta, 2010).

---

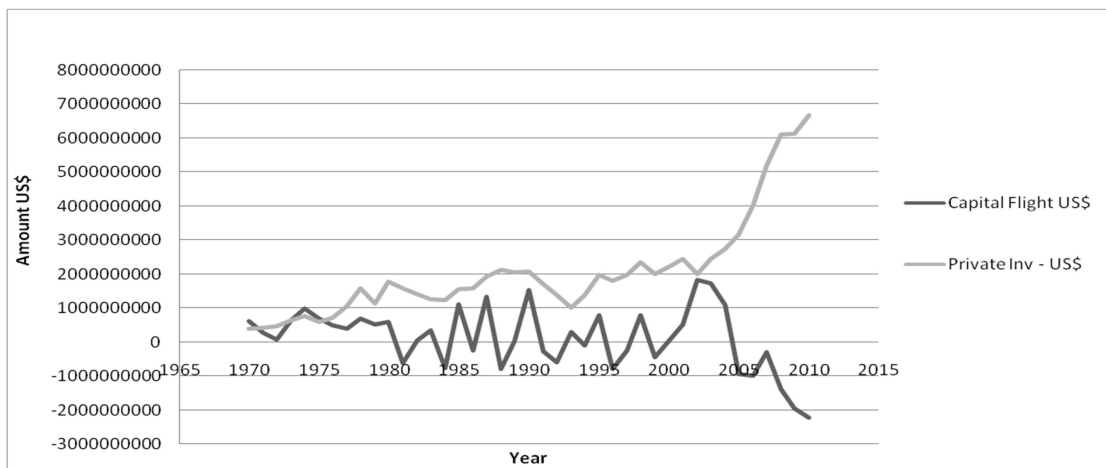
<sup>1</sup> Different measures of capital flight are discussed in chapter two

## 1.2 Background to the study

Over the years Kenya has witnessed inconsistent private investment<sup>2</sup> as shown on figure 1.1. Immediately after independence in 1963, the country witnessed remarkable growth in private investment which was motivated by government policy<sup>3</sup> on investment. Global economic crisis prevailing between 1971 and 1977, debt crisis and collapse of economic integration of East African countries in 1977 led to a decline in private investment (Njuru *et al.*, 2013). From 1994 to 1996 the economy exhibited some improvement in real GDP growth and then slumped between 1997 and 1999 (World Bank, 2011).

Political instability in the early 1990's led to a decline in private investment. Positive trends were then experienced between 2002 and 2004. This did not last for long due to political wrangles in government. A major setback to investment was post poll violence in 2007/08 that caused a decline in investor confidence and slowed down economic growth (Njuru *et al.*, 2013).

**Figure 1.1 Trend of Capital Flight and Private Investment in Kenya, 1970 - 2012 (USD)**



Source: World Bank's Global Development Indicators Database 2015

<sup>2</sup>Private investment includes private sector, nonprofit agencies residents of a country and fixed domestic assets.  
<sup>3</sup>Government policies include Sessional Paper No.10 of 1965 which prescribed policies to speed up capital accumulation in the Kenya (Republic of Kenya, 1965).

In Sub-Saharan Africa (SSA) region, it is estimated that USD814 billion left the region between 1970 and 2010. That exceeded the total aid which was estimated at USD659 billion and also was greater than two and a half times the foreign direct investment (FDI) at USD306 billion received between 1970 and 2010. The study further shows Kenya has lost USD4.9 billion in capital (Figure 1.1) over the same period, despite having been among the region's top five economies (Boyce & Ndikumana, 2012).

The trend of capital flight and private investment can partially be explained by different political regimes, policies and election cycles in Kenya (Figure 1.1). Capital flight worsened the challenges facing Kenya and increased the political and macroeconomic risk. This may have resulted to an increase in external borrowing by the government and further lowered private investment (Ndikumana & Boyce, 2003). Secondly, since interest rates have been quite high between 1970 and 2012, this has resulted in private investments being low. Due to inability of the government to previously put stringent controls on financial institutions, the country has lost reserves from the CBK for instance through the Goldenberg and Anglo leasing scams (Kinuthia, 2015).

Between 1970 and 2002, private investment and capital flight exhibited an inconsistent trend. However, a significant decline in capital flight and a substantial increase in private investment were witnessed from the year 2003 onwards. This may be attributed to change in government policies and increased confidence by both local and foreign investors following the election of new government. This trend has been maintained onwards save for a slight fluctuation in both capital flight and private investment due to the post-election violence witnessed between 2007 and 2008.

Since Kenya gained independence, she has enjoyed good international ties with the western countries particularly the United States and United Kingdom and recently China. Kenya is a

member of numerous regional trade alliances, such as the East African Community, the Common Market for Eastern and Southern Africa and the Tripartite Free Trade Area. These trade and economic blocs are key in boosting Kenya's trade volumes. On average, the trade balance and current account balance for Kenya has been widening (Table 1.1). Imports have continuously outdone exports and hence worsening the trade balance.

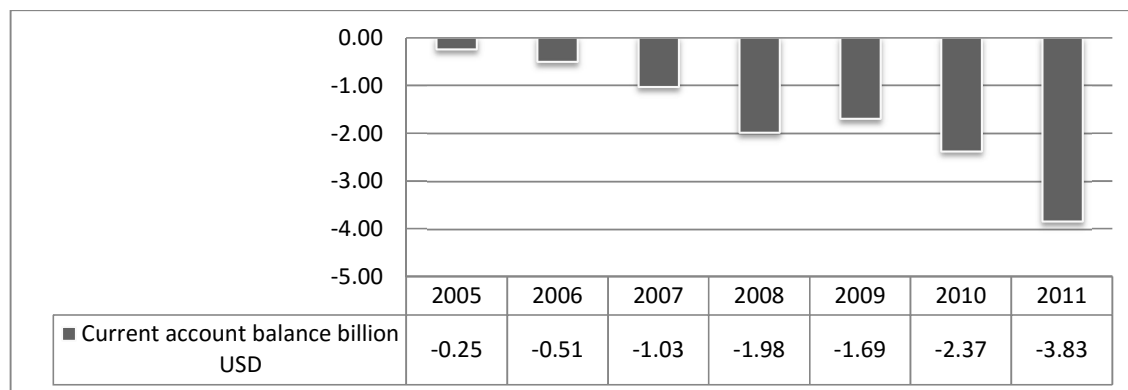
**Table 1.1 Selected Macroeconomic Indicators in Kenya 1982-2011**

Macroeconomic Indicator/Year	1982-1986*	1987-1991*	1992-1996*	1997-2001*	2002-2006*	2007	2008	2009	2010	2011	2012	2013	2014
Economic growth	3.21	4.49	2.15	2.09	4.16	6.99	0.23	3.31	8.41	6.12	4.55	5.69	5.33
Exports of goods and services (billion USD)	1.67	1.98	2.61	2.85	4.48	7.00	8.14	7.42	8.26	9.07	9.99	10.00	103.91
External debt % of Gross National Income	62.44	80.52	93.22	48.55	40.50	27.77	25.01	28.12	27.47	30.59	23.39	25.00	26.69
Gross Domestic Product (billion USD)	6.40	8.27	8.44	13.16	17.74	31.96	35.90	37.02	40.00	41.95	50.41	55.10	61.40
Imports of goods and services (billion USD)	1.94	2.39	2.80	4.00	5.76	10.22	12.53	11.41	13.43	16.29	17.85	18.26	21.00
Inflation	11.58	14.52	22.50	7.90	9.64	9.80	26.20	9.20	4.00	14.00	9.38	5.72	6.88
Real interest rate	4.02	7.22	6.34	17.71	6.33	4.96	-0.98	2.84	12.03	3.84	9.45	11.34	7.89
Terms of trade (Base yr -2000)	81.64	77.43	99.05	103.42	89.88	84.74	84.31	94.25	92.32	95.21	92.00	92.03	87.82
											*5 year averages		

Source: Author computation using data from World Bank's Global Development Indicators Database 2015

Key exports for Kenya are primary goods and services which include; tea, coffee, flowers, horticultural products and tourism. These goods are majorly unprocessed. Due to the low prices of exports, increase in aggregate demand is restricted. In contrast, Kenya's imports include electronics, machinery, motor vehicles and petroleum products which are more expensive than exports. The result of this is reduction in aggregate demand hence negative trade and current account balance (figure 1.2).

**Figure 1.2 Current account balance for Kenya 2005-2011 (billion USD)**



Source: Kenya National Bureau of Statistics 2015

Economic growth rate trend for Kenya has been unstable as per table 1.1. The country's least growth rate of -7.8 per cent was experienced in 1961. Conversely, the highest growth rate of 22.2 per cent was witnessed in 1971. World Bank (2015) reported that Kenya's economy grew by 5.4 per cent in 2014 and 5.6 per cent in 2015. In addition, the economy is ranked top by growth in East Africa and in Africa, it's a key growth center. After the GDP rebasing in September 2014, Kenya's economy became a lower middle income country and her economy became 25 per cent larger than earlier estimated (World Bank, 2015).

Real interest rate for Kenya has varied considerably from year to year as shown in table 1.1. Due to increased globalization of financial markets, the real interest rates on long term bonds in Kenya are driven by market forces and government policy. Although inflation, economic growth and debt level have been inconsistent (table 1.1), the government of Kenya has put in policy measures to ensure long-term sustainability of public debt, enhance financial access, encourage economic growth and ensure low and stable inflation (World Bank, 2015).

Kenya's public debt has increased substantially between 2012 and 2016 to Ksh.3.3 trillion as at June 2016. This is attributed heavy government borrowing to fund massive infrastructure projects. Public debt stood at 47.9 per cent of GDP as at June 2016, 2.9 per cent above the legal prescribed threshold. This has raised sustainability and liquidity concern on the future debt burden and ability to repay. Increasing concerns on sustainability have been raised by both local and international stakeholders including the World Bank and IMF and increasing concern on use of tax revenues to service debt which may cause a funding crisis for government. There is therefore need for the government to lower public borrowing and fast track the debt financed projects to ensure they generate enough revenue to repay the loan.

### **1.3 Problem Statement**

In the last four decades capital flight in Sub-Saharan Africa (SSA) has been growing. For instance a study by Boyce and Ndikumana (2012) estimated that Kenya lost 8.3 per cent of government revenue to trade misinvoicing by multinational corporations. Additionally, Kenya lost USD4.9 billion in capital between 1970 and 2010 (Boyce & Ndikumana, 2012). Lastly, Kenya lost USD1.5 billion from 2002 to 2011 to trade misinvoicing (AU, 2015). Increase in capital flight reduces funds available for investment, causes an increase in cost of funds due to scarcity and consequently reduces private investment. Private investment is recognized as a pillar for realizing sustainable economic growth in Kenya (Njuru *et al.*, 2013). To that end, capital flight constitutes a problem and if it is not addressed, it will slow down saving, investment and economic growth of Kenya.

### **1.4 Research questions**

- I. What is the relationship between capital flight and private investment in Kenya?
- II. Which policies address the problem of capital flight and encourage private investment in Kenya?

### **1.5 Objectives of the study**

The general objective of this study is to investigate the impact of capital flight on private investment in Kenya. The specific objectives are to:

- I. Determine the relationship between capital flight and private investment in Kenya.
- II. To draw up policy recommendations that address the problem of capital flight and encourage private investment in Kenya based on the findings of the study.

### **1.6 Justification of the study**

Attention is required regarding the problem of capital flight from Kenya given the current economic challenges facing the country including large fiscal deficit, current account deficit

and high debt position among others. If capital flight problem is addressed, savings, investment, and government revenue will increase. On the other hand, current account deficit, debt and balance of payment deficit will reduce. In addition, positive macroeconomic environment will attract investors and this will contribute towards achieving development targets including vision 2030<sup>4</sup> and sustainable development goals. The study is therefore important in order to put in place policies to address capital flight problem.

### **1.7 Contribution of the study**

This study contributes to literature by investigating the trends of private investment and capital flight in Kenya, shows how the latter affects private investment using more updated data (1970-2012) and suggest policy measures to address capital flight. The understanding of this phenomenon is important to policy makers, researchers and students.

### **1.8 Organization of the study**

The following section of this paper presents the literature review which includes theoretical and empirical review on private investment and capital flight. In addition, an overview of the existing literature on and related to capital flight is presented. Chapter three of the study presents the research methodology while data analysis and results are presented in chapter four. Lastly, the summary, conclusions and recommendations are in chapter five.

---

<sup>4</sup>Vision 2030 is the Kenya's development programme covering the period 2008 to 2030

## CHAPTER TWO

### 2.0 LITERATURE REVIEW

#### 2.1 Introduction

Theoretical and empirical literature on private investment and capital flight are reviewed in this chapter. The first section reviews theoretical literature on private investment and capital flight. The subsequent section reviews the previous empirical studies on capital flight and private investment. The final section deals with an overview of the empirical literature.

#### 2.2 Theoretical literature

Several approaches explaining investment have been put forward. These include the simple accelerator theory, flexible accelerator model or neoclassical theory and Tobin's Q model. We begin with the simple accelerator theory. This model assumes a constant capital-output ratio for firms' and that to maintain a given level of output, capital stock (K) is necessary (Clark, 1917). The relationship is proportional to output (Y) and hence there exist a proportional change in investment to the desired output. This relationship can be presented as below;

$$K_t - K_{t-1} = I_t = k\Delta Y_t \quad (1)$$

Where;  $K_t$  is capital stock for period t,  $K_{t-1}$  is previous time period capital stock,  $I_t$  represents net investment in period t,  $k$  is the desired capital-output ratio and  $Y_t$  represents output for period t. The main weakness in this theory is that it assumes that the desired capital output ratio is constant. This is not true because it fluctuates with changes in technology and cost of capital. Secondly, the model assumes that a firm will respond to changes in demand maintain sufficient investment level at all times and keep the desired stock of capital and actual capital stock equal. This is not necessarily true.

Flexible accelerator theory or partial adjustment model of investment was suggested by Lucas (1967). The theory postulates a constant proportion of adjustment towards the desired level.

This model further assumes investment rate of a firm is determined by the gap between the desired capital stock ( $K^*$ ) and existing capital stock ( $K$ ). As a result, firms plan to close the capital stock gap. The equation for net investment is as below:

$$I_t = K_t - K_{t-1} = \delta(K_t^* - K_{t-1}) \quad (2)$$

Where  $I_t$  denotes investment at time  $t$ ,  $K_t$  denotes the actual capital level at time  $t$ ,  $K_t^*$  represents the desired capital stock by local firms at time  $t$ ;  $K_{t-1}$  denotes the previous time's stock of capital and  $\delta$  denotes adjustment coefficient.

Investment in less developed countries depends on public investment, GDP, urban population, bank credit, trade openness, foreign direct investment, government institutions vector (democracy and bureaucracy)<sup>5</sup> and others (Hall and Jorgensen, 1967). Thus we can specify an investment model in a function form as:

$$I = f(\text{credit, Pub, Urban, trade, FDI, Govern}) \quad (3)$$

Where  $I$  represent investment, credit represents bank credit, Pub is public investment, urban is urban population, trade represents trade openness, FDI denotes foreign direct investment and Govern represents a vector of government institutions (bureaucracy and democracy).

The liquidity theory proposes that fluctuations in profits earned causes fluctuations in investment (Tinbergen, 1939). The theory further argues that profits earned are used to predict expected profits. Moreover, the level of investment is constrained by availability of funds. The firm may opt to source for funds externally to finance its investment where internal sources of funds are exhausted (Mbaye, 2012).

---

<sup>5</sup> Democracy and bureaucracy

Tobin's  $q$  model which was developed by Tobin (1969) is the next theory. The theory maintains that firms' investment level is determined by the ratio of the present value of installed capital to the replacement cost of capital. This ratio is what is known as Tobin's  $q$ . A firm will raise its capital if this ratio ( $q$ ) is larger than 1 and consequently decrease its capital stock if  $q$  is less than 1. The replacement cost of capital of the firm will be a dollar cost of capital and the firm will make profits more than a dollar at present value if the ratio  $q$  is bigger than 1. By investing more and more capital, firms will reap profits *ceteris paribus* and therefore the level of investment will be high. Consequently, if  $q$  is less than 1, by investing in new capital the present value of profits earned are not as much as the cost of the capital therefore, when  $q$  is less than 1 levels of investment will be close to zero. This model can be written as below:

$$q = \left( \frac{\delta}{\lambda} \right) \quad (4)$$

where;  $\delta$  is the firm's stock market value and  $\lambda$  is the price of capital.

Given the foregoing discussion on the above theories, flexible accelerator theory is and remains the most prevalent investment model and is easily applied in less developed countries like Kenya. Reason being data on fundamental variables like depreciation and stock of capital are not easily available in less developed countries (Mutenyo *et al.*, 2010).

### **2.3 Methods of measuring capital flight**

There are numerous explanations of capital flight in economic literature and therefore there exist no common agreement on which approach to use in measurement of capital flight. To that end, there is a range of approaches to measurements of capital flight. The definition adopted for capital flight determines the measurement used. Numerous explanations of capital flight have been advanced. Consequently, several measures of capital flight are found

in economic works, these include; balance of payments/ residual, hot money and dooley method (Mullineux & Murinde 2003).

The first method is balance of payments (BoP) method. This approach attempts to match the capital inflows sources in foreign investment and external debt with their uses. The variance is known as capital flight. The method is also known as residual and is generally used in economic literature. The method recognizes key difficulties in unraveling capital flight and normal/ordinary outflows (Mullineux & Murinde, 2003).

The second method was advanced by Dooley (1994). Dooley method focuses on determining illegal capital outflows from a country. The method contends that capital flight and illegal outflows are majorly driven by need to put monies outside the local resident authorities' control. Dooley method considers all leakages that are non interest receiving as illegal and concludes that the surplus of outflows over registered stock on external assets is capital flight (Lawanson, 2007).

The other measure of capital flight is the hot money. This theory argues the short term disparities in financial markets (both domestic and international) are the key causes of capital outflow. Capital outflow goes unrecorded because of the illegal nature. Net errors and omissions are included to explain the short term capital flows which are not captured (Lawanson, 2007).

The rational idea advanced by Weeks (2015) is that capital flight occurs either for the purpose of evading seizure, or in pursuit of greater earnings, or to avoid taxation. Capital flight results to anti-social activities which are classified as illegal in many countries. Consequently, capital flows needs the control and guideline of cross-country flows.

Regulating capital flow and reducing capital flight is equivalent to regulating normal market transactions enforcing trading laws that prevent fraud (Weeks, 2015).

For the purpose of this study we use the residual method. This is because first it is most popular method used in measuring capital flight in developing countries. Secondly, dooley method is too broad and is believed to overestimate a real magnitude of the capital flight phenomenon while hot money method allows only for short-term capital movements to be considered as capital flight (Hermes *et al.*, 2002).

#### **2.4 Capital flight and Private Investment**

Keynesians recognized capital flight phenomenon as a danger posed by an open economy, and argue that it is impossible to achieve full employment in a country if the capital flows freely among countries. Keynesians assume that in order to control international capital movements the country's central bank needs to monopolize its supply of foreign exchange movement and control (Barro, 2009).

Keynesians believe that governments are justified to stimulate economic growth through the use of deficit causing fiscal policy. The theory assumes that interest rate sensitivity of investment is low and the economy is not at full employment. In such a situation increased government spending causes minimal increase in the interest rate whilst increasing output and income (Ghura & Goodwin, 2000). One of the positive effects of government spending is that it increases private investment due to the investors' expectations. This is based on the principle of the multiplier where a change in government expenditure induces a greater change in output. Barro (2009) illustrates this point by explaining that a rise in aggregate demand causes to increased output in the Keynesian model, that entails more real income, hence a further increase in aggregate demand.

## **2.5 Empirical Literature review**

Several empirical studies have emerged on investment and capital flight. Oyieke (2011) studied the correlation between private investment financing and public investment for Kenya using time series data from 1964 - 2006. The findings of the study were that local debt causes a significant negative effect on investment. Whereas, agricultural investment has a positive and significant effect on private investment. Other factors significant include; real exchange rate, depreciation, Investment in infrastructure Political risk, and tax (Oyieke, 2011).

While studying factors that determine private investment using Autoregressive Distributed Lag (ARDL) model, Kingori (2015) established that in the long run real GDP and trade openness were the core factors affecting private investment while in the short run, real GDP is an important variable in explaining disparities in private investment. Trade openness was non significant, inflation which was found to be significant (Kingori, 2015).

Blejer and Khan (1984) analyzed factors that determine investment for 24 less developed countries. The study found that if policy makers adopt tight monetary policy, private investment would be adversely affected. Additionally, private investment in less developed countries is constrained by private sector flow of credit and the availability of financing. Similarly, Fofack, and Ndikumana (2014) using data for the period 1970 to 2010 for 39 African countries, examined the interactions between capital flight and monetary policy in Africa. The study found that both domestic interest rate and interest rate differential with the rest of the world has an impact on capital flight. Further, capital flight affects monetary policy targets negatively.

Using panel data, Ghura and Goodwin (2000) investigates factors affecting private investment in developing countries. The findings were that real GDP growth is insignificant in

determination of private investment in developing countries. This contradicts Altaieb and Alokor (2012) who analyzed the trends and determinants of investments for the period 1980-2010 in Jordan. The study concludes that private investments are significantly determined by exports and GDP.

There exists a mixed impact of Gross Domestic Product on private investment as established by Oshikoya (1994). This is because the relationship between private investment and GDP in African countries is positive since slow economic growth discourages private investment. The outcome is in line with studies by Blejer and Khan (1984), Serven and Solimano (1992) who found that gross domestic product is the most important determinant of private investment.

Using structural vector auto-regressions modeling techniques and time series data from 1965 to 2007, Karumba (2009) looked at factors affecting private investment in Kenya. The study established that the impact of shocks to tax administration override those of liberalization policies. Tax policy may promote or discourage private investment though other factors like government bureaucracy and corruption hinder private investment in many developing countries (Ghura & Goodwin 2000).

Domestic investments are negatively affected by capital flight (Ndiaye 2011). Using ordinary least squares method and generalized method of moment using data from Franc Zone countries; Ndiaye (2011) found that an increase in one dollar of capital flight lowers domestic investment by 4.5 cents. The study suggests that repatriation of capital flight back to the country of origin will boost domestic investment.

Examining the effect of public investment on private investment in developing economies, Kehinde *et. al* (2012) established that public investment crowds in private investment. For instance a growth in public investment by ten per cent, private investment will rise by two per cent. Additionally, bank credit availability remains a major limitation to private investment in developing countries.

A research by Mbaye (2012) on factors influencing domestic private investment in Kenya using data covering 1970-2010 established that there is a negative and significant influence on private investments. Conversely, real public debt, inflation, public investment, deposit rates, financial liberalization and foreign exchange reserves have a negative and insignificant impact on private investments. Similarly, Njuru *et. al* (2013) looked at the impact of taxation on private investment from 1964 to 2010. The results concluded that value added tax (VAT) and income tax have an adverse effect on private investment (Njuru *et. al* 2013).

Weeks (2015) examining the impact of Capital Flight in Sub Saharan Africa for the period 1970 to 2005 found that in a situation of bad institutional quality and of poor governance, revenues, natural resources, aid and external debt are used in part to finance capital flight. Similarly, a study on how capital flight affects current account sustainability in SSA established that corruption, macroeconomic instability, political instability, interest rate differentials, degree of financial market deepening, exports and debt-creating flows are the most significant determinants of capital flight. Improvement in political and economic governance is key to solving the capital flight problem. (Geda and Yimer, 2016)

Both capital flight and remittances play a role in sustainability of current account (Salisu, 2005). In addition, there exist a positive relationship between remittances and current account and the link between remittances and economic growth is positive. External debt and capital flight are positively intertwined hence supporting round-tripping (Salisu, 2005)

Gankuo et al (2016) while investigating the revolving door theory for Cameroon from 1970 to 2010 found that for every dollar rise in external debt causes a rise in capital flight by 47–62 cents. Further, institutional and political stability supports alleviation of illegitimate capital outflows caused by a rise in external debt. Similarly, external borrowing fuels capital flight. (Ndikumana, 2016). In addition, resource-rich countries experience more capital flight attributed to trade misinvoicing. The study emphasizes the need for good institutions and political stability to solve the problem of capital flight. (Ndikumana, 2016).

## **2.6 Overview of literature**

From the foregoing discussion, investment behavior is explained by various theories including; neoclassical model, accelerator theory and liquidity theory. Application of most of these models in developing countries is limited by structural rigidities of growing economies given the underlying assumptions like perfect competition, perfect information flow and liquidity constraints. Additionally, developing countries are mainly exporters of primary products, heavy importers of intermediate goods and importers of manufacturing components. In addition, data unavailability, high national debt, financial repression, political interference and macroeconomic instabilities hamper the application of conventional models in developing countries, unless they are modified.

Empirical studies on determinants of private investments in less developed countries have chosen to change from the ancient theories. The flexible accelerator model has been used by most studies in order to capture clear structural and institutional features of these economies. These studies combine features of the flexible accelerator model, neoclassical and structural models in a bid to emphasize the effects of constraints on private investments in LDCs. Generally, these studies show that aggregate demand, credit availability and physical infrastructure are key determinants of private investments in growing economies.

From the literature reviewed, most studies on investment and capital flight consider domestic private investment, public investment, determinants of private investment, impact of GDP on private investment, impact of GDP on private investment and correlation between private investment financing and public investment among others. A few researchers have included capital flight as a determinant of domestic investment but no study has been done on impact on private investment specifically in Kenya. Therefore the study is necessary in order to address the gap on capital flight and private investment in Kenya which has not been addressed previously.

## CHAPTER THREE

### 3.0 METHODOLOGY

#### 3.1 Introduction

This chapter presents theoretical framework, empirical model and specification, definition and measurement of variables, tests to be conducted and lastly data sources.

#### 3.2 Theoretical framework

Capital flight affects private investment in various ways as noted by Ndikumana (2014). First, the leakages cause a depletion of private savings which reduces capital formation. Secondly, uncertainty in macroeconomic indicators causes high levels of capital flight by as private agents assume macroeconomic policy economic regulation failure by government. As a result, private agents are concerned about future taxes being higher.

Jorgenson (1971) came up with the neoclassical methodology which is borrowed heavily from the flexible accelerator approach. The method argues that preferred level stock of capital is equivalent to the user cost of capital and output. It is in this line of research that most researchers Altaleb and Alokor (2012), Njuru, *et al.*, (2013) and Ghura and Goodwin (2000) have incorporated the following variables in their investment equation: Foreign Direct Investment, availability of domestic credit, debt, exports, interest rates and capital among others.

The accelerator theory takes investment as a function of economic growth and therefore the desired stock of capital (K) is assumed to be directly correlated to levels of income (Y) in the long-run.

$$K = \alpha Y_t \quad (5)$$

where;  $\alpha$  is a constant.

Differentiating the equation we get;

$$\Delta K_t = \alpha \Delta Y_t \quad (6)$$

Where;  $\Delta$  represents the difference operator

Using the conventional capital accumulation identity (equation 2) to identify investment  $I_t$ , an equation showing the relationship between investment and desired capital stock is developed as below.

$$K_t = (1 - \delta) K_{t-1} + I_t \quad (7)$$

where;  $\delta$  represents the depreciation of capital.

From equation (7) we obtain the following equation;

$$K_t - K_{t-1} = I_t - \delta K_{t-1} \quad (8)$$

The expression is rearranged assuming the proportion of depreciation to capital is too small<sup>6</sup> so we equate it to zero ( $\delta = 0$ ), we can solve for  $I_t$  to yield the following equation;

$$\Delta K_t = I_t \quad (9)$$

Substituting Equation (9) in equation (6) we obtain;

$$I_t = \alpha \Delta Y_t \quad (10)$$

Where,  $I_t$  is the additional investment at period  $t$  and  $\Delta Y_t$  represents change in national output at time  $t$ . from equation 10, we can construe a direct relationship between Investment and National output.

---

<sup>6</sup> Assuming investment financed by capital inflows has a long life span rendering the accruing depreciation at time  $t$  to be too small hence insignificant.

### 3.3 Empirical model

To establish the impact of capital flight on private investment, this paper adopts and modifies Hadjimichael's (1994) model on the impact of capital flight on the economy using a panel data of 22 countries. Hadjimicheal's model is as outlined below;

$$Y_{it} = \alpha_{it} + \beta X_{i(t-1)} + \gamma CF_{i(t-1)} + \varepsilon_{it} \quad (11)$$

Where  $Y_{it}$  represents per capita growth of the GDP and  $X_{i(t-1)}$  is a set of control variables taken with the lag and  $CF_{i(t-1)}$  represents the proxy for capital flight.

Since investment in less developed countries depends on public investment, GDP, urban population, bank credit, trade openness, foreign direct investment, government institutions vector and others. (Hall & Jorgensen, 1967). We specify the investment model by adjusting equation 3 to include external debt and real interest rate and exclude public investment, FDI and governance as determinants of investment in developing countries like Kenya. Therefore we have;

$$I = f(\text{credit, external debt, real interest rate, GDP, trade}) \quad (12)$$

Where I represent investment, credit stands for private credit to GDP ratio, external debt, real interest rate, GDP and terms of trade respectively. From equation 10, we demonstrated that investment at period t is equivalent to a portion of change in output. In this regard, contributors to the change in output have a direct bearing on the level of capital commitment (investment). This paper modifies Hadjimichael (1994) as;

$$I_t = \gamma + \beta_i \sum X_{it} + \alpha KF_t + \varepsilon_t \quad (13)$$

Where I represent Private investment, KF represents capital flight (as the main variable), and  $X_{it}$  represents a set of control variables (GDP growth, external debt, terms of trade, private credit to GDP ratio and real interest rate all as used by (Yalta, 2010; Blejer and Khan 1984),

$\alpha$  and  $\beta$  are coefficients and  $\gamma$  is a constant. Equation 13 represents the final equation to be estimated.

### **3.4 Description of variables and the expected sign**

Private investment (I) is the dependent variable and is measured as the total value of capital assets plus investments in inventories. Private investment is expressed as proportion of GDP.

Capital flight (KF) is expressed as proportion of GDP. Measurement of capital flight is from secondary data from World Bank global indicators database using World Bank's residual method which matches the capital inflows sources in foreign investment and external debt with their uses of measuring capital flight for the period 1970 – 2012<sup>7</sup>. The relationship expected between capital flight and private investment is negative.

Domestic private credit to GDP ratio (DCR) is the sum of financial assets to private sector expressed as a proportion of GDP. A positive relationship is expected between private credit and private investment.

Real interest rate (RiR) is the commercial banks' lending rates determined by Kenya Bankers' rate (KBR) and set by central bank of Kenya (CBK). According to neoclassical theory of investment, interest rates are negatively related to investment and therefore high interest rates results to high cost of credit which in turn will discourage investment. This is because the desired capital stock is a function of real output and the opportunity cost of capital and the desired capital stock is directly related to output and inversely related to the cost of capital. This follows that a decrease in the real interest rate lowers the opportunity cost of capital which in turn raises the desired capital stock and investment spending. The expected relationship between real interest rate and private investment is negative.

---

<sup>7</sup> This period was chosen due to limited data availability and it also captures three political regimes in Kenya.

Terms of trade (TOT) measures the ratio of a country's export prices to its import prices. Where TOT is less than 100 per cent, then more capital is going out than coming in while if it's greater than 100 per cent then there is capital accumulation in the country. The terms of trade provides a critical component on determination of private investments. A decline in terms of trade lowers the purchasing power of a country's exports. This in turn increases the import price of other investment goods and lowers the ability of the private investors to spend on investment. It is expected that terms of trade for Kenya will negatively affect private investment by increasing relative prices of imported capital goods.

External debt (EXD) is expressed as a proportion of GDP. This is the amount of debt a country borrows from foreign creditors divided by GDP. The loans and interest are paid back in the lending/borrowing currency. In order to earn the needed currency, trade with the lending country is necessary. Also according to debt cycle thesis by Avramovic (1964) an economy which is characterized by low domestic savings, foreign debt is considered as a key source of funding. Thus changes in external debt would influence the available resources for investment. A positive relationship between private investment and external debt in Kenya is expected.

In this study; I, KF, ToT, DCR, EXD and RiR stand for private investment, capital flight, terms of trade, ratio of domestic private credit to GDP, external debt, and real interest rate respectively.

### **3.5 Tests**

#### **3.5.1 Unit Root Testing**

To test for stationarity, Augmented Dickey-Fuller (ADF) test by Dickey and Fuller (1979) is used. In order to come up with meaningful results before regression is done, there is need to make non-stationary time series data stationary otherwise if some degrees of freedom are lost

the test will be inadequate. If the results show existence of unit roots, then we difference the variables to make them stationary.

### **3.5.2 Diagnostic Tests**

OLS estimation technique can only hold if its assumptions are not violated. In this study, multicollinearity test and Ramsey reset test<sup>8</sup> are used. Diagnostic tests are important in order to find out the stability and statistical soundness of the estimation model, to help check its appropriateness and to avoid spurious estimation results.

### **3.6 Data sources and type**

In this study, time series data is used for the period 1970 to 2012. Data sources are as follows; Private investment is obtained from the Kenya National Bureau of Statistics (KNBS) economic surveys. Capital flight as a proportion of GDP is sourced from the World Bank Global Development Indicators database 2015. Private credit is obtained from Kenya National Bureau of Statistics (KNBS) economic surveys. Real interest rate is obtained from Central Bank of Kenya (CBK) bulletins while terms of trade for Kenya is obtained from International Monetary Fund (IMF) World Economic Outlook database 2015. Lastly, external debt is from World Bank global development indicators database 2015.

---

<sup>8</sup> This tests whether non-linear combinations of the fitted values help explain the response variable.

## CHAPTER FOUR

### 4.0 DATA ANALYSIS AND RESULTS

#### 4.1 Introduction

This chapter analyses data and presents results. It starts by introducing the summary statistics of the data, then the various tests on the data, the estimation procedure and finally the empirical results.

#### 4.2 Summary statistics

A summary of descriptive statistics of the study variables is displayed in table 4.1. These results show that external debt has on average been 22.26 per cent of the GDP. The skewness shows that for most of the years external debt as a proportion of the GDP was more than the mean. Also the value of kurtosis shows that the data was highly peaked.

The results show that on average, the terms of trade (which gives the ratio of exports' price to that of imports) is 90.70 with fluctuations of 10.61. The highest value realized was 114.02 while the least value was 70.15. The distribution is positively skewed and highly peaked. This means that in most of the years the value of terms of trade had been less than 90.78.

**Table 4.1 Summary descriptive statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
External debt	43	22.26	7.33	33.76	6.00	-0.70	2.88
Terms of trade	33	90.78	10.61	70.15	114.02	0.31	2.52
Real interest rate	43	6.458	7.755	-8.13	21.10	0.10	2.33
Private Investment	43	18.94	2.06	15.39	25.08	0.34	3.42
Domestic credit	43	27.01	4.54	15.12	34.84	-0.69	3.23
Capital flight	41	0.73	0.49	-0.23	2.20	0.45	3.66

*Source: Author computation, 2015*

The average real interest rate since 1970 has been 6.45 per cent. The highest rate of interest was 21.10 per cent and the least was -8.13 per cent. The distribution of this variable was

positively skewed meaning that the interest rate for most of the years had been lower than the mean. Also the kurtosis value is high meaning it was highly peaked.

On average, the value of private investment measured as a proportion of GDP was 18.94 per cent fluctuating by 2.06. The least value of private investment was found to be 15.39 per cent of GDP and the highest value recorded being 25.08 per cent of GDP. The value of skewness was found to be 0.34 while that of kurtosis at 3.42. This implies that in most of the years, the value of private investment was less than 18.94 per cent of GDP.

The proportion of private sector credit was on average 27.01 per cent of gross domestic product with a standard deviation of 4.54. The highest value was 34.84 per cent of gross domestic product while the least value was 15.12 per cent of gross domestic product. The private sector credit distribution is negatively skewed and highly peaked. This means the value of private sector credit was mostly more than 27.01 per cent of the value of GDP.

Lastly, the proportion of capital flight to GDP was on average at 0.73 per cent with some very little deviations of 0.49 per cent of GDP. The least value of capital flight reported was -0.23 per cent of GDP while the highest value was recorded at 2.20 per cent of GDP. The distribution of capital flight (expressed as a proportion of GDP) was positively skewed and also very highly peaked. This implies that most of the value of capital flight between 1970 and 2012 was less than 0.494 per cent. This shows the loss of capital outflow has been substantial over the period of the study.

### **4.3 Diagnostic Tests**

#### **4.3.1 Tests for Stationarity**

Tables 4.2 and 4.3 below show the results of stationarity test. The absolute value of the t-statistic and the value displayed at 5 per cent are considered when determining stationarity of

variables. The null hypothesis is rejected where t-statistic is more than critical value at 5 per cent.

From the results, private investment, rate of interest and capital flight were stationary at 5 per cent significance level. Consequently, the null hypothesis was rejected and alternative hypothesis adopted that the series is stationary. Contrary, variables such as credit to private sector, terms of trade and external debt were found to be non-stationary. Thus the null hypothesis was not rejected that there was existence of unit roots. It was necessary to difference the non-stationary variables.

**Table 4.2 Stationarity test**

	Test statistics	1% critical	5% critical	10% critical	Comments
Private investment	-3.136	-3.634	-2.952	-2.61	Stationary
Domestic credit	-2.920	-3.634	-2.952	-2.61	Non stationary
Terms of trade	-1.987	-3.702	-2.980	-2.622	Non stationary
Real interest rate	-3.849	-3.634	-2.952	-2.61	Stationary
Capital flight	-5.327	-3.648	-2.958	-2.612	stationary
External debt	-2.116	-3.634	-2.952	-2.61	Non stationary

*Source: Author computation, 2015*

Table 4.3 shows the results after differencing non-stationary variables once. At first differences, all the variables become stationary. The results in table 4.3 indicate that apart from private investment, real interest rates and capital flight which were stationary at level, at 5 per cent other variables became stationary after first differencing. Therefore, stationarity test revealed that private investment, real interest rate and capital flight were integrated of order zero (0), while proportion of external debt to GDP, terms of trade and ratio of private credit to GDP were all integrated of order one (1).

**Table 4.3 Unit root test at 1<sup>st</sup> differencing variables for non-stationary variables**

	Test statistics	1% critical	5% critical	10% critical	Comments
Domestic credit 1	-8.207	-3.641	-2.955	-2.611	Stationary
Terms of trade 1	-6.042	-3.709	-2.983	-2.623	Stationary
External debt 1	-5.688	-3.641	-2.955	-2.611	Stationary

*Source: Author computation, 2015*

### 4.3.2 Test of Multicollinearity

A collinearity diagnostic test was done to determine presence and degree of multicollinearity in the variables. Table 4.4 shows the results of the two important diagnostic results, the Variance Inflation Factor (VIF) and the Tolerance (1/VIF). VIF test's the contribution of a variable on others. A variable with a high VIF means it has the ability to affect the other factors in the model leading to erroneous results. Tolerance gives the percentage of a variable that cannot be explained or influenced by other variables. Thus a high value of tolerance suggests non multicollinearity while a lower value indicates presence of multicollinearity. The results show low VIF values of the variables in the study. However, the tolerance value was low for rate of interest rate (0.413) implying that rate of interest rate could be varied up to 55.50 per cent by another variable which was substantially high. This implies that one or two of the factors were highly correlated and could affect the overall results of the model. If two variables were highly correlated, one would be dropped so that the interaction of the two does not affect the overall estimation. Thus before the estimation test, a correlation test was done to identify the highly correlated variables.

**Table 4.4 Test of Multicollinearity**

Variable	VIF	Tolerance	R-Squared
External Debt	1.99	0.502	0.499
Real interest rate	1.35	0.740	0.261
Terms of trade	1.63	0.613	0.387
Investment	1.29	0.773	0.228
Domestic credit ratio	2.42	0.413	0.587
Capital flight	1.33	0.752	0.248
Mean VIF	1.67		

*Source: Author computation, 2015*

### 4.3.3 Autocorrelation

One of the assumptions made before any regression test is that of autocorrelation. This simply implies the randomness of the error term. These assumptions hold when the variances of the predicted variable are non-constant and follow no particular pattern from the predicted

variable of the line of fit. The following hypothesis needed to be tested at 95 per cent level of confidence.

$H_0$  = No serial correlation

$H_a$  = Serial correlation

To test the hypothesis, a Durbin Watson test was run for five variables; the proportion of credit to private sector, external debt, interest rate, capital flight and private investment. A positive serial correlation is between 0 - 0.93, while a negative serial correlation 3.07 - 4. In this study, the Durbin Watson statistic value was given as DW statistic (6, 30) = 1.315584. The value of the statistic lies under the range 0.93 and 1.69 which signifies lack of serial correlation.

#### **4.3.4 Heteroscedasticity**

As a way of making sure that the data was ready for OLS test. Data is tested for heteroscedasticity using the Breusch–Pagan / Cook Weisberg test for heteroscedasticity. Data for OLS is assumed to be homoscedastic. This means that the variance of the dependent variables from the line of fit is supposed to be constant and should not vary with the increase in the value of independent variables.

To achieve this, hypothesis that the data was homoscedastic was tested as shown:

$H_0$ : Constant variance

$H_a$ : Varying variance

From the results presented on table 4.5, the variances were found to be constant at 95 per cent level of confidence with a  $p$  value of 0.2650. This shows that the difference in variances was not significant. Therefore, the null hypothesis was not rejected that the variances were constant and were not changing with the increase in the values of the dependent variables.

**Table 4.5 Heteroscedasticity**

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	
Ho: Constant variance	
Variables: fitted values of i	
chi2(1) =	1.24
Prob > chi2 =	0.2650

*Source: Author computation, 2015*

#### **4.3.5 Model specification**

The model was tested using the Ramsey Regression Equation Specification Error Test (RESET). This tests whether there exist omitted variables in the model. The hypothesis was that:

H<sub>0</sub>: Model has no omitted variables

H<sub>0</sub>: Model has omitted variables

The results shows an F statistic value of  $F(3, 23) = 0.74$ ,  $p=0.5402$ . This shows that there was no evidence of omitted variables at 95 per cent level of confidence. Subsequently, the null hypothesis was not rejected. Thus the model was good and had no errors of omission as shown below in table 4.6.

**Table 4.6 Ramsey RESET test results**

Ramsey RESET test using powers of the fitted values	
Ho: Model has no omitted variables	
F(3, 22) =	0.74
Prob > F =	0.5402

*Source: Author computation, 2015*

#### **4.4 Relationship between capital flight and private investment**

##### **4.4.1 Test of correlation of the variables**

Computation of the correlation matrix helps in testing linear correlation between the model's variables as well as their strength, in terms of the best variable explaining the relationship between private investment and capital flight in Kenya. Table 4.7 shows the results, the correlation is negative ( $r = -0.157$ ) between capital flight and private investment implying

that when capital flight increases private investment decreases and when capital flight decreases, private investment increases.

The results further shows a positive correlation between external debt and private investment ( $r=0.219$ ) implying that increase in external debt corresponds with private investment increase. There correlation between interest rate and private investment in Kenya was found to be negative ( $r = -0.166$ ) implying that a rise in interest rate correlated with a drop in private investment. The terms of trade and private investment had a negative correlation ( $r = -0.388$ ) showing an inverse relationship. This implies that an increase in ToT lowers private investment while a decrease in ToT increases private investment. The proportion of credit extended to private sector and private investment had a positive correlation ( $r=0.313$ ). This implies that as more credit is advanced to private sector, private investment increases and vice versa.

**Table 4.7 Correlation of the variables**

	<b>I</b>	<b>KF</b>	<b>EXD</b>	<b>RiR</b>	<b>ToT</b>	<b>DCR</b>
Investment	1					
Capital flight	-0.157	1				
External debt	0.219	-0.014	1			
Real interest rate	-0.167	-0.108	-0.022	1		
Terms of trade	-0.388	0.313	-0.171	-0.129	1	
Domestic credit ratio	0.313	0.151	0.110	0.343	-0.262	1

*Source: Author computation, 2015*

#### **4.4.2 Test of effect of capital flight on private investment**

We use OLS to test the effect of capital flight on private investment. Diagnostic tests done in the previous sections show that some of the assumptions of OLS such as homoscedasticity, autocorrelation and sample adequacy were met. However, some variables were not stationary. To make them stationary the researcher differenced the variables to order 1 to make them

stationary. A regression test was thus done after differencing the variables as shown in table 4.8.

**Table 4.8 Regression results**

	Coef.	Std. Err.	t	P>t
KF	-1.008	0.496	-2.03	0.04
EXD	0.144	0.146	0.98	0.34
RiR	-0.082	0.037	-2.22	0.04
TOT	0.031	0.046	0.66	0.52
DCR	0.339	0.131	2.6	0.02
Constant	19.650	0.533	36.89	0.00

Mean of dependent variable	0.727	S.D dependent variable	0.493
Sum Regression	24.026	S.E of Regression	1.572
R-squared	0.288	Adj R square	0.140
F( 5, 24)	2.64	Prob > F	0.049
No of obs	43		

*Source: Author computation, 2015*

The R squared of the model was 0.2884. This shows that capital flight, external debt, interest rates, terms of trade and domestic credit to the private sector affect the changes in the private investment by 28.84 per cent. The rest 71.16% was explained by other factors which were not part of the model such as public investment, GDP, urban population, bank credit, trade openness, foreign direct investment among others (Hall and Jorgensen, 1967). The F distribution [F (5, 24) =2.64, p<0.05] shows that the effect of the independent variables (KF, EXD, RiR, TOT and DCR) were statistically significant in influencing the dependent variable (I).

The simple regression model was given by:

$$I = 19.650 + 0.144EXD - 0.082RIR - 0.031TOT + 0.339DCR - 1.008 KF$$

Where I - private investment, EXD - external debt level, RIR - rate of interest rate, TOT - terms of trade, DCR - domestic credit to private sector and KF - Capital flight

The results are interpreted to mean, holding other factors constant and disregarding the rest of the factors, the percentage of private investment to GDP would be 19.65 per cent. The result indicates *ceteris paribus*; an increase of the external debt by 1 per cent increased the private investment by 0.14 per cent. This is supported by the fact that external debt increases capital available for investment in the economy either through lending or as a result of multiplier effect out of government expenditure.

The increase of real interest rate holding other factors constant by 1 per cent reduces the private investment by 0.08 per cent. This may be explained by the fact that increasing interest rate makes the cost of borrowing high and hence discourage or crowd out private investment.

An increase of the terms of trade by one unit leads to a reduction of private investment by 0.03 per cent. Additionally, a growth in domestic credit to private sector by 1 per cent leads to a rise in private investment by 0.34 per cent. When capital flight increases by 1 dollar (holding other factors constant) reduces the private investment by 1.008 dollars. This is because when capital flight increases, it leads to a decline in savings and consequently lowers the capital available for investment. The results indicates that rise in external debt and domestic private sector increases private investment while increase in interest rates, terms of trade and capital flight declines the level of private investment. This finding agrees with Ndiaye (2011) who found a negative effect of capital flight on domestic investments and that an increase in one dollar of capital flight lowers domestic investment by 4.5 cents.

The results show that capital flight has a significant effect on the level of private investment. A high level of capital flight decreases the level of private investment. The regression test show that rate of interest rate significantly influences the level of private investment. This agrees with Adetiloye (2011) who found that interest rate significantly affects capital flight. A growth in interest rate causes an increase the cost of credit which in turn lowers

investment. Lastly, the level of domestic credit extended to the private sector directly affects the level of private investment. This can be explained by the fact that increased availability of credit to the private sector avails credit to the private investors who turn make use of it to make more investments in an economy.

According to the results, there exist an inverse relationship between capital flight and private investment. An increase in capital flight reduces the level of private investment while a reduction in capital flight will increase private investment. This can be attributed to the fact that a high level of capital flight reduces savings and consequently the available resources required for investment.

## CHAPTER FIVE

### 5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents a discussion of the findings, study conclusions and policy recommendations. The main aim of this study is to determine the impact of capital flight and private investment in Kenya. The study uses time series for the period 1970 to 2012 due to data availability. This paper studied other factors which could potentially affect the level of private investment in Kenya for instance interest rate, external debts level, domestic private sector credit and terms of trade.

#### 5.2 Findings of the study

The study found that capital flight negatively affects the private investment. This finding is similar to Ndiaye (2011) study on causes of capital flight in the Franc zone which found that an increase in capital flight by a dollar results to a decline in domestic investment in Franc Zone countries by 4.5 cents. However, the estimate of the results was found to be insignificant. There exist of a negative relationship between capital flight and private investments from the econometric results of this study which provides the backing. Further, terms of trade ratio and real interest rate ratio also affects private investment negatively while domestic credit and external debt contributed to private investment positively. Important to note is that in the last ten years there has been a great reduction in capital flight in Kenya as shown in figure 1.1 (chapter one). On the other hand, private investment has been steadily increasing over the same period. This shows as capital flight was reducing the level of private investment was increasing.

### **5.3 Conclusions of the study**

The study concludes that there exist a negative and weak relationship between capital flight and level of private investment. Therefore, there exist an inverse relationship between the capital flight and the level of private investment. According to Oyieke (2011), the external debt and private sector credit significantly affects private investment. This may be attributed to the fact that more capital flight drains a country's capital level whose investors depend to get finances for investment. Thus as more capital is lost less is left in a country for the investors to use for investment leading to private investment decline.

External debt level and private investment have a positive correlation indicating a direct relationship. As the external debt was increasing, private investment was also increasing. The same results were gotten from regression test which found that external debt increases private investment in a country. This is attributable to increase in foreign debt increases the finances available in a country which a country uses for development which stimulates the economic activities and private investment level.

Interest rate and private investment level is found to have an inverse relationship. This shows that as the interest rates were increasing the corresponding values of private investment were declining. The same results were realized when the variables were subjected to a regression test, where increase of the interest rates by 1 per cent reduced the level of private investment by 0.08 per cent. This may be due to rise in interest rate makes cost of credit high. This may discourage investors from seeking finances for investors causing a decline in private investment level in Kenya.

Terms of trade and the level of private investment had a negative correlation. This in turn implies a negative relationship. As the value of TOT increases the rate of private investment goes down. Through regression test, a 1 per cent increase of the TOT reduced the level of

private investment by 0.03 per cent. This can be explained by the concept of terms of trade and capital. An improvement in the terms of trade drains the country of her capital while a decrease indicates more capital gain than loss to a country. Thus as the TOT increases more capital is lost and thus little is left for investment leading to a decline in private investment.

The proportion of domestic credit to private sector positively relates with private investment. Consequently, if value of domestic private sector credit increases the corresponding value of private investment increases and vice versa. The results from the OLS regression test found similar results, where increasing the domestic credit to private sector by 1 per cent increased the private investment by 0.34 per cent of GDP. This is expected since more credit to the private sector ensures more investors get access to credit thus boosting the amount of private investment.

#### **5.4 Policy Recommendations**

On an aggregate level, the study shows that capital flight impacts negatively on private investment in Kenya. Other variables such as terms of trade and ratio of domestic credit to GDP also negatively impact on private investment but in a less magnitude while real interest rate and external debt positively impact on private investment in Kenya. These results hence encompass information on the possible future policy formulation in Kenya.

##### **5.4.1 Improve external debt management**

Kenya's public debt has been on the rise in the recent past. The central bank of Kenya estimated it at Ksh.3.2 trillion as at December 2015. External debt was Ksh.1.6 trillion for the same period. From the finding of this study, external debt affects private investment positively. On the other hand, a rise in external debt causes an increase in capital flight. This is because individuals negotiating the loans are motivated by kickbacks and concealing some proceeds abroad for safekeeping and hence they ignore the risks. There is therefore need to

put in place policies to promote external debt management transparency and accountability for instance debt audits to ensure debt sustainability.

#### **5.4.2 Policy measures to lower capital flight**

Adequate policy measures should be put in place to lower capital flight. This will boost the resources available for private investment. In order to increase new levels of private investments, government ought to put in place measures to regulate financial flows. Policy practices in Latin American indicate that appropriate policies designed are effective in reducing capital flight (Weeks, 2015).

#### **5.4.3 Promote local biased investment**

The government should put in place strategies to encourage bias in local investment. This includes; policies that reduce interest rates and raise the returns to investment for instance the legal legislation on interest rate cap enacted recently may be effective in the short run, fiscal incentives like tax allowances, policies that increasing the quantity and quality of infrastructure and communication. This will encourage private investment and reduce capital flight.

#### **5.3.4 Financial flows regulations reforms**

Lastly, reforms in the financial and regulatory system at the global level are required as well as in international institutions such as International Monetary Fund, World Bank and World Trade Organization. This requires a great deal of coordination between the Kenyan government and the international institutions.

### **5.5 Limitations of the Study**

Major variables of data deemed essential to the study for the period 1970 to 2012 such as capital flight, and external debt were not easily available and accessible. For instance, access to capital flight data is limited to subscribers of World Bank Global Indicators Database and

data is up to the year 2012. Secondly, there was lack of adequate prior research studies on capital flight and private investment in Kenya. This is important in order to form the basis of literature review and helping in laying a foundation for understanding the study problem under investigation.

### **5.6 Suggestions for further areas of research**

The study focused on the relationship between capital flight and private investment and other factors such as real interest rate, private credit, terms of trade and external debt. However, the study was not exhaustive on the factors which affect private investment. Further studies are recommended to establish other variables such as public investment, GDP, urban population, bank credit, trade openness, foreign direct investment and also other macro-economic variables which influence private investment in a country.

## References

- Adetiloye, K. A. (2011). *Capital Flight and Investment in Nigeria in the Era of Financial Globalisation (1970-2007)* (Doctoral dissertation, Covenant University).
- Ajayi, M. S. I. (1997). *An analysis of external debt and capital flight in the severely indebted low income countries in sub-Saharan Africa*. International Monetary Fund
- Altaieb, G. S., & Alokor, S. M. (2012). Economical Determinants of Domestic Investment. *European Scientific Journal*, 8 (7)
- AU (2014) Economic Outlook. Available at pdf; [http://iff.gfintegrity.org/hiding/Hiding\\_In\\_Plain\\_Sight\\_reportFinal.pdf](http://iff.gfintegrity.org/hiding/Hiding_In_Plain_Sight_reportFinal.pdf) <http://www.Africaneconomicoutlook.Org/fileadmin/uploads/aeo/2014/PDF/EB> (accessed on 24th August 2015)
- Avramovic D (1964). *Economic Growth and External Debt*. Baltimore The Johns Hopkins Press
- Barro, R. J. (2009). Government spending is no free lunch. *Wall Street Journal*, 22
- Blejer, M. I., & Khan, M. S. (1984). Government Policy and Private Investment in Developing Countries. *Staff Papers-International Monetary Fund*, 379-403
- Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does foreign direct investment affect economic growth? *Journal of international Economics*, 45(1), 115-135
- Boyce, J. K. (1992). The revolving door? External debt and capital flight: A Philippine case study. *World Development*, 20(3), 335-349
- Boyce, J. K., & Ndikumana, L. (2012). Capital Flight from Sub-Saharan African Countries: Updated Estimates, 1970-2010. *PERI Working Papers*
- Clark, J. M. (1917). Business acceleration and the law of demand: A technical factor in economic cycles. *The Journal of Political Economy*, 217-235
- Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American statistical association*, 74

- Dooley, M. P (1994). *Capital flight, external debt and domestic policies* (No.4793). National Bureau of Economic Research
- Edeh, C. E., & Obi, C. O. Deficit Financing and Private Investment in Nigeria. *Journal of International Economics*, 45(1)
- Epstein, G. A. (Ed.). (2005). *Capital flight and capital controls in developing countries*. Edward Elgar Publishing
- Everhart, S. S., & Sumlinski, M. A. (2001). *Trends in private investment in developing countries: statistics for 1970-2000 and the impact on private investment of corruption and the quality of public investment* (Vol. 44). World Bank Publications
- Feldstein, M., & Horioka, C. (1980). Domestic Saving and International Capital Flows. *The Economic Journal*, 90 (358), 314-329
- Fofack, H., & Ndikumana, L. (2014). *Capital Flight and Monetary Policy in African Countries*. Forthcoming AERC Working Paper
- Gankou, J. M., Bendoma, M., & Sow, M. N. (2016). The Institutional Environment and the Link between Capital Flows and Capital Flight in Cameroon. *African Development Review*, 28(S1), 65-87
- Geda, A., & Yimer, A. (2016). Capital Flight and its Determinants: The Case of Ethiopia. *African Development Review*, 28(S1), 39-49
- Ghura, D., & Goodwin, B. (2000). Determinants of private investment: a cross-regional empirical investigation. *Applied Economics*, 32 (14), 1819-1829
- Gusarova, V. (2009). *The Impact of Capital Flight on Economic Growth* (Doctoral dissertation, Kyiv School of Economics)
- Hadjimichael, M.(1994). *Effect of Macroeconomic Stability on Growth, Savings and Investment: An Empirical Investigation*. IMF Working Paper WP/94/98
- Hermes, N., R. Lensink and V. Murinde (2002) “Flight Capital and its Reversal for Developing Financing”, UNU/WIDER, Discussion Paper No. 2002/99

- Jorgenson, D. W. (1971). Econometric studies of investment behavior: A survey. *Journal of Economic Literature*, 9(4)
- Karumba, M.M. (2009). *The impact of institutional factors and liberalization policies on private investment in Kenya (1965-2007)*.(Unpublished master's thesis). Kenyatta University, Nairobi, Kenya
- Kehinde, A., Felix, A., Kayode, K., & Adedamola, F. (2012).The Determinants of Domestic Private Investment in Nigeria'. Lagos State University, Ojo Dept. of Economics
- Kingori, B. M. (2015). *An analysis of the determinants of private sector investment in Kenya using the autoregressive distributed lag (ARDL) approach* (Doctoral dissertation, University of Namibia)
- Kinuthia, B. K. (2015) *Capital Flight and Monetary Policy in Kenya (1970-2010)* (Unpublished paper). Africa Economic Research Consortium
- Lawanson, A. O. (2007). An econometric analysis of capital flight from Nigeria: A portfolio approach
- Lucas, R. E. (1967). Optimal investment policy and the flexible accelerator. *International Economic Review*, 8(1), 78-85
- Mbaye, E. Z. (2012) *Determinants of Domestic Private Investments in Kenya*. (Unpublished master's thesis). University of Nairobi, School of Economics, Nairobi
- Mullineux, A. W., & Murinde, V. (Eds.).(2003). *Handbook of international banking*. Edward Elgar Publishing
- Murinde, V., Hermes, N., & Lensink, R. (1996). Comparative Aspects of The Magnitude and Determinants of Capital Flight in Six Sub-Saharan African Countries *Savings and Development*, Vol. 20, No. 1 (1996), Giordano Dell-Amore Foundation 61-78
- Mutenyo, J., Asmah, E., & AquilarKalio, (2010). Does foreign direct investment crowd-out domestic private investment in Sub-Saharan Africa? *African Finance Journal*, 12(1)

- Ndiaye, A. S. (2011). *Capital flight and its determinants in the Franc zone*. African Economic Research Consortium
- Ndikumana, L. (2014). Capital Flight and Tax Havens: Impact on Investment and Growth in Africa. *Revenue and economic development*, 2, 99-124
- Ndikumana, L., & Boyce, J. K. (2003). Public debts and private assets: explaining capital flight from Sub-Saharan African countries. *World Development*, 31(1), 107-130
- Ndikumana, L., & Sarr, M. (2016). *Capital flight and foreign direct investment in Africa An investigation of the role of natural resource endowment* (No. UNU-WIDER Research Paper). World Institute for Development Economic Research (UNU-WIDER).
- Njuru, S. G., Ombuki, C., Wawire, N. H. W, & Okeri, S. O. M.(2013). Taxation and private investment: *Evidence for Kenya*. Vol. 2, No. 11, 2013, Kenyatta University School of Economics 78-93
- Oshikoya, T. W. (1994). Macroeconomic determinants of domestic private investment in Africa: An empirical analysis. *Economic development and cultural change*, 573-596
- Oyieke, S. O. (2011) *Government Capital Spending and Financing and its Impact on Private Investment in Kenya: 1964-2006* African Economic Research Consortium
- Salisu, M. (2005). The Role of Capital Flight and Remittances in Current Account Sustainability in Sub-Saharan Africa. *African Development Review*, 17(3), 382-404
- Serven, L., & Solimano, A. (1993) Debt crisis, adjustment policies and capital formation in developing countries: where do we stand? *World Development*, 21(1), 127-140
- Tinbergen, J. (1939). *Statistical Testing of Business Cycle Theories: Part I: A Method and Its Application to Investment Activity*. Books (Jan Tinbergen). Agaton Press, New York.  
Retrieved from <http://hdl.handle.net/1765/14936>
- Tobin, J. (1969). A general equilibrium approach to monetary theory. *Journal of money, credit and banking*, 1(1), 15-29

Weeks, J. (2015). Macroeconomic Impact of Capital Flight in Sub Saharan Africa (pp. 238-60). Oxford University Press, Oxford

World Bank, (2011), World development indicators. *The World Bank*, Washington, DC

World Bank, (2015) Group's economic analysis. *The Kenya Economic Update for March 2015*

Yalta, A. Y. (2010). Effect of capital flight on investment: Evidence from emerging markets. *Emerging Markets Finance and Trade*, 46(6), 40-54