DETERMINANTS OF CAPITAL FLIGHT FROM KENYA

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DECLARATION

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

Signature.......................... Date................................

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DEDICATION

To my mother, Catherine
ACKNOWLEDGEMENT

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However, I take full responsibility for views, errors and any omissions in this study.

Leonard Kipyegon.
ABSTRACT

This study investigates the determinants of capital flight from Kenya over the sample period 1971 to 2001. Although evidence available indicates fluctuations in the level of capital flight from Kenyan economy since early 1970s, it is unclear what factors determine capital flight from Kenya. The specific objectives of this study were to identify factors that significantly determine the level of capital flight from Kenya and to draw recommendations based on the study findings.

Capital flight model was specified based on the portfolio adjustment theory. Augmented Dickey Fuller stationarity test results revealed that real capital flight was stationary at level; hence it was only possible to estimate short run capital flight model. This study employed time series data over the sample period 1971 to 2001, and ordinary least square method was used to estimate the model. Empirical findings based on residual measure to capital flight indicate external borrowing as the most significant determinant of capital flight from Kenya. It also revealed that capital flight tends to persist overtime once it occurs. Furthermore, the results indicated that real exchange rate, real growth rate, inflation rate and a proxy measure of financial development, M2/GDP; are also significant determinants of capital flight from Kenya.

Important policy implications drawn from the study findings are that: Kenya government should ensure transparency and accountability with regard to foreign borrowing and management of borrowed funds. Moreover, it is important to restore public confidence in the government and sustainability of macroeconomic policies, and to create a stable and favourable investment environment. This in turn, requires a realistic exchange rate, positive but moderate real interest rates and robust economic growth.
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<td>Central Bank of Kenya</td>
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DEFINITION OF TERMS

*Capital Flows:* The movement of capital into or out of a country. Surplus occurs if there is a net capital inflow, while a deficit occurs if there is net outflow.

*Capital Flight Repatriation:* Return capital to the country of origin.

*Portfolio:* Holding of more than one stock, bond, commodity, real estate investment, cash equivalent or other assets by an investor; in order to reduce risk by diversification.

*Efficient portfolio:* A fully diversified portfolio that maximises expected return for a given level of risk or minimises risk for a given level of expected return.
CHAPTER ONE
INTRODUCTION

1.1 Background

1.1.1 Definition and Consequences of Capital Flight

Capital flight generally refers to outward flows of capital in any particular year. According to Abalkin et al. (1999), capital flight is the transfer of assets denominated in a foreign currency abroad, either to foreign bank accounts or foreign securities. In addition, Cuddington (1986) referred to it as the short-term capital outflows, which involves hot money that responds to political or financial crisis, heavier taxes, inflation or depreciation of domestic currency. Moreover, Claessens and Naude (1993) define capital flight as the international capital outflow from developing countries to other countries or the increase of a country’s foreign assets. For instance, the transactions that lead to capital outflows in monetary or real form from a country are: Domestic corporation purchasing or constructing plant or outlet in foreign countries, buying of foreign firms’ securities, for example, stocks and bonds. Also, include the purchase of real estate in foreign countries, and making of bank deposits in foreign banks by a country’s residents.

According to Pastor (1990), capital outflow from developed countries to other countries is viewed as foreign investment, while capital outflow from developing countries to other countries is viewed as capital flight. The reason why capital outflow from developing countries is called flight is because of the presumption that in these countries, capital is scarce, and as such, capital ought to flow inwards. In addition, Okit (2001) attributed these different views to the belief that investors from developed countries respond to better opportunities abroad, while
capital outflow from developing countries is undertaken to escape the risks perceived in these countries.

Despite its long history, the phenomenon of capital flight became a serious problem in developing countries at the beginning of the 1980s (Abalkin et al, 1999). It has become an important topic for detailed study particularly in developing countries. The interest arises due to, among other reasons; the potential positive role that external assets stored away in foreign economies can play if left in the domestic economy. For instance, these assets could have been invested domestically to stimulate economic growth and reduce unemployment.

In the 1990s, capital flight problem attracted the attention of IMF, World Bank and other international organizations. For example, in the address to UNCTAD VIII in Columbia in February 1992, the managing director of IMF cautioned that the freedom of capital movements has increased the scope for large and sudden shifts of funds, which pose threat to the stability of foreign exchange and financial markets (Mishra et al, 2001 and Republic of Kenya, 1992).

Capital flight is a source of concern because of the potential adverse consequences on the economy. For instance, Ajayi (1995) attributes the sluggish growth, persistent balance of payment deficits and mounting foreign debts in Sub-Saharan Africa to capital flight. The perverse exportation of domestic savings and foreign exchange, and the insufficiency of both in developing countries, severely hinder potential for economic growth. According to Cuddington (1987), capital flight imposes a constraint on economic growth by exacerbating the unavailability of domestic sources of investment finance. The foreign exchange drain from capital flight limits the necessary imports that may be crucial for economic growth. Moreover,
capital flight may send a signal to foreign private investors about the risks involved and this may lead to a decline in private capital inflows.

Another consequence of capital flight is liquidity shortage in the economy. The shortage of liquidity may lead to exertion of upward pressure on interest rates and depreciation of domestic currency. This generally reduces the capital formation in the country, and can adversely affect the country’s current and future economic conditions (Okit, 2001). According to Pastor (1990), capital flight can impede resolution of the overall debt problem, since it is difficult to persuade developed nations to extend new credit or debt relief when a high percentage of new resources merely slip out of the country as capital flight. In addition, capital flight largely escapes domestic taxation, and is therefore an impediment to the country’s ability to make future debt repayments. This creates problems for domestic authorities by shrinking the taxable assets and income of those most able to meet government revenue requirements, which could have adverse implications for distribution of income.

Also, according to Abalkin et.al (1999), the external loans borrowed and part of the credit given to the government to restructure industry and develop infrastructure sometimes does not reach its supposed destination. The loans borrowed may be used on financial speculation and may leave the country as capital flight. Moreover, the Hot money that quickly shifts from one currency to another may be a factor in foreign exchange rate destabilization, and this has adverse effects on a country’s economy. Therefore, because of these potential adverse consequences of capital flight on the economy, it should be of significant concern to the policy makers.
Capital flight has been accompanied by economic, social and political crises in many developing countries, especially in Latin America, with countries such as Mexico, Argentina and Brazil suffering from its adverse effects (Abalkin *et al.*, 1999). For instance, in 1987 Mexico, Brazil and Argentina had approximately $84 billion, $58 billion and $46 billion respectively in capital flight that was equivalent to 114 percent, 240 percent and 111 percent of total outstanding debt respectively (Cuddington, 1986). This clearly shows that capital flight represents an important potential source of funds for credit constrained debtor countries. Moreover, this may be the reason why capital flight has been regarded as a major reason for mounting foreign debt problems and inhibition of development efforts in developing countries (Cuddington, 1986).

Over the past two decades, more private capital relative to wealth has flown from Africa than any other continent. For instance, according to Collier *et al.* (2001), by 1990, 40 percent of private portfolios were held outside Africa, and if African countries were to attract back this component of private wealth, the private capital stock would increase by approximately two thirds. In addition, as a result of private capital outflow, by 1990, Africa had a level of GDP that was 16 percent lower than it would have been if it had been able to retain its private wealth.

According to Hermes *et al.* (2002), the accumulated stock of capital flight in a sample of ten SSA countries including Kenya, was US$25 billion by the end of 1998 and this was equivalent to 41.3 percent of GDP. Other recent estimates indicate that Sub Saharan Africa is a net creditor to the rest of the World. This is in the sense that private assets held abroad as measured
by accumulated capital flight exceed total liabilities as measured by the stock of debts (Boyce and Ndikumana, 2002).

1.1.2 Kenya's Government Policies and Capital Flight

Immediately after independence in 1963, about 25 percent of Gross Domestic Savings (GDS) represented earnings by foreign companies, institutions and non-residents of Kenya on their investment in Kenya (Onjala, 1999). However, extensive government intervention characterised financial sector policies in the post independence period. The public ownership dominated the banking system in early 1980s, and central bank administratively controlled interest rates, and variety of controls was imposed on the asset allocations of the bank such as credit directives (Ngugi et al, 1998). The motivation of these policies was the belief that, because of market imperfections, the desired patterns of investments could not be supported without extensive government intervention in the financial markets. In addition, the financial sector policies were characterised by severe financial repression and most credit was channelled to the public sector. The result of these policies was the loss of confidence in the banking system in the country; hence most wealth owners may have acquired physical assets such as lands, houses and deposits abroad as a way of hedging their wealth against inflation. Also, the real interest rates on deposits were held below their equilibrium rates, and in most cases negative real interest rates on deposits due to high inflation; hence the interest rate might have been far below comparable rates in most developed countries (Ngugi, 2001). Therefore, financial incentives for capital flight became apparent, and hence most wealth owners may have acquired foreign assets to avoid the heavy risks of investing domestically.
Kenya’s foreign exchange policy has undergone evolution since independence. A fixed exchange rate regime was maintained in the 1960s until early 1990s, and thereafter, a flexible exchange rate regime has been maintained. Over the considerable period of fixed exchange rate regime, the shilling was pegged to the US dollar without regards to underlying economic conditions. As money supply increased while foreign exchange earnings decreased, the exchange rate became overvalued (Ndung’u, 1999). With the declining purchasing power of the shilling, producers of exportable could have smuggled their produce out of the country to avoid the export tax imposed by the overvaluation. While exports were smuggled out, foreign exchange earnings may have been kept in safe havens in developed countries.

Although there were no hard facts about the extent of capital flight, the government was convinced that the problem was serious, and coupled with the balance of payment crisis of 1971/72, the government was motivated to introduce foreign exchange controls (Republic of Kenya, 1972). The objectives of foreign exchange controls were to conserve foreign exchange, to control pressures on the balance of payments and to stem the outflow of capital. However, the foreign exchange controls and other controls instituted such as; domestic credit and interest rates control, created major distortions in the economy (Ndung’u, 1999). Also, in 1991, the Central Bank of Kenya (CBK) introduced the Foreign Exchange Bearer Certificates (Forex-Cs’) to stem capital flight and to attract foreign exchange held outside the domestic banking system, which aimed at improving the then dwindling foreign exchange reserves (Republic of Kenya, 1991).
1.1.3 Kenya’s Capital Flight Estimates and Macroeconomic Performance

There are three methods commonly used to measure capital flight (see, in particular, Claessens and Naude, 1993). One of this is the balance of payment method, which measure capital flight as the negative of the sum of recorded short-term capital flows and net errors and omission. Another method is the non bank cross border deposit, which measure capital flight as the changes in deposits held by a country’s resident in foreign banks. However, this approach underestimate residence capital outflow, since some funds are held outside reporting institutions and identities of depositors are concealed (Olopoenia, 2000). The third approach, which is used by World Bank to calculate capital flight, and mostly used in the capital flight studies, is the residual method. According to this approach, outward capital flight occurs when sources of funds exceeds uses of funds. Sources of funds consists of the increases in recorded gross external debts and net foreign direct investment, which can in turn be used to finance the current account deficits and increase official reserves.

The residual approach provides a broader measure of capital flight, which could be the reason for it’s used in most studies (see for instance: Pastor, 1990), Ajayi, 1992, Schineller, 1997, Olopoenia, 2000, Okit, 2001 and Boyce and Ndikumana, 2002; among others). The recent estimates of capital flight from Kenya, based on residual approach, show that cumulative stock of capital flight over the period 1970 to 1996 was US$2472.6 million, equivalent to 26.8 percent of GDP (Boyce and Ndikumana, 2002). In addition, Hermes et al (2002) estimate indicated that the total stock of capital flight from Kenya over the period 1983-89 and 1990-98 was approximately US$153 million and US$ 32million respectively, equivalent to 2.5 percent and 1.3 percent of GDP respectively.
The fluctuations of capital flight from Kenya based on residual approach and balance of payment approach are represented by Figure 1.0. As Figure 1.0 shows, the fluctuations of capital flight differ when the residual approach and the balance of payment approach to measure capital flight. In general, the fluctuations in the measure based on balance of payment approach are mild compared to the fluctuations in capital flight measure based on the residual approach. Since the residual measure to capital flight is mostly used and provides a broader measure of capital flight, the potential explanation of capital flight pattern and movement of macroeconomic variables is based on this approach.

Figure 1.0: Pattern of Capital Flight from Kenya over the sample period, 1971-2001.


As Figure 1.0 illustrates, capital flight from Kenya generally increased over the period 1971-1979. Over this period, real GDP growth rate declined from 6.5 percent for the period 1966-1970 to 4.7 percent for the period 1970-74 (Republic of Kenya, 1970 and 1975). The first oil
crisis and severe drought in the year 1973 and 1974 respectively exacerbated the situation. Moreover, the 1976 coffee boom increased foreign exchange availability, increased rural income and expanded expenditures. The GDP growth rate increased from 2.9 percent in 1975 to 4.4 percent in 1976 (Republic of Kenya, 1980) and capital flight declined by a small margin during the period 1975/76.

Capital flight generally increased over the period 1977 to 1979. The economic performance in the country was adversely affected by the combination of the uncertainties following the break up of the East Africa Community in 1977, and the cancellation of IMF loan facility when the government did not find it necessary to proceed with the implementation of stabilisation programmes following the 1976 coffee boom. In addition, the expansionary impact of fiscal and monetary policy adopted during the coffee boom coupled with declining coffee prices by mid 1977 and the 1979 oil price hike exacerbated the situation. The real GDP growth rate declined from 8.1 percent in 1977 to 7.7 percent in 1978, and decline further to 4.9 percent in 1979 (Republic of Kenya, 1980).

From 1980 to 1983, capital flight declined substantially. In early 1980s, the country’s economic performance improved as real GDP growth rate increased from 3.9 percent in 1980 to 6.0 percent in 1981 (Republic of Kenya, 1983). However, the macroeconomic situation in the country was affected by the 1982 coup attempt. Figure 1.0 (p.8) shows that capital flight was higher in 1982 than in 1981. The implementation of structural adjustment programmes (SAPs) adopted in 1986 exacerbated the situation, since stabilisation policies cut the expenditure sharply resulting to decline in aggregate demand, and capital flight generally increased over the period 1984 to 1987.
In post 1990, an important policy shift from fixed exchange rate regime to a flexible exchange rate regime was adopted. Over this era, the fluctuation in capital flight was moderate. In 1992, capital flight reversal occurred, and this coincided with the attractive premiums offered on sale foreign exchange to central bank by holders of Foreign Exchange Bearer Certificates (Forex-Cs), introduced in October 1991. This might have led to repatriation of deposits held in foreign banks by Kenyans who wanted to benefit from attractive premiums offered on foreign exchange. In addition, the 1997 and 1999 capital flight reversal occurred at the time when interest rates on treasury bill were very high, as the annual average of the 91-day treasury bill rate was 22.87 percent and 13.87 percent in 1997 and 1999 respectively (Republic of Kenya, 2000). This might have led to speculators capital inflows. The sharp increase in capital flight in 1998 and 2000 could be attributed partly to an outflow of foreign exchange on maturity of treasury bills.

Many reasons are often adduced for capital flight. In general, domestic macroeconomic mismanagement, which often manifests itself in large public sector deficit, exchange rate misalignment, rising inflation and deterioration in real GDP growth rate are some of the introductory factors. Other factors such as corruption and political instability are also very influential. These potential determinants of capital flight from Kenya were derived from the comparison between the described pattern of capital flight, shown by Figure 1.0 (p.8), and the anecdotal macroeconomic condition in the country. However, not all of these factors identified have been empirically tested, and this study therefore sought to bridge this knowledge gap.
1.2 Statement of the Problem

A number of studies have been conducted on capital flight. These studies identify many factors that determine capital flight. Both economic and non-economic factors are important. However, Ajayi, (1995) contends that economic factors are the most important in determining capital flight, but points out that economic factors are inextricably interwoven with political factors and favourable foreign economic incentives. And the significance of the individual economic variables varies from country to country (see for instance, Cuddington, 1986, Pastor, 1990; Ajayi, 1992; Olopoenia, 2000; Ng’eno, 2000; Nyoni, 2000; Okit, 2001; Boyce and Ndikumana, 2002).

The study focuses on Kenya. The pattern described in section 1.1 shows fluctuations in capital flight. It is unclear what factors determine capital flight from Kenya. This study extends the literature on capital flight from Kenya in three ways: First, it includes explanatory variables excluded by previous study, in particular to investigate the role of financial development, capital inflows, inflation, exports and fiscal policies on capital flight. Second, it analyses capital flight for an extended sample period, 1971 to 2001, to capture effects of recent economic developments and third, empirical estimation use different measures of capital flight to explore the sensitivity of estimation results. This study, therefore, sought to address the following research questions:

(i) What factors determine level of capital flight from Kenya?

(ii) What recommendations based on the findings of (i) could be made?
1.3 Objectives of the Study

The general objective of the study is to analyze the determinants of capital flight from Kenya. The specific objectives of the study were:

(i) To identify factors that significantly determine level of capital flight from Kenya
(ii) To draw recommendations based on the findings of (i) above.

1.4 Significance of the Study

The study is significant for a number of reasons. First, because of the potential adverse consequences of capital flight, the study gives insight into empirical factors that determine the level of capital flight from Kenya. Also, the need for government to widen the tax base to raise more revenue to finance its expenditure has become important in recent times. This cannot however be achieved if capital export by residents of Kenya is not checked. Moreover, Kenya’s economy is still developing and the need for domestic savings to finance real investment is very essential because a loss of domestic saving to saving constrained economy has severe ill consequences. Hence, the study will assist policy makers to design appropriate policies that will not only discourage outflow of capital but will also offer incentives for people to recall their capital home. Finally, this study adds to country specific studies and can serve as a springboard for further research in the area.

1.5 Scope and Limitations of the Study

This study focused on the determinants of capital flight from Kenya, and it covers the sample period 1971-2001. The rationale for the choice of this time period is the fact that it is from early 1970s when Kenya was beset with deterioration in macroeconomic performance. In addition, the problem of inadequacies in debt statistics was experienced. When some debts are denominated in currencies other than US Dollar, changes in the exchange rate may increase or
decrease the debt even if no borrowing has taken place. Therefore, the choice of the sample period is dictated by the availability of consistent debt statistics that are important in estimating capital flight.

1.6 Organization of the Study

The study is organized in five chapters, including this introductory chapter. The next chapter reviews both the theoretical and the empirical literature on capital flight that is relevant to this study. The literature review provides an analytical background for the specification of the model. The third chapter presents the theoretical framework and detailed specification of the model that is later estimated. In the fourth chapter, the study presents data analysis, interpretation and discussion of the results based on model specified in chapter three. The last chapter contains summary, conclusions and policy recommendations drawn from the analysis, limitations of the study and the direction for further research.
2.0 Introduction

In this review, the focus is on theoretical and empirical literature on determinants of capital flight. The literature in general indicates that much attention has been devoted to this topic World-wide. However, the subject of capital flight has not received much attention in Kenya. What follows is a review of some relevant literature, and on the basis of this; the specific model to be estimated is presented and discussed.

2.1 Theoretical Literature

2.1.1 Portfolio Adjustment/ Allocation model

Capital flight when viewed as part of portfolio allocation theory implies that transfer of assets abroad is in response to objectives dictated by the theory. The theory assumes that investors seek to maximise profits by allocating their funds between domestic and foreign investment based on the relative risk-adjusted rates of return at home and abroad (Cuddington, 1986, Fedderku and Liu, 1999, collier et al, 2001, Boyce and Ndikumana, 2002). Following the logic of diminishing returns, the rate of return to capital should be higher in capital scarce developing countries than in capital-abundant developed countries, and capital should flow from the latter towards the former. If investment is riskier in developing countries, the net risk-adjusted returns may be lower and this could explain why capital continues to flow in opposite direction.

Walter (1987) noted that asset holders in the ordinary course of events engage in constant redeployment in their search for an efficient portfolio, one that maximises total returns under a
given risk constraint. Capital flight can be viewed as a three-way trade off among secrecy, expected returns and risk. Attempts to increase the secrecy of capital flight, perhaps to reduce the risk of detection of government authorities, will tend to reduce its return and/or increase its risk. Therefore, while perfectly hidden transaction may be possible, the costs in foregone return and increased risk can be quite large. As a result, capital flight reflects a compromise among secrecy, return and risk.

Shibuya (2001) presented a model of economic development and capital flight with free international capital flows. The model assumed that; capital markets are integrated and form an efficient global capital market, there are no obstacles to international capital flows and the economic growth of developing countries depends on capital inflows from global capital markets. In addition, the model assumed that aggregate production function exhibits increasing returns to capital in early stage and decreasing returns to capital in later stage. The model further assumed that there are a large number of international investors, and their portfolios consist of risk free assets and risky investment in a developing country.

The model emphasised the importance of strategic complementarity between the optimal portfolio decisions of international investors. In early stages of economic development, investments are complementary and the aggregate production function exhibits increasing returns to capital giving rise to strategic complementarity between the actions of international investors. Given a production function with increasing and decreasing returns to capital, the optimal portfolio decisions of international investors and their non-co-operative interactions give rise to: a pareto-inferior low capital accumulation and pareto-superior high capital equilibrium. Switches between the two equilibria correspond to the economic take off and
capital flight of developing countries. They are triggered by changes in the basic returns and risk factors namely: exchange rate risk, productivity risk and risk aversion of international investor. The development strategy of domestic capital accumulation and capital market liberalisation can also help achieve the high capital equilibrium. However, the economy may be trapped in the low capital equilibrium if the liberalisation is implemented before sufficient accumulation of domestic capital.

Hermes et al (2002) gave theoretical explanations to the determinants of capital flight that have a direct influence on the portfolio decisions of individuals. Macroeconomic instability was given as the major determinant, and it may be as a result of political instability, lack of incentive structures and institutions to let markets efficiently co-ordinate demand and supply. Macroeconomic instability in a country may be manifested by rising budget deficits, increase current account deficits, exchange rates overvaluation and rising inflation.

Overvalued exchange rates lead to increasing expectations of depreciation in the near future. This in turn would lead to rising prices of foreign goods relative to those of domestic goods, and thus to loss of real income. To avoid welfare losses, residents hold at least part of their assets abroad. High inflation directly erodes the real value of domestic assets, stimulating residents to hold assets outside the country. High current account deficits may have a similar impact on exchange rate expectations, and may thus be a stimulus for capital flight. The government budget deficit may stimulate capital flight since it raises expectations of residents with respect to future tax increases or increases in inflation tax, and in both cases the real value of domestic asset is eroded leading to capital flight.
In relation to political instability, the institutional context may give rise to capital flight. Public sector behaviour may have an impact on the risks and uncertainty regarding the policy environment and its outcomes. Residents may decide to hold their assets abroad based on lack of confidence in the domestic political situation, perceived high levels of corruption and the consequences of these factors on the future value of their assets. Erosion of future wealth is based on the expectation that domestic political instability causes rising macroeconomic instability, leading to rising budget deficits, current account deficits, exchange rate uncertainty and high inflation.

As a result of rate of return differentials, capital flight may occur simply because the returns of assets are higher abroad as compared to assets held domestically. Increased capital inflows resulting from growing government guaranteed foreign debt may increase expectations about exchange rate depreciation, which provides a stimulus to hold foreign assets. Simultaneous capital inflow and outflow may be due to asymmetric information about expected returns on domestic assets between domestic and foreign investors. Residents face a higher risk of a reduction in the value of their domestically held assets as compared to foreign investors. This may lead to a situation where domestic investors buy foreign assets while foreign investors buy domestic assets at the same time.

When residents hold large amounts of foreign assets, the tax base is reduced considerably. Under these circumstances, the tax burden due to increased public expenditures and foreign borrowing has to be shared by a smaller tax base, hence increasing the burden per unit of domestically held asset. Consequently, this would further stimulate residents to take their money abroad. Thus, the larger the stocks of capital flight, the higher the incentives to flee.
The Public policy uncertainty may also be a factor determining capital flight. If the content and direction of current and future public policies are uncertain and/or unstable, domestic investors will be uncertain about the impact of these policies on the real value of domestically held assets in the future. This uncertainty may stimulate investors to sell their domestic assets and buy foreign assets.

In general, the highlighted theoretical studies provide explanations for capital outflows. Private capital outflow was seen as a result of individual investors' reading of investment climate. The view of capital flight as part of portfolio allocation decision is implicit in the theoretical literature reviewed and as will be seen below, most of empirical literature used portfolio allocation theory with some variations in additional variables to explain capital flight.

2.2 Empirical Literature

2.2.1 General Literature

In a study that covered Argentina, Mexico, Uruguay and Venezuela over the sample period 1974-1982, Cuddington (1986) examined the economic determinants of resident capital outflow. Using the portfolio adjustment model, the factors that explain resident capital outflow are: the expected inflation rate, foreign interest rate, domestic interest rate and disbursement of public and publicly guaranteed loans. At any particular time, domestic investors are assumed to allocate their wealth among domestic financial assets, domestic inflation hedges such as land and foreign financial assets. An increase in foreign financial assets owned by domestic residents constitutes resident capital outflow.
There were cross-country differences in determinants of capital flight. For Mexico, capital flight was highly correlated with overvaluations of the exchange rate, disbursement of public debt and lagged capital flight. In Argentina and Uruguay only lagged real effective exchange rate and lagged error of the model were correlated with capital flight. In the case of Venezuela, the only statistically significant determinants were overvaluation of exchange rate and foreign interest rates.

In another study of the determinants of capital flight from Latin American countries, Pastor (1990) used the changes in inflation rate, financial incentive for capital flight, the degree of foreign exchange rate overvaluation, the capital availability, the difference between the domestic and US growth rates, the tax revenue as a percentage of GDP and the lagged value of labour share of income as explanatory variables in the model. The model was estimated using Ordinary Least Square (OLS) method on pooled data over the period 1973 to 1986. All the estimated coefficients were found to have expected signs except the difference between the domestic and US growth rates. Moreover, all coefficients were significant except that on tax revenue as a percentage of GDP.

Schineller (1997b) uses panel data to analyse capital flight from a group of seventeen developing countries over the period 1978 to 1993. The econometric study specifically attempted to examine the relationship between capital flight and the degree of macroeconomic mismanagement, postulated to generate a domestically undiversifiable risk that can significantly reduce the returns on domestic investment.
The econometric results based on the Generalised Least Square (GLS) estimator indicated a statistically significant inverse relationship between the central government surplus and capital flight. The results highlighted the motivation of domestic residents to export capital in order to escape future taxation. The black market exchange rate was found to be negatively related to capital flight but statistically insignificant. The coefficient on IMF adjustment programmes variable was found to be statistically insignificant and negatively correlated with capital flight. This provided weak evidence that an IMF program lends credibility to stabilisation program and stem capital flight. The coefficient of capital control variable was statistically insignificant, and its coefficient was negative. The result was based on a control measure in which dummy variables corresponding to restrictions on payments for capital transactions was summed.

Further empirical evidence on capital flight is provided by Antzoulatos et al. (2000). They use a panel of seventeen Eastern European countries for the period 1993:4 to 1999:2. The explanatory variables in the model include; the domestic inflation rate, the domestic nominal interest rates, the difference between domestic and international nominal interest rates, the size of external sector, the government balance, the changes in real exchange rate, the foreign direct investment and the number of capital controls. Also included in the model are dummies for the exchange rate regime namely; pegged exchange rate regime, managed float, limited flexibility and free floating exchange rate regime. Estimated equation also included country dummies to capture country specific effects such as political situation and stage of reforms.

The coefficients of real exchange rate, lagged inflation and government deficits variables were found to be statistically significant. Also, the dummy for pegged exchange rate was found to be
significant and had negative sign. The coefficients of foreign direct investment and the number of capital controls were found to be insignificant.

Another recent study, Collier et al (2001) uses a sample of fifty countries from SSA, Latin America, South Asia, East Asia and Middle East to analyse capital flight as a portfolio choice. The SSA sample consisted of twenty-two countries including Kenya. The proportion of private total wealth held abroad, and the proportion of private real wealth held abroad was used as dependent variable. The explanatory variables in the model include; the capital/labour ratio, foreign debt, the dollar distortion index, M2/GDP, the institutional investor risk rating and the corruption index.

The econometric results based on the proportion of private total wealth held abroad and the proportion of private real wealth held abroad, as dependent variables, were giving similar results, although the later gave the best fit. The coefficients of capital/labour ratio and the dollar distortion index variables were found to be significant. Also, the ratio of foreign debt/GNP was found to be significant, however, the variable was found to fit best as a square of the ratio. Moreover, the residual of the institutional investor rating was found to have expected negative sign but statistically insignificant, and the measure of financial development, M2/GDP, was found to be statistically insignificant. However, comparison of the results based on two other measures of capital flight indicated that the coefficients of the variables were reasonably stable.

Abdullah et al. (2003) uses time series data to analyse determinants of capital flight from Thailand over the period 1980-2000. Capital flight was modelled as a function of the real capital flight in previous period, the total debt, the total debt in previous period, the level of
income proxied by the gross domestic product in previous period and a dummy variable for Asian financial crisis, with value of 1 during the crisis and 0 otherwise.

The empirical findings based on Ordinary Least Square (OLS) method indicated that the coefficient on total debt variable, the level of income variable proxied by previous years GDP and a dummy variable for Asian financial crisis were positive and statistically significant. Moreover, the coefficient for past debts variable was found to be negative and statistically significant.

2.2.2 Literature specific to Africa Countries.

In a study on Nigeria, Ajayi (1992) uses time series data to analyse determinants of capital flight over the period 1971-1989. The explanatory variables in the model include; growth rate in gross national product, the foreign interest rate, the international real interest rates differential, the changes in inflation rate, the degree of appreciation and depreciation of exchange rates proxied by percentage change in the market rate index, the level of country's foreign exchange reserves, the financial repression and the ratio of fiscal surplus/deficit as a percentage of GNP.

The empirical results based on Ordinary Least Square (OLS) estimation method indicated that the coefficient of real interest rate differential, growth of domestic economy, degree of appreciation/depreciation of exchange rate, foreign interest rate and the fiscal deficit of government variable were found to be statistically significant.
Using South Africa data, Fedderku et al. (1999) modelled the determinants of capital flows and capital flight over the period 1960 to 1995. Normal capital flows and capital flight are both fundamentally driven by rates of returns and risks factors with positive responses to rates of return and negative responses to risk. The study defined the expected return on a portfolio of capital assets as:

$$E(R) = D^r - D^c + F^r - F^c$$

Where $D^r$ and $F^r$ are the returns on domestic and foreign capital assets respectively while $D^c$ and $F^c$ are the cost of adjustment of domestic and foreign capital assets holding respectively. Domestic inflation, the exchange rate- adjusted interest differential, the ratio of tax revenue to GDP, the budget deficit as a percentage of GDP, the GDP growth rate and the percentage of GDP allocated to labour remuneration were used as proxies for rates of return on capital assets. For risk factors, the degree of over or under valuation of the exchange rate, capital availability, financial liberalisation, the ratio of total foreign debts to GDP and political factors was used as proxies.

The study estimated Autoregressive distributed lag models using three measures of capital flight, namely; balance of payments, residual and the non-bank cross border deposits approach. The responsiveness of different measures of capital flight to rate of return and risks factors differed. All measures showed a response to the process of financial liberalisation. Higher instability and political liberalisation both served to stimulate capital outflows. The aggregate growth measure contributed significantly to capital flows. The study concluded that capital flight from South Africa show strong sensitivity to risk factors and political factors.
Olopoenia (2000) uses time series data to analyse capital flight from Uganda over the period 1971 to 1994. Capital flight model was specified as a function of domestic rate of inflation, the growth rate of domestic GDP and the parallel exchange rate premium as a proxy for currency overvaluation. The estimation results based on Ordinary Least Square (OLS) method indicated that only the coefficient of domestic inflation rate variable was statistically significant.

Further empirical evidence on capital flight is provided by Nyoni (2000). The study used time series data to analyse determinants of capital flight from Tanzania over the period 1971-93. The explanatory variables in the model include; the growth differential between the UK and Tanzania real GDP growth rates, the parallel market premium on exchange rate, the domestic inflation rate, the financial incentive for capital flight measured as the difference between UK and Tanzania deposit interest rate, the dummy for external shocks, the dummy for political shock and the lagged capital flight.

The model was estimated using Ordinary Least Square (OLS) technique. The coefficients on the variables were found to be jointly significant. However, at the level of individual variables, the empirical results indicated that only the coefficient of UK-Tanzania real GDP growth differential and lagged capital flight variable were found to be statistically significant.

In a study that covered Kenya, Ng’eno (2000) used quarterly data over the sample period 1981.Q4 to 1995.Q1 to modelled capital flight. The explanatory variables in the model include; interest rate differential (foreign interest rates-domestic interest rates), the real GDP and the real exchange rate.
The study estimated Error Correction Model (ECM), and it was found that the coefficients on real GDP, real exchange rate and interest rate differential variable were statistically significantly. In addition, the coefficients on real GDP and real exchange rate variable were positive, while the coefficient on relative return variable was negative.

In another study of the determinants of capital flight from Nigeria, Okit (2001) uses time series data over the period 1970-2000 to examine factors that cause capital flight. The explanatory variables in the model include; the financial incentive for capital flight, the difference between Nigeria and US real GDP growth rates serving as a proxy for relative profitability of investment in the domestic real sector, the parallel market premium as a proxy for the degree of real exchange rate overvaluation and a dummy for political and external shocks.

The model was estimated using Ordinary Least Square (OLS) method. The empirical findings indicated that that only the coefficient of domestic inflation rate and a measure of capital availability variable were statistically significant. The study concluded that the major determinants of capital flight from Nigeria are the domestic inflation rate, availability of capital, parallel market premium and the competitive growth rate of the economy.

Another recent study, Boyce and Ndikumana (2002) investigated the determinants of capital flight from thirty Sub Saharan countries including Kenya over the period 1970-1996. In the analysis the authors take advantage of the panel structure of the data set. The potential determinants investigated in the model were classified into the following categories: Capital flows and stocks and the study used the annual change in total debt stock as a measure of capital inflows and the stock of debt as a measure of debt overhang. As indicators of the
macroeconomic environment, the study used annual growth rate of real per capita GDP, the growth differential between the African country and the USA, the growth differential between the country and its OECD trading partners, the annual inflation rate, the inflation rate differential between the country and USA, and export as a percentage of GDP.

Another category was the fiscal policy, and the indicators used were primary budget deficit, the overall fiscal deficit and the tax/GDP ratio. In addition, the percentage change in real exchange rate was used as an indicator of risk associated with investing domestically. And as indicators for risk and returns to investment, the domestic deposit rate, the spread between the domestic lending rate and the deposit rate, and the difference between the domestic deposit rate and the US Treasury bill rate were used.

In order to investigate the role of measures of financial intermediation on capital flight, the study used the ratio of total liquid liability (M3) to GDP, which serves as a proxy for the size of the financial system, and the credit to the private sector as a percentage of GDP was used to measure availability of credit in domestic financial market. In the category of government and political environment, the indicators used are the political freedom and civil liberty, voice and accountability, government effectiveness, risk of contract repudiation and corruption.

The strongest finding of the study was that external borrowing was an important determinant of capital flight. In the pooled data analysis, the coefficient of change in the external debt and lagged debt stock/GDP ratio variable were positive and statistically significant. Also coefficient on lagged capital flight variable was positive and statistically significant, and this suggested tendency of capital flight to persist over time. Moreover, the coefficient of growth
rate differential between the African country and its OECD trading partners was negatively related to capital flight, and same results was obtained on using the African country's growth rate or growth rate differential between African country and the US.

The effect of inflation on capital flight was positive but statistically insignificant in regression with pooled annual data as well as in cross sectional regression. The same result was obtained using the inflation differential between the African country and US. Regression with pooled data revealed a positive and statistically significant effect of exports on capital flight whiles the cross sectional regression yielded a negative and statistically insignificant coefficient on the export/GDP ratio. The coefficient of primary budget deficit was negative and statistically significant effect on capital flight in cross sectional regression but the effect was positive and statistically significant in regression with pooled annual data. The regressions with the overall deficit/GDP ratio and tax/GDP ratio produced statistically insignificant coefficients.

The estimated coefficients on the difference between domestic and US interest rate had the expected negative sign in both pooled and cross sectional regressions but in neither case was statistically significant. The estimated coefficient of real exchange rate, the domestic deposit rate and the spread between the domestic deposits and lending rates variables had expected signs only in the case of the change in real exchange and in no case were they statistically significant. The credit to the private sector coefficient was negative and statistically significant in cross sectional regressions and the effect was nearly significant in panel data regression.

The regression results further indicated no significant relationship between liquid liabilities (M3/GDP) and capital flight in panel data analysis. In the pooled data analysis, the estimated
coefficients on political freedom, voice and accountability, government effectiveness, risks on contract repudiation and corruption variables all have expected signs but they were statistically significant only in the case of voice and accountability and corruption. In the case of cross sectional regressions, the coefficient on government effectiveness had the expected sign and was almost statistically significant, while coefficients on other indicators were found to be statistically insignificant.

2.3 Overview of the Literature

Most of the reviewed empirical studies suggest that capital flight is a response to an unstable and uncertain political and/or macroeconomic environment. Instability and uncertainty could arise due to domestic macroeconomic policies, deterioration in external climate and/or political shocks. The rate of inflation and the growth rate of the economy were mostly used as indicators of macroeconomic environment. That notwithstanding, none of the studies reviewed except Boyce and Ndikumana (2002), examined the ratio of exports to GDP as a possible determinant of capital flight. Yet in the case of Kenya as well as other Sub-Saharan African countries this is a relevant macroeconomic environment indicator, in that exports not only provide a source of foreign exchange, but also an arena for corruption activities.

Although, literature points to many potential determinants of capital flight from a country. Ng’eno’s (2000) study ignored a number these factors. These include, among others, the role of political and governance factors, capital inflows and fiscal policies on capital flight. It is expected that political instability and poor governance would contribute to poor economic performance, higher uncertainty and a negative overall investment climate, all of which discourages investment and encourages capital flight. Also, despite the chronic budget deficits the country had experienced over the years, the study did not explore its effect on capital flight.
Budget deficits are expected to be correlated with capital flight, since high budget deficit motivates the potential investors to move their capital abroad to escape future taxation directly and indirectly via monetization of deficits.

Moreover, capital inflows in the form of increase external borrowings are an important potential determinant of capital flight from Kenya. This is because growing external debts increase expectations about exchange rate depreciation and increase taxation, which provides stimulus to hold foreign assets. Also, Kenya government had an important exchange rate policy shift in 1993 from fixed exchange rate policy to a flexible exchange rate policy, and the impact of this on capital flight requires consideration. Although there is no a priori reason to criticise the Error Correction Model (ECM) model estimated by Ng’eno (2000), it is worth pointing out that the low and insignificant coefficient of ECM raises doubts about the reliability of the long run capital flight model estimated. It was therefore necessary to do an empirical re-examination of capital flight from Kenya.

Another observation from the literature review is that few of the empirical studies have investigated the role of capital inflows in determining capital flight. Except Cuddington, (1986) who used annual external loans as one of the explanatory variable and Boyce and Ndikumana (2002) and Collier et al (2001) who used the impact of the stock of debt on capital flight, all other studies ignored the impact of capital inflows on capital flight. A high debt overhang can drive capital flight by worsening the macroeconomic environment and increasing the likelihood of debt crisis.
Also, the role of financial development received relatively little attention in the empirical literature reviewed on capital flight. In principle, financial development can reduce capital flight if accompanied by an expansion of opportunities for domestic portfolio diversification. In particular, if financial markets are liberalised and international capital movements are deregulated, domestic capital may be expected to flow abroad as long as risk-adjusted returns are higher elsewhere.

3.2 Theoretical Framework

The share of finance's role in the context of liberalisation.

The financial market is rational and efficient, where capital is allocated to the most productive use.

3.3 Methodology

The methods employed include econometric analysis and panel data regression.

The empirical analysis is conducted using a sample of countries over the period 1990-2010.
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction.
The literature reviewed in the previous chapter identified various factors determining capital flight in various countries. This chapter presents a framework of analysis on the basis of these studies.

3.2 Theoretical Framework

This study adopts Cuddington’s (1986) portfolio adjustment model. The model assumes a standard three-asset portfolio composed of domestic financial assets \((D_1)\), domestic inflation hedges such as land \((H_1)\) and foreign financial assets \((F_1)\). Also, capital assets \((CAS)\) are assumed to be fundamentally driven by risk and return to investment \((ROI)\), macroeconomic environments \((ME)\), fiscal policies \((FP)\), financial development \((FD)\), capital inflows \((CI)\) and government and political environment \((PE)\) (Boyce and Ndikumana, 2002 and Hermes et al, 2002).

\[
CAS = f(ROI, ME, FP, FD, CI, PE) \tag{3.1}
\]

However, return on investment \((ROI)\) is determined by the change in exchange rate \((ER)\), the difference between domestic interest rate and international interest rates \((id)\). The macroeconomic environment \((ME)\) is characterised by annual growth rate of real GDP \((Gr)\), annual inflation rate \((inf)\) and the country’s export \((Ex)\). Government fiscal policies \((FP)\) are characterised by budget deficits \((Bd)\). Financial development \((FD)\), which is a measure of financial intermediation in the country depends on the size of the financial system proxied by the ratio of M2 to GDP. M2 is the sum of currency outside bank and demand deposits plus...
quasi-money of central bank and commercial banks, and the credit availability \((Ca)\) in the domestic market. The annual change in debts \((CD)\) and lagged external debt stock \((EDT)\) determines capital inflows into the country. Governance and political environment \((PE)\) is characterised by political freedom and civil liberty \((pc)\), accountability \((va)\), corruption \((c)\) and risk of contract repudiation \((cr)\).

Therefore, (3.1) can be written as

\[
CAS = f(ER, id, Gr, \pi, Ex, Bd, M2, Ca, CD, EDT, pc, va, c, cr)
\]  

(3.2a)

Alternatively, (3.2a) can be written as

\[
CAS_i = X_i b_{ij}
\]  

(3.2b)

Where \(CAS_i\) is capital asset \((i)\) at time \((t)\) \(X_i\) is a vector of explanatory variables and \(b_{ij}\) is the coefficient of explanatory variable \((j)\) of asset \((i)\).

At time \(t\), domestic households are deemed to allocate their wealth among domestic financial asset \((D)\), domestic inflation hedges such as land \((H)\) and foreign financial assets \((F)\). The target levels of these private holdings are assumed to be proportional to steady state wealth, which is assumed to be constant. The target levels of these private assets demand are:

\[
\begin{bmatrix}
D_i \\
H_i \\
F_i
\end{bmatrix} = X_i b_{ij}
\]  

(3.3)

Where \(D_i, H_i, and F_i\) are target levels of domestic financial assets, land holdings and foreign financial assets respectively, \(X_i\) is a vector of explanatory variables as in equation (3.2b).
The expected returns $E(R)$ on a portfolio of capital asset can be defined as in Fedderke and Liu (1999):

$$E(R) = D^R - D^C + F^R - F^C$$  \hspace{1cm} (3.4)

Where: $D^R$ and $F^R$ are returns on domestic and foreign assets respectively. $D^C$ and $F^C$ are adjustment costs of domestic and foreign assets respectively. Owing to the portfolio adjustment costs, the target levels of foreign asset demand are approached gradually over time by partial adjustment mechanism given below:

$$\Delta F_t = \delta_1 (D_t - D_{t-1}) + \delta_2 (F_t - F_{t-1}) + \delta_3 (H_t - H_{t-1})$$  \hspace{1cm} (3.5)

Where: $\Delta F_t$ is the year-to-year increase of foreign financial asset.

$D - D_{t-1}$, $F - F_{t-1}$, and $H - H_{t-1}$ are the desired changes of domestic financial asset, foreign financial asset and domestic land holding respectively.

$\delta_i$ is the coefficient of adjustment and $0 < \delta_i < 1$ for all $i$ and $j$.

Substituting the target assets demands equation (3.3) into equation (3.5) and simplifying gives:

$$\Delta F_t = X_i a_i - \delta_1 D_{t-1} - \delta_2 H_{t-1} - \delta_3 F_{t-1}$$  \hspace{1cm} (3.6a)

Equation (3.6a) shows capital flight ($KF_t$) defined, as the year-to-year increase in domestic holdings of foreign financial assets ($\Delta F_t$) as a function of the factors assumed to drive capital asset ($X_i$) and the lagged values of private assets holding ($D_{t-1}, F_{t-1}, H_{t-1}$).

### 3.3 Empirical Framework

This section specifies the model to be estimated. From equation (3.6a) in the previous section, capital flight equation can be specified as:

$$KF_t = X_i a_i - \delta_1 D_{t-1} - \delta_2 H_{t-1} - \delta_3 F_{t-1} + u_t$$  \hspace{1cm} (3.6b)
Where $KF_t$ is capital flight at time $t$, $X_t$ is the vector of explanatory variables, $D_{t-1}, H_{t-1}$ and $F_{t-1}$ are lagged values of domestic financial assets, land holdings foreign and financial assets respectively. $u_t$ is the error term.

However, it was difficult to measure the indicators of government and political environment (PE) such as; political freedom and civil liberty (pc), accountability (va), corruption(c) and risks of contract repudiation (Cr), which are included in the vector of explanatory variables. As observed in Figure 1.0 (p.8), the electioneering periods suspected to be politically unstable, for instance 1992 and 1997, experienced capital flight repatriations. Hence, because of lack of appropriate proxy to capture effects of political instability on capital flight, it was excluded in the model to be estimated. However, the extreme values operating in the periods 1979, 1987, 1990 and 1998, was captured by a dummy interactive term (DU) introduced in the function to allow for slope shifts.

However, the lagged value of domestic inflation hedges such as land was dropped in estimating the capital flight equation. This is because of the difficulty involved in measuring the total private land holdings, and the inflation hedges could be in other forms of physical assets such as buildings, and also, based on the fact that the size of total land in a country remains constant over time. Moreover, the lagged values of capital flight ($KF_{t-1}$) was used as a proxy for lagged values of foreign financial asset, which capture the tendency of capital flight to persist overtime. In addition, a dummy for exchange rate regime was used to capture the effect of exchange rate liberalisation policy on capital flight, and comparison was done between two periods; $Dumer =1$ for fixed exchange rate regime period and $Dumer =0$, otherwise.
Therefore, from the foregoing analysis, the equation estimated in this study is given as:

\[ KF_t = a_0 + a_1 Du_t + a_2 Dumer + a_3 Er_t + a_4 Id_t + a_5 Gr_t + a_6 inf_t + a_7 Ex_t + a_8 Bd_t + a_9 M2_t + a_{10} Ca_t + a_{11} CD_t + a_{12} EDT_t + a_{13} KF_{t-1} + u_t \]  

(3.7)

Where: \( u_t \) is the error term and \( a_i \) are coefficients of the explanatory variables.

### 3.4 Hypotheses

In this section, the working hypotheses of the study are provided. These hypotheses are drawn from the theoretical model and the literature reviewed.

i) Dummy interactive term \((Du)\) sign is not known apriori.

ii) Exchange rate regime dummy \((Dumer)\) sign is not known apriori.

iii) Exchange rate \((ER)\) is expected to have positive relationship with capital flight.

iv) Interest rate differential \((Id)\) coefficient is expected to have a negative sign.

v) Growth rate \((Gr)\) is expected to have negative relationship with capital flight.

vi) Inflation rate \((Inf)\) is expected to have a positive relationship with capital flight.

vii) Export \((Ex)\) is expected to have a positive relationship with capital flight.

viii) Budget deficit \((Bd)\) is expected to have a positive relationship with capital flight.

ix) Total liquid liability \((M2)\) is expected to relate negatively with capital flight.

x) Capital availability \((Ca)\) is expected to relate negatively with capital flight.

xi) Change in debt \((CD)\) is expected to have positive relationship with capital flight.

xii) Lagged stock of debt \((EDT)\) is expected to relate positively with capital flight.

xiii) Lagged capital flight \((KF_{t-1})\) is expected to relate positively with capital flight.
3.5 Definition and Measurement of the Variables.

**Capital flight** \((KF)\) is the year to year increase in ownership of foreign financial assets by domestic residents. It is proxied by annual real capital flight.

**Du** is a dummy interactive term introduced in the function to allow for slope shifts. It is proxied by \(Du = 1\) for periods with extreme values: 1979, 1987, 1990, 1998 and zero otherwise.

**Dumer** is a dummy variable for exchange rate regimes used to capture the effect of exchange rate liberalization on capital flight. \(Dumer = 1\) if period before 1993 (fixed exchange rate regime) and zero otherwise.

**Exchange rate** \((ER)\) is the exchange rate defined as Kenya shillings per US dollar. It will be measured by the average annual rate at which the Kenya shillings buy one US Dollar.

**Interest rate differential** \((id)\) is the difference between Kenya’s real interest rate and international interest rate. It is proxied by the difference between the Kenya’s 91 day Treasury bill rate and the US 91 days Treasury bill rates. Treasury bill rate was chosen since it is a good proxy of risk free rate of interest in a country.

**Growth rate** \((Gr)\) is the annual percentage rate of increase in an economic variable during a specified time period. It is proxied by real annual domestic growth rate in GDP.

**Inflation rate** \((\pi)\) is the increase or decrease in the average price of goods and services. It is proxied by the changes in consumer price index.

**Export** \((EX)\) is the total export of goods and services and it is measured by total domestic exports in US dollars.

**Budget deficit** \((Bd)\) is the difference between total government revenue and expenditure in a fiscal year. It is measured by annual fiscal deficit in US dollars.
Total liquid liability \((M_2)\) measures the size of financial system in the country. \(M_2\) is the sum of currency outside bank and demand deposits plus quasi-money of central bank and commercial banks. It is proxied by \(M_2\) as a percentage of GDP.

Credit availability \((Ca)\) measures access to credit by private sector and it is proxied by credit to private sector as a percentage of total domestic credit.

Change in debt \((CD)\) is annual inflow of external borrowing. It is proxied by annual change in external debt stock.

Lagged Total debt stock \((EDT)\) measure debt overhang and it is proxied by previous period total debt stock.

Lagged capital flight \((KF_{t-1})\) is the annual real capital flight of the previous period.

3.6 Research Design

In order to model the determinants of capital flight from Kenya, this study employed quantitative data collection approach. And the quantitative data on the variables defined in subsection (3.5) was obtained from published sources. Time profile of the variables and the relationship between capital flight and its potential determinants in Kenya was achieved through the regression analysis.

3.7 Data Type and Sources

To achieve the objectives of the study, annual time series data was used. The data used in this study was collected from various secondary sources. The secondary sources includes; the International Financial statistics \((IFS)\) May 2003 CD-ROM, World Bank Africa database 2001 CD-ROM, and from the Republic of Kenya, statistical abstracts.
3.8 Data Collection

Secondary data was utilised for the purpose of this study. The data collected covers the period 1971 to 2001. The brevity of the sample period was dictated by the availability of consistent data, most of which are compiled on an annual basis. The collected data was for the following variables; capital flight, exchange rate, interest rates differential, growth rate, inflation rate, exports, budget deficits, M2/GDP, capital availability, change in debts and total debt stock.

3.9 Data Cleaning, Refinement and Analysis

The quantitative data collected were coded and edited for completeness and accuracy. Excel package was used for data entry. In order to counter the effect of price inflation on the variables, the annual GDP deflator was used to deflate the variables into their real forms. The variables deflated include; capital flight, exchange rate, GDP growth rate, exports, budget deficit, changes in debts and stock of debts.

Analysis was done using Eviews econometric software. Analysis began by providing descriptive statistics for each variable used in the model. Stationarity tests on all the variables were performed using graphical approach and Augmented Dickey Fuller (ADF) test. Since the real capital flight, which is the dependent variable was found to be stationary at level, it was impossible to carry out cointegration test to establish whether the variables are cointegrated. Hence, short run capital flight model was estimated by using the ordinary least square technique, after making the non stationary variables stationary by differencing. Various diagnostic tests were performed to check on the reliability of the model, which pave way for interpretations and discussions of the results.
CHAPTER FOUR

EMPIRICAL FINDINGS

4.1 Introduction

This chapter presents descriptive statistics of all the key variables used in the model, and empirical results based on the empirical model outlined in chapter three. Prior to model estimation, time series properties of the data were determined using graphical approach and Augmented Dickey Fuller (ADF) test. Since real capital flight, which is the dependent variables, is found to be stationary at levels, it was not possible to establish cointegration in the model variables. Hence, the non stationary variables were made stationary by differencing, and equation (3.7) estimated using ordinary least square technique, which was then used to carry out various diagnostic tests.

4.2 Descriptive Statistics

In this section, general descriptions of all the key variables used in the model are provided. And this shows the mean, the maximum and the minimum values for each variable.

Table 4.1: Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>KF</th>
<th>ER</th>
<th>ID</th>
<th>GR</th>
<th>INF</th>
<th>EX</th>
<th>BD</th>
<th>M2</th>
<th>CA</th>
<th>CD</th>
<th>EDT</th>
<th>KFBP</th>
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<tbody>
<tr>
<td>Mean</td>
<td>539.1</td>
<td>27.97</td>
<td>7.14</td>
<td>3.69</td>
<td>8.7</td>
<td>1190</td>
<td>-204.5</td>
<td>34.17</td>
<td>63.07</td>
<td>209.8</td>
<td>4230.1</td>
<td>-7.678</td>
</tr>
<tr>
<td>Max</td>
<td>1739</td>
<td>98.38</td>
<td>79.3</td>
<td>9.45</td>
<td>46</td>
<td>2279</td>
<td>0.501</td>
<td>48.38</td>
<td>87.62</td>
<td>936.4</td>
<td>11561</td>
<td>200.3</td>
</tr>
<tr>
<td>Min</td>
<td>-223</td>
<td>5.732</td>
<td>-8.02</td>
<td>-0.8</td>
<td>-44.9</td>
<td>560.7</td>
<td>-424.4</td>
<td>26.7</td>
<td>49.15</td>
<td>-680</td>
<td>785.84</td>
<td>-402.1</td>
</tr>
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<td>31</td>
<td>31</td>
<td>31</td>
<td>31</td>
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<td>31</td>
<td>31</td>
<td>31</td>
<td>31</td>
<td>31</td>
</tr>
</tbody>
</table>


Over the sample period, 1971 to 2001, real capital flight estimates from Kenya derived using residual approach was US$ 539 million on average, and the maximum and the minimum levels of real capital flight experienced were US$1739 and -US$223 million respectively. On average, real exchange rate experienced was Ksh 27.97 per US dollar, and the highest and
lowest rates were Ksh 98.38 and Ksh 5.73 per US dollar respectively. In addition, real interest rate differential was 7.14 percent on average, and the maximum and minimum levels of interest rate differential were 79.3 percent and -8.02 percent respectively. On the other hand, real GDP growth was 3.7 percent on average, and the highest and lowest growth rates experienced over the sample period were 9.45 percent and -.0.8 percent respectively. The inflation rate on average was 8.7 percent, and the highest and lowest rates of inflation experienced were 46 and -45 percent respectively. Real exports were US$1190 million on average, and the maximum and minimum levels of real exports were US$2279 and US$561 million respectively. The average budget deficit experienced over the sample period was US$205 million, and the highest level of deficit was US$ 424 million, and a budget surplus of US$0.5 million. Moreover, the proxy measure of financial development, M2/GDP, was on average 34 percent over the sample period, and its maximum and minimum levels were 48 and 27 percent respectively.

Also, a proxy measure of capital availability, the ratio of total private sector to total domestic credit, was 63 percent on average, and the highest and the lowest levels experienced were 88 and 49 percent respectively. Change in external debts was US$210 million on average, and the maximum and minimum changes in external debt were US$936 and US$ -680 million respectively. In addition, total external debt was US$4230 million on average, and the highest and lowest amounts experienced were US$11560 and 786US$ million respectively. However, the capital flight estimates derived using balance of payment approach indicate that real capital flight experienced was -US$8 million on average, and the highest and lowest levels experienced were US$200 and -402 million respectively over the sample period 1971 to 2001.
4.3 Econometric Results

4.3.1 Unit Root Tests

In this section, time series characteristics of the variables to be modeled were examined. The underlying process that generates time series variables need to be known whether they are stationary or non-stationary. Non stationary variables may lead to spurious regression; in this case, the results may suggest statistically significant relationships between the variables in the model, when in fact, this is just evidence of contemporaneous correlation. This study uses graphical approach and the Augmented Dickey Fuller (ADF) test to examine stationarity of the key variables in the model.

4.3.1.1 Graphical Method

The time profiles of key variables in the model over the sample period 1971 to 2001 are reported in Appendix B. Stationarity test involves looking at the trends of the variables to detect whether they exhibit constant mean and variance. As shown in Appendix B, the annual movement in real exchange rate, interest rates differential, real growth rate, inflation rate, real exports, real budget deficits, total liquid liabilities (M2/GDP), capital availability, change in debts and total debt stock over the sample period are characterised by fluctuations and volatility. The observed movements suggest that all the variables exhibit non-constant mean and variance. According to Harris (1995), this is evidence for either deterministic or stochastic trends. However, basing a decision on whether or not a series is non-stationary by visual inspection may be misleading. A widely used test for stationarity is the Augmented Dickey Fuller (ADF) test.
4.3.1.2 Augmented Dickey Fuller (ADF) Tests

In the Augmented Dickey Fuller (ADF) tests, a unit root test implies testing the significance of a null hypothesis that $\rho = 1$ against the alternative hypothesis that $\rho < 0$ in the following autoregressive equations:

(i) ADF with both the intercept and trend

\[ \Delta Y_t = \alpha + \beta T + \rho Y_{t-1} + \sum_{i=1}^{n} \delta_i \Delta Y_{t-i} + u_t \]  \hspace{1cm} (4.1)

(ii) ADF with an intercept but no trend

\[ \Delta Y_t = \alpha + \rho Y_{t-1} + \sum_{i=1}^{n} \delta_i \Delta Y_{t-i} + u_t \]  \hspace{1cm} (4.2)

The unit root tests results of the model variables are reported in Appendix C. The unit root tests are performed at different lag lengths because of the low power of the test. That is, the power of rejecting the null hypothesis when it is false, is low. The results show that real capital flight, interest rate differential, GDP growth rate, inflation rate and change in debts are stationary at levels. On the other hand, the results show that exchange rate, exports, budget deficit, M2/GDP, capital availability and the lagged stock of debts are non-stationary at levels, implying the acceptance of the null hypothesis of non stationarity. The tests establish further that all the non-stationary variables become stationary in their first difference. This means that they have a single unit, that is they are integrated of order one.

Capital flight model therefore, cannot be estimated with model variables at their levels without the risk of obtaining spurious regressions. However, real capital flight, which is the dependent variable, is found to be stationary at levels, and hence it was not possible to establish whether
the model variables are cointegrated. Cointegration test requires running a regression of the non stationary variables, and to test the residuals of this static model for presence of unit root. According to Harris (1995), if you have two series that is I(0) and I(1), then these two series cannot possibly be cointegrated as the I(0) has a constant mean while I(1) series tends to drift over time. These unit root test results implies that a short run capital flight model was to be estimated by first making the non stationary variables stationary by differencing. This means that long-run characteristics of the data were lost.

4.4 Model Estimation and Interpretation of Results

The capital flight equation (3.7) was estimated based on a measure of capital flight derived using residual approach, and the ordinary least square technique was used to estimate the equation. The differenced explanatory variables in the model estimated are; the real exchange rate, real exports, budget deficit, M2/GDP, capital availability and the lagged stock of debts. Estimation results are reported in Table D: 1 (see Appendix D).

As shown in Table E-1 (Appendix E), high correlation exists between exports and M2, lagged stock of debt, exchange rates and interest rates differential, and also high correlation exist between lagged stock of debts and real capital flight, capital availability, change in debts and real exchange rates. This is because the correlation coefficients between these variables are more than 0.45, which is the critical value of sample correlation coefficient at 10 percent level of significance. It was therefore necessary to drop exports and lagged stock of debts from the model, and the estimation results are presented in Table 4.3.
Table 4.3: Estimation Results without Exports and Lagged Total Debt Stock

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistics</th>
<th>Prob.</th>
</tr>
</thead>
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<tr>
<td>C</td>
<td>48.6523</td>
<td>112.3998</td>
<td>0.4328</td>
<td>0.6703</td>
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<tr>
<td>DU1</td>
<td>374.3607</td>
<td>113.7116</td>
<td>3.2923*</td>
<td>0.0041</td>
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<tr>
<td>DUMER</td>
<td>56.3751</td>
<td>109.2041</td>
<td>0.5162</td>
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<tr>
<td>ER1</td>
<td>3.9088</td>
<td>1.5574</td>
<td>2.5097*</td>
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<tr>
<td>ID</td>
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<tr>
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<td>0.4204</td>
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<tr>
<td>M21</td>
<td>-18.0288</td>
<td>9.1213</td>
<td>-1.9765**</td>
<td>0.0499</td>
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<tr>
<td>CA1</td>
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<tr>
<td>CD</td>
<td>0.8259</td>
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<td>0.0000</td>
</tr>
<tr>
<td>KF1</td>
<td>0.1584</td>
<td>0.0759</td>
<td>2.0871*</td>
<td>0.0299</td>
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<td>R-squared</td>
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<td></td>
<td>0.8680</td>
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<tr>
<td>F-statistic</td>
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<td>F_{0.05}(10,19)</td>
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<td>Durbin-Watson stat</td>
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<td>Prob(F-statistic)</td>
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<tr>
<td>t-critical value_{0.025 18 df}</td>
<td>2.1010</td>
<td>t-critical value_{0.05 18 df}</td>
<td>1.7340</td>
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</table>

Note * Significant at 5% level of significance ** Significant at 10% level of significance

As shown in Table 4.3, the estimated model based on residual measure to capital flight has an adjusted R-squared of 0.868, implying that 86.8 percent of the variations in capital flight are explained by the regression model. Moreover, the estimated results indicate that the dummy interactive term (DU1), which was introduced in the function to allow for slope shifts, the real exchange rate (ER1), real growth in GDP (GR), inflation rate (INF), change in debts (CD) and lagged capital flight (KF1) are statistically significant explanatory variables of capital flight at 5 percent level of significance. A proxy measure of financial development in Kenya, M2/GDP, is also a significant explanatory variable of capital flight at 10 percent level of significance. In addition, the dummy for exchange rate regime (DUMER), interest rates differential (ID), budget deficit (BD) and capital availability (CA) are not significant explanatory variables of capital flight at 5 percent and 10 percent level of significance. However, the F-statistics is 18.3414, which is greater than the theoretical F-value of 2.38, and this implies that a
meaningful relationship exists between the dependent variable (KF) and the independent variables as shown in table 4.3.

To check for reliability of the estimated model, as reported in Table 4.3, various diagnostic tests were performed. Estimated model passed residual serial correlation test, Jarque-Bera normality test, the white heteroskedasticity test and the stability test. The diagnostic test results are reported in Appendix E. As shown in Table 4.3, the Durbin Watson statistic is 1.8702 with P-value of 0.000, and this implies that there is insufficient evidence to conclude that the residuals are serially correlated. The residual passed Jarque-Bera normality test, as the probability value of the residual is insignificant (Prob>0.05). Thus the null hypothesis that the residual are normally distributed is accepted; implying that the linear model estimated is consistent. Moreover, the white heteroskedasticity test accept the null hypothesis of no Heteroskedasticity, since the probability value of the residual is insignificant (prob>0.05) and this implies that the residual has a constant variance.

In addition, the model was tested for stability. This is a test of structural change, based essentially on the model’s ability to predict correctly within the sample period used to estimate it. Since it is uncertain when structural change might have taken place in the economy, CUSUM test and the Ramsey reset stability test was used. As shown in Appendix E, the model passed stability test since the CUSUM stays well within the 5% significance boundaries. The Ramsey reset stability test indicates that the probability of the residual in insignificant (Prob>0.05), and thus the null hypothesis that the residual are stable is accepted.
In order to explore sensitivity of estimation results to different measures of capital flight, a comparison was made between model based on capital flight measure derived using the residual approach and that derived from balance of payment approach. The estimation results based on later approach are reported in Table D-2 (see Appendix D). As shown in Table D-2, the model estimated has adjusted R-squared of 0.2865, implying that only 28.65 percent of variations in capital flight are explain by the explanatory variables in the model. This is low compared to 86.8 percent for the model estimated based on capital flight measure derived using residual approach. In addition, Table D-2 indicates that only inflation (INF) and the change in external debts (CD) are the only statistically significant explanatory variables for capital flight at 10 percent and 5 percent level of significance respectively. Moreover, the F-statistics is 1.8442, which is less than the theoretical F-value of 2.38, and this implies that no meaningful relationship exists between the dependent variable (KFbp) and the independent variables as shown in Table D-2 (see Appendix D).

The variations in results could be explained by the fact that the balance of payment approach underestimate the magnitude of capital flight, and that could be the reason for not being used in most studies for empirical estimation. Thus, each of the approaches lead to somewhat different results, and this suggest that there is strong sensitivity of empirical results to different measures of capital flight. It also indicates the crucial importance of the issue of capital flight measurement. Therefore, in this study, the preferred capital flight model estimation results are as shown in Table 4.3, which used residual approach to derive capital flight estimates.
4.7 Discussion of Results

The coefficients of the capital flight model as reported in Table 4.3 represents the short run capital flight model, and capital flight estimates was derived based on residual approach. The ordinary least square estimation procedure was used to obtain the results. The dummy interactive term (DU1), which was introduced in the function to allow for slope shifts, that is, to capture the extreme values operating in the periods 1979, 1987, 1990 and 1998 is statistically significant. This shows that shocks exogenous to the model affect the changes in capital flight.

The exchange rate regime dummy (Dumer) has positive coefficient and is statistically insignificant. The positive sign of the coefficient concur with the findings of Antzoulatos et al (2000). The positive sign may be due to the fact that the Kenya shilling was pegged to the US dollar for a considerable long period without regard to the underlying economic conditions. Assuming all other factors constant, this implies that capital outflow may have increased as domestic residents tried to convert their money to foreign currency before the collapse of the fixed exchange rate regime.

Moreover, the coefficient of exchange rate (ER) variable has the expected positive sign, which is statistically significant. The results concur with the findings of Ng’eno (2000), Ajayi (1992) and Antzoulatos et al (2000). This result suggests that overvaluation of exchange rate leads to capital flight. When a nation’s currency is overvalued, there is expectation that the currency will depreciate, and this induces the private investors or savers to shift their portfolio composition in favour of foreign assets. So as money supply increases while foreign exchange earnings decline, the exchange rate become overvalued (Ndung’u, 1999). People expect the
exchange rate to be devalued and hence attempts are made to send their capital out of the
country to avoid the potential capital loss.

Contrary to theoretical expectation, the coefficient of interest rate differential (id) variable has
positive sign. This result concurs with the findings of Ng’eno (2000) and Ajayi (1992) that
found the coefficient to be positive and statistically significant. However, this study finds the
coefficient of the variable to be insignificant, and this could be attributed to use of different
proxy for interest rate differential. For instance, Ajayi (1992) used differential in Nigeria and
US interest rates on bank deposits as a proxy. The positive sign implies that if financial markets
are liberalized, and international capital movements are deregulated then domestic capital may
be expected to flow abroad as long as risk-adjusted returns are higher elsewhere.

As expected, the coefficient of GDP growth rate (Gr) variable has negative sign, which is
statistically significant. This result concurs with the findings of Ajayi (1992), and contradicts
the findings of Ng’eno (2000), who found the coefficient to be positive and significant. This
empirical finding provides some support for the hypothesis that capital flight is higher when a
country’s rate of economic growth is low. This implies low economic growth is an indication of
low profitability of domestic investment, and therefore capital will thus tend to flee the country.

The coefficient on inflation rate (Inf) variable has positive sign, which conforms to the
theoretical expectation. The coefficient is also statistically significant. This result concurs with
the findings of Pastor (1990), Olopoenia (2000) and Okit (2000). The result suggests that the
capital flight over the sample period may have resulted from the high and rising inflation rates
in the country that led to erosion of the real value of assets denominated in domestic currency.
terms. This may have forced individuals to reduce real holding of the domestic currency in order to protect themselves against inflation tax. Part of their asset holdings is directed to domestic real assets, while the other part finds its way to real investment or deposits abroad. Therefore, empirical evidence supports the hypothesis that a high inflation makes assets denominated in domestic currency less attractive compared to those denominated in foreign currency.

As expected, the coefficient on budget deficit (Bd) variable has positive sign. However, the coefficient is statistically insignificant. The result concurs with the findings of Ajayi (1992) and Boyce and Ndikumana (2002). The positive sign suggests that large government deficits might prompt capital flight. This highlights the motivation of investors to move capital abroad to escape future taxation directly and indirectly via monetization of deficits. The result implies that fiscal policy potentially signals fiscal mismanagement, and the need for future fiscal adjustment be it through formal taxation or inflationary financing clearly reflects the risks associated with domestic policy environment.

The proxy measure of financial development in Kenya, M2/GDP, has a negative coefficient as expected. The coefficient is also statistically significant. However, Collier et al (2001), and Boyce and Ndikumana (2002) using M2/GDP and M3/GDP respectively as proxy to financial development found the coefficient to be negative and insignificant. This contradiction may be due to the fact that these other studies used cross country data set. The empirical finding in this study suggests that financial development in Kenya can reduce capital flight if accompanied by an expansion of opportunities for domestic portfolio diversification.
As expected, the proxy measure of capital availability (Ca), ratio of total private sector credit to total domestic credit, coefficient has negative sign. However, the coefficient is statistically insignificant. The result contradicts the findings of Okit (2000) and Pastor (1990) who found the coefficient to be negative and significant. This may be attributed to the used of different proxy to measure capital availability, since the two other studies used the ratio of total private sector to GDP as a proxy. The negative sign coefficient of capital availability variable suggests that high capital availability to the private sector reduces capital flight. The results also imply that availability of credit in domestic financial market is an incentive for local investors at home, and therefore acting as a disincentive for investing abroad.

As theoretically expected, the coefficient on change in debt (CD) variable has positive sign, which is statistically significant. The result concurs with the findings of Boyce and Ndikumana (2002) and Abdullah et al (2003). This empirical finding implies that the growing foreign debts in the country may increase expectations about exchange rate depreciation and increase in taxation, which provides a stimulus to hold foreign assets. Moreover, the coefficient of lagged capital flight (KF1) is positive and statistically significant, and this concurs with the findings of Nyoni (2000). This finding suggests a tendency for capital flight to persist overtime, and it stresses the spill over effects of previous capital flight on to the current period's capital flight.
CHAPTER FIVE

SUMMARY, CONCLUSION AND POLICY RECOMMENDATIONS

5.1 Summary and Conclusion

This study has explored the determinants of capital flight from Kenya. The available evidence indicates that the Kenyan economy experienced fluctuations in the level of capital flight since the early 1970s. The specific objectives of this study were to identify factors that significantly determine the level of capital flight from Kenya and to draw recommendations based on the study findings.

Capital flight, in this study, was modelled based on the portfolio adjustment theory, which assumes a standard three-asset portfolio composed of domestic financial assets, domestic inflation hedges such as land, and foreign financial assets. Prior to model estimation, time series properties of data were determined using both graphical approach and the Augmented Dickey Fuller test. However, the real capital flight, which is the dependent variable, was found to be stationary at levels, and as a result of this, it was impossible to perform cointegration tests. Therefore, the non-stationary series in the model were made stationary by differencing, and the short run capital flight model estimated using ordinary least square method.

The model estimated had good fit, as adjusted R-squared was 86.8 percent based on capital flight estimates derived using residual approach. In addition, the model passed the following diagnostic tests; normality test, Heteroskedasticity test, test for serial correlation and the stability test. The findings of this study indicate that external borrowing is the most significant determinant of capital flight from Kenya over the sample period 1971 to 2001. Moreover, empirical results indicated that capital flight tends to persist overtime.
Other statistically significant explanatory variables for capital flight from Kenya, according to the empirical results were; real exchange rate, real growth rate, inflation rate, M2/GDP, and dummy interactive term. The significant dummy interactive term suggests that shocks exogenous to the model affect the changes in capital flight. However, capital flight estimates derived using balance of payment approach provided different empirical results to those of residual approach. This highlights the sensitivity of estimation results to different measures of capital flight in Kenya, and also indicates the crucial importance of the issue of capital flight measurement.

Based on residual approach measure to capital flight, the estimation results suggest that capital flight from Kenya show strong sensitivity to; the change in external debts, real exchange rate, inflation rate, previous period capital flight, growth rate and financial market development. The empirical results implies that other things being equal, the increase in external debt, real exchange rate, inflation rate and lagged capital flight leads to an increase in capital flight, while an increase in economic growth rate and development in financial market leads to decrease in capital flight from Kenya.

5.2 Policy Recommendations

Policy implications can be drawn from the empirical findings of this study. The empirical evidence presented in this paper indicates that to a large extent capital flight was financed by foreign borrowing. Hence, in addition to greater accountability on the creditor side, it is equally important that the Kenya government establish mechanisms for transparency and
accountability in decision making with regard to foreign borrowing, and the management of borrowed funds.

Evidence in this study suggests that once capital flight begins, it tends to persist. Therefore, a way to stop capital flight is to prevent it from occurring in the first place. And to control capital flight, it is important to restore public confidence in the government and sustainability of macroeconomic policies. This in turn, requires a realistic exchange rate, positive but moderate real interests and robust economic growth. This underscores the importance of a pro-growth bias of official policy in the country. The pro-growth policies include, among others: market liberalisation and export promotion measures. A precondition for the success of any effort by policy makers to attract and keep investment capital, both domestic and foreign, is a stable economic environment, and it is only then will investors develop confidence in the economy to the extent that they will risk keeping their assets within the country.

In addition, the state actions are also needed to create a favourable investment climate, and to generate GDP growth sufficient to discourage capital flight. Particularly, as part of an improved climate, emphasize is placed on investment law and tax reforms, better operations of land, real estate markets and better bank regulations. All of these background measures of wider economic policy will go some way to alleviating the problem of capital flight from Kenya. Moreover, the empirical results suggest that capital flight can be reduced by strategies to promote economic growth and deepen financial markets. To achieve these goals, steps are required to level the legal and administrative playing field for domestic investors, and to promote a stable macroeconomic environment.
Further more, in order to control capital flight and recapture flight capital requires getting the macroeconomic fundamentals right; that is policy makers should put in place measures that make sure that inflation is controlled so that currency is not over-valued in real terms. This also, warns against expansionary fiscal and monetary policies, as these generate expectations of inflation’s and desire for capital flight, and for this policy to be effective, it is important for the government to maintain public confidence in the sustainability of the macroeconomic policies.

5.3 Limitation of the Study

The major limitation encountered in carrying out this study was the unavailability of the data. The brevity of the sample period was dictated by the available data, and may have affected the quality of the research findings. Also, the problem of inadequacies in debt statistics may not be correctly recorded especially if the private sector also borrows from foreign creditors. In addition, this study did not include all the possible explanatory variables of capital flight in the model.

5.4 Suggestions for Further Research

Although, the data set in this study is comprehensive, the results may suffer from brevity of sample size, and as more time series data become available coupled with structural changes in the country’s economy, one should continue to consider whether there are fundamentally different determinants of capital flight from Kenya, as this study seems to imply and given their important policy implications. Also, while this study did not model with all the possible explanatory variables of capital flight, future research might consider to model capital flight with alternative combinations of the possible explanatory variables.
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### Appendix A: Basic Data

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<td>-88.9</td>
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<td>785.8</td>
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**Note:**
- KF and KFBP- real capital flight based on residual approach and balance of payment approach respectively in million US dollars
- ER- real exchange rate in percentage
- ID- interest rate differential in percentage
- GR- percentage growth rate in real GDP
- INF- inflation rate in percentage
- EX- real exports in million US dollars
- BD- real budget deficit in million US dollars
- M2- the ratio of M2 to GDP in percentage
- CA- capital availability in percentage
- CD- change in external debts in million US dollars
- EDT- lagged stock of external debt in million US dollars
- DEF- GDP deflator index
Appendix B: Time profile of the model variables

Figure 4.1a: Real Exchange Rate

Figure 4.1b: Real Interest Rate Differential

Figure 4.1c: Real GDP Growth Rate
Figure 4.1d: Inflation Rate

Figure 4.1e: Real Exports

Figure 4.1f: Real Budget Deficit
Figure 4.1g: Total Liquid Liabilities (M2/GDP)

Figure 4.1h: Capital Availability

Figure 4.1i: Change in Debts
Figure 4.1j: Lagged Total Debt Stock
### Appendix C: ADF Unit Root Tests Results (Variables at Level)

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<td>0.1632</td>
<td>9.115</td>
<td>0.000</td>
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<tr>
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<td>0.0362</td>
<td>1.751</td>
<td>0.083</td>
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</table>

Note: * Significant at 5% level of significance  ** Significant at 1% level of significance
## Appendix D: Estimation Results

### Table D-1: Estimation Results based on Residual Approach (Variables at Stationary Level)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistics</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>15.9438</td>
<td>133.2881</td>
<td>0.1196</td>
<td>0.9063</td>
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<tr>
<td>DU</td>
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<td>125.0276</td>
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<td>0.0128</td>
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<tr>
<td>DUMER</td>
<td>88.8343</td>
<td>126.3869</td>
<td>0.7028</td>
<td>0.4922</td>
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<tr>
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<td>-0.6487</td>
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<td>0.5308</td>
<td>0.8350</td>
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<td>17.4413</td>
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**R-squared** 0.9200  **Adjusted R-squared** 0.8551  **F-statistic** 14.1729  **Durbin-Watson stat** 1.8089  **Prob(F-statistic)** 0.0000

**Note:** * Significant at 5% level of Significance

### Table D-2: Estimation Results based on Balance of Payment Approach without Exports and lagged Total Debt Stock

<table>
<thead>
<tr>
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<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
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<td>1.9969**</td>
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</table>

**R-squared** 0.5298  **Adjusted R-squared** Durbin-Watson stat 1.6810  **Prob(F-statistic)** 1.8442 **F-statistic** 2.3800  **t-critical value 0.025 18 df** 2.1010  **t-critical value 0.05 18 df** 1.7340

**Note:** * Significant at 5% level of Significance  ** Significant at 10% level of Significance
Figure E-1: Residues of Equation (3.7) based on Residual Approach without Exports and Lagged Total Debt Stock.

Table E-1: Correlation Matrix-Multicolinearity Test

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Note: Critical Values of the sample coefficient of correlation is 0.381 and 0.45 at 5 percent and 10 percent level of significance respectively.
### Table E-2: Diagnostic Test Results

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<th>Test Type</th>
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<tr>
<td>Jarque-Bera Test</td>
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<td>Ramsey RESET Test</td>
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### Figure E-2: CUSUM Test

![CUSUM Test](image-url)