

**THE EFFECT OF SELECTED MACROECONOMIC VARIABLES
ON BALANCE OF PAYMENT IN KENYA**

**BY
CHARLES MWAI**

**A RESEARCH PROJECT SUBMITTED IN PARTIAL
FULFILMENT OF THE REQUIRMENT FOR THE AWARD OF
THE DEGREE OF MASTER OF SCIENCE IN FINANCE,
UNIVERSITY OF NAIROBI**

November 2015

DECLARATION

This research project is my original work and has not been submitted to any other University or Institution of higher learning for academic award.

Signed..... Date

Charles Mwai

D63/73034/2014

This research project has been submitted for examination with my approval as University Supervisor.

Signed..... Date

Mr. Herick Ondigo

Lecturer Department of Finance and Accounting

School of Business,

University of Nairobi.

ACKNOWLEDGMENTS

It has been an exciting and instructive study period in the University of Nairobi and I feel privileged to have had the opportunity to carry out this study as a demonstration of knowledge gained during the period studying for my master's degree. With these acknowledgments, it would be impossible not to remember those who in one way or another have played an important role in the realization of this research project. I therefore, thank them all equally.

First and most important of all I extend my gratitude to the almighty God for providing me with strength, good health, wisdom and knowledge that helped make this project a reality. I am deeply indebted to my supervisor Mr. Herrick Ondigo for his exemplary guidance and never-ending support without whose help; this project would not have been a success.

Finally yet importantly, I would like to thank my family and workmates from Co-operative Bank Ruiru Branch who have been unceasing source of inspiration and for their continuous support and encouragement during my study period. In addition, to all my dear friends, thank you for your support, understanding and encouragement expressed to me in many special ways.

DEDICATION

This project is dedicated to my dear family; my wife Esther Wanjiru Ng'ethe, my daughter Lynette Wambui , my son Leon Munjuga, my dad Thomas Munjuga, my mum Joyce Wambui, my sisters and brothers.

TABLE OF CONTENT

DECLARATION	ii
ACKNOWLEDGMENTS	iii
DEDICATION	iv
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF ABBREVIATIONS	x
ABSTRACT	vi
CHAPTER ONE: INTRODUCTION	1
1.1 Background of the Study	1
1.1.1 Selected Macroeconomic Variables.....	3
1.1.2 Balance of Payment	5
1.1.3 Effect of Selected Macroeconomic Variables on Balance of Payment.....	7
1.1.4 Selected Macroeconomic Variables and Balance of Payment in Kenya.....	9
1.2 Research Problem	12
1.3 Research Objectives.....	14
1.4 Value of Study.....	14
CHAPTER TWO: LITERATURE REVIEW	15
2.1 Introduction	15
2.2 Theoretical Review	15
2.2.1 Monetary Approach to Balance of Payment	15
2.2.2 Balance of Payment Theory	17
2.2.3 Purchasing Power Parity Theory.....	18
2.2.4 Interest Rate Parity Theory.....	19
2.3 Determinants of Balance of Payment	20
2.3.1 Foreign Exchange Rates	20
2.3.2 Interest Rates	21
2.3.3 Inflation Rates	22
2.3.4 Public Borrowing and Debt.....	22
2.3.5 Political Risk	23

2.4 Empirical Review.....	23
2.4.1 International Review.....	24
2.4.2 Local Review.....	25
2.5 Summary of the Literature Review.....	28
CHAPTER THREE: RESEARCH METHODOLOGY	30
3.1 Introduction	30
3.2 Research Design.....	30
3.3 Data Collection.....	31
3.4 Data Analysis	31
3.4.1 Analytical Model.....	31
3.4.2 Test of Significance	32
CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND INTERPRETATION.....	33
4.1 Introduction	33
4.2 Descriptive Statistics.....	33
4.2.1 Exchange Rate Movement.....	33
4.2.2 Inflation Rate.....	36
4.2.3 Interest Rate.....	38
4.2.4 Balance of Payments.....	40
4.3 Inferential Statistics	43
4.3.1 Correlation Analysis	43
4.3.2 Regression Analysis.....	44
4.3.3 Analysis of Variance.....	45
4.4 Interpretations of the Findings	47
CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	49
5.1 Introduction	49
5.2 Summary.....	49
5.3 Conclusions	51
5.4 Policy Recommendations	53
5.5 Limitations of the Study	53
5.6 Suggestions for Further Research	54

REFERENCES	55
APPENDICES	61
Appendix I: Data for Monthly Inflation (%).....	61
Appendix II: Data for Monthly Central Bank Rate(%).....	62
Appendix III: Data on Monthly Exchange Rate of the Kenya Shilling Against the USD.....	63
Appendix IV: Data on Monthly Balance of Payment in KSH Million	64
Appendix V:Data for Monthly Public Debt in KSH Billion.....	65
Appendix VI: Monthly values for Balance of Payments standardized by establishing its natural logarithm.....	66
Appendix VII: Monthly values for Public Borrowing standardized by establishing its natural logarithm.....	67

LIST OF TABLES

Table 4.1: Correlation Matrix.....	43
Table 4.2: Model Summary	44
Table 4.3: Analysis of Variance	45
Table 4.4: Coefficients.....	46

LIST OF FIGURES

Figure 4.1 Exchange Rate.....	34
Figure 4.2 Inflation Rate.....	36
Figure 4.3 Interest Rate.....	38
Figure 4.4 Balance of Payments.....	40

LIST OF ABBREVIATIONS

ARDL	Autoregressive Distribute Lag.
BOP	Balance of Payment
CBR	Central Bank Rate
CPI	Consumer Price Index
ECM	Error Correction Modeling
FDI	Foreign Direct Investment
FOREX	Foreign Exchange Rate
GARCH	Generalized Autoregressive Condition Heteroscedaticity
IMF	International Monetary Fund
IRP	Interest Rate Parity
KBRR	Kenya Bank Reference Rate
KNBS	Kenya National Bureau of Statistics
KSH	Kenya Shilling
MPC	Monetary Policy Committee
PPP	Purchasing Power Parity
VEC	Vector Error Correction
VECM	Vector Error Correction Model

ABSTRACT

The balance of payments is a statistical statement that summarizes transactions between residents and non-residents during a period. While the selected macroeconomic variables are those that are pertinent to a whole economy either at the national or regional level and affect a large population rather than a few selected individuals. The objective of this study was to establish the effect of the selected macroeconomic variables on balance of payment in Kenya. This study made use of descriptive study design and used secondary data collected from Kenya National Bureau of Statistics and the Central Bank of Kenya. Monthly data was used in the computations. The study covered nine years starting 2006 to the year 2014, multiple linear regression used to model the relationship between the independent variables, and a dependent variable was used by fitting a linear equation to observed data. The Data analysis was done using Microsoft excel data analysis tool and the presentations made using tables and figures. The findings established that there was a direct relationship between BOP and exchange rates, BOP and interest rates, BOP and inflation rates and BOP and public borrowing. The study findings further established that 87.8 per cent of changes in BOP were contributed by the changes in the selected macroeconomic variables in Kenya with 12.2 per cent being contributed by other unknown factors not considered in the study. The regression results also indicate that the model used is very significant at 0.05 level of significance level with a p-value of 0.0000. The study recommends that the policy makers should take keen interest on how best to improve the value of Kenya's export to the world; this will help bring to equilibrium the exchange rates that play an important role in determining the balance of payments. The government needs to increase marketing of its exports, create awareness among local entrepreneurs of existing export market that need to be exploited while giving incentives to local industries producing for export as well as those companies that assemble locally which will help curb demand for imports. The study further recommends that policy makers should come up with the best way to fund government project other than public borrowing that has on the rise and as observed from the study it is a major contributor to increase in BOP deficit.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Frenkel and Mussa (1985) while reviewing developments in international monetary economics observed that balance of payments and exchange rate issues is regarded as important in their own right, rather than as subsidiary concerns of policy management. Balance of payment gives detailed information concerning supply and demand of a country's currency and plays a significant role in economic development of a country. Balance of payment position is also used as a measure of the performance of country in the international economic competition.

The effect of decrease and increase in balance of trade is observed in determination of balance of payments of a country. Balance of payment is a developed tool that is used for the accounting of any country's total payments made during a specific period and the total receipts collected from foreign economies that result from engagement with foreign governments or foreign private sectors through trade (International Monetary Fund, 2009).

Accounting equation of balance of payment illustrates receipts generated from exports of goods and services, payments from foreign tourist in an economy, income from overseas investments of a country, inward foreign direct investments and aid received from other countries, and payments; to any overseas imports, outward foreign direct investments, interest payments on financial assets, and payment made in shape of gifts and services

procured overseas. To keep this balance in equilibrium , governments started paying valuable attention to correctly execute the economic policies to elevate exports to the outside world as well as bringing down the amount spend on imports (Keminchia, 2014). However, in countries having stability and consistency at policy level, this long term macroeconomic policies act as a catalyst in achievement of their balance of payments objectives. Conversely, many developing countries such as Kenya are with unsuccessful implementation of these policies resulted in negative growth of balance of payment (deficit).

The impact of exchange rate shocks on domestic prices and inflation is usually summarized in terms of a phenomenon called exchange rate pass-through, which is the effect that a permanent exchange rate shock of a given magnitude has on prices and inflation over time. Prior to the monetary-approach emphasis of the 1970s, it was common to emphasize international trade flows as primary determinants of exchange rates. This was due, in part, to the fact that governments maintained tight restrictions on international flows of financial capital.

The role of exchange rate changes in eliminating international trade imbalances suggests that we should expect countries with current trade surpluses to have an appreciating currency, whereas countries with trade deficits should have depreciating currencies. Such exchange rate changes would lead to changes in international relative prices that would work to eliminate the trade imbalance (Miller and Benjamin, 2004). Due to the close relationship that exists among macroeconomics stability and economic competitiveness

of a country internationally, this study sought to establish the role played by the selected macroeconomic variables on balance of payments in Kenya.

1.1.1 Selected Macroeconomic Variables

Brinson, Singer and Beebower (1991) defined macroeconomic variables as those that are pertinent to a whole economy either at the national or regional level and affect a large population rather than a few selected individuals. The variables identified as having major influence include; inflation, gross domestic product (GDP), foreign exchange rate, interest rates, legal and regulatory environment and risk. Below is a brief discussion of each of the selected macroeconomics variables that were found to be of interest to this study:

Interest rate is a rate that is charged or paid for the use of money advanced by the lender for a specific period or the (realized) annualized rate of return on a financial investment. Interest rate is expressed as a percentage of money taken over the period of one year (Devereux and Yetman, 2002). In Kenya, the base lending rate for all commercial bank is the KBRR and is computed as an average of the CBR and the weighted 2 month moving average of the 91 day treasury bill rates (CBK MPC report, April 2015). KBRR is used by central bank of Kenya to facilitate transparency in credit pricing and improve the transmission of monetary policy effects through commercial banks' lending rates (CBK, 2015).

Exchange rate is the rate at which a country's currency is exchanged for the currencies of other countries or simply a ratio of number of units of domestic currency required to purchase a unit of foreign currency (Wang, 2005) .It also a price of foreign currency in terms of domestic currency in the foreign exchange market. Exchange rate can be classified as either spot exchange rate which involve the immediate(two day) exchange of bank deposit or the forward exchange rates which involves the exchange of bank deposit at specified future dates (Mishkin,2009).

In liberalized economies like Kenya exchange rate is determined by the forces of demand and supply in the market with very little government intervention only when necessary through the central bank, but in closed or protected economies, the foreign exchange rate is established and managed by the government to safeguard its interest. The demand for foreign currency is derived from demand for imports that are mostly capital goods. The supply of the foreign exchange depend on hosts of factors which include; volume and value of visible and invisible exports, the quantum of foreign loans and grants, direct foreign investment and portfolio investment by foreigners (Manab, 2003).

Inflation rate is equally an important variable in the operation of an economy and in determination of a country's balance of payments. It is defined as a sustained increase in the aggregate or general price level of goods and services in the economy (Daniel, Radebaugh,Sullivan, 2013). The inflation is divided into two sides, namely: demand side inflation (demand-pull inflation) and supply side inflation (cost push inflation). For open-economy countries, inflation comes from domestic factors (internal pressure) and

overseas factors (external pressure) (Edwards, 2002). The sources of external factors are the increase in the world commodity prices or exchange rate fluctuation. The influence of exchange rate towards inflation itself depends on the choice of exchange rate regime in the country. Exchange rate system has an important role in reducing or minimizing the risk of fluctuations in exchange rates, which will have an impact on the economy. Any changes in exchange rates will have a great impact on the economy (Eichengreen, 2004). Inflation rate is measured by use of CPI; CPI is defined as a measure of the weighted aggregate change in retail prices paid by consumers for a given basket of goods and services. Price changes are measured by re-pricing the same basket of goods and services at regular intervals, and comparing aggregate costs with the costs of the same basket in a selected base period, Price data for constructing the indices are collected by Kenya National Bureau of Statistics through a survey of retail prices for consumption goods and services. The percentage change of the CPI over a one-year period is what is usually referred to as inflation (KNBS).

1.1.2 Balance of Payment

The balance of payments is a statistical statement that summarizes transactions between residents and non-residents during a period (International Monetary Fund, 2009). The BOP is concerned with transactions between residents of the reporting economy and residents of the reporting economy's trading partners. These transactions are recorded in two main accounts, namely the current account and the capital and financial account. Current account transactions have a direct association with production and consumption of real resources in the domestic economy.

The current account thus consists of items that reflect the provision or acquisition of goods, services, and factors of production such as capital and labour. The capital account captures transfers that are associated with the provision or acquisition of capital assets, while the financial account covers transactions in external financial assets and liabilities, which show how an economy's cross-border transactions are financed. The Capital and Financial Account thus records the flows of capital and finance between a country and the rest of the world (Keminchia, 2014). According to Levi (2005), when BOP are recorded correctly the balance of Current Account plus Capital Account and financial account must be zero.

The BOP identity states that the net balance on the current account should exactly mirror the net balance on the capital and financial account (International Monetary Fund, 2009). The identity requires that the net provision of real resources by an economy to the rest of the world matches a change in the country's net financial claims on the rest of the world. Kandil (2009) observed that the accounting relationship in the balance of payments indicates that a deficit in the current account may be associated with an increase either in the financial balance or a reduction in foreign reserves.

A surplus on the current account should therefore be reflected as an increase in net financial claims on non-residents or as the acquisition of reserve assets. Conversely, a deficit on the current account implies that the net acquisition of real resources from the rest of the world must be paid for by either liquidating foreign assets or increasing financial liabilities to non-residents. To the extent that domestic saving is not matched by

an increase in domestic capital accumulation, there will be an increase in private or official assets held in the rest of the world (International Monetary Fund, 2009).

1.1.3 Effect of Selected Macroeconomic Variables on Balance of Payment.

According to Joshi and Little (1999), Inflation rates not only creates problems within the economy, but also in the sphere of external trade of a country, that is, country's trade balance with the rest of the World. Country's trade relations with the other countries involve exports and imports of goods and services and how much a country will export and import depends, amongst other thing, on the domestic price level and variation in it, that is, the rate of inflation.

Country's transactions with the other countries, which are recorded in balance of payment (BOP), get adversely affected if the domestic price rise is high. High rate of inflation in the domestic market makes domestic goods expensive and unattractive to the international market resulting to reduction in demand for exports. Moreover, because of high domestic prices, residents prefer to buy foreign goods, which imply increase in imports. The result of falling exports and increasing imports, because of high domestic inflation, is the adverse disequilibrium in the BOP that, if not kept within limits, can assume serious proportion and spell a BOP crisis (Argy, 1981).

Kandil (2009) noted that central banks and other FOREX dealers engage in a process of forecasting the exchange rate based on observations of macroeconomic fundamentals, any deviations in the realized exchange rate from agents' forecasts determine fluctuations

in components of the current and financial accounts of the balance of payments in a sample of developing and industrial countries. Exchange rates change every day or even every minute as supplies of and demands for financial assets of different nations change (Pétursson, 2008).

Absent of measures to stimulate export growth in developing countries and given their high dependency on imports, the current account balance deteriorates with respect to currency depreciation. Across industrial countries, the reduction in the value of exports with respect to currency depreciation correlates with a reduction in the value of imports. The combined effect cancel out on the trade and current account balances in industrial countries. Similarly, currency appreciation increases the nominal value of exports and imports without a significant effect on the current account balance in industrial countries. The combined evidence highlights the benefits of a flexible exchange rate system to ensure that a depreciating rate curbs import growth and increases financial flows. In net importing countries, currency appreciation increases imports and deteriorates the current account balance (Kandil, 2009).

A change in an economy's interest rates can have both positive and negative effect on the international investment markets. A rise in banks' lending rate in the domestic economy attracts foreign investors and will lead to increased investment of idle funds in treasury bills, stock and bonds since an increase in banks rates raises short term interest rates(returns),the capital movement is expected to continue until the domestic rates drops under the weight of money seeking investment (Kenen,1960).

However, it is important to understand that there is generally a 12-month lag in the economy, meaning that it will take at least 12 months for the effects of any increase or decrease in interest rates to be felt. By adjusting the federal funds rate, the Fed helps keep the economy in balance over the long term (Pétursson, 2008). Global Interest Rates are the rates of Federal / Central banks of respective countries. These rates change periodically, interest rates have a great impact on currency valuation and its relative currency paired value.

According to Mundell (1963), existence of difference in interest rate in the domestic economy and abroad, will lead to increased mobility of capital. Assuming, a state of extreme degree of mobility that prevails when a country cannot maintain an interest rate different from the general level prevailing abroad, if the domestic saving interest rate is higher than abroad, it will attract more capital inflow from abroad in search of better returns prevailing in the economy. Consequently, sustained increase inward FDI will have an impact on exchange rate as well as the domestic country balance of payments.

1.1.4 Selected Macroeconomic Variables and Balance of Payment in Kenya

Deficit Balance of payments has been a common phenomenon in the Kenyan economy from the 1960s. The government has over the years enacted various policy measures aimed at remedying the situation; however the balance of payments situation does not seem to have improved despite these policy measures (Mambo, 2012). On balance, Kenyan policy makers in recent years have preferred to allow the financial markets to

determine exchange rates, rather than manipulate them for policy objectives (Saleemi, 2010).

Latest data released by the government indicates that Kenya's overall balance of payments position deteriorated from a surplus of KSh 8.8 billion in the first quarter of 2014 to a deficit of KSh 14.3 billion in the first quarter of 2015. The deterioration in the current account balance is mainly associated with the increase in the import value and the decline in the value of total exports in the same period. During the first quarter of 2015, merchandise trade deficit worsened by 6.4 per cent to KSh 224.1 billion from KSh 210.6 billion recorded in the first quarter of 2014. Imports increased by 3.0 per cent to KSh 355.7 billion whereas the value of exports shrunk by 2.3 per cent to KSh 131.5 billion in the quarter under review. As a consequence, the current account balance recorded a deficit of KSh 101.5 billion in the first quarter of 2015 compared to a deficit of KSh 63.8 billion in the first quarter of 2014.

International trade in services registered a decrease of 52.9 per cent from a surplus of KSh 50.3 billion in the first quarter of 2014 to a surplus of KSh 23.7 billion in the quarter under review (KNBS, 2015). The performance of inflows from secondary income expanded by 14.2 per cent from KSh 76.0 billion during the first quarter of 2014 to KSh 86.8 billion in the first quarter of 2015. During the quarter under review, diaspora remittances increased by 13.2 per cent to stand at KSh 33.3 billion. Net inflows from the financial account more than doubled from a surplus of KSh 75.7 billion in the first quarter of 2014 to a surplus of KSh 219.3 billion in a similar period of 2015. Gross

official reserves posted a deficit of KSh 15.7 billion in the first quarter of 2015 compared to a surplus of KSh 8.1 billion in the first quarter of 2014(KNBS,2015).

The first quarter of 2015 experienced relative stability in key macroeconomic indicators. The Kenya Shilling strengthened significantly against all its major trading currencies but depreciated by 6.0 per cent against the US dollar. Interest rates on commercial bank loans declined by 8.7 per cent to average at 15.52 per cent during the quarter under review compared to an average of 17.00 per cent during the first quarter of 2014. The Central Bank Rate (CBR) was maintained at 8.5 per cent throughout the quarter (KNBS, 2015) ,the CBR has since been reviewed by the Monetary Policy Committee (MPC) in the second quarter of 2015,to 10 per cent to counter the Kenya shilling continued depreciation against US dollar (Central bank of Kenya).

Inflation rates eased downwards to an average of 5.8 per cent in the first quarter of 2015 compared to 6.8 per cent recorded in the same quarter of 2014. A significant drop in oil prices mainly drove the decline in inflation during the first quarter of 2015. The decrease in oil prices also contributed to lower costs of electricity and transport services enjoyed by consumers. Increased generation of geothermal electricity coupled with a reduction in thermal generation also contributed to lower cost of electricity during the review period. However, increased prices of vegetables and some key food products, in the first two months of the year, worked against the cost of living and led to a moderate level of inflation during the quarter (KNBS, 2015).

1.2 Research Problem

Al-Hamidy (2002) describes Balance of Payments (BOP) as an accounting record of the interaction an individual country has with the rest of the world in respect of all economic and financial transactions. According to Vredrin (1988), Economic policies often target at specific policy objectives that, in turn, influence the balance of payments. A country may adopt policies specifically designed to attract foreign direct investment in a particular sector or may attempt to keep its currency at an artificially depressed level to stimulate export and build up its currency reserves. The link between interest rates, inflation rate and foreign exchange rate remains eminent though not fully explored by authors and scholars to identify their impact on balance of payment position of a country at a specific period.

Recent development in the international market has seen domestic currency exchange rate maintain a stable depreciating trend against the world major currencies particularly against the US dollar. The situation has been associated with increased importation of capital goods and reduced inflows from tea and tourism. April 2015 inflation rate rose to 7.08 per cent reflecting increase in food prices attributed to delays in the onset of the long rains.

However, the rate was within government medium term overall inflation rate of 5 per cent for fiscal year 2015/2016 with an allowable margin of plus or minus 2.5 per cent. Interest rates has remained stable with continued implementation of the Kenya Banks' Reference Rate (KBRR) framework in the period facilitated a transparent credit pricing

framework and enhanced the transmission of monetary policy signals through commercial banks' lending rates (Fourteenth Monetary Policy Committee Report, April 2015). A study by Patmark and Mitra (2001) indicates that inflation rate, interest rates and exchange rates are highly correlated. Whenever central bank manipulates interest rates, it exerts influence on both exchange rates and inflation rates.

A study by Ndungu (1997) further indicates that interest rate differential will widen with real exchange rate appreciation and this will trigger capital inflows. Iyoboyia and Olarinde (2013) investigated the impact of exchange rate depreciation on the balance of payments (BOP) in Nigeria and found that there exist a causal relationship between BOP and exchange rate, Mungami (2012) examined effects of exchange rate liberalization on balance of payments of a developing country using a case of Kenya; the results showed that exchange rate and prices play a significant role in determining balance of payments and a study by Osoro (2012) investigating major determinants of trade balance in Kenya found that FDI has a positive effect on trade .An increase in capital inflow to an economy will have an impact on the domestic country's balance of payment.

From the discussions above, it's evident; that there is no known study that has focused on the effect of selected macroeconomic variables on balance of payments in Kenya. This study therefore sought to fill this research gap by investigating the effect of selected macroeconomic variables on balance of payments in Kenya.

1.3 Research Objectives

The general objective of the study was to establish the effect of selected macroeconomic variables on balance of payment in Kenya. The specific objectives were:

- (i) To establish the effect of interest rates on balance of payment in Kenya.
- (ii) To determine the effect of exchange rates on balance of payment in Kenya.
- (iii) To examine the effect of inflation rates on balance of payment in Kenya.

1.4 Value of Study

This study will be significant to several stakeholders:

To scholars and academicians, this study will increase body of knowledge to the scholars of the effect of selected macroeconomic variables on balance of payment in the Kenyan economy. It will also suggest areas for further research so that future scholars can pick up these areas and study further to enhance the body of knowledge. The study will be important to the government especially the Ministry of National Treasury for making policy decisions as well as the central banks MPC that is tasked with the management of monetary policies.

Finally, the study will support the monetary approach to the balance of payments view, that balance of payments is indeed monetary phenomenon hence manipulation of the selected macroeconomic variables can be used in the management of country's balance of payment position.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter will cover literature review on balance of payments. It will involve the theoretical framework on balance of payment; evaluate existing written work on balance of payments and its relationship with the selected macroeconomic variables. The chapter will also cover empirical review on balance of payment and its interrelation while identifying the knowledge gap.

2.2 Theoretical Review

There exist different theories on balance of payment, with each theory identifying its own concept about balance of payment. The study will be confined around the balance of payment theories that identifies its relation with the selected macroeconomic variables that are of interest to the study. Below is a discussion about selected theories;

2.2.1 Monetary Approach to Balance of Payment

Johnson and his students at the University of Chicago developed the monetary approach in the mid-1950s. Johnson's approach is seen to be anti-Keynesian and self-proclaimed revolutionary (Polak, 2001). The main emphasis of the monetary approach to balance of payment is that a country balance of payment is essentially a monetary phenomenon (Frenkel and Johnson, 1976). Any observed disequilibrium in the balance of payments can be eliminated through manipulation of monetary variables especially domestic credit

(interest rates), under fixed exchange rate regime, in absence of sterilization by the monetary authorities, and stable demand for money function (Akpansung, 1998).

The theory does not imply that changes in the money supply are the only factors that affect the balance of payment (Kemp, 1975). The monetary approach concerns itself with deficit on monetary account, which in principle, consists of the items that affects the domestic monetary base (Ardalan, 2003). The approach emphasizes the monetary aspects of the balance of payments, and looks beyond merchandise trade and incorporates the role of financial assets (Melvin, 1992). It treats the supply of money as endogenous by assuming a feedback from the balance of payments through changes in international reserves to changes in the monetary liabilities of the central bank.

Under this approach, a balance of payment deficit or surplus represent a temporary stock adjustment process evoked by an initial inequality between actual and desired money stocks (Johnson, 1977). Balance of payment imbalances will restore equality between demand for and supply of money in the absence of official intervention. This implies that the external disequilibrium is transitory and will self-equilibrate in the end (Johnson, 1976).

The monetary approach to the balance of payments rest on two basic empirical propositions (1) The demand for money is a stable function of a few macroeconomic variables and (2) The price of traded good is exogenous, as is the level of economic output. These assumptions taken together imply that in an open economy, the authorities

cannot control the quantity of money held by domestic residents. If the quantity of money is below the desired stock, given the level of output and other determining factors, economic agents will seek to acquire additional money balances. Akpansung (1998) notes that individuals can do this through restrictions in the expenditure relative to income, while the economy as a whole will restore equilibrium by running a balance of payments surplus and attracting money from abroad. A reserve movement created by a balance of payment surplus or deficit will remove any discrepancy between the volume of money balances demanded and the stock of money created by the monetary authorities.

2.2.2 Balance of Payment Theory

The balance of payments theory was developed by International Monetary fund in the 1960s under the leadership of Polak as an evolution to Keynesian approach to the functioning of an open economy, to a monetary approach on balance of payments; it believed to be the modern and most satisfactory theory of the determination of the exchange rate. The theory is also known as the demand and supply theory of exchange rate.

According to this theory, the rate of exchange in the foreign exchange market is determined by the balance of payment in the sense of demand and supply of foreign exchange in the market. The term 'balance of payments' is used in the sense of a market balance. If the demand for a country's currency falls at a given rate of exchange, we can speak of a deficit in its balance of payments. Similarly, if the demand for a country's

currency rises at a given rate of exchange, we can speak of surplus in its balance of payments (Polak, 2001).

A deficit balance of payments leads to a fall or depreciation in the external value of the country's currency. While a surplus balance of payments leads to an increase or appreciation in the external value of the country's currency (Gali and Monacelli, 2005). If market forces are allowed to work unimpeded, the demand and supply of foreign exchange establishes a rate of exchange that automatically clears the market imbalance so that no actual or exposit payments deficit or surplus can appear.

2.2.3 Purchasing Power Parity Theory

This theory is also called the inflation theory of exchange rates. The theory was developed in its modern form by Cassel in 1918. He argued that without it, there would be no meaningful way to discuss over or under valuation of currency. Purchasing power parity is an economic theory that estimates the amount of adjustment needed on the exchange rate between countries for the exchange to be equivalent to each currency's purchasing power. The exchange rate adjusts so that identical goods in the two different countries bear the same price when expressed in the same currency (Cassel, 1918). The theory assumes that the actions of importers and exporters induce changes in the spot exchange rate.

PPP suggests that transactions on a country's current account affect the value of the exchange rate on the foreign exchange market. PPP theory is based on an extension and

variation of the “law of one price” as applied to the aggregate economy (Devereux and Engel, 2003). When the price of a good differs between two countries’ markets and there is an incentive for profit-seeking individuals to buy the good in the low price market and resell it in the high price market. Similarly, if a market basket containing many different goods and services costs more in one market than another does, we should likewise expect profit-seeking individuals to buy the relatively cheaper goods in the low-cost market and resell them in the higher-priced market. If the law of one price leads to the equalization of the prices of a good between two markets, then it seems reasonable to conclude that PPP, describing the equality of market baskets across countries, should also hold.

2.2.4 Interest Rate Parity Theory

Keynes (1923) developed the interest rate parity condition. Interest rate parity theory is defined as a theory in which the interest rate differential between two countries is equal to the differential between the forward exchange rate and the spot exchange rate. Interest rate parity plays an essential role in foreign exchange markets, connecting interest rates, spot exchange rates and foreign exchange rates. Interest rate parity (IRP) theory is used to explain the value and movements of exchange rates. It is also known as the asset approach to exchange rate determination.

The interest rate parity theory assumes that the actions of international investors motivated by cross-country differences in rates of return on comparable assets induce changes in the spot exchange rate. In another vein, IRP suggests that transactions on a

country's financial account affect the value of the exchange rate on the foreign Forex market. The theory further states that size of the forward premium or discount on a foreign currency should be equal to the interest rate differential between the countries in comparison (Bleaney and Fielding, 2002). Interest Rate Parity Condition refers to a condition of equality between the rates of return on comparable assets between two countries (Suranovic, 2012).

2.3 Determinants of Balance of Payment

The balance of payment position of a country is determined by the level of economic engagement that goes on between the domestic economy and the rest of the world; in terms of trade, Aid, cross-border foreign direct investment, portfolio investment, political stability as well as the stability of domestic macroeconomic variables such as inflation rates, interest rates and predictable exchange rate. Below is a discussion of some the determinants of balance of payments:

2.3.1 Foreign Exchange Rates

According Gali and Monacelli (2005) a change in a country's balance of payments can cause fluctuations in the exchange rate against foreign currencies. The reverse is also true where a fluctuation in relative currency strength can alter the balance of payments position of country. There are two different and interrelated markets at work: the market for all financial transactions on the international market and the supply and demand for a specific currency.

These conditions only exist under a free or floating exchange rate regime. If there is depreciation in the exchange rate, that particular country will experience a fall in the foreign price of its exports. It will appear more competitive and therefore there will be a rise in the quantity of exports. Assuming demand for exports is relatively elastic then depreciation will lead to an increase in the value of exports and therefore improve the current account deficit (Kandil, 2009).

2.3.2 Interest Rates

Mundell (1963), existence of interest rates differences between home country and abroad leads to capital mobility. The relationship between interest rate and the balance of payment becomes more evident by looking at country's capital account. Capital account deals with monetary flows into and out of a nation's financial markets. The most important determinant of financial flows is interest rates, which determine the rate of return on savings/investments. The potential return on financial assets such as real estate and equities will have important effects in the capital market.

The higher a country's interest rates, the more attractive its financial markets are to both domestic and foreign idle fund (Kenen, 1960). This leads to an increased inflow of money through the capital account and less money leaving a country in search of higher returns in the international market. Sustained inflow will lead to increased supply of foreign currency and a high demand for the domestic currency, consequently, the domestic currency will appreciate over time affecting both the exchange rate in the market and the country's balance of payment (Suranovic, 2012).

2.3.3 Inflation Rates

According to Melberg (1992) the term inflation describes a general and persistent increase in the prices of goods and services in an economy. Price stability exists when average prices are constant over time, or when they are rising at a very low and predictable rate. Price inflation occurs when average prices are rising above this low and predictable rate leading to high cost of living within the economy. The monetarists, following from the Quantity Theory of Money (QTM), have propounded that the quantity of money is the main determinant of the price level, or the value of money, such that any change in the quantity of money produces an exactly direct and proportionate change in the price level (Umaru, 2012).

Inflation not only creates problem within the economy but also in the sphere of external trade of a country, that is, country's trade balances with the rest of the world. A country's trade relations with other countries involve exports and imports of goods and services, how much a country will export and import depends amongst other things on the domestic price level and variation in it influenced by inflation rate.

2.3.4 Public Borrowing and Debt

Public debt is one of the main macroeconomic indicators, which forms countries' image in international markets (Abbas, 2007) and its one of the inward foreign direct investment flow determinants. Public debt refers to the total of the nation's debts, which covers debts of local and national governments indicating how much public spending is financed by borrowing instead of taxation (Makau, 2008). Borrowing, which can be short term or

long term, involves the sale of government securities. Bonds issued by the government are believed to be as good as gold and payment of interest and redemption is guaranteed. Treasury bills are issued into the money markets to help meet short term cash requirements, the most common are those that matures in 91,182 and 364 days, whereupon they are repaid. Capital flight and Balance of Payment (BOP) deficit are the main internal factors that motivate borrowing (Dornbusch and Fisher, 1990).

2.3.5 Political Risk

Political risk refers to the risk of a strategic, financial, or personnel loss for a business because of events related to political instability (Morales and Kleiner, 1996). Political risk arises from factors and events such as governmental change, shifts in national ideology or policy, civil war, social unrest, economic instability, nationalization, and corruption. Political, economic, and religious environments influence business operations for exporters, traders, investors, banks, and other organizations involved in international trade. Companies entering foreign markets for the first time as investors or manufacturers are keen to assess potential political risk that may arise in the future (Wade, 2005). The economy with low political risk becomes attractive to foreign investors, and consequently, helps in improve the BOP of a country.

2.4 Empirical Review

Different scholars and researchers have reviewed the determinants of balance of payments in different countries. Below are some of the international and local reviews carried out by researchers.

2.4.1 International Review

A study by Todani and Munyama (2005) employed ARDL bounds testing procedure on quarterly data for period 1984-2004 to examine the impact of exchange rate variability on aggregate South African exports to the rest of the world. Todani and Munyama (2005) employed the moving average standard deviation and GARCH as measures of variability. The results showed that depending on the measure of variability employed, either there existed no statistically significant relationship between South Africa exports and exchange rate volatility or when such significant relationship exists, it is positive.

Sekantsi (2009) used ARCH and GARCH models to examine the effect of real exchange on South Africa exports to the US for between 1990 to 2000. The findings were that Rand's real exchange rate variability exerts a significant and negative impact on export both in the short run and long run.

Gligoric (2010) examined exchange rate and trade balance checking out for the J-curve effect in Serbia. The study showed that exchange rate depreciation in Serbia improved trade balance in the longrun, while giving rise to a J-curve effect in the short run. Both Johansen's and autoregressive distributed lag approach were respectively used giving similar long run estimates showing that real depreciation improved trade balance. Both corresponding error correction models and impulse response functions indicated that following currency depreciation, trade balance first deteriorates before improving thereafter, thereby exhibiting the J-curve pattern.

Iyoboyia and Olarinde (2013) investigated the impact of exchange rate depreciation on the balance of payments (BOP) in Nigeria over the period 1961–2012. The analysis was based on a multivariate vector error correction framework. A long-term equilibrium relationship was found between BOP, exchange rate and other associated variables. The empirical results are in favour of bidirectional causality between BOP and other variables employed. Results of the generalized impulse response functions suggest that one standard deviation innovation on exchange rate reduces positive BOP in the medium and long term, while results of the variance decomposition indicate that a significant variation in Nigeria's BOP was not due to changes in exchange rate movements. The policy implication was that exchange rate depreciation which has been more important in Nigeria since the mid-1980s was not very useful in promoting the country's positive BOP.

2.4.2 Local Review

Kariuki (2008) studied the determinants of current account balance in Kenya using inter-temporal approach. Kariuki noted that large and persistent current account deficits constitutes a cause for concern, particularly when sustainability issues are raised and thus the economic prospects of a country are put at risk. This study considered the major determinants of the current account in Kenya. It examined the long run and short run impact of the exchange rates together with private and public savings on the current account balance. The bound testing autoregressive distribute lag approach to co-integration was used and the results showed that there was a strong support for co-integration relationship between current account balance and the selected variables. The

exchange rate had the strongest impact on the current account but the signs varied in the long run and in short run.

Mungami (2012) examined effects of exchange rate liberalization on balance of payments of a developing country using a case of Kenya. He noted that exchange rate is one of the macroeconomic fundamentals that play a key role in ensuring that the economy of a country remains competitive in the international market. It plays an important role of efficiently allocating the use economic resources thus ensuring a country remains competitive externally. The exchange rates are important in improvement of the balance of payments. The results showed that the exchange rate liberalization had improved the overall Bop but it had not improved the current account or reduced the balance of trade deficit. The study found out that the exchange rate liberalization had a negative effect on the companies export sales due to wide fluctuations that made planning hard and losses were incurred because of fluctuation.

Ambuya (2012) examined the relationship between exchange rate movement and stock market returns volatility at the Nairobi securities exchange. The study concluded that there is a strong relationship between exchange rate movement and stock market returns volatility. The findings also observed that the exchange rate volatility also affected market performance greatly through its spiral effects. As macroeconomic variable, exchange rate movement indicates the state of the economy and the likely future state of the economy.

Mambo (2012) did an analysis of the relevance of the monetary approach to Kenya's balance of payments for the period (1969-2002). The study examined the relevance of the monetary approach to the Kenya balance of payments using annual data. The data was tested for unit root test and co integration, among the variables established and thus a vector error correction model was estimated. The results of the VEC estimation indicated that Bop is significantly affected by its own second and third lags, the first lag and second lag of exchange rate and the first lag of prices. Granger causality tests showed no causality between balance of payments and other five variables. However, impulse response analysis indicated five years as the period within which balance of payments responded to innovation. Domestic credit and interest rate were the two important variables affecting Kenya's balance of payments. Exchange rate and prices were also significant. The study found out that monetary approach as relevant in managing Kenya's balance of payments.

Osoro (2012) did an investigation on major determinants of trade balance in Kenya using annual data for 1963-2012. He explored long run and short run determinant of trade deficit using Johansen co. integration approach and Error correction modeling. The findings indicated that the coefficients of trade balance are positively correlated with budget deficits, FDI and exchange rates. The result showed that FDI has a positive effect on trade balance because the trade balance in Kenya is negative. The estimation results also showed that the real exchange rate depreciation improve the trade balance in a strong and significant way. This was attributed to huge negative trade balance and or large positive net foreign direct investment position, which is an indication that trade balance, is much

less sensitive to movements in the real effective exchange rate. The results also supported the empirical validity of the Marshall-Lerner condition through VECM, indicating that depreciation improves the trade balance.

Were et al. (2014) analyzed monetary policy reaction function for Kenya using quarterly data for the period 1999 to 2011. The study revealed a strong effect of interest rates smoothing and supports the fact that monetary policy was accommodative of the output growth objective. The response to inflation was however, generally found to be below, perhaps signifying the importance of supply-side inflation. Nonetheless, the evidence supported forward-looking monetary policy, which is critical in view of the increasing role of expectations in modern monetary policy-making process.

2.5 Summary of the Literature Review

Exchange rates, balance of payments, interest rates and inflation rates are key tools in the management of a country macroeconomic stability, where low inflation and international competitiveness has become a major policy target. This study was guided largely by the theories on monetary approach to the balance of payment, purchasing power parity theory and the interest rate parity theory. Several scholars and their work are presented under empirical review.

A study by Iyoboyia and Olarinde (2013) investigated the impact of exchange rate depreciation on the BOP in Nigeria and found there was a causal relationship between BOP and exchange rate. Mungami (2012) examined effects of exchange rate

liberalization on balance of payments of a developing country using a case of Kenya; the results showed that exchange rate and prices play a significant role in determining balance of payments .From the discussion above, there is no known study that has focused on the effect of selected macroeconomic variables on balance of payments in Kenya. This study therefore sought to fill this research gap.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides the methodology used in the study. The chapter covers the following: research design, data collection methods and data analysis.

3.2 Research Design

A research design helps researcher to lay out research questions, methodologies, implementation procedures, data collection and analysis for the conduct of research project. Generally, there are three types of research design: quantitative design, qualitative design, and mixed method design Mugenda and Mugenda (2003). The study used descriptive research design. A descriptive research design attempts to describe or define a subject, often by creating a profile of a group of problems, people, or events, through the collection of data and tabulation of the frequencies on research variables or their interaction as indicated by Cooper and Schindler (2003).

The study used descriptive as its design because it sought to explain the effect of selected macroeconomic variables on balance of payment within the Kenyan context. Orodho (2002), notes that the choice of the descriptive survey research design is because in the study, the research was interested on the state of affairs already existing in the field and no variable was manipulated. As a case study for Kenya, no population and sampling was required.

3.3 Data Collection

The study used the Kenya national bureau of statistic (KNBS) and the Central bank of Kenya as the source of data required in the pursuit to establish the effects of exchange rate, interest rate, inflation rate and public borrowing on the balance of payment in Kenya. Data used was in the form of secondary data, in particular, the following data was sought; interest rates, inflation rate, exchange rate, public debt and the balance of payments.

3.4 Data Analysis

Monthly data on exchange rates, inflation rates, interest rates and balance of payment for the period between 2006 and 2014 was collected, and a regression analysis using the data collected conducted to establish the extent of the relationship between the selected macroeconomic variables and the balance of payment in Kenya.

3.4.1 Analytical Model

The study used a regression model to predict the extent to which the identified independent variables influence the dependent variable. The regression line is represented by the equation:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 \ln X_4 + \varepsilon$$

Where:

Y represents the monthly value for balance of payment in Kenya standardized by establishing its natural logarithm.

X₁ = Monthly exchange rate (KSH/USD)

X_2 =Monthly inflation rate (in %)

X_3 =Monthly interest rate (in %)

X_4 =Monthly value for public borrowing standardized by establishing its natural logarithm.

While β_0 is the model constant, β_1 , β_2 , β_3 and β_4 are coefficients of the independent variables and ϵ is the error term.

Data was analyzed using Microsoft Excel data analysis tool. This particular package was chosen because of its user-friendliness. Data has been presented in figures and tables, summary statistics of the mean, and standard deviation. In addition, the correlation matrix of the independent variables has been carried out. The result of the regression model has been developed and tables used to show the regression results for the Country's performance.

3.4.2 Test of Significance

The analysis was undertaken at 5% significance level. The criteria for testing whether the predictor variables were significant in the model was through comparing the obtained probability value (P-value) and $\alpha=0.05$. If the p-value was less than α , then the predictor variable was significant otherwise, it was insignificant. The study used Test of goodness of fit and the explanatory power of the model R^2 and F test ANOVA results used to determine the significance of the model used.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1 Introduction

This chapter presents analysis and findings of the study as set out in the research objective and research methodology. The study findings are presented on the effect of selected macroeconomic variables on balance of payment in Kenya. The data was collected from secondary source, which included the records at Central Bank of Kenya and Kenya National Bureau of Statistics.

4.2 Descriptive Statistics

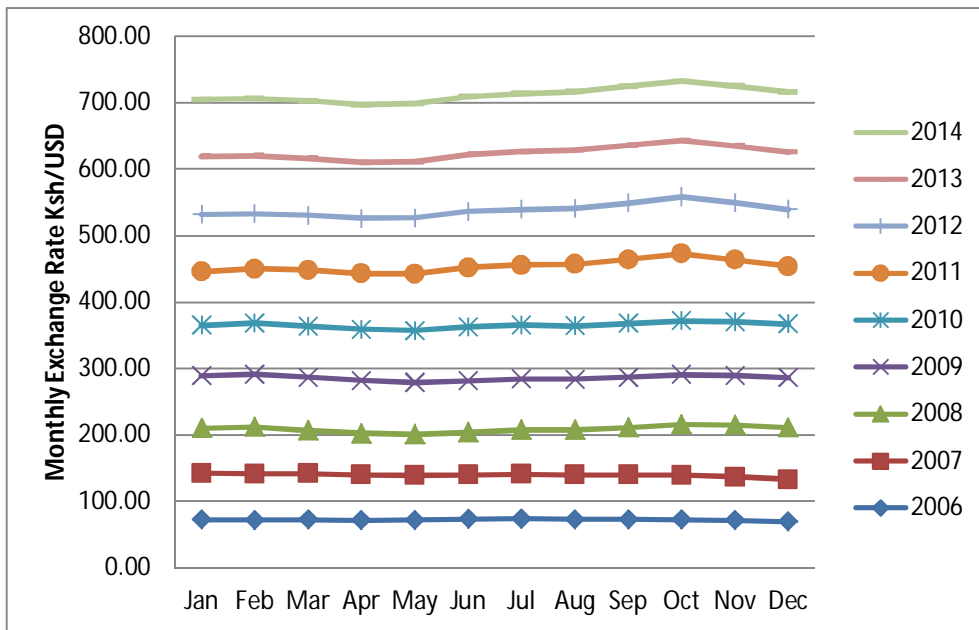
Descriptive statistics gives information that describes the data such that pattern might emerge. Graphical representation of data is one method of descriptive statistics; it provides a quick method to make comparison between different data sets and to spot the smallest and largest values and trends or changes over a period.

4.2.1 Exchange Rate Movement

The study sought to establish the trend in the movement of exchange rates in Kenya, the exchange rate of KSH/USD was selected for this purpose because of the fact that the US dollar is the most traded foreign currency in the country hence its trend was the most representative of exchange rate movement. The exchange rates used is the monthly rate

for the twelve months in a year. The findings are as presented in Figure 4.1 and Appendix III.

Figure 4.1 Exchange Rate



Source: Research Findings

From the data finding presented above, in year 2006, the exchange rate opened at Ksh.72.21/USD then fluctuated slightly throughout the year to a low of Ksh.73.66/USD in June and later continued to appreciating to close the year at Ksh.69.63/USD. During this year, it can be observed that the exchange rate was largely stable throughout the year. In the year 2007, the exchange rate opened at Ksh.69.89/USD then remained stable in the first quarter of the year and continued with the appreciating trend to exchange at an annual high of Ksh.63.30/USD in December.

The year 2008 started at Ksh.68.08/USD in January then depreciated to exchange at Ksh.70.62/USD in February before Kenya shilling started to strengthen from March to an

annual high of Ksh.61.90/USD in May. However, for the rest of the year, the local currency continued to lose ground against the US dollar to end the year at Ksh.78.04/USD. In year 2009, the exchange rate opened at Ksh.78.95/USD then declined slightly in February and March to exchange at Ksh.79.53/USD and Ksh.80.26/USD respectively. Kenya shilling later started to appreciate in April when it traded at Ksh79.63/USD, a trend that was maintained for the remainder part of the year and closed the year at Ksh74.74/USD.

In year 2010, the exchange rate opened at Ksh.75.79/USD and continuously depreciated throughout the first half of the year to close at Ksh81.02/USD, Kenya shilling depreciated further in July to trade at Ksh81.43/USD. The trend later changed in August when the shilling gained ground to trade at Ksh80.44/USD and stabilized at this rate up to the end of the year. The year 2011 started at Ksh.81.03/USD rising to Ksh81.47/USD and Ksh84.21/USD in February and respectively. The rates slightly strengthened in April at Ksh83.89/USD before depreciating continuously from May to record an all-time low of Ksh.101.27/USD in October and later appreciating to close the year at Ksh86.66/USD.

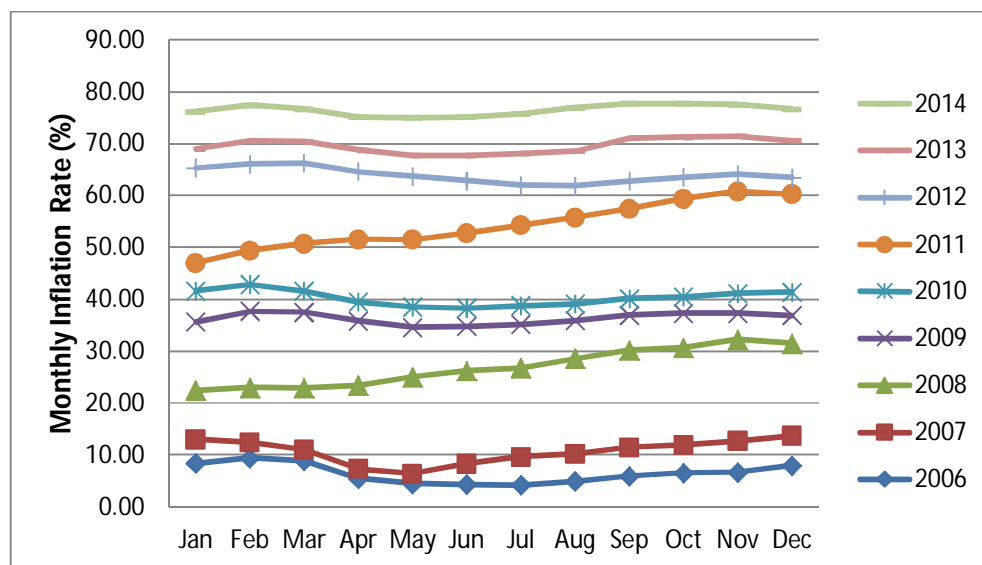
The year 2012 started at exchange rate of Ksh.86.34/USD in January and appreciated in the first quarter to close at Ksh.82.90/USD in March. It then depreciated in the rest of the year to close at Ksh85.99/USD in December. In year 2013, the exchange rate opened at Ksh.86.90/USD then declined slightly in February to Ksh87.45/USD. Kenya shilling later gained ground in March when it traded at Ksh85.82/USD, a trend that was maintained for the remainder part of the half year to close at Ksh85.49/US in June. The rates depreciated

in the coming months to end the year at Ksh86.31/USD. The first quarter of year 2014 witnessed stable rates that started at exchange rate of Ksh.86.21/USD in January and closed at Ksh.86.49/USD in March. It then depreciated in the in the rest of the year to close at Ksh90.44/USD in December.

4.2.2 Inflation Rate

The study also sought to establish the distribution of inflation rate in Kenya for the period under study. The research data is in Monthly inflation rate that prevailed within the year. The findings were as presented below in Figure 4.2 and Appendix I.

Figure 4.2 Inflation Rate



Source: Research Findings

From data findings, in year 2006 inflation rate opened at 8.39 per cent in January before rising to 9.39 per cent in February and later dropping to close the quarter at 8.86 per cent

in March. The second quarter recorded decreasing inflation rate from highs of 5.44 per cent in April to close the quarter at lows of 4.28 per cent in June and at 4.16 per cent in July. Inflation in August was recorded as 4.92 per cent and continued to increase to the rest of the year to close at 7.98 per cent in December. Inflation rates for the year was maintained below two digits figure and within government desired levels. In 2007, inflation rate started at 4.63 per cent in January and continuously decreased to lowest rates of 1.85 and 1.96 per cent for April and May respectively. However, from June the year experienced an upward trend in inflation rates from 4.07 per cent to close the year at 5.7 per cent in December.

The year 2008 experienced high inflation rates, starting at 9.40 per cent in January and sustaining an upward trend to close the year at 17.83 per cent in December. In year 2009, inflation started at 13.22 per cent in January rising to 14.69 and 14.60 per cent in February and March respectively. However, from the second quarter of the year, inflation rate took a downward trend dropping from 12.42 percent in April to close the year at a low rate of 5.32 per cent December. The year 2010 maintained the downward trend in inflation rate movement that begun the previous. Inflation rate in January was at 5.95 per cent and continuously decreased to close the year at 4.51 in December 2010.

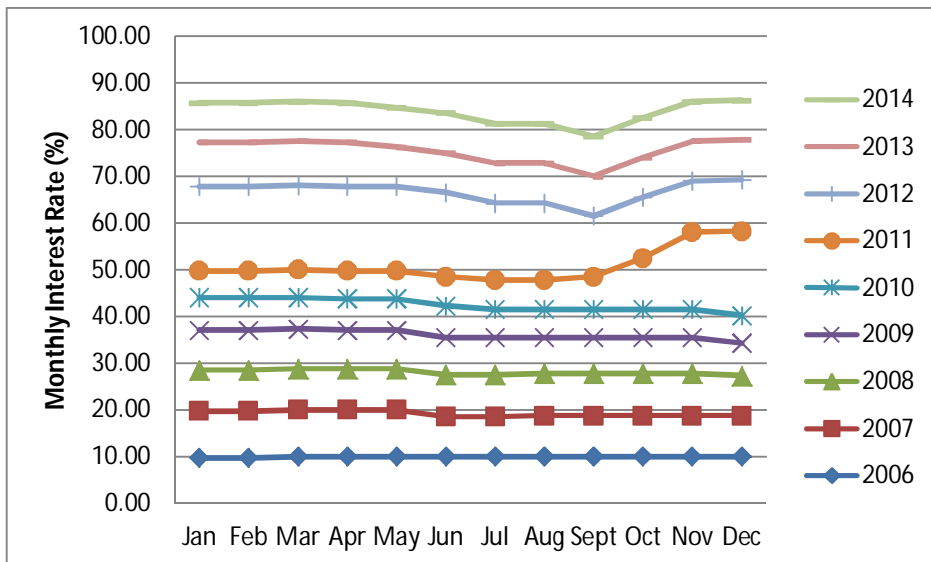
In year 2011, inflation rates began at 5.42 per cent in January and took an upward trend that saw the year close with a high inflation rate of 18.93 per cent in December. However, year 2012 recorded opposite of year 2011 observations, it started with high inflation figures in January at 18.31 per cent but continuously decreased throughout the

year to close at a low figure of 3.2 per cent in December. In year 2013, inflation rates began at 3.67 per cent in January and took an upward trend ending the year with high inflation figures of 7.15 per cent in December. The year 2014 started with high inflation rates of 7.15 per cent in January that declined in the following months to close the first quarter at 6.27 per cent but later increased from 6.41 per cent in April to 8.36 per cent in August before taking a downward trend, declining from 6.60 per cent in September to 6.02 per cent in December.

4.2.3 Interest Rate

The study sought to establish the trend interest rates have taken over the period covered by the study. The findings were as presented below in Figure 4.3 and Appendix II. The data used is that of monthly CBR.

Figure 4.3 Interest Rate



Source: Research Findings

From the data findings presented above, during the year 2006, interest rate in January was at 9.75 percent, the economy sustained that rate up to the end of November when the interest rate was adjusted upwards to 10 percent for the month of December 2006. In the year 2007, interest rate set in December the previous year continued to be applied until end of May that year when the interest rate dropped to 8.5 per cent for the month of June and July. However, in August the interest rate raised to 8.75 per cent a rate that was sustained for the rest of that year and in the first five months of 2008. A slightly higher rate was set in June at 9 per cent and continued to be in use until December 2008 when the interest rate declined to 8.5 per cent.

The interest rate of 8.5 percent spilled into the New Year and was in use for the first quarter of 2009 before dropping to 8.25 per cent for the months of April and May. The downward trend in interest rate continued into the months of June and July with an applicable rate of 8 per cent, with a further decline to 7.75 per cent observed for period between August and end of November. The month of December witnessed the lowest rate of 7 per cent for the first four years of the study. The interest rate recorded in December the previous year was applicable for the months of January and February 2010 before declining to 6.75 per cent for the next four months up to July, when interest dropped to 6 per cent and was applied for the rest of the year 2010.

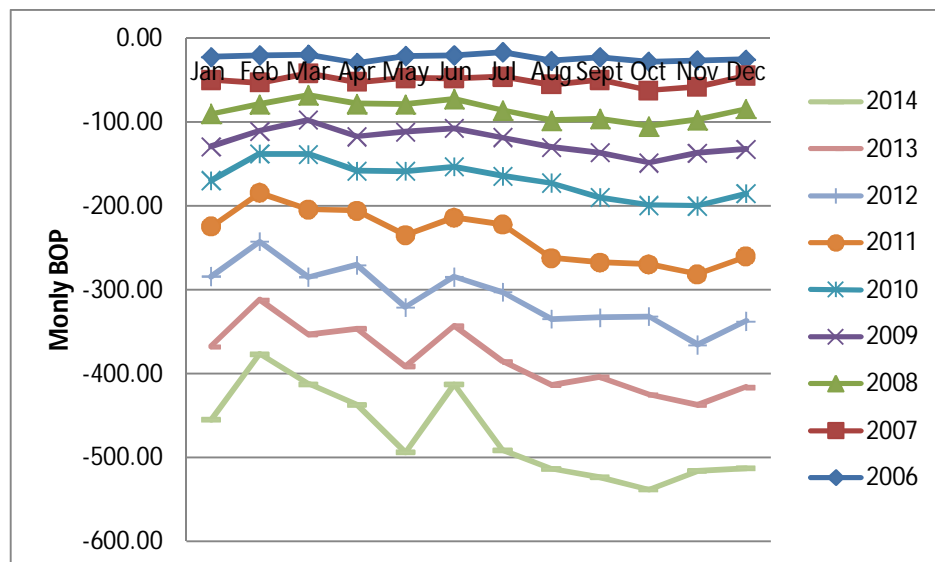
The year 2011 began with recording the lowest interest rates of 5.75 per cent that was applied in January and February before rising to 6 per cent for the period covering March to May and further rising to 6.25 per cent in June that year. The upward trend continued

with September, October, November and December recording rates as 7, 11, 16.50 and 18.00 per cent respectively. For the first half of the year 2012 the interest rate applicable stabilized at 18 per cent before decreasing in July and September to 16.5 and 13 per cent respectively. The rates further declined to 11 per cent for the months of November and December 2012. The first quarter of 2013 continued to enjoy low interest rate at 9.5 per cent before decline to 8.5 per cent in May, and later stabilizing at that rate for the rest of the year 2013 and for the year 2014.

4.2.4 Balance of Payments

The study sought to establish the BOP trend over the period covered by the study. The findings were as presented below in Figure 4.4 and Appendix III. The data used is that of monthly BOP.

Figure 4.4 Balance of Payments



Source: Research Findings

From the data findings presented above, in year 2006, BOP started at Ksh22.4 Billion in January before dropping to close the first quarter at Ksh19.57 Billion in March. The second quarter started at Ksh.29.37 billion in April and took a downward trend that stopped at Ksh16.67 Billion in July before rising to Ksh26.57 Billion in August and later declining to close the year at Ksh25.39 Billion in December. The year 2007 started with BOP of Ksh27.42 Billion in January that rose to Ksh32.70 Billion in February before dropping to Ksh22.32 Billion in March. In April, the BOP was at Ksh23.12 Billion rising to Ksh29.51 Billion in July and later to Ksh34.73 Billion in October before decreasing to end the year at Ksh19.69 Billion in December.

In the year 2008, BOP started at Ksh40.59 Billion after which it reduced subsequently for the first four months of the year to Ksh25.60 Billion in April. It shot up in the month of May to Ksh31.14 Billion before declining to Ksh24.65 Billion in June after which it again started to rise continuously in following months recording Ksh46.29 Billion for the month of September and later declining to close the year at Ksh39.22 Billion in December. The downward trend was maintained in the first quarter of the year 2009, dropping from Ksh38.82 Billion in January to Ksh29.89 Billion in March before rising to Ksh39.45 Billion in April later declining to Ksh32.92 Billion in May and to Ksh31.72 Billion in August. Thereafter, the BOP continued to rise closing the year at Ksh48.00 Billion in December.

In the year 2010, BOP started at Ksh40.60 Billion then dropped to Ksh26.97 Billion in February. It later increased from Ksh40.49 Billion in March to Ksh47.08 Billion in May

before declining to Ksh42.71 Billion in August. The BOP again rose to Ksh53.60 Billion in September but declined to Ksh.50.43 Billion in October before recording Ksh63.44Billion in November and thereafter recording a decline to close the year Ksh53.19 Billion in December. The year 2011, BOP started at Ksh55.07 Billion then dropped to Ksh46.77 Billion in February. It increased to Ksh65.86 Billion in March and later declined to Ksh47.57 Billion in April before rising to Ksh76.06 Billion in May. The BOP dropped to Ksh58.23 Billion in July but increased to Ksh.89.85 Billion in August before recording a continuous decline to close the year Ksh75.02Billion in December.

During the year 2012, BOP started at Ksh59.29 Billion in January then fluctuated to Ksh57.98 Billion and then Ksh80.85 Billion within the first quarter of the year. The BOP recorded a drop in April to stand at Ksh64.49 Billion before increasing to Ksh86.41 Billion in May, and thereafter continued to drop in the rest of the year except in the month of November which recorded an increase to Ksh83.84 Billion before declining to Ksh76.91 Billion in December. The year 2013, started with a BOP of Ksh83.65 Billion in January and took a downward trend in the first quarter before recording an increase to Ksh76.08 Billion in April, and thereafter continued to decline in the next two months hitting a low of Ksh58.42 Billion in June. The third quarter of the year began with a high BOP of Ksh82.86 Billion which dropped to Ksh71.02 Billion by the end of the quarter before recording an increase to 92.96 Billion in October and later declining to close the year at Ksh78.67 Billion.

The year 2014, opened with a BOP of Ksh87.05 Billion in January and took a downward trend in the first quarter before rising to Ksh90.29 Billion and Ksh102.61 Billion in April and May respectively, and later declining to Ksh.69.53 Billion in June. The second half of the year was marked with fluctuation and closed at Ksh97.03 Billion in December.

4.3 Inferential Statistics

Inferential statistics allows us to draw conclusions from data that might not be immediately obvious. It involves developing hypotheses and use common tests such as Correlation analysis, p-value, ANOVA analysis, and regression to validate your claims.

4.3.1 Correlation Analysis

Correlation analysis helps to provide a general indicator of the linear relationship between two-variables. Correlation matrix presents the correlation coefficients between BOP, interest rate, inflation rate, exchange rate and the public borrowing from the analysis. The findings were as shown in the Table 4.1 below:

Table 4.1: Correlation Matrix

<i>Variables</i>	<i>Balance of payments =Y</i>	<i>Exchange rate=X1</i>	<i>Inflation rate=X2</i>	<i>Interest rate=X3</i>	<i>Public borrowing=X4</i>
<i>Balance of payments =Y</i>	1				
<i>Exchange rate=X1</i>	0.8474	1			
<i>Inflation rate=X2</i>	0.0862	0.1041	1		
<i>Interest rate =X3</i>	0.1521	0.1159	0.2796	1	
<i>Public borrowing =X4</i>	0.9263	0.8665	-0.0664	0.0977	1

Source: Research Findings

From the table 4.1, public borrowing exhibited a strong relationship with both the BOP and exchange rate at 92.63 per cent and 86.65 percent respectively. Public borrowing is also positively correlated with interest rate but negatively correlated with inflation rate though in weak form. It was observed that interest rate has weak but positive correlation with both the inflation rate and exchange rate. While inflation rate showed a weak but positive correlation with exchange rate. BOP exhibited a direct relationship with all the independent variable.

4.3.2 Regression Analysis

In order to establish the relationship and the effect between BOP and the selected macroeconomic variables which include; exchange rate, inflation rate, interest rate and public borrowing, the study conducted a regression analysis. The findings were as shown in the Table 4.2 below:

Table 4.2: Model Summary

SUMMARY OUTPUT	
	<i>Regression Statistics</i>
Multiple R	0.939301816
R Square	0.882287902
Adjusted R Square	0.877716558
Standard Error	0.171995713
Observations	108

Source: Research Findings

Coefficient of determination (R^2) explains the extent to which changes in the dependent variable (BOP) can be explained by the change in the independent variables or the percentage of variation in the dependent variable that is explained by the independent variables. From the analysis, Adjusted R^2 of 0.8777 implies that 87.8 per cent of variation

in BOP can explained by the linear relationship between BOP and the selected macroeconomic variables. While the correlation coefficient (Multiple R) of 93.9 per cent indicates that, there exist a strong relationship between BOP and the selected macroeconomic variables.

4.3.3 Analysis of Variance

In order to test the significance of the model, the study conducted an Analysis of Variance. The findings were as shown in Table 4.3 below:

Table 4.3: Analysis of Variance

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	22.8382	5.7095	193.0041	0.0000
Residual	103	3.0470	0.0296		
Total	107	25.8852			

Source: Research Findings

From the ANOVAs results, the probability value of 0.0000 which less than $\alpha=0.05$ was obtained which indicates that the regression model was significant in predicting the relationship between BOP and the predictor variables.

The researcher conducted a regression analysis to determine the relationship between BOP and the predictor variables that included exchange rate, inflation rate, interest rate and public borrowing. The findings were as shown in Table 4.4 below.

Table 4.4: Regression Coefficients

<i>Source</i>	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	-4.7284	0.4182	11.3074	0.0000	-5.5578	-3.8991
Exchange rate=X_1	0.0056	0.0042	1.3201	0.1897	-0.0028	0.0139
Inflation rate=X_2	0.0124	0.0037	3.3870	0.0010	0.0051	0.0196
Interest rate =X_3	0.0037	0.0058	0.6391	0.5242	-0.0078	0.0153
Public borrowing =X_4	1.1206	0.0944	11.8699	0.0000	0.9334	1.3079

Source: Research Findings

From the Coefficient table, the following regression equation was obtained:

$$Y = -4.7284 + 0.0056X_1 + 0.0124X_2 + 0.0037X_3 + 1.1206X_4 + \varepsilon$$

From the regression model obtained above, if we hold the selected macroeconomic variables constant the BOP will be -4.7284 Billion. A unit change in exchange rate holding other factors constant will lead to change of BOP by 0.0056, and a unit change in inflation rate will change BOP by 0.0124 holding all other factors constant while a unit change in public borrowing holding other factors constant will lead to change of BOP by 1.1206. Lastly, a unit change in interest rate ceteris paribus leading to change in BOP by 0.0037. This implied that public borrowing had the highest influence on the BOP, followed by inflation rate, then exchange rate and lastly interest rates. The obtained regression equation further implied that there was a direct relationship between BOP and exchange rate, BOP and interest rate, BOP and inflation rate and BOP and public borrowing in Kenya.

The analysis was undertaken at 5% significance level. The criteria for comparing whether the predictor variables were significant in the model was through comparing the obtained

probability value and $\alpha=0.05$. If the probability value was less than α , then the predictor variable was significant otherwise, it was insignificant. The predictor variables which were significant in the model include; inflation rate and public borrowing their probability values were less than $\alpha=0.05$ as they were 0.0010 and 0.000 respectively. Interest rate and exchange rate were insignificant in the model as their probability value were 0.5242 and 0.1897, which are greater than $\alpha=0.05$.

4.4 Interpretations of the Findings

The study found from the analysis that on average Kenya's BOP deficit has been widening over the study period, it increased from Ksh23.25 Billion in 2006 to Ksh70.61 Billion in 2014. It was also established from the analysis that interest rate have been fluctuating during the study period. In the year 2006, the average interest rate that prevailed was at 9.88 per cent before dropping to 8.63 per cent in 2007 and later slightly rising to 8.75 per cent in the following year. However, in 2009 the interest rate dropped to 7.75 per cent and further to 6.38 percent in 2010. The year 2011 marked the beginning of high interest rates at 10.07 per cent that later moved to 13.50 per cent in 2012 before declining to 9.00 per cent in 2013 and to 8.50 per cent in 2014 respectively.

The average inflation rate was observed to be fluctuating over the period covered by the study indicating different economic times in the country. Inflation rate in the year 2006 was at 6.42 per cent that later declined to 4.27 per cent in 2007 before rising to all time high rates of 16.23 per cent in 2008. However, in 2012 inflation rates dropped to 9.64 per cent before further declining to 6.88 per cent by 2014. On public borrowing, the study

found out that public borrowing had continuously increased over the study period. In the year 2006, public borrowing amounted an average of Ksh777.31 Billion increasing to Ksh2292.42 Billion by the end of study period. The study also established that on average exchange rates have largely been on the rise since the inception year 2006 when exchange rate was at Ksh.72.10/USD then fluctuated to Ksh67.32/USD in 2007 before taking an upward trend for the rest of the study period.

From the regression equation, the study established that in any given year the BOP deficit would be Ksh4.7284 Billion when all the independent variables are equal to zero. A unit change in exchange rate holding all other factors constant will lead to change of BOP by 0.0056. The analysis also found out that a unit change in inflation rate would lead to change in BOP by 0.0124 holding all other factors constant while a unit change in public borrowing holding all other factors constant will lead to change of BOP by 1.1206. Lastly, a unit change in interest rate *ceteris paribus* will change the BOP by 0.0037. This implied that public borrowing had the highest influence on the BOP, followed by inflation rate, then exchange rate and lastly interest rates.

On the relationship between balance of payments and the selected macroeconomics variables, the study concludes that there exists a strong relationship. The coefficient of multiple determinations R-square value is 0.8777; this means that 87.8% of the variation of BOP is explained by the selected macroeconomic variables.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of key data findings, conclusions drawn from the findings highlighted and policy recommendations that were made. The conclusions and Recommendations drawn were in quest of addressing research objectives of establishing the effect of selected macroeconomic variables on balance of payments in Kenya.

5.2 Summary

Exchange rate is the rate at which a country's currency is exchanged for the currencies of other countries or simply a ratio of number of units of domestic currency required to purchase a unit of foreign currency (Wang, 2005) .It also a price of foreign currency in terms of domestic currency in the foreign exchange market. From the findings, the study established that in the inception year 2006, the exchange rate opened at Ksh.72.21/USD then fluctuated throughout the year to a high of Ksh.73.66/USD in June and later continued appreciating to close the year at Ksh.69.63/USD. During this year, it can be observed that the exchange rate was largely stable throughout the year.

The year 2007, experienced a strong Kenya shilling against the US dollar throughout the year with exchange rate hitting a low of Ksh63.30/USD in December. For the rest of the study period, the Kenya shilling continued to depreciate against the US Dollar. In 2008 and 2009 the average exchange rate of Kenya shilling against the US dollar was at

Ksh69.19/USD and Ksh77.35/USD respectively. The US dollar traded at an average price of Ksh77.35/USD in 2010 and Ksh88.81/USD in 2011 before decline to Ksh84.53/USD in 2012 after which Kenya shilling continued to weaken trading at Ksh86.12/USD and Ksh87.92/USD in 2013 and 2014 respectively.

The study findings established that balance of payment amounted to a deficit of Ksh22.45 billion in January 2006 and closed that year at deficit of Ksh25.39 Billion. The study established that on average per year the balance of payment for Kenya has been negatively increasing over the study period. In the 2007, the average BOP for Kenya was at Ksh 27.54 Billion and continued to increase in the years to come hitting a deficit of Ksh90.61 Billion in 2014. The situation was as result of increased imports of capital goods that are costly while Kenya continued to export raw agricultural produce with little or no value addition that attracting low prices in the international markets.

On public borrowing, the study found out that public borrowing had continuously increased over the study period. In the year 2006, public borrowing amounted to an average of Ksh777.31 Billion. The debts increased gradually to Ksh819.21 Billion and Ksh880.64 in 2007 and 2008 respectively. In 2009, the public debt was at Ksh1048.94 Billion before rising to Ksh1228 Billion in 2010 and later to Ksh1472.98 Billion and Ksh1649.73 Billion in 2011 and year 2012. The government continued to borrow to fund its budget deficit and by the end of the year 2014 the public borrowing was at all time high of Ksh2292.42 Billion.

The study established that interest rate have been stable during the study period. In the year 2006, the average interest rate that prevailed was at 9.88 percent before declining to 8.63 per cent in 2007 and later slightly rising to 8.75 per cent in the following year. However, in 2009 the interest rate dropped to 7.75 per cent and further to 6.38 percent in 2010. The year 2011 marked the beginning of high interest rates at 10.07 per cent that later moved to 13.50 per cent in 2012 before declining in the coming years to 9.00 per cent in 2013 and to 8.50 per cent in 2014.

The study observed that the government had managed to keep the inflation rate below two digits for most the years under study except in 2008 and 2011 when inflation rates on average were at 16.23 per cent and 13.98 per cent respectively. Inflation rate in 2006 was at 6.42 per cent that later declined to 4.27 per cent in 2007 before rising to all time high rates of 16.23 per cent in 2008. The year 2009 recorded inflation rate of 9.39 per cent that was followed by a significant drop in inflation to 3.97 per cent in 2010 before rising to 13.98 per cent in 2011. However, in 2012 inflation rates declined to 9.64 per cent before further declining to 5.72 per cent in 2013 and later recording a slight increase in 2014 to 6.88 per cent.

5.3 Conclusions

From the findings, the study concludes that there is an direct relationship between foreign exchange rates and balance of payments deficit in Kenya such that as the Kenyan currency depreciates the balance of payments in Kenya negatively increases. The exchange rate affects the prices at which a country trades with the rest of the world and is

integral to open economy analysis and policy formulation. The study established that public debt in Kenya has been rising over the study period. The study concludes that an increase in public borrowing leads to more deficit in Kenya's balance of payments.

The study concludes that there is a direct relationship between balance of payments and the inflation rate in Kenya. An increase in inflation rate in Kenya results to a proportionate increase to Kenya's balance of payment deficit. This observation supports the PPP theory that states that when the price of a good differs between two countries' markets because of high inflation, it creates an incentive for profit-seeking individuals to import the good in the low price market and resell it in the high price market.

On interest rates, the study concludes that there exist a direct relationship between balance of payments deficit and interest rates in Kenyan economy. This implies that a decrease in interest rates in Kenya results to decrease in BOP deficit. The observation concurs with the monetary approach to balance of payment that puts emphasis that a country balance of payment is essentially a monetary phenomenon (Frenkel and Johnson, 1976). Any observed disequilibrium in the balance of payments can be eliminated through manipulation of monetary variables especially domestic credit (interest rates).

On the relationship between balance of payments and the selected macroeconomics variables, the study concludes that there exists a strong relationship with a correlation coefficient of 93.9 per cent. The co-efficient of multiple determinations R-square value is

0.878; this means about 87.8% of the variation of the response variable that is BOP is explained by the selected macroeconomic variables.

5.4 Policy Recommendations

The study recommends that the policy makers should take keen interest on how best to improve the value of Kenya's export to the world; this will help bring to equilibrium the exchange rates that play an important role in determining the balance of payments. The government needs to increase marketing of its exports ,create awareness among local entrepreneurs of existing export market that need to be exploited while giving incentives to local industries producing for export as well as those companies that assemble locally which help curb demand for imports. The study further recommends that policy makers should come up with the best way to fund government project or budget deficit other than public borrowing that is on the rise and as observed from the study it is a major contributor to increase in BOP deficit.

5.5 Limitations of the Study

The limitations of time constraints and gathering of secondary information was encountered in the study. This was because the data was not readily available to the public and therefore the researcher had to seek for permission with relevant authority to access such information. Another limitation of the study includes the fact that the exchange rates existing in the country at some points had forced the Central Bank to intervene through open market operations these interfered with Forex equilibrium established by the market forces that consequently affects the BOP.

The researcher had an uphill task in developing statistical presentation since was not very conversant with most of the data analysis tools. This required some extra training on the package to enable proper usage of the same to get the necessary statistical presentations for the data.

5.6 Suggestions for Further Research

The study suggests that future research be done on the relationship between BOP and economic growth in Kenya. Secondly, the current study selected CBR as a measure of interest rate; it will be important to have a study done with KBRR as a measure of interest rate in Kenya and establish its effects on balance of payment in Kenya.

Thirdly, the study recommends that another study be conducted on the effects the selected macroeconomics variables and balance of payment in EAC regional block. This will enrich the current debate on the benefits of trading as EAC rather than as individual countries within EAC.

Lastly, the study suggests that in future a research be conducted to establish if there exist a relationship between external borrowing and exchange rate stability in Kenya. The study will help settle the existing debate on effects of Euro bond floated in 2014 on Kenya shilling exchange rate against the US dollar.

REFERENCES

- Abbas, A. (2007). *Public Domestic Debt and Economic Growth in Low Income Countries*. Mimeo. Oxford University.
- Argy, V.(1981).*Postwar International Money crisis; An Analysis*.New York.Routledge.
- Baharumshah, A.Z. (2001). The effect of exchange rate on bilateral trade balance: New evidence from Malaysia and Thailand. *Asian Economic Journal* , 15 (3), 291-312.
- Bleaney, M. & Fielding, D. (2002). Exchange rate regimes, inflation and output volatility in developing countries. *Journal of development economics*, 68, 233-245
- Bowe, M. & Saltvedt, T. M. (2004). Currency invoicing practices, exchange rate volatility and pricing-to-market: evidence from product level data. *International Business Review*, 13, 281-308
- Brinson, G. P., Singer, B. D.& Beebower, G. L. (1991). Determinants of Portfolio Performance II: An Update. *Financial Analysts Journal* , 47(3), 40–48.
- Calvo, G. & Reinhart, C. (2000). Fear of Floating, *Working Paper No. 7993*, National Bureau of Economic Research
- Cassel, G. (1918). Abnormal Deviations in International Exchanges. *Economic Journal*, 28 (112), 413–15.
- Central Bank of Kenya. (2015). *Fourteenth Monetary Policy Committee Report*. Nairobi. Central Bank of Kenya.
- Cooper, D. R. & Schindler, P. S. (2003). *Business Research Methods*. New York .McGraw-Hill.
- Daniel, D., Radebaugh, I. H. & Sullivan, D. P. (2013). *International Business; Environment and Operations*. Pearson Education.

- Devereux, M. B. & Engel, C. (2003). Monetary Policy in the Open Economy Revisited: Price Setting and Exchange Rate Flexibility. *The Review Of Economic Studies*, pp. 1-10
- Dornbusch, R. & Fisher, S. (1990). *Macroeconomics*, New York. McGraw Hill Publishing Company.
- Duarte, M. & Stockman, A. C. (2002). Comment on: Exchange rate pass-through, exchange rate volatility, and exchange rate disconnect, *Journal of Monetary Economics*, 49 (5), 941-946.
- Edwards, S. (2002). The Great Exchange Rate Debate After Argentina, *Working Paper No. 74*, Oesterreichische National bank.
- Eichengreen, B. (2004). Monetary and Exchange Rate Policy in Korea: Assessments and Policy Issues. *Paper prepared for a symposium at the Bank of Korea*, Seoul.
- Eiteman, D. K., Stonehill, A. I. & Moffett, M. H. (2001) *Multinational Business Finance 9th edition*. New York. Pearson
- Frenkel, J. A. & Johnson, H. G. (1976). *The Monetary Approach to the Balance of Payments*. Toronto. University of Toronto Press.
- Frenkel, J.A. & Mussa, M. (1985). Asset Markets, Exchange Rates and the Balance of Payments, in Jones and Kenen, eds., *Handbook of International Economics*. North-Holland, Amsterdam , pp. 679-747.
- Galí, J. & Monacelli, T. (2005). Monetary Policy and Exchange Rate Volatility in a Small Open Economy. *Review of Economic Studies*, forth-coming.
- Gligoric, M. (2010). Exchange Rate and Trade Balance: J-curve Effect. *Panoeconomicus*, 1, 23-41.
- International Monetary Fund. (2009). Balance of Payments and International Investment Position Manual. *IMF working paper, 2009* Washington D.C.

- Iyoboyi, M. & Olarinde, M. (2013). Impact of exchange rate depreciation on the balance of payments: Empirical evidence from Nigeria, *Cogent Economics & Finance*, 5, 15-24
- Joshi, V. & Little, I. M. (1999). *India Macroeconomics and Political Economy 1964-1991*. New Delhi. Oxford University Press
- Kaminchia, S. (2014). An Investigation Into the Discrepancy in Kenya's Balance of Payments Statistics. *African Statistical Journal*, 17, 123-159.
- Kandil, M. (2009). Exchange Rate Fluctuations and the Balance of Payments: Channels of interaction in Developing and Developed Countries, *Journal of Economic Integration*, pp.151-174.
- Kariuki, G. M. (2008). Determinants of current account balance in Kenya: The intertemporal Approach– *KIPPRA. DP No. 93*.
- Kenen, P. B. (1960). Business and Economics; British Monetary Policy & Balance of Payments 1951-1957. *Harvard University Press*,3(47),237-242.
- Kenya National Bureau of Statistics. (2015). *Economic survey, First Quarter 2015*.
- Levi, M. D. (2005). *International Finance; Balance of payments*. London. Routledge.
- Levich, R. M. (2001). *International Financial Markets*. 2nd Ed. New York. McGraw-Hill.
- Makau, J. K. (2008). External Public Debt Servicing And Economic Growth In Kenya: An Empirical Analysis. *Unpublished MBA Thesis*. University of Nairobi.
- Manab, A. & Bhat, S. K. (2003). New Horizons in Management: Explore Strategies for Success, *International Journal of Management and Commerce Innovations*, 3, 160-185
- Melberg, H. O. (1992). Inflation: An overview of Theories and solutions. Accessed online from www.geocities.com/hmelberg/papers/921201.htm on 5th June 2015.

- Miller, R. L. & Benjamin, D. K. (2004). *The Economics of Macro Issues*. Boston. MA; Pearson – Addison
- Mishkin, F.S. (2009). *Financial Markets and Institutions*. 6th Ed. Newyork. Pearson International.
- Morales, R.G. & Kleiner,B.H. (1996).New Development In Techniques For Analysing Diversified Companies In Today's Global Environment. *Management Research News*, 19 (8)41 - 48
- Mugenda, O. M. & Mugenda, A. G. (2003). *Research Methods: Quantitative and Qualitative Approaches*. Nairobi. ACT press
- Mundell, R. A. (1963). Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rates. *Canadian Journal of Economics and Political Sciences*. 29, 475-485.
- Mungami, S. E. (2012). The effects of exchange rate liberalization on the balance of Payment of a developing country: a case of Kenya, *Unpublished MBA Thesis*, Kenyatta University.
- Ndung'u, N. S (2010). Price and Exchange Rate Dynamics in Kenya: (edits) an Empirical Investigation (1970-1993). *AERC research Paper*, 58.
- Ndung'u, N. S. (1997). Price and exchange rate dynamics in Kenya: An empirical investigation (1970–1993).‘ *AERC Discussion Paper* 58. Nairobi: African Economic Research Consortium
- Ndungu, N. S. and Ngugi, R. W. (1999). Adjustment and liberalization in Kenya: The financial and foreign exchange market. *Journal of International Development*, 11: 465–491.
- Orodho, J. A. & Kombo. T.(2002). *Techniques of Writing Research Proposals and Reports*, Nairobi: Masola publishers.

- Osoro, K. (2013). Kenya's Foreign Trade balance: An empirical investigation, *European Scientific Journal*, 9(19), 1857 – 7881.
- Otuori, O. H. (2013). Influence of exchange rate determinants on the performance of commercial banks in Kenya. *European Journal of Management Sciences and Economics*, 1(2), 86-98.
- Pattnaik, S. and Mitra A. K. (2001), —Interest Rate Defence of Exchange Rate: Tale of the Indian Rupee, *Economic and Political Weekly*, pp. 4418- 4427.
- Pétursson, T. G. (2008). How hard can it be? Inflation control around the world, *Central Bank of Iceland Working Papers*, forthcoming.
- Polak, J. J. (1957). The two Monetary approaches to the Balance of Payments; Keynesian and Johnosian. *IMF working paper,2001,we/01/100*.
- Saleemi, N. A. (2010). Economics simplified. Nairobi. N. A. Publication.
- Sekantsi, L. (2009). The impact of real exchange rate volatility on South African exports to the United States (U.S.): a bounds test approach. *Journal of Emerging Trends in Economics and Management Sciences*, 2 (3): 146-155.
- Suranovic, S. (2012). *Policy and Theory of International Finance*. Washington D.C. Palgrave Macmillan.
- Svensson, L. (2000). Open-economy Inflation Targeting. *Journal of International Economics*, 50, 155-183.
- Todani, R. K. & Munyama, T. (2005). Exchange rate volatility and exports in South Africa.[Online].Available at Trade and Industry Policy Strategies website:<http://www.tips.org.za/files/773.pdf>. [Accessed on 5th July, 2015].
- Umaru, A. (2012). Effect of Inflation on the Growth and Development of the Nigerian Economy (An Empirical Analysis). *International Journal of Business and Social Science*, 3

- Vedrin, A. (1988). Macroeconomic Policies and the Balance of Payments, *Scandinavian Journal of Economics* 98(2), 203-218.
- Wang, P. (2005). *The economics of foreign exchange and Global finance 4th ed.* Berlin. Springe-Verlag.
- Were, M., Nyamongo, E. M., Kamau, A.W., Sichei, M. & Wambua, J. (2014). Assessing the effectiveness of monetary policy in Kenya: Evidence from a macroeconometric model. *Economic Modelling*, 37, 193-201 .

APPENDICES

Appendix I: Data for Monthly Inflation (%)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annualized Average Inflation rates
2006	8.39	9.39	8.85	5.44	4.47	4.28	4.16	4.92	5.93	6.55	6.64	7.98	6.42
2007	4.63	3.02	2.19	1.85	1.96	4.07	5.48	5.30	5.53	5.38	6.08	5.70	4.27
2008	9.40	10.58	11.90	16.12	18.61	17.87	17.12	18.33	18.73	18.74	19.54	17.83	16.23
2009	13.2 2	14.69	14.60	12.42	9.61	8.60	8.44	7.36	6.74	6.62	5.00	5.32	9.39
2010	5.95	5.18	3.97	3.66	3.88	3.49	3.57	3.22	3.21	3.18	3.84	4.51	3.97
2011	5.42	6.54	9.19	12.05	12.95	14.48	15.53	16.67	17.32	18.91	19.72	18.93	13.98
2012	18.3 1	16.69	15.61	13.06	12.22	10.05	7.74	6.09	5.32	4.14	3.25	3.20	9.64
2013	3.67	4.45	4.11	4.14	4.05	4.91	6.03	6.67	8.29	7.76	7.36	7.15	5.72
2014	7.21	6.86	6.27	6.41	7.30	7.39	7.67	8.36	6.60	6.43	6.09	6.02	6.88

Source: Kenya National Bureau of Statistics

Appendix II: Data for Monthly Central Bank Rate(%)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annualized Average CBR
2006	9.75	9.75	10	10	10	10	10	10	10	10	10	10	9.88
2007	10	10	10	10	10	8.5	8.5	8.75	8.75	8.75	8.75	8.75	8.63
2008	8.75	8.75	8.75	8.75	8.75	9	9	9	9	9	9	8.5	7.75
2009	8.5	8.5	8.5	8.25	8.25	8	8	7.75	7.75	7.75	7.75	7	7.75
2010	7	7	6.75	6.75	6.75	6.75	6	6	6	6	6	6	6.38
2011	5.75	5.75	6	6	6	6.25	6.25	6.25	7	11	16.5	18	10.07
2012	18	18	18	18	18	18	16.5	16.5	13	13	11	11	13.5
2013	9.5	9.5	9.5	9.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	9
2014	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5

Source: Central Bank of Kenya

Appendix III: Data on Monthly Exchange Rate of the Kenya Shilling Against the USD.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annualized Average Exchange rate
2006	72.21	71.80	72.28	71.30	71.76	73.41	73.66	72.87	72.87	72.29	71.13	69.63	72.10
2007	69.89	69.62	69.29	68.58	67.19	66.58	67.07	66.95	67.02	66.85	65.49	63.30	67.32
2008	68.08	70.62	64.92	62.26	61.90	63.78	66.70	67.68	71.41	76.66	78.18	78.04	69.19
2009	78.95	79.53	80.26	79.63	77.86	77.85	76.75	76.37	75.61	75.24	74.74	75.43	77.35
2010	75.79	76.73	76.95	77.25	78.54	81.02	81.43	80.44	80.91	80.71	80.46	80.57	79.23
2011	81.03	81.47	84.21	83.89	85.43	89.05	89.90	92.79	96.36	101.27	93.68	86.66	88.81
2012	86.34	83.18	82.90	83.19	84.38	84.79	84.14	84.08	84.61	85.11	85.63	85.99	84.53
2013	86.90	87.45	85.82	84.19	84.15	85.49	86.86	87.49	87.41	85.31	86.10	86.31	86.12
2014	86.21	86.28	86.49	86.72	87.41	87.61	87.77	88.11	88.84	89.23	89.96	90.44	87.92

Source: Central Bank of Kenya

Appendix IV: Data on Monthly Balance of Payment in KSH Million

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Average BOP
2006	-22452	-20503	-19573	-29366	-21034	-20521	-16669	-26573	-22613	-27977	-26300	-25388	-23247
2007	-27417	-32701	-22315	-23123	-26454	-27387	-29506	-28713	-27196	-34365	-31658	-19691	-27544
2008	-40587	-25724	-26085	-25599	-31138	-24647	-39961	-42891	-46285	-42316	-39329	-39224	-35316
2009	-38817	-31887	-29827	-39451	-32921	-34745	-32205	-31722	-40285	-44015	-39270	-48004	-36929
2010	-40596	-26973	-40489	-40838	-47075	-46169	-45731	-42706	-53597	-50429	-63443	-53185	-45936
2011	-55070	-46774	-65857	-47571	-76055	-60491	-58232	-89852	-77443	-70468	-81787	-75017	-67051
2012	-59293	-57981	-80852	-64491	-86409	-70795	-80513	-72218	-65641	-62381	-83837	-76906	-71776
2013	-83648	-69716	-68299	-76076	-70063	-58417	-82681	-78833	-71017	-92960	-71724	-78674	-75176
2014	-87054	-64424	-59158	-90289	-102612	-69530	-105738	-100001	-119463	-113262	-78707	-97026	-90605

Source: Central Bank of Kenya

Appendix V: Data for Monthly Public Debt in KSH Billion

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Annualized Average Public Debt
2005	737.45	737.77	721.19	731.51	728.45	749.55	759.43	760.23	747.66	751.14	751.40	743.60	743.28
2006	741.50	745.75	753.07	754.75	755.98	789.08	795.50	799.06	794.24	799.94	805.97	792.86	777.31
2007	795.60	802.34	795.34	810.76	810.54	801.25	820.74	824.98	835.50	838.23	850.31	844.98	819.21
2008	856.39	860.60	869.82	863.86	872.33	870.58	860.96	867.16	882.29	889.17	901.64	972.90	880.64
2009	966.74	993.53	988.37	1,009.43	1,007.16	1,053.49	1,062.55	1,077.26	1,075.60	1,091.02	1,084.16	1,177.94	1,048.94
2010	1,106.27	1,132.88	1,177.27	1,191.04	1,192.24	1,225.72	1,230.75	1,264.21	1,298.93	1,294.21	1,310.70	1,320.14	1,228.70
2011	1,345.80	1,377.07	1,396.90	1,388.14	1,422.46	1,487.11	1,526.20	1,545.36	1,564.11	1,604.58	1,532.54	1,485.49	1,472.98
2012	1,496.00	1,540.34	1,564.20	1,596.94	1,610.10	1,633.38	1,639.55	1,673.69	1,724.65	1,741.63	1,783.02	1,793.24	1,649.73
2013	1,811.95	1,770.02	1,794.61	1,882.41	1,907.04	1,894.19	1,953.83	2,004.24	2,057.43	2,062.77	2,082.29	2,111.55	1,944.36
2014	2,121.40	2,166.74	2,171.59	2,167.74	2,189.93	2,370.26	2,386.10	2,372.08	2,348.70	2,343.75	2,392.31	2,478.45	2,292.42

Source: Central Bank of Kenya

Appendix VI: Monthly values for Balance of Payments standardized by establishing its natural logarithm

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2006	3.1114	3.0206	2.9742	3.3798	3.0461	3.0214	2.8136	3.2799	3.1185	3.3314	3.2696	3.2343
2007	3.3112	3.4874	3.1053	3.1408	3.2754	3.3101	3.3846	3.3573	3.3031	3.5370	3.4550	2.9802
2008	3.7034	3.2474	3.2614	3.2426	3.4384	3.2047	3.6879	3.7587	3.8348	3.7452	3.6720	3.6693
2009	3.6589	3.4622	3.3954	3.6751	3.4941	3.5480	3.4721	3.4570	3.6960	3.7845	3.6705	3.8713
2010	3.7037	3.2948	3.7010	3.7096	3.8517	3.8323	3.8228	3.7543	3.9815	3.9206	4.1501	3.9738
2011	4.0086	3.8453	4.1875	3.8622	4.3315	4.1025	4.0644	4.4982	4.3495	4.2552	4.4041	4.3177
2012	4.0825	4.0601	4.3926	4.1665	4.4591	4.2598	4.3884	4.2797	4.1842	4.1333	4.4289	4.3426
2013	4.4266	4.2444	4.2239	4.3317	4.2494	4.0676	4.4150	4.3673	4.2629	4.5322	4.2728	4.3653
2014	4.4665	4.1655	4.0802	4.5030	4.6310	4.2418	4.6610	4.6052	4.7830	4.7297	4.3657	4.5750

Source: Research Findings

Appendix VII: Monthly values for Public Borrowing standardized by establishing its natural logarithm

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2006	6.6087	6.6144	6.6242	6.6264	6.6280	6.6709	6.6790	6.6834	6.6774	6.6845	6.6920	6.6757
2007	6.6791	6.6875	6.6788	6.6980	6.6977	6.6862	6.7102	6.7154	6.7280	6.7313	6.7456	6.7393
2008	6.7527	6.7576	6.7683	6.7614	6.7712	6.7692	6.7580	6.7652	6.7825	6.7903	6.8042	6.8803
2009	6.8739	6.9013	6.8961	6.9171	6.9149	6.9599	6.9684	6.9822	6.9806	6.9949	6.9886	7.0715
2010	7.0088	7.0325	7.0710	7.0826	7.0836	7.1113	7.1154	7.1422	7.1693	7.1657	7.1783	7.1855
2011	7.2047	7.2277	7.2420	7.2357	7.2601	7.3046	7.3305	7.3430	7.3551	7.3806	7.3347	7.3035
2012	7.3105	7.3398	7.3551	7.3758	7.3840	7.3984	7.4022	7.4228	7.4528	7.4626	7.4861	7.4918
2013	7.5022	7.4787	7.4925	7.5403	7.5533	7.5465	7.5775	7.6030	7.6292	7.6318	7.6412	7.6552
2014	7.6598	7.6810	7.6832	7.6814	7.6916	7.7708	7.7774	7.7715	7.7616	7.7595	7.7800	7.8154

Source: Research Findings