

**INTEREST RATE, PRIVATE SECTOR INVESTMENTS, EXCHANGE
RATE AND ECONOMIC GROWTH
IN UGANDA (1984-2015)**

By

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**A RESEARCH DISSERTATION SUBMITTED TO THE COLLEGE OF ECONOMICS
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DECLARATION

This work is as a result of an independent investigation and in circumstances where it's under obligation to the work of other people, due acknowledgement has been made.

Signed.....

Abdirizak Ibrahim Ali

Date.....

APPROVAL

I certify that this research was done under my supervision and submitted with my approval to the department of Economics and Applied Statistics, College of Economics and Management of Kampala International University.

Sign Date:

DR. Abuga Isack

(Academic supervisor)

DEDICATION

I dedicate this research report to my family especially whose effort towards my education is fundamental to this far I have reached, I am very great full for your contributions and May God accord you abundantly

ACKNOWLEDGEMENT

All my praises and thankful hands to God, the most merciful and gracious one for his abundant protection to me which enabled to successfully complete this work. Without the Lord God, all this work and my entire study would have been but just myth.

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I feel greatly indebted to my parents my lovely mother and my beloved brothers and sisters for their mutual support and cooperation they offered to me during the difficult times of my studies. I would like to acknowledge the role played by my family through bearing the inconveniences caused by time and money taken off for the course.

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ABSTRACT

The overall objective of the study was to investigate the relationship between exchange rate and economic growth of Uganda (1984 -2015). The objectives included to determine the relationship between interest rate and economic growth of Uganda, to establish the relationship between private sector investments and economic growth of Uganda and to establish if there is a significant relationship between exchange rate and economic growth in Uganda in the years (1984-2015). The study was conducted based on the correlation design and the use of quantitative techniques to analyze secondary data scientifically to critically conclude the research objectives, secondary data was collected from World Bank reports, international monetary fund data sheets among others. The data was attained for the period of time of 1984-2015. The study on the first objective reveal that interest rates had a low percentage change in the dependent variable (i.e economic growth rate) is caused by interest rates. The second objective reveal the regression coefficient reveal that Private sector investments had a low change in the dependent variable (i.e economic growth rate). The exchange rate had a significant effect on the economic growth of Uganda. The study conclude that interest rate changes have had a positive change in economic growth of Uganda implying that the interest rates improvements will enhance the growth of the economy. The second research objective reveal that Private sector investments in Uganda had some effect on the economic growth of Uganda, meaning that because Private sector is the engine for the country economic growth, the effect on growth was high, therefore the study conclude that private sector investments need improvements. On the third research objective, the study concludes that exchange rate had an effect on the economic growth of Uganda. The study findings therefore imply that there is need to strengthen the exchange rate to attain economic growth in the country. The study recommends the policy makers ought to adopt strategic and systematic ways of controlling and adjusting the interest rate since their impact on the overall level of economic growth can easily be felt. However, these should be adjusted with an informed perspective since they can crowd out domestic growth. The researcher recommend for the establishment of a strong finance mechanism that will improve the state of functional of interest rates through establishing a strong policy framework that can guide the execution of the duties of financial system controls in Uganda. There recommend that fiscal and monetary strategies for stimulating private investment like offering tax holidays to prospective investors would be a better option for encouraging private sector investments in the country. Exchange rate seem to be significant to economic growth of Uganda and the need for creation of a strong export base that can generate more foreign exchange to attain the economic growth of the country.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter gives an elaboration of the background of the study, statement of the problem, purpose of the study, research objectives, research questions, scope, and the significance of the study and operational definitions of key terms.

1.1 Background of the Study

The background is divided into four perspectives that include- the historical perspective, theoretical perspective, conceptual perspective and contextual perspectives

1.1.1 Historical Perspective

Interest rates present a very readable account of interest rate trends and lending practices over four millennia of economic history (Asante, 2010). Underlying the analysis is their assertion that "the free market long-term rates of interest for any industrial nation, properly charted, provide a sort of fever chart of the economic and political health of that nation. In the past two centuries, interest rates have been variously set either by national governments or central banks. For example, the Federal Reserve federal funds rate in the United States has varied between about 0.25% to 19% from 1954 to 2008, while the Bank of England base rate varied between 0.5% and 15% from 1989 to 2009, and Germany experienced rates close to 90% in the 1920s down to about 2% in the 2000s. During an attempt to tackle spiraling hyperinflation in 2007, the Central Bank of Zimbabwe increased interest rates for borrowing to 800% (Kasekende & Atingi-Ego, 2012). The value for Interest rate spread (lending rate minus deposit rate, %) in Uganda was 10.72 as of 2014. Over the past 34 years this indicator reached a maximum value of 14.67 in 1987 and a minimum value of 3.25 in 1991. In the three months to May 2013, the weighted average lending rates on shilling loans averaged 24%. In comparison, interest rates on foreign currency loans are lower at an average 10% (Banam, 2010).

The concept of the exchange rate is a globally one, after the Bretton Woods system broke down, the world finally adopted the use of floating foreign exchange rates during

the Jamaica agreement of 1976. This meant that the use of the gold standard would be permanently abandoned. Although fixing the value of a smaller country's currency can have advantages particularly in arresting inflation the IMF and like-minded economists have warned that countries get into trouble when they wait too long to adjust the value of their currency to changing economic conditions and end up with economically damaging crises, as several Asian economies did in late the late 1990s and Argentina did subsequently (Banam, 2010). With the enthusiastic support of Nobel Prize winning economist Robert Mundell, who has advised the Chinese lately not to take the advice of the U.S. In Africa, the developing countries have moved towards more flexible exchange rates in the past quarter century. "Back in 1975, for example, 87 percent of developing countries had some type of pegged exchange rate. By 1996, this proportion had fallen to well below 50 percent the IMF noted. Many countries that traditionally pegged to the U.S. dollar adopted a basket approach during the first half of the 1980s, in large part because the dollar was appreciating rapidly (Asante, 2010).

Uganda's Exchange Rate index was 177.0 in 1971 and appreciated to 125.93 by 1980, it depreciated to 282.40 in 1987 and there after it started appreciating to 81.86 by 2003. Depreciation pressures of exchange rate were evident for most of the second half of 2005/06. The Exchange Rate index depreciated by 6.0 percent to an average index of 121.9 in the second half of 2005/06 from an index of 115.0 in the first half of 2005/06 (BOU, 2006). According to Thapa (2002) the successful and effective conduct of monetary policy requires the selection of an intermediate monetary target. Variables such as money supply, domestic credit, nominal income, inflation rate and exchange rate are some of the candidates for intermediate target variables of monetary policy, among them are the exchange rate. Before one decides on choosing exchange rate as an intermediate target variable, one must know the link between the exchange rate and the ultimate policy objective such as a higher rate of economic growth.

Historically, private sector investment has gone through a lot of phases worldwide and this began way back in the early 1860s in United States of America. Hale and Long (2012) in 1879-1886, private investors began to flow from neighboring nations to the

United states and this forced the government of the America to begin establishing laws regulating private investments. During this period, United Kingdom recorded the total amount of \$8.304 billion, from private investments with annual average value of \$1.038 billion and average annual growth rate near 15% (Baghebo & Edoumiekumo, 2012). In Sub-Saharan Africa as a region, many countries depend very much on private investment due to its acknowledged advantages as amplified. In fact, it has been argued that the effort by many African countries to improve their business climate stems from the desire to invest. Indeed, one of the pillars on which the New Partnership for Africa's Development (NEPAD) was launched was to increase available capital to US\$64 billion through a combination of reforms, resource mobilization and a conducive environment for investments (Bhattacharya, Oppenheim, & Stern, 2015). Also Over the past two decades, African countries have made considerable efforts to improve their investment climate they have liberalized their investment regulations and have offered incentives to foreign investors.

The Ugandan history of private sector investment can be traced back to the year 1900s, when the British arrived as they were being attracted by the country's natural resources. Real fixed investment in Uganda grew gradually from the 1950s and reached a peak during the mid-1970s. However, a rather rapid decline set in, to a point at which real fixed investment in 1988 was once again at the level prevailing during the late 1950s and early 1960s (Chhibber & Dailami, 2010). By 2000, the United Nations Millennium Summit through its leaders placed development and investments at the heart of the global agenda by adopting the Millennium Development Goals (MDGs). The Government of Uganda is a signatory to this and the Poverty Eradication Action Plan (PEAP), which is also the Country's Poverty Reduction Strategy Paper (PRSP), is Uganda's national development framework and medium term planning tool to achieve the MDGs.

World Bank (2014) contend that world database contains selected macroeconomic data series from the statistical appendix of the World Economic Outlook report which

presents the IMF staff's analysis and projections of economic developments at the global level in major country groups and in many individual countries. The WEO is released in April and September/October each year. According to Kitov (2006) the African countries Gross Domestic Product (GDP) growth rate is low averaged at 5% in the past five years its highest five-year average on record (IMF, October 2007). GDP growth for the continent increased slightly to 5.7% in 2007, picking up significantly to 6.5% in 2008 supported by strong external demand for oil and non-oil minerals; increased investment in these sectors as well as good weather conditions for agriculture in most African countries. Chhibber & Dailami (2010) argued that East Africa's relatively successful economies, combining low inflation with high economic growth. This was achieved in spite of the slowdown in the fiscal year 2005/06, when real GDP grew by 5.3 per cent, compared with 6.7 per cent in 2004/05.

1.1.2 Theoretical Perspective

The study was guided by three theories that included the Loanable funds theory of real interest rates by Robertson and Bertil, 1930s. The neo-classical approach by Jorgenson (1983) and the purchasing power parity (PPP) developed by Cassel (1918). The Loanable funds theory of interest rate determination views the level of interest in the financial market as resulting from the factors that affect the supply and demand of loanable funds (Saunders, 2010) interest rate in this theory is determined just like the demand and supply of goods is determined, supply of loan able funds increases as interest increases, other factors held constant. The neo-classical approach by Jorgenson (1983). The theory was out of the desire to address the shortcomings of the Harrod-Domar formulation of (1939, 1946) that highlights the importance of determining of the rate of investment which is necessary to achieve a certain rate of economic growth and Their model also shows the possibility of increasing the rate of growth

The purchasing power parity (PPP) developed by Cassel (1918). Cassel once argued that without it, there would be no meaningful way to discuss over-or-under valuation of a currency. The purchasing power parity is a theory of exchange rate determination and a way to compare the average costs of goods and services between countries. The

theory assumes that the actions of importers and exporters, motivated by cross country price differences; induce changes in the spot exchange rate. In another vein, PPP suggests that transactions on a country's current account, affect the value of the exchange rate on the foreign exchange market. This contrast with the interest rate parity theory which assumes that the actions of investors, whose transactions are recorded on the capital account, induces changes in the exchange rate.

1.1.3 Conceptual Perspective

An interest rate, or rate of interest, is the amount of interest due per period, as a proportion of the amount lent, deposited or borrowed (called the principal sum). The total interest on an amount lent or borrowed depends on the principal sum, the interest rate, the compounding frequency, and the length of time over which it is lent, deposited or borrowed. Interest rate is the price that relates to present claims on resources relative to future claims on resources. The price a borrower pays in order to be able to consume resources now (Kwak, 2000). The real interest rate-an interest rate adjusted for either realized or expected inflation-is the relative price of consuming now rather than later. As such it's a key variable in important theoretical models in finance and microeconomics- such as the consumption based asset pricing model (Lucas, 1978). According to Keynes (1936), interest rate represents the cost of borrowing capital for a given period of time. Due to the fact that borrowing is a significant source of finance for many firms, prevailing interest rate are of much concern to the firms due to the indexing of interest rate on borrowing arrangements of the firms ultimately affecting growth (Moshi, & Kilindo, 2012)

Nampewo, Tinyinond, Kawooya & Ssonko (2014). define private Investment sector as the policy, institutional, and behavioral environment, both present and expected, that influences the returns and risks, associated with investment". According to Nampewo, Tinyinond, Kawooya & Ssonko (2014) the key determinants of private investment include economic and political stability, rule of law, infrastructure, approaches to regulations and taxes, functioning of labor and finance markets etc. The climate of private investment in Uganda over the years has been described as unfavorable and

unstable. Private Investment also refers to the ventures that is made by a company or individual in a country and yet it is not financed by government of that home country (Feenstra, 2013). According to Maqbool, Maaida and Sofia (2010), in the process of investigating the economic performance of a country, one of the key determinants of economic growth and job creation is investment. Moreover, most of the countries that grow rapidly invest a considerable fraction of their Gross Domestic Product (GDP). In contrast, countries that develop slowly are those that invest slowly in their economies and remain poor (Solow, 2013). Private sector investments will focus on Foreign direct investments and domestic private investments.

Bergsten further argued that Exchange Rate is defined as the weighted average of a country's currency relative to an index or basket of other major currencies adjusted for the effects of inflation. The weights are determined by comparing the relative trade balances, in terms of one country's currency, with each other country within the index (Thapa (2002). Exchange rate is the price of one currency in terms of another currency. Exchange rates can be either fixed or floating. Fixed exchange rates are decided by central banks of a country whereas floating exchange rates are decided by the mechanism of market demand and supply. This refers to the price of a nation's currency in terms of another currency (Bategeka & Okumu, 2010). An exchange rate thus has two components, the domestic currency and a foreign currency, and can be quoted either directly or indirectly. In a direct quotation, the price of a unit of foreign currency is expressed in terms of the domestic currency. In an indirect quotation, the price of a unit of domestic currency is expressed in terms of the foreign currency. An exchange rate that does not have the domestic currency as one of the two currency components is known as a cross currency, or cross rate (Asante, 2010).

According to Madura (2007) Gross domestic product (GDP) is defined as the monetary value of all the finished goods and services produced within the country borders in a specific time period. This includes value of production of monetary and non-monetary goods and services within a country, (UBOS, 2006). Since independence, the Ugandan economy has fluctuated widely. GDP rose in 1971 to a tune of Ushs 208 billion and fell

to as low as Ushs 152 billion in 1980. The fall from Ushs 208 billion to a trough of 1980 was approximately 25 percent while the subsequent rise was slightly higher in the 1980s and in the 1990s. Lately, Uganda's GDP has been rising steadily and by 2006, it had risen to Ushs 18, 608.41 billion.

1.1.4 Contextual Perspective

The situation in Uganda presents an atmosphere of the interest rates that are ever increasing, the private sector investments despite being the engine for development is hindered with a series of challenges that has frustrated the economy, the exchange rate values despite interventions has under gone a series of inflations and deductions in the value of the currency. The economy has a series of hard ships that have frustrated the growth of the economy and these among others include the fluctuations in exchange rates, private sector constraints and ever increasing interest rates by the countries.

According to the Central Bank, lending rates in commercial banks have increased from about 21% in January 2015 to 25% in February 2016. This is due to contractionary monetary policies that were implemented by the Central Bank to control inflation. Treasury bill rate increased from 11% to 19% in the same period. With inflationary pressures currently falling, the BOU's relaxation of monetary policy is required amid concerns over weak economic activity. By lowering its policy rate, the BoU may reverse these trends (BOU, 2015). The central bank of Uganda lowered its benchmark lending rate by 100bps to 15 percent on June 13th 2016. It is the second straight rate cut, bringing the borrowing cost to the lowest since July last year. Policymakers last cut the central bank rate by 100bps in April, mentioning lower growth and subdued consumer demand. Interest Rate in Uganda averaged 14.41 percent from 2011 until 2016, reaching an all-time high of 23 percent in November of 2011 and a record low of 11 percent in June of 2013. Interest Rate in Uganda is reported by the Bank of Uganda (Asante, 2010).

In Uganda, the changes of exchange rates reflect movements of the currency exchange market that is the interaction between supply and demand for currency units. Increased demand for national currency unit is caused by an increase in demand for national exported goods and services and leads to appreciation of national currency unit. Thus, exchange rate is an important indicator of international trade (Bryan, 2011). A continuing foreign exchange shortage caused a decline in the value of the shilling to US\$600 per US\$1 by June 1985 and US\$1,450 in 1986. In May 1987, the government introduced a new shilling, worth 100 old shillings, along with an effective 76 percent devaluation. Ugandans complained that inflation quickly eroded the new currency's value. As a result, the revised rate of US\$60 per US\$1 was soon out of line with the black market rate of US\$350 per US\$1 (Banam, 2010). Following the May 1987 devaluation, the money supply continued to grow at an annual rate of 500 percent until the end of the year. In July 1988, the government again devalued the shilling by 60 percent, setting it at US\$150 per US\$1; but at the same time, the parallel rate had already risen to US\$450 per US\$1. President Museveni regretted this trend, saying "If we can produce more, the situation will improve, but for the time being we are just putting out fires." The government announced further devaluations in December 1988 to US\$165 per US\$1; in March 1989, to US\$200 per US\$1; and in October 1989, to US\$340 per US\$1. By late 1990, the official exchange rate was US\$510 per US\$1; the black market rate was US\$700 per US\$1 (Kasekende, & Atingi-Ego, 2012).

Private investment in Uganda in 2014/2015 was valued at \$1,216,128,000. Findings from Uganda Investment Authority indicate that Over the past 30 years, this value has varied between \$1,189 million in 2013 and \$789 million in 1958 when Uganda was about to get her independence. Due to a peaceful political environment, the statistics from Uganda investment authority indicate that in 2011/2012, the country received 1.7 billion dollars of investment from the private sector. The part of external sources, the private sector received lower funding through foreign direct investments, which is estimated to have declined from US\$ 1.1 billion to US\$ 0.8 billion between FY 2014/15 and FY 2015/16, and from remittances that decreased from US\$ 1.3 billion to an estimated US\$ 1.2

billion over the same period. In addition, Uganda realized lower than usual receipts from export of goods and services, due to a combined effect of low demand and low commodity prices. Under these circumstances, private investments are estimated to have reached levels that are far lower than had been anticipated. UIA Abstract 2013/2014. If this can be compared to the early years before Uganda attained her Independence, the sub-period of 1950-1960 was a transitional period to independence and it included years of intensified economic activity because the Europeans regime realized that the independence of Uganda was imminent.

According to Michael (2000) argued that the Ugandan economy has continued to grow rapidly in recent years. Real GDP growth in the 2005/06 fiscal year was close to the 5.5 per cent average recorded over the past six years. Growth in 2005/06 was largely driven by the strong performance of the services sector, which grew at 9.2 per cent, up from 8.7 per cent in 2005, led by road transport, telecommunications, financial services, tourism and air travel. Telecommunications has been the fastest growing subsector as a result of substantial increases in the number of mobile phone subscribers, largely the consequence of an ineffective telecommunications infrastructure in terms of land lines. The economy continues to manifest an overall satisfactory performance with regard to maintenance of macroeconomic stability. Assuming that the country does not suffer a bout of drought that will affect food crop and cash crop production, the agricultural sector is expected to register improved performance (World bank, 2010). Uganda has established several policy strategy that are intended to enhance the value of the economy. The country adopted the poverty reduction Strategy Paper (PRSP), the Poverty Eradication Action Plan the Uganda Poverty Status Report on (PEAP) (November 2014) states that 19.7% Ugandans were poor in 2012/13 down from 33.8% in 1999/2000. The Millennium development Goals. Vision 2040 is conceptualized on harnessing strategic opportunities by strengthening the relevant fundamentals capable of maximizing returns to the economy

1.2 Problem Statement

Ugandan economy has been growing through a low growth rate of single digit 5 to 8% over the past four years. The country still has economic constraints that have hindered the country from attaining the resonate economic growth and developed, these include structural bottle necks such as inflation, unemployment, interest rate variations, foreign exchange fluctuations and low but constrained private sector investments growth that has hampered the development of the country (World Bank, 2014).

The interest rates increases in the country especially over the past 4 years have seen a reduction in business growth and development through reduced borrowing that has limited business expansion for growth of the economy EIU (2014).

The foreign exchange fluctuations in the country in terms of the international currency has also reduced the value of international trade in the country has strongly affected the exports values and increased the price of the imports (BOU, 2015), these notwithstanding the private sector investments in the country promising though still low and coupled with poor planning environment and an bureaucratic administrative framework which has kept investments of the private sector low World Bank. (2014).

The status quo of the ever increasing interest rates, private sector investment constraints and exchange rate fluctuations have been seen to provide a dangerous bearing growth and development of Uganda, if not addressed can keep the economy crumbling. It is based on these that the study set to investigate the effect of interest rates, private sector investments and exchange rate on economic growth of Uganda from 1984 to 2015.

1.3 Purpose of the Study

The purpose of the study was to investigate the effect of interest rate, Private sector investments, exchange rate fluctuation and economic growth of Uganda (1984 -2015).

1.4 Specific Objectives

1. To determine the effect of interest rate on economic growth of Uganda from 1984-2015
2. To establish the effect of private sector investments on economic growth of Uganda (1984-2015)
3. To establish the effect of exchange rate on economic growth in Uganda in the years (1984-2015)

1.5 Research Questions

1. What is the effect of interest rate on economic growth of Uganda from 1984-2015?
2. How does private sector investments affect economic growth of Uganda (1984-2015)?
3. What is the effect of exchange rate on economic growth in Uganda in the years (1984-2015)?

1.6. Hypothesis

H₀₁ There is no significant effect of interest rate on economic growth of Uganda

H₀₂ Private sector investments does not significantly affect economic growth of Uganda

H₀₃ There is no significant effect of exchange rate and economic growth in Uganda

1.7 Scope of the Study

17.1 Content Scope

The study focused on conducting an inquiry into the relationship between exchange rate on economic growth. The key focus of the study established the objectives of the study to include establishing the effect interest rates, private sector investments and exchange rate on economic growth of Uganda.

1.7.2 Time Scope

The study on secondary data for literature was limited to the years 1984 to 2015. This period is appropriately chosen as it is the period when the economy experienced both stability and instability in both the goods and money markets with the same economic structures and policies implying the two variables under study have been subjected to the same conditions.

1.8 Significance of the Study

The study will be significant in the following ways

- i. The study will help in knowing the extent to which exchange rate affects the economic growth; these will help in providing the measures necessary for attaining exchange rate stability.
- ii. The results of the study will aid policy makers to design appropriate policies to improve and sustain economic growth.
- iii. The study will also add to the stock of knowledge on the interest rate effects and its effect on the economy of Uganda and its findings will be of great importance to other researchers in the same field.
- iv. The study findings will provide measures that can enhance value of the private sector investment with valuable information that will help it to put into consideration the stability of the economy.
- v. The study will explore means through which the private sector investments, interest rates and exchange rate can be stabilized to enhance the economic stability of the country.
- vi. Last but not least, the results of this study will be of immense help to future researchers who will make their own investigation into this subject area.

1.9 Operational Definitions of Key Terms

In this study, the variables usage on the data usage is operationalized as Provide in the analysis below.

Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator. The terms and conditions attached to lending rates differ by country, however, limiting their comparability.

Private sector investments in this study include the Claims on private sector include gross credit from the financial system to individuals, enterprises, nonfinancial public entities not included under net domestic credit, and financial institutions not included elsewhere.

The exchange rate was measured in the form of real effective exchange rate is the nominal effective exchange rate (a measure of the value of a currency against a weighted average of several foreign currencies) divided by a price deflator or index of costs.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter is concerned with review of information that different authors have advanced on the topic in regard to study objectives, it therefore looks at the theoretical review, related literature, related studies.

2.1 Theoretical Review

This study was premised on three theories that include the Loanable Funds Theory of Real Interest Rate, the purchasing parity theory and the Neo-classical theories.

2.1.1 Purchasing power parity theory

The purchasing power parity theory. The starting point of exchange rate theory is purchasing power parity (PPP), is a theory of long-term equilibrium exchange rates based on relative price levels of two countries. PPP can be traced back to sixteen-century Spain and early seventeen century England, but Swedish economist Cassel (1918) was the first to name the theory PPP. Cassel once argued that without it, there would be no meaningful way to discuss over-or-under valuation of a currency.

In its "absolute" version, the purchasing power of different currencies is equalized for a given basket of goods. In the "relative" version, the difference in the rate of change in prices at home and abroad the difference in the inflation rates is equal to the percentage depreciation or appreciation of the exchange rate.

PPP exchange rate (the "real exchange rate") fluctuations are mostly due to different rates of inflation between the two economies. Aside from this volatility, consistent deviations of the market and PPP exchange rates are observed, for example (market exchange rate) prices of non-traded goods and services are usually lower where incomes are lower. (U.S. dollar exchanged and spent in India will buy more haircuts than a dollar spent in the United States). Basically, PPP deduces exchange rates between currencies by finding goods available for purchase in both currencies and comparing the total cost for those goods in each currency.

The theoretical provisions of interest rates, Private sector investments, exchange rate has a bearing on economic growth the only way to directly realize this rate is to sell an entire basket in one country, convert the cash at the currency market rate & then re-buy that same basket of goods in the other country (with the converted cash). Going from country to country, the distribution of prices within the basket will vary; typically, non-tradable purchases will consume a greater proportion of the basket's total cost in the higher GDP country.

2.1.2 Loanable Funds Theory of Real Interest Rate

The theory was formulated in the 1930s by British economist Dennis Robertson and Swedish economist Bertil Ohlin. However, Ohlin attributed its origin to Swedish economist Knut Wicksell and the so-called Stockholm school, which included economists Erik Lindahl and Gunnar Myrdal.

Loanable funds theory of interest rate determination views the level of interest in the financial market as resulting from the factors that affect the supply and demand of loanable funds (Saunders, 2010) interest rate in this theory is determined just like the demand and supply of goods is determined, supply of loan able funds increases as interest increases, other factors held constant. He goes further to explain that the demand for loanable funds is higher as interest rate fall, other factors held constant. Saunders (2010) identifies two factors among others causing demand curve for loanable funds to shift; economic conditions and the monetary expansion (Asante, 2010).

2.1.3 Neo-classical theory

The study is premised on the theory of neo-classical approach by Jorgenson (1983). The theory was out of the desire to address the shortcomings of the Harrod-Domar formulation of (1939, 1946) that highlights the importance of determining of the rate of investment which is necessary to achieve a certain rate of economic growth and Their model also shows the possibility of increasing the rate of growth, by either reducing a factor (capital/income) or increase the rate of investment (savings/income). Thus Jorgensen model is based on the theory of optional capital allocation. The essentials of

a theory of optimal capital accumulation that meets this basic objective are the following: The firm maximizes the utility of a consumption stream subject to a production function relating the flow of output to flows of labor and capital services. The firm supplies capital services to itself through the acquisition of investment goods; the rate of change in the flow of capital services is proportional to the rate of acquisition of investment goods less the rate of replacement of previously acquired investment goods. The results of the productive process are transformed into a stream of consumption under a fixed set of prices for output, labor services, investment goods, and consumption goods.

2.2.1 Effect of interest rates on economic growth

Balke & Zeng (2011) found that the speed of adjustment of market interest rates varies across rates, with the highest speed occurring for lending rate. They also find that asymmetric adjustment in commercial banks rates and that commercial banks are becoming increasingly more rigid in adjusting their lending rates upward in response to a positive shock in the official rate, supporting the negative customer reaction hypothesis.

Smith & Ingo (2003) contend that interest rate policy is among the emerging issues in current economic policy in Nigeria in view of the role it is expected to play in the deregulated economy in inducing savings which can be channel to investment and thereby increasing employment, output and efficient financial resource utilization. Also, interest rates can have a substantial influence on the rate and pattern of economic growth by influencing on the volume and disposition of saving as well as the volume and productivity of investment.

Giovanni (2012) argues that small economies are affected by conditions in large countries that is, high large country's interest rate have the concretionary effect on the annual real GDP growth in the domestic economy. But this effect is centered in countries with fixed exchange rates. The effects on interest rate in small countries are

through direct monetary policy channel and the general capital market or trade effect. A demand shock leads to short term rise in the real interest rate.

Korir (2006), noted that high interest rate on lending by the financial institutions in the country have made the accessibility almost impossible to the poor and effectively negates on poverty alleviation. Korir (2006), contend that for the first time borrowers can confidently face their bankers and negotiate interest rates on their loans based on the new CBK rate.

McKinnon (1973) contend that financial repression through a controlled interest rate regime has adverse effects on economic growth and development. The standard recommendation is that positive real interest rates must be established on deposits and loans by eliminating interest rates and credit ceilings, stopping selective credit allocation and lowering the reserve requirements. McKinnon (1973), argue in favor of financial deepening and high interest rates as they spur economic growth and development

Mehran (1997) contend that an efficient financial system is critical not only for the domestic capital mobilization but also a vehicle for gaining competitive advantage in the global market. Financial reforms emphasize the abolition of interest rate and credit ceilings and the promotion of competitive environment with reduced government control and ownership. Although achieving competitiveness does not imply the non existence of an interest rate spread, it has been noted the size of the spread is much higher in a non competitive market. This also calls for strengthening of the regulatory and the legal framework to enhance the stability of the market. Bank interest rate spread could be interpreted as an indicator of the efficiency of the financial system. A well developed efficient banking system is prerequisite for saving and the investment decisions vital for rapid economic growth

Modigliani and Cohn (1979) established a negative relationship between changes in interest and stock returns to a misunderstanding of the relationship between interest rates and fundamentals: Investors, they maintain, do not appreciate the implications of

inflation for equity value so misprice stocks when expectations of inflation (and thus nominal interest rates) change. The negative relationship between interest rate and the stock prices arises because of; interest rate can influence the level of corporate profits which in turn influence the price that the investors are willing to pay for the stock through expectation of higher future dividend payments. A reduction in interest rate reduces the cost of borrowing and thus serves as an incentive for expansions. This will have a positive effect on future expected returns for the firm. Secondly a substantial amount of stocks are purchased with borrowed money hence an increase in interest rate would make transaction more costly.

2.2.2 Effect of Private sector investments on economic growth

The literature on domestic private investment and economic growth is quite enormous and it continues to grow by the day. However, most of these studies are done for the developing countries. This amongst several studies includes studies by Tawiri (2010) for Libya. A good survey can also be found in Baghebo and Edoumiekumo (2012) for Nigeria. As argued by Baghebo and Edoumiekumo (2012), there is a growing literature on the link between private investment and economic growth in developing countries due, largely, to the fact that developing countries are fond of formulating sound investment friendly policies to attract foreign investment and only to reverse it later. They cited the case of Nigeria that moved from the era of regulatory control to deregulation and to guided deregulation. These array of empirical studies agreed that there is equilibrium between the growth proxy and the independent variables including domestic private investment. Two major events seem to have dimmed the relevance of the debate carried out in the different studies. The first is the array of estimation techniques and test procedures available to researchers. The second is the development in the Nigerian economy vis-à-vis, investment policies in the country. These events are precisely responsible for the resurgence in interest among researchers. The preceding events have led to the further consideration of the relationship between domestic private investments and economic by the authors using the error correction methods. From the literature reviewed, the authors argues that a slump in general economic

activity will compel private investors to postpone their investment decision giving room for the boosting of foreign investment in the tradable sector while shrinking the non-tradable sector.

Looney and Frederiken (2012) estimated the effect of private sector investments and concluded that certain types of government investment especially in rural works 'crowded out' private investment in non-manufacturing activities. Likewise, the public infrastructure investment in energy projects provided the greatest inducement to private investment. studied the impact of Government investment on private sector in Pakistan over the period 1972 to 1995 and concluded private sector investment depends on the lagged change in GDP, the change in private sector credit, the lagged value of private investment, government expenditure in the infrastructure and other projects.

According to Naqvi (2013) private sector investment leads to economic growth. Naqvi (2013) proved that long run estimates of the elasticities of private investment are different under different assumptions made about the evolution of technology. If technology was considered exogenous, the elasticities of private and public capital with respect to output and rate of return were similar to each other. on the same perspective Khan and Khan (2007) investigated the determinants of private investment in Pakistan. The results showed that real GDP had positive but insignificant impact on private investment while public investment had negative but insignificant impact on private investment.

Ilegbinosa, sumlinki & Watson (2015) conducted a study the relationship of Private sector investments and economic growth using a sample of 43 developed and developing countries over the period 1970-1990. Their results indicate that public capital expenditure has a negative effect on economic growth for developing countries, and the effect gets dramatically reverse for developed countries. They explain their results by suggesting that expenditures normally considered productive could become

unproductive if there is an excessive amount of them. They conclude by indicating that policymakers have been misallocating their resources by excessive public investment.

Kitov (2006) explored the impact of private sector investment and on economic growth using panel data of 105 of developed and developing countries over the period 1970-2009. Their results show that both public investment and FDI have a positive relationship with economic growth; however, the threshold results indicate that the growth effect of FDI on economic growth becomes weaker when public investment exceeds 8-9%. They explain their results by pointing out that an excessive public investment can hinder the benefit from FDI.

A study by Kham and Reinhart (1990) observe that there is a close connection between the level of investment and economic growth. In other words, a country with low level of investment would have a low GDP growth rate. The use of rigid exchange rate and interest rate controls in Nigeria in low direct investment, the leads to financial imbalances in the early 1980. Funds were inadequate as there was a general lull in turn leads to the liberalization of the financial system Omole and Falokun (1999). This may have an adverse effect on investment and economic growth.

Chinn and Ito (2005) shown that the investment demand curve is always a backward bending function of the interest rate in a model with non-convex adjustment costs and the potential to learn. At low interest rates, an increase in the rate of return raises the cost of learning and increases aggregate investment by enlarging the set of firms for when the interest rate exceeds the rate of return to delay. An increase in interest rate is more likely to stimulate investment when the potential to learn is larger and in the short run rather than the long run.

2.2.3 Effect of exchange rate on economic growth

Hossain (2002) argued that exchange rate and economic development is certainly an important subject, from both a positive (descriptive) and a normative (policy prescription) perspective. Several developing countries that have implicitly or explicitly

fixed their exchange rates to the currency of another country (say, the U.S. dollar) and whose inflation rates are higher than that of the foreign country (the United States) often experience persistent current account deficits and eventual devaluations of their currencies.

Saleh (2007) conducted a study that established a relationship between exchange rate and Inflation and between exchange rate and GDP in Bangladesh. Bangladesh experiences of moving away from a currency board system to floating regime since 2003 offers a lesson worthy of attention from the point of view of efficiency of "Floating Rate System" in least developed countries like Bangladesh. "Floating exchange rate regime in Bangladesh contrasts with its neighbor's currency board system. Experiences in Bangladesh and abroad show that all that a government needs in this regard is to maintain confidence in the currency, secure currency's strength and ensure its full convertibility.

Ghosh, Gulde, Ann-Marie, Ostry, Jonathan & Wolf (2006) pointed out that economic contraction occurs through the following channels. First, a nominal depreciation of the currency leads to a rise in general price level. This lowers aggregate demand, which, in turn, causes economic contraction. The second channel works through the income redistribution. It is argued that a real depreciation can help transfer income from individuals with a high marginal propensity to consume to those with a low marginal propensity. This lowers aggregate demand, which, in turn, causes output to fall. The aggregate supply channel, on the other hand, purports that the depreciation of the real exchange rate increases the cost of production and helps redistribute income in favor of the rich. It is contended that a real depreciation can reduce aggregate supply. This is so because a real depreciation causes the cost of imported raw materials to go up. This reduces the importation of raw materials and thereby lowering the level of aggregate supply.

Lu Fang-Yuan and Shi Jun-Guo (2012) conducted a study on exchange rate and economic development, based on the relevant data from 1985 to 2010, this thesis uses a regression model to make an empirical research about the effect of GDP and exchange rate on foreign exchange reserve. The findings show that: Both GDP and exchange rate have a remarkable influence on the size of foreign exchange reserve and the effect of exchange rate on foreign exchange reserve is higher than GDP at mean place and middle and lower quintile, smaller than GDP at higher quintile. At all the examined quintiles elastic coefficients of GDP and exchange rate are positive and among them, the elastic coefficients of GDP present us a reverse "V" model with the conditional distribution altering from low to high, that is, the impact of GDP on foreign exchange reserve shows an increasing trend when the latter is smaller, but begins to decrease when the latter reaches to a certain level; the elastic coefficients of exchange rate at lower quintiles are bigger than that of higher quintiles.

Cole and Obstraid (2005) established the relationship between exchange variation through inflation and output. Export market growth is strongly associated with output transition unlike previous studies, which omitted export market growth and therefore overstated the output costs of inflation, as well as the short-run costs of structural reform and its long-run benefits. They also found no evidence of countries closer to the inflation-output threshold simply aiming to stay there without proceeding further towards industrial country inflation rates.

Khan, Tariq & Sasaki (2012) conducted the study on the real effective exchange rate and GDP in Jordan through the aggregate demand-aggregate supply theoretical framework. This study used the method "Fully Modified OLS", which is a one to estimate co integration. The advantage of this method is in its ability to solve the problems of autocorrelation and biased parameters. The results showed that the appreciation of the real effective exchange rate does not reflect or nullify the international competitiveness of Jordanian goods as the traditional theory suggests. This means Jordan should continue maintaining stable real exchange rate. The results

also showed the efficiency of using the narrow definition of money (M1) as an important monetary policy tool. However, it was shown that M1 is a more effective tool rather than the broad definition of money.

Huang, Haizhou and Malhotra (2004) studied the effect exchange rate on economic growth, the results reveal that exchange rate affects output levels thus an increase in REER results in a decrease in output. He also found out that REER Granger causes output only at 10% significance level. In his study, he also found out that REER accounted for 26.12% shocks in output after 5 quarters in Vietnam. However, Pinar (2006), in his research on Output, the Real Exchange Rate and the Crises in Turkey using a multivariate VAR analysis found out that, the shocks to REER are important in the variation of real GDP, but not the other way round. In addition, a positive shock to the spread between US 10-year and 3-month treasury rates indicated a real depreciation and an improvement of the CA balance, while it does not have much effect on real GDP.

2.3 Research Gaps

There are several studies that were conducted on interest rates, exchange rate, private sector investments and economic growth. The studies of Ilegbinosa, sumlinki & Watson (2015) conducted on the relationship of Private sector investments and economic growth using a sample of 43 developed and developing countries over the period 1970-1990. Korir (2006) noted that high interest rate on lending by the financial institutions in the country have made the accessibility almost impossible to the poor and effectively negates on poverty alleviation. Korir (2006), contend that for the first time borrowers can confidently face their bankers and negotiate interest rates on their loans based on the new CBK rate. Studies like for Saleh (2007) was conducted at ASA University America based fixed Exchange rate” and the “Free floating exchange rate System. These previous studies and other studies conducted were in the environment outside the Ugandan environment. The studies were conducted for a period between and before 2014. Therefore this present both a theoretical, geographical and time gaps that these research set to conduct a study. The identified gaps were filled by having a

documented report on the interest rates, private sector investments, exchange rate and economic growth in Uganda hence the provision of the data on the Ugandan setting.

CHAPTER THREE

METHODOLGY

3.0 Introduction

This chapter explains and describes how the research was carried out. It focused on the research design, mode, measurement of the variables, sources of data, data analysis.

3.1 Research Design

The study adopted an ex-post- facto research design that used quantitative techniques to analyze secondary data scientifically to critically conclude the research objectives, secondary data was collected from World Bank reports, international monetary fund data sheets among others. Also inferences were drawn by fitting the regression model and testing for its significance using the t-statistic statistic, correlation of the two variables and test for significance of the regression coefficient of determination and finally time series analysis was done regression analysis table to test between interest rates, Private sector Investments, exchange rate and economic growth in Uganda.

3.2 The Model Specification

In order to determine the relationship between interest rates, exchange rate, Private sector Investments and economic growth of Uganda. This study develops a model based on the factors that affect the economic growth. The model is aimed at examining the channels through which exchange rate affect economic growth. The mode provides for tests for the relationship between interest rate, Private sector investments and exchange on economic growth

To establish this effect of the study formulated the following regression equation. The neo-classical theory by Jorgenson (1983) and Purchasing power parity theory by Cassel of 1918 was used, the theory highlight that the interest rate, private sector investments and exchanges rate in proper form are necessary to achieve a certain rate of economic growth and Their model also shows the possibility of increasing the rate of growth, by either reducing a factor (capital/income) or increase the rate of investment

(savings/income). Thus Jorgensen model is based on the theory of optional capital allocation.

The regression model was estimated in accordance with the variables Private sector investments, interest rate and foreign exchange equivalent to economic growth.

$$Y = \alpha_0 + \alpha_1 PSI + \alpha_2 IR + \alpha_3 RER + e_i$$

Where

Y: economic growth rate

α_0 = Constant Exchange rates variation

PSI: Private Sector Investments

IR: Interest Rates

RER: Real Exchange Rate

e_{ye} : Error term

The model assumes that the independent variables are varying in nature and can change in both in positive and negative directions.

The dependent economic growth variable is caused by the independent variables of interest rates, PSI and real exchange rates.

The model assumed that the error terms is serially uncorrelated with heteroscedasticity.

3.3 Variable definition and Measurements

In our estimation equation, the dependent variable stands for growth rate of the economy; its data is obtained from World development indicators published by World Bank on line.

Nampewo, Tinyinond, Kawooya & Ssonko (2014). define private Investment sector as the policy, institutional, and behavioral environment, both present and expected, that influences the returns and risks, associated with investment

Interest rate is the price that relates to present claims on resources relative to future claims on resources. The price a borrower pays in order to be able to consume resources now (Kwak, 2000).

Exchange Rate is defined as the weighted average of a country's currency relative to an index or basket of other major currencies adjusted for the effects of inflation, exchange rate is measured by real exchange rate.

Economic growth is the increase in the level on goods and services of a country within a fixed period of time; in this case economic growth was measured in term of Gross Domestic Product expressed in the percentage change

The economic growth, the variables measurements are determined based on the definitions of economic growth by Coricelli, 1997 who provided for the measurements based on the production function.

3.4 Data types and Sources

The data will be secondary data obtained from the world development indicators published by World Bank on line. The data presented is based on the country (Uganda) information bulletin that shows the level and rate of exchange rate, economic growth, interest rate, Private sector investment for Uganda in the period of 31 years under the study.

3.5 Methods of data analysis

3.5.1 Descriptive Analysis

Description of the variables during the data analysis involved a discussion of the descriptive statistics of all these different data variables in the study. Different measures of central tendency and spread of the dataset were used to present a view of the data so that preliminary analysis of its nature presented before an inference about

the general populations for further results were made using the results of the sample data at hand.

3.5.2 Stationarity tests

Stationarity of the variables was used in order to get rid of the problem of spurious regression. It is often said that most macroeconomic variables follow a random walk model, i.e., exhibiting a unit root behavior. According to Studenmund (2011), a random walk process can be identified as stationary when its mean and variance are found to be constant across time, and the value of the covariance between the two time periods is dependent on the lag between them and not the actual time of computing the covariance. This study will, therefore, employ the stationarity analysis to test whether the mean and variance of the stochastic term will be constant over time. The Augmented Dickey- Fuller (ADF) test is appropriate.

The Augmented Dickey-Fuller Tests

The (ADF) Augmented Dickey-Fuller and Philips Perron test (PP) tests were used. The null hypothesis that there exists a unit root in the time series (non-stationary time series), which is $H_0: \alpha=0$ against the alternative hypothesis, $H_1: \alpha < 0$, that the time series is stationary (no unit root). A rejection of the null hypothesis under these tests means the series does not have a unit root. Assumptions of the Classical regression model necessitate that both the dependent and independent variables are stationary and the errors have a zero mean and finite variance. Non-stationary variables result in spurious regression and as Granger and New bold (1974) argued, they are characterized by a high R^2 and a low Durbin-Watson (DW) statistic, t-and F-statistics that appear to be significant, but the results derive no any economic sense. The results "looks good" because the least-squares estimates are not consistent and the customary test of statistical inference do not hold. While testing whether the variable has unit root or no, the lag-length is chosen using the Akaike Information Criterion (AIC).

Decisions are made basing on the t-statistic, that is to say, if the absolute value of t-statistic is more than the critical values, then we reject the null hypothesis and conclude

that the series is stationary. On the other hand, if the absolute value of the t-statistic is less than the critical values, we fail to reject the null hypothesis and conclude that the series is non-stationary. The critical values for this t-statistic are given in Mackinnon (1991).

3.5.3 Regression Analysis

Regression analysis is a statistical process for estimating the relationships among variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables (or 'predictors'). More specifically, regression analysis helps one understand how the typical value of the dependent variable (or 'criterion variable') changes when any one of the independent variables is varied, while the other independent variables are held fixed. In this case the regression analysis was based on assessing the effect that real exchange rate and nominal exchange rate has on economic growth. The analysis used regression analysis to determine the effect of interest rate, Private sector investment, and exchange rate on economic growth.

3.5.4 Diagnostic Tests

Serial Correlation Test

Serial Correlation is a correlation among members of the series of error terms ordered in time. It is mainly caused by incorrect functional forms, auto regressions, manipulation of data, data transformation and non-stationarity of the data. The problem of serial correlation can be detected using the graphical method, Geary test, Durbin - Watson d test and Breusch–Godfrey (BG) test. In this study, the BG test was based on the Lagrange Multiplier.

Normality Test

In the literature, there are several tests for normality such as a histogram of residuals normal probability plot (NPP), Anderson–Darling and Jarque–Bera tests. The Jarque–Bera test for normality is employed in this research. The Jarque - Bera test is a test based on OLS residuals mainly used in a large sample test. First, it requires calculating the Skewness and Kurtosis and then measures the OLS residuals as. In this case, we

use the JB test to determine whether the residuals are normally distributed or not. The null hypothesis and the alternative hypothesis are given as

H0: Residuals are normally distributed

H1: Residuals are not normally distributed

Under the null hypotheses where the residuals are normally distributed, if the p-value of the statistics is sufficiently low or lower or equal to the level of significance, then it will be rejected. But if the p-value is found to be reasonably higher, then the normality assumption will not be rejected. In other words, the normality assumption is not rejected mostly when the value of the statistic is close to zero. The Jarque–Bera test statistic follows the chi-square distribution with two degrees of freedom (Jarque and Bera 1987: 167 – 71).

3.5.5 Decision Rules and significance levels

Testing of hypothesis was done using the P-values. The decision rule was taken at the 0.05 level of significance. This implies that the level of significance was above 0.05 results in the null hypothesis and the one below the 0.05 level of significance, the null hypothesis would be rejected.

CHAPTER FOUR

PRESENTATION, INTERPRETATION AND ANALYSIS OF THE DATA

4.0 Introduction

This section presents a review of the data with an empirical analysis concentrating on the major variables that were stated in methodology. The study used a combination of empirical tools for carrying out the analysis in order to answer all the objectives that were inherently stated in the previously state in chapter one of the study. The first section of the analysis involves carrying out a comprehensive univariate analysis of each of the variables. This is intended to discover any forms and nature of trends in the data prior to carrying out and in-depth analysis. It involved the use of both the descriptive statistics. Further presentations involve the analysis of association and the relationship between the variables. The presentations are done based on the objectives of the study.

4.1 Descriptive Statistics

Table 4.1 presents a summary of descriptive statistic for the variables considered for analysis namely Interest rate, exchange rate, Private sector Investments and economic growth based on the study period of 1985-2015. It described the distribution of each variable with respect to mean, standard deviation, minimum and maximum values for the 31 observations.

Table 4.1: Summary descriptive Statistic on Interest rate, exchange rate, Private sector investments and economic growth of Uganda from 1984-2015.

Descriptive Statistics											
	N	Range	Min	Max	Mean	Std. D	Var	Skew		Kurtosis	
	Stat	Stat	Stat	Stat	Stat	Stat	Stat	Stat	S. E	Stat	S. E
Interest Rate	32	76.44	-53.44	23.00	1.539	22.148	490.57	-1.574	.414	1.34	.809
Exchange Rate	32	422.21	94.49	516.70	1.766	121.36	1.473E	1.740	.414	1.75	.809
Private Sector Investments	32	34.80	-.42	34.38	12.87	8.168	66.72	.758	.414	.082	.809
Economic Growth	32	14.30	-3.00	11.30	5.78	3.36	11.31	-1.023	.414	1.27	.809

R – Range, **Mini** – Minimum, **Max** – Maximum, **Std. D** – Standard Deviation, **Var** – Variance, **Stat** – Statistic, **S.E** – Standard Error, **N** – Number of observations

Source: Researcher, 2017

The findings from Table 4.1 above shows the descriptive analysis of interest rates, private sector investments, exchange rate and economic growth rates of Uganda from 1984-2015. The results attained on the mean, minimum, maximum, variance, standard deviation, Skewness and Kurtosis are presented as shown below.

Concerning the findings on interest rates, the results of the study reveal that the mean factor was 1.539 with the maximum as 23.0 and the minimum as --53.44, the range was 76.44 based on 32 observations in the years of the study. Furthermore on the interest rates the deviation away from the mean was 22.14, the standard deviation, the variance was 490.57, Skewnes .414 and the kurtosis was .809. The results depict that the mean was lower compared to the standard deviation meaning that the rate of the interest rates was much low and was spread far from the mean since the standard deviation was lower than the mean attained.

The study findings on the exchange rates of Uganda from 1984-2015, the results reveal that the mean was 1.766, the maximum was 516.7 while the minimum value was 94.49 of the results, the range was 422.21 with the observations of 32 years period under the

study further more regarding the findings provided that the standard deviation was 121.36, the variance was 1.473, the skewness was 1.574 and the kurtosis was 1.75. The results provide that given the presentations the results denote the deference from the mean and standard deviation shows that the data is abnormally distributed provided that the standard deviation is higher than the mean of the study.

The study results on private sector investments had a mean of 12.87 based on the 32 observations for the data from 1984-2015. The maximum was 34.38 the minimum was -.42 as the minimum, range was 34.80, these was based on 32 observations of the study. Furthermore the results reveal the standard deviation was 8.168 and the variance was 66.72 while the Skewness was .758 while the kurtosis was .082 given the data and provided that the average is greater than the mean, the data is normally distributed.

The results on the economic growth based on the 32 observations of data from 1984-2015 reveal that the mean attained was 5.78, the maximum observation was 11.30 while the minimum was -3.00, the range was 14.30 while the observation were 32 from the study. The study deviation was 3.36, the variance was 11.31 while the skewness was -1.023 and the Kurtosis was 1.27. The results therefore show that the data was equally distributed, different years had data that was similar to each other and not much deviation was realized. The researcher denotes that the levels of economic growth are normally but the rate of distribution is close to normality.

4.1.2 Time Series Property of Data (Stationarity tests)

The study sought to determine the time series property of the data for the purpose of establishing if it is auto correlated or its autoregressive. This was done in order to convert the variables to stationary as a key assumption in multiple linear regression analysis and other inferential statistics. Besides, working with highly collinear variables would yield spurious result from which further inference is insignificant. Unit root tests were conducted on all the variables using both the Augmented Dickey-Fuller and Philips Perron test. In each case, the null hypothesis is that the variable has unit root and

accepting it would imply the data is non-stationary. The alternative hypothesis is that the data has no unit root (stationary). The result of ADF and Phillips-Perron unit root test are summarized in Table 4.1.2. Both tests are tested at a 0.05 level of significance. The rejection criteria are that we reject the null hypothesis if the test statistic value is greater than their respective critical values of 0.05 level of significance and if the p-value is less than 0.05.

Table 4.1.2: ADF and PP tests of Unit roots among variables

Variables	In level		In first difference	
	ADF	PP	ADF	PP
Log Economic growth	8.141***	8.302***	7.302**	.7.120 **
Log Private Sector Investments	0.295	0.088	7.543***	8.679***
Log Exchange Rate	10.640***	8.426***	7.126***	6.626***
Log Interest Rate	4.765***	4.768**	4.648**	4.532**

Source: Researcher 2017.

From the table 4.1.2, the values marked with ** represent a stationary variable at 0.05 significance level and *** represent a stationary variable at 0.1 significance level

The null hypothesis is that the variable has unit root or the variable is not stationary. The decision rule was to reject the null hypothesis if the test statistic is greater than the 0.05 critical value. Using the ADF test, the findings revealed that all the variables are found to be stationary in their level forms except for Private sector Investments. Based on the Dickey and fuller, if the time series is not found to be stationary at levels, there is a possibility that its first difference becomes stationary. Therefore according to Dickey fuller assumption, the variable of private sector investments was differenced once to make it stationary. In first difference, privatization that exhibited unit roots at level became stationary after differencing it once.

4.1.3 Effect of interest rates, private sector investment, exchange rate on economic growth of Uganda from 1984-2015

To determine the effect of interest rates, private sector investment and exchange rate on economic growth of Uganda and test the null hypothesis, the researcher used regression analysis. The results presented are presented as below.

Table 4.1.3 Regression analysis on the effect of interest rates, private sector investors, exchange rate on economic growth of Uganda from 1984-2015

Model Summary						
Model		R	R Square	Adjusted R Square	Std. Error of the Estimate	
1		.492 ^a	.242	.160	3.08157	
a. Predictors: (Constant), Private Sector Investments, Interest Rate, Exchange Rate						
ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	84.718	3	28.239	2.974	.049 ^b
	Residual	265.890	28	9.496		
	Total	350.609	31			
a. Dependent Variable: Economic Growth						
b. Predictors: (Constant), Private Sector Investments, Interest Rate, Exchange Rate						
Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.649	1.163		6.577	.000
	Interest Rate	.103	.061	.436	1.682	.104
	Exchange Rate	-.021	.007	-.747	-2.826	.009
	Private Sector Investments	.006	.073	.014	.080	.937
a. Dependent Variable: Economic Growth						

Source: Researcher 2017.

From table 4.1.3 the value of .492 on the regression coefficient between interest rates, Private sector Investments and exchange rate on economic growth of Uganda, the

regression coefficient expresses that only 49.2% of change in the dependent variable (i.e economic growth rate) is caused by interest rates, Private sector Investments and exchange rate. The R^2 , .242, on the other hand expresses that for this change; only 24.2% of the data are accounted. The adjusted R^2 , of .160, shows the effect of interest rates, private sector Investments and exchange rates on economic growth. In this case interest rate, Private sector investments and exchange rates accounts for 16 percent of the changes in economic growth. The standard error estimate of 3.08157 shows close scatter of the data.

Table further shows the analysis of variance explains further the relationship between the independent variables (interest rates, Private sector Investments and exchange rates) and the dependent variable (Economic growth rate). From the table, the value of F is 2.974 is greater than the value of significance .049. The study results imply that interest rates, private sector investments and exchange rates affect the economic growth of Uganda.

The table further illustrates the regression analysis between interest rates, Private sector Investments, exchange rates on economic growth of Uganda.

From the data in the above table the established regression equation was

$$Y = 7.649 + .103IR - .021ER + .006PSI$$

From the regression equation, it was revealed that holding interest rates, exchange rates and private sector investments to a constant zero, the economic growth of Uganda would be at 7.649, a unit increase in interest rates would lead to a change in economic growth of Uganda by factors of .103, the unit increase in exchange rate would lead to decrease in the economic growth of Uganda by factors of .021, a unit increase in the Private sector investments in Uganda would lead to the increase in economic growth of Uganda by factors of .006.

At the 5% significance and the 95% level of confidence, private sector investments had .937 level of significance, exchange rate had .009 level of significance, the variable of

interest rates had .104 level of significance. The results show that the variables private sector investments and interest rates had no significant effect on economic growth. Regarding this that study accepts the null hypothesis and conclude that there is no significant effect of private sector investment and interest rate on economic growth of Uganda.

Exchange rate had a significant effect on the economic growth of Uganda meaning that the changes in exchange rate significantly accounts to changes in economic growth of Uganda for the period of the study.

4.1.4 Diagnostics tests on Regression of exchange rate, interest rate, private sector investments and economic growth

Table 4.1.4 shows Diagnostics tests on Regression of exchange rate, interest rate, private sector investments and economic growth

Model		Collinearity Statistics	
		Tolerance	VIF
1	Interest Rate, exchange rate, private sector investments	1.000	1.000

a. Dependent Variable: Economic Growth

Source: Researcher (2017)

Table 4.2.3: Heteroscedasticity and Autocorrelation statistics

Diagnostic	Test statistic	Test statistic	P-value
Heteroscedasticity	Breusch-Pagan	0.31	0.5784
Autocorrelation	Durbin Watson statistic	0.254	0.371

Source: Researcher analysis (2017)

The diagnostic tests for the regression model show that there exist no instances of collinearity as the VIF statistics associated with each of the independent variables in the model were within the acceptable range. For instance, interest rates (VIF = 1.0). Further tests reveal that under the assumption that there is constant variance (homoscedasticity) there is no sufficient evidence for rejection of the null hypothesis as per Breusch-Pagan/Cook-Weisberg test for heteroscedasticity as summarised in table 4.2.2. The Durbin Watson tests of auto-correlation also show that under the assumption that there is no serial auto-correlation in the data, we fail to reject the null hypothesis as implied by the Durbin Watson statistic summarised in table 4.2.3

4.2 Correlation of Interest rate, exchange rate, private sector investments and economic growth of Uganda from 1984-2015

The research was to establish the effect of interest rate, exchange rate, private sector investments on economic growth of Uganda from 1984-2016. The presentations on these are based on serial correlation, regression analysis, Diagnostic Tests and Breusch-Pagan for heteroscedasticity to determine the relationship between the variables. The presentation of the data collected is as follows.

4.2 Correlation analysis between Interest rate and economic growth

Table 4.2 Shows findings on the relationship between Interest rate and economic growth

		Correlations			
		Interest Rate	Exchange Rate	Private Sector Investments	Economic Growth
Interest Rate	Pearson Correlation	1	.799**	.317*	-.110
	Sig. (1-tailed)		.000	.039	.274
	N	32	32	32	32
Exchange Rate	Pearson Correlation	.799**	1	.348*	-.325*
	Sig. (1-tailed)	.000		.026	.035
	N	32	32	32	32
Private Sector Investments	Pearson Correlation	.317*	.348*	1	-.060
	Sig. (1-tailed)	.039	.026		.373
	N	32	32	32	32
Economic Growth	Pearson Correlation	-.110	-.325*	-.060	1
	Sig. (1-tailed)	.274	.035	.373	
	N	32	32	32	32

** . Correlation is significant at the 0.01 level (1-tailed).

* . Correlation is significant at the 0.05 level (1-tailed).

The analysis of the results reveals that there was no significant effect of interest rate on economic growth with (Sig.=.274) the significant value is above 0.05 that reveal that interest rates have low effect on economic growth. It was further established that there exist a relationship between exchange rate had a significant effect with economic growth rate of Uganda (Sig.035).It was finally established that private sector investments had low effect on the economic growth of Uganda for the period of time under the study.

4.3.1 Diagnostic Tests for Normality

Diagnostic tests determine the goodness of the model. Thus, the regression model was preceded by diagnostic tests presented. The diagnostic tests included: Shapiro-Wilk W test for Normal data for autocorrelation.

4.3.1 The Jarque-Bera Test for Normality

Table 4.3.1: Showing Jarque-Bera Test for Normality

Shapiro-Wilk W test for Normal data					
Variable	Obs	W	V	Z	Prob>z
myresid	32	0.76090	7.976	-1.623	0.94766

Null hypothesis of normality is H_0 : Residuals are normally distributed. We reject the null hypothesis for normality if the p-value is less than 0.05. In our model since the p-value of 0.76090 is greater than the p-value of 0.05, we fail to reject the null hypothesis and thus conclude that the residuals of the model are normally distributed.

CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

5.0 Introduction

This final section of the report deals with the discussion of the findings presented in the preceding chapter. The discussion is made with reference to other similar works done in previous studies. The section then draws conclusions from these discussions after which it offers its recommendations. Finally, it suggests areas that are potential grounds for research that could not be completed in the body of this report.

5.1 Discussion of Findings

This section was further organized into three subsections with respect to the research objectives that guided the study.

5.1.1 Effect of interest rate on economic growth

The study findings on the effect of interest rate on economic growth. In this case interest rates accounts for a low percentage changes in economic growth. The study findings also reveal that interest rate has no significant effect on economic growth of Uganda. These findings are backed by previous research studies that undertook to establish a similar purpose as elaborated below.

Korir (2006) noted that high interest rate on lending by the financial institutions in the country have made the accessibility almost impossible to the poor and effectively negates on poverty alleviation.

McKinnon (1973) contend that financial repression through a controlled interest rate regime has adverse effects on economic growth and development. The standard recommendation is that positive real interest rates must be established on deposits and loans by eliminating interest rates and credit ceilings, stopping selective credit allocation and lowering the reserve requirements.

Even Modigliani and Cohn (1979) established the negative relationship between changes in interest and stock returns to a misunderstanding of the relationship between interest rates and fundamentals: Investors, they maintain, do not appreciate the

implications of inflation for equity value so misprice stocks when expectations of inflation (and thus nominal interest rates) change

5.1.2 Effect of private sector investments on economic growth

Private sector Investments has no significant effect on economic growth in Uganda. In this case Private sector accounts for a low percentage in the changes in economic growth of Uganda for the period of study. Even though the effect may have been rather weak, its significance was undisputable. These findings are backed by previous research studies that undertook to establish a similar purpose as elaborated below.

Tawiri (2010) also found in Baghebo and Edoumiekumo (2012) for Nigeria. As argued by Baghebo and Edoumiekumo (2012), there is a growing literature on the link between private investment and economic growth in developing countries due, largely, to the fact that developing countries are fond of formulating sound investment friendly policies to attract foreign investment and only to reverse it later. They cited the case of Nigeria that moved from the era of regulatory control to deregulation and to guided deregulation. Even Naqvi (2013) argued that private sector investment leads to economic growth. Naqvi (2013) proved that long run estimates of the elasticities of private investment are different under different assumptions made about the evolution of technology.

Ilegbinosa, sumlinki & Watson (2015) conducted a study the relationship of Private sector investments and economic growth using a sample of 43 developed and developing countries over the period 1970-1990. Their results indicate that public capital expenditure has a negative effect on economic growth for developing countries, and the effect gets dramatically reverse for developed countries

A study by Kham and Reinhart (1990) observe that there is a close connection between the level of investment and economic growth. In other words, a country with low level of investment would have a low GDP growth rate. The use of rigid exchange rate and interest rate controls in Nigeria in low direct investment, the leads to financial impressions in the early 1980.

5.1.3 Effect of exchange rate on economic growth

The study findings provided through different analysis show that exchange rate affect the economic growth. In this case exchange rates accounts for a high percent of the changes in economic growth. It was further established that there was a significant relationship between exchange rate and economic growth in Uganda. These findings are backed by previous research studies that undertook to establish a similar purpose as elaborated below.

Even Lu Fang-Yuan and Shi Jun-Guo (2012) conducted a study on exchange rate and economic development, based on the relevant data from 1985 to 2010, this thesis uses a regression model to make an empirical research about the effect of GDP and exchange rate on foreign exchange reserve.

Cole and Obstraid (2005) established the relationship between exchange variation through inflation and output. Export market growth is strongly associated with output transition unlike previous studies, which omitted export market growth and therefore overstated the output costs of inflation, as well as the short-run costs of structural reform and its long-run benefits. Even Khan, Tariq & Sasaki (2012) conducted the study on the real effective exchange rate and GDP in Jordan through the aggregate demand-aggregate supply theoretical framework. This study used the method "Fully Modified OLS", which is a one to estimate co integration.

5.2 Conclusions

Based on the findings, the study reveals that the interest rates affect the economic growth of Uganda. The study findings reveal that interest account for the economic growth of Uganda. The findings imply that the interest rate changes have had a positive change in economic growth of Uganda implying that the interest rates improvements will enhance the growth of the economy.

The second research objective reveal that Private sector investments in Uganda had some effect on the economic growth of Uganda, meaning that because Private sector is

the engine for the country economic growth, the effect on growth was high, therefore the study conclude that private sector investments need improvements.

On the third research objective, the study concludes that exchange rate had an effect on the economic growth of Uganda. The study findings therefore imply that there is need to strengthen the exchange rate to attain economic growth in the country.

5.3 Recommendations

On the first objective:- The study recommends the policy makers ought to adopt strategic and systematic ways of controlling and adjusting the interest rate since their impact on the overall level of economic growth can easily be felt. However, these should be adjusted with an informed perspective since they can crowd out domestic growth. The researcher recommend for the establishment of a strong finance mechanism that will improve the state of functional of interest rates through establishing a strong policy framework that can guide the execution of the duties of financial system controls in Uganda.

On the second objective:- The study has revealed a relationship with the overall level of exchange rates on economic growth in the country. There recommend that fiscal and monetary strategies for stimulating private investment like offering tax holidays to prospective investors would be a better option for encouraging private sector investments in the country.

On the third objective:- On the exchange rate variations and the effect on the economic growth, the government should also embark on strong fiscal policy to reduce the unnecessary money supply which can lead to inflation that negatively impact on value of the money and reduce economic growth. Exchange rate seem to be significant to economic growth of Uganda and the need for creation of a strong export base that can generate more foreign exchange to attain the economic growth of the country.

5.4 Contributions to existing Knowledge

One of the most prominent findings from this study is the fact that it has provided evidence to support the theory. Indeed, economic growth of the country can significantly be improved with the introduction of interest rates, private sector investments and exchange rates. This is one of the premises that are held by the theory in question. Another important revelation that can be attributed to this study is that it is now clear that Uganda economic growth can be based on independent variables. This is contrary to common belief that interest rates, exchange rate and Private sector investments have less contribution to economic growth. Finally, it has been established that even though the total effects of interest rates, Private sector investments and exchange rate have a rather weak effect, the overall effect is quite high. This implies economic growth can be generated through exchange rate, interest rates and private sector investments.

5.5 Areas for Further Research

The results presented in this report may not be conclusive and should be treated as being preliminary. Further analysis of the survey data Interest rate, exchange rate and Private sector Investments on economic Growth rate needs to be done to validate these findings and provide greater confidence in explaining the changes. Furthermore, it was found out that the effect of interest rates, exchange rate and Private sector Investments on economic growth rates is low hence provoking the fact that there are other factors that influence it. So, other researches need to be done in this field. Therefore more studies can be carried on the following.

- i) The relationship between inflation and exchange rate.
- ii) The relationship between exchange rate and portfolio investments.
- iii) The relationship between interest rate and GDP rate
- iv) The relationship between interest rates and GDP rate

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Appendix i: Data for Analysis

IMF World Economic Outlook (WEO), World Bank 2016

Year	Interest Rate (%)	Exchange rate (%)	Private Sector Investments (% of GDP)	Economic Growth (%)
1984	2.68	296.21	1.48	3.0
1985	43.72	385.31	34.38	3.0
1986	43.81	406.16	24.54	0.9
1987	52.07	516.70	21.40	4.0
1988	53.44	471.15	8.54	8.3
1989	35.02	384.38	19.8	6.4
1990	3.96	242.67	20.43	6.5
1991	6.66	178.27	7.45	1.8
1992	5.22	119.50	20.21	2.8
1993	4.25	118.08	23.29	8.2
1994	7.12	147.58	5.03	6.4
1995	9.86	144.05	9.62	11.3
1996	15.03	144.60	12.05	9.1
1997	17.73	151.40	-0.42	5.5
1998	11.10	134.16	11.45	3.8
1999	21.69	122.19	8.35	8.2
2000	10.62	115.54	5.05	5.5
2001	17.33	112.67	9.80	8.7
2002	23.00	107.85	7.84	7.0
2003	10.33	94.49	8.91	6.2
2004	4.34	97.89	7.91	5.8
2005	21.77	102.31	5.48	10.0
2006	15.91	102.35	14.76	7.0
2007	10.98	105.60	9.02	8.0
2008	13.24	109.20	27.98	10.4
2009	7.90	107.33	10.20	8.0
2010	6.50	100.00	21.61	7.7
2011	16.22	95.79	19.23	6.8
2012	4.49	109.03	8.14	2.6
2013	18.35	110.91	4.13	4.0
2014	18.79	114.33	9.16	4.9
2015	9.83	105.60	15.25	5.2

Source: World bank, World economic outlook, IMF, 2016