THE IMPACT OF MONETARY POLICY ON INFLATION

CASE STUDY FOR UGANDA FROM 2000 TO 2018

BY

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A RESEARCH REPORT SUBMITTED TO THE COLLEGE OF ECONOMIC AND MANAGEMENT, DEPARTMENT OF ECONOMICS AND STATISTICS IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF A BACHELORS DEGREE OF SCIENCE IN STATISTICS OF KAMPALA INTERNATIONAL UNIVERSITY

AUGUST- 2019

DECLARATION

I Nkurunziza Erisa, hereby declare to the best of my knowledge that this work herein is original and is purely my own effort and has never been submitted in any University around the globe for any award.

Sign...................................

NKURUNZIZA ERISA

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Date...13th /08 /2019

APPROVAL

This work was supervised from the development of the proposal to completion of the full research report and I approve that the work should be submitted to the Department of Economics and Statistics and to the college of Economics and Management of Kampala International University.

SIGN:..............................

MR. LUGGYA HERBERT

DATE:13/02/2019

DEDICATION

I dedicate this research report to my lovely parents Mr. Ndalise James and Mrs. Ndalise Suzan for their unending care, love and support towards my education for their genuine support. I also dedicate this research report to my siblings Mutsinzi Eria, Mukunzi David and Mbabazi Dinah Mutesi Ssanyu splus my loving friends Wagubi Barry, Mutawe Paul, Tusiime Tony, Nanyunja Jane, Komwaka Yvonne, Mugisha Christopher, Gumisiriza Ramer, Mugisha Daniel, Bukulu Julius, Mafende Blaise, Amine Ahammed, Nanyomo Anita and all my course mates for good advice and motivation they showed me during the course of the study. I am also thankful to my friends Namutebi Sarah, Mutoni Phiona, Kisembo Edward, Bireungi Patience, Mugabo David and Busingye Linda Norah.

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ABSTRACT

The study explored the impact of monetary policy on inflation in Uganda from the year 2000 up to 2018. The specific objectives of the study were; to analyze trend of inflation in Uganda, to examine the stationarity of monetary policy indicators and inflation in Uganda and to examine the relationship between monetary policy indicators and inflation in Uganda. The study adopted exploratory, descriptive explanatory, case study, cross sectional research designs. The study used the indicators of monetary policy such as interest rate, government expenditure, M1 and M2 were used as the independent variables in this study. monetary policy transmission mechanism as the route by which monetary policy gets transmitted into the economy. Modern quantity theorists of the neo classical school of economic thought see inflation as a monetary phenomenon that arises from a more rapid expansion in the quantity of money than in total output. This study used general formulation of inflation in Uganda. $INF = (M, ER, CRB, EG, GEX, TO)$; Where INF represent inflation, M represents monetary variables which is a combination of two monetary aggregates ($M1$, $M2$), ER represents exchange rate, CRB represents credit bank ratio, EG represents economic growth, GEX represents government expenditure and TO represents trade openness. Using the Augmented Dickey-Fuller (ADF) test for stationarity, unit root tests were carried out for each variable. The ADF-Test was used on series in level and in the 1st difference. Conclusions about stationarity were made by comparing the ADF-Statistic and the Critical values (C.V) at 1, 5 and 10 percent. When the ADF-Statistic is greater in absolute terms than the critical value, the series is said to be stationary and the reverse implies non-stationarity. There was upward movement behavior of inflation from 2000 to 2018. The government through central bank should increase the exchange rate. This makes imports more expensive thus reducing on the inflation arising from trading countries.

The study used secondary data from IMF and World Bank. The study was analyzed using SPSS, Excel and STATA whereby summary statistics about the variables was presented. The analysis part involved stationarity and linearity tests about the variables. The study found out the data about Interest rate using the Test Statistic (-5.260) had more negatives than the 5% critical value (-3.000). Thus the data about interest rate is stationary for quit period of time. Also, M1 and M2 have got Test statistic values of (-3.803 and -5.984) respectively are all greater than the 5% critical value (-3.000) in terms of negatives. Therefore, the data about monetary aggregates that is M1 and M2 is stationary since the null hypothesis is accepted at 5% level of significance.

Furthermore, External reserves have got more negatives (-3.695) than the critical value (-3.000). thus the null hypothesis is accepted. This implies that the data about Exchange rate is stationary. The study found out that the data about inflation and government were non- stationary while other indicators about monetary policy were stationary. The study concluded that there is a significant relationship between monetary policy and inflation rate from 2000 to 2018 in Uganda.

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LIST OF ACRONYMS

ANOVA	Analysis of Variance
BOU	Bank of Uganda
ER	Exchange Rate
INT	Interest Rate
OMO	Open Market Operation
GEX	Government Expenditure
EG	Economic Growth
M1 & M2	Monetary aggregates one and Two
SPSS	Statistical Package for Social Sciences
STAT	Statistics
IMF	International Monetary Fund

CHARPTER ONE

INTRODUCTION

1.1 Introduction

This chapter entailed the historical, theoretical, conceptual and contextual background, problem statement, purpose of the study, objectives of the study, research questions, scope of the study, the significance or justification of the study and operational definitions of the key terms.

1.2 Background of the study

1.2.1 Historical background of the study

Over forty years ago Laidler and Parkin (1975) published a survey of inflation. Readers were reminded that inflation has social consequences including effects on the distribution of income, wealth effects, and the purchasing power of money. At the time economies around the world were beginning to grapple with the fallout from the first oil price shock. A second one would be inflicted on the world economy a few years later leading to a combination of high inflation and unsatisfactory economic growth that came to be called stagflation. Rather strikingly their survey concluded as follows: "Until we have a much more fully articulated analysis of the formation of expectations and of the interaction of expectations formation and the behavior of economic agents it is hard to see how we are going to make any significant further progress in understanding inflation."

In spite of considerable progress in both the theoretical and empirical realms there continues to be much that can be learned from how inflation has evolved. One area where both theory and empirics provide clear answers about the dynamics of inflation but has been neglected in recent years concerns the economics of hyperinflation. Other than the relatively recent experience of hyperinflation in Zimbabwe and Venezuela episodes of this kind have become a curiosity. Curiously, one does not have to wait very long once the Global Financing Crisis (GFC) erupted for several prominent 3 observers to worry that the response of the monetary authorities, via massive injections of liquidity now referred to as Quantitative Easing (QE), would lead to a return to high inflation (e.g., Meltzer 2009), if not hyperinflation. Hence, a more up to date

survey of inflation ought to include a reminder of what episodes of hyperinflation teach us about the dynamics of inflation.

The first is an analysis of price increases and inflation over a period of 85 years in (1921 to 2006) and a selected comparison of salaries and remuneration over a period of 78 years (1929 to 2006). To this end data sets were developed for comparative purposes, thereby distinguishing between perception and reality about the accuracy of inflation figures over time. As this comparison has not been done before, a methodology was developed that can be used in future research. Based on these comparisons an inflation accuracy indicator (IAI) was developed for the first time. The research showed no systematic over or under-reporting of price increases, therefore confirming the general accuracy of the consumer price index (CPI) over time. As with the inflation credibility barometer, this methodology can be used internationally to confirm the accuracy of countries' inflation figures over time. This methodology can also be used by developing countries with capacity constraints in economic modeling and forecasting. The second contribution to available literature is the first analysis of South Africa's experience with inflation over a period of 85 years from the perspective of the central bank. This analysis highlights not only the difficulties encountered by a central bank to contain inflation, but also focuses the attention on the policy errors of the authorities in their quest to contain rising prices.

The third contribution was an analysis of international and domestic initiatives aimed at improving the accuracy and measurement of inflation. The implications of these initiatives for developing countries was considered in the interest of a level international playing field between developed and developing countries.

Rising from economic contraction of the 1970s and early 1980s, by the mid-1990s Uganda had stabilized its macroeconomic environment, with annual inflation rate reduced to single digits from about 150% in 1985/86. Because of the country's resolve to ground its economic recovery and transformation on sound macroeconomic policy, it attracted massive overseas development assistance. The main potential source of inflation was, therefore, no longer gross economic mismanagement but expansionary fiscal strategies that aimed to absorb increasing foreign aid inflows. In this situation, the Bank of Uganda strategically transacted treasury bills,

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government bonds and foreign exchange and adjusted rediscount rate and reserve requirement on deposits for purposes of macroeconomic management.

1.2.2 Theoretical background of the study

The study of causes of inflation has probably given rise to one of the most significant macroeconomic debates in the field of economics. The debates differ in their hypotheses, mainly due to a range of conventional views about the appropriate measure to control inflation and also due to disparity between developed and developing countries. In general, the cause of inflation in developed countries is broadly identified as growth of money supply. In developing countries, in contrast, inflation is not a purely monetary phenomenon. Beside, factors typically related to fiscal imbalances such as higher money growth and exchange rate depreciation arising from a balance of payments crisis dominate the inflation process in developing countries, as discussed by Sergent & Wallace and Montiel. This paper, mainly attempts to review and analyze the competing and complementary theories of inflation.

The Quantity Theory of Money

The quantity theory of money is one of the oldest surviving economic doctrines. Simply stated, it asserts that changes in the general level of prices are determined primarily by changes in the quantity of money in circulation. The quantity theory of money formed the central core of 19th century classical monetary analysis, provided the dominant conceptual framework for interpret in contemporary financial events and formed the intellectual foundation of orthodox policy prescription designed to preserve the gold standard. David Hume (1711-76) provided the first dynamic process analysis of how the impact of a monetary change spread from one sector of the economy to another, altering relative price and quantity in the process. He provided considerable refinement, elaboration and extension to the quantity theory of money David Ricardo (1772-1823), the most influential of the classical economists, thought such disequilibrium effects ephemeral and unimportant in long-run equilibrium analysis. As leader of the Balloonists, Ricardo charged that inflation in Britain was solely the result of the Bank of England's irresponsible over issue of money, when in 1797, under the stress of the Napoleonic Wars; Britain left the gold standard for an inconvertible paper standard. Ricardo discouraged discussions on possible beneficial output and employment effects of monetary injection. Irving Fisher (1876-1947) spelled out his famous equation of exchange MV=PT. This and other

equations, such as the Cambridge cash balance equation, which corresponds with the emerging use of mathematics in noneconomic analysis, define precisely the conditions under which the proportional postulate is valid. Fisher and other neo-classical economists, such as Arthur Cecil Pigou (1877-1959) of Cambridge, demonstrated that monetary control could be achieved in a fractional reserve-banking control of an exogenously determined stock of high power money.

1.2.3 Conceptual background of the study

Monetary policy is one of the major economic policies often used to stabilize any economy of the world with its vital tool being money supply. This study examines how effective monetary policy is in curtailing high inflation in Uganda.

Central banks in inflation-targeting countries use inflation forecasting, explanation or escape clauses in the event of non-achievement of the target and the measurement of inflationary expectations as three support measures of monetary policy implementation. These support measures are called for because current policy changes will only fully influence the future rate of inflation after a time lag. The length of time for policy changes to affect inflation is determined by the speed at which changes in monetary policy is transmitted through the economy. The last one of these three measures (inflation expectations) is not within the direct sphere of control of the authorities. This is understandable, as inflation expectations are formed by and large through the historic policy decisions of central banks and their success in containing inflation, rather than through public announcements of the future intentions of the central bank. According to Mishkin "an essential ingredient to a successful anti-inflation policy is the credibility of the policy in the eyes of the public" (2004: 658).

1.2.4 Contextual background of the study

Uganda is an East African country located in the western direction of Kenya, southern direction of Northern Sudan, Northern direction of Tanzania and in the Eastern direction of Democratic Republic of Congo. Uganda is divided into 127 districts with Kampala as its capital city. Monetary policy can thus be simply put as "the adjusting of money supply in the economy to achieve some combination of inflation and output stabilization" (Mathai, 2012). Monetary policy tools are measures adopted by the monetary authority in order to influence inflation and inflationary pressures as means to ensure macroeconomic stability in the economy. Such tools

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are the monetary aggregates M1 and M2, Monetary Policy Rate (MPR), Open Market Operations (OMO) and Bank Reserve Requirement (Cash Reserve Ratio). The study adopted such tools since they mostly used in developing countries Uganda inclusive.

1.3 Statement of the problem

Uganda's inflation rate rose for the first time in five months in January 2018 amid a rebound in core inflation and an increase in energy, fuels, and utilities prices. The statistics bureau said consumer price inflation, which is measured by the consumer price index, rose 2.7% year on year in January, up from 2.2% registered in December 2018.The rise in the annual inflation rate was due to an increase in core inflation to 3.4% versus the 2.8% recorded in December, and an increase in energy, fuels and utilities inflation to 7.2% compared to December's 6.9% core inflation which strips out volatile food and energy prices rose due to increases in other goods inflation, particularly prices of footwear and clothing, and services inflation (UBOS, 2018). Food crops and related items inflation fell 5.2%, down from December's 5% decline, largely due to a year on year decline in the prices of vegetables. Fruits prices however rose over the past 12 months. Monthly inflation also rose by 0.2%, up from a decline of 0.2% in December. This was mainly due to an increase in food crops and related items inflation of 0.4% versus a 3.7% decline in December; the increase was driven by a price in the price of vegetables. Core inflation and energy, fuel, and utilities inflation also registered increases month on month in January.

The Ugandan economy has experienced inflationary pressures over the years. Inflation has been an elusive factor that has characterized our very existence as an independent nation. Monetary policy tools have been geared towards attaining macroeconomic stability of the economy. "In Uganda, the formulation and implementation of monetary policy by the Central Bank of Uganda (BOU) was aimed at maintaining price stability, which is consistent with the achievement of sustainable economic growth. The problem that monetary policy takes care of is in essence price stability (Onayemi, 2013), because central Banks have reoriented their monetary policy objectives, setting price stability as their main goal (Banco, 2015). Therefore, the researcher opts to carry out the study on the impact of monetary policy on inflation in Uganda.

1.4 Objectives of the study

1.4.1 General Objective

➢ The aim of this research was to investigate the impact of monetary policy on inflation in Uganda.

1.4.2 Specific Objectives

➢ To analyze trend of inflation in Uganda

➢ To examine the stationarity of monetary policy indicators.

➢ To examine the relationship between monetary policy indicators and inflation in Uganda.

1.5 Research Hypothesis

In order to examine the relationship between monetary policy indicators, below are hypotheses stated for testing;

➢ Ho: There is no trending in inflation.

➢ Ha: There is trending in inflation

➢ Ho: Monetary policy indicators are non-stationary.

➢ Ha: Monetary policy indicators are stationary.

➢ Ho: There is no relationship between monetary policy indicators and inflation

➢ Ha: There is a relationship between monetary policy indicators and inflation

1.6 Scope of the study

1.6.1 Content scope

Monetary policy shocks affect so many macroeconomic variables such as real GDP (output), employment, investment, consumption and inflation. This study was limited to an investigation into the effect of monetary policy on inflation in Uganda for the period of 2000 to 2018

1.6.2 Geographical scope

Uganda, officially the Republic of Uganda is a landlocked country (except for its borders with Lake Victoria and Lake Albert in East-Central Africa. It is bordered to the east by Kenya, to the north by South Sudan, to the west by the Democratic Republic of the Congo to the south-west by Rwanda and to the south by Tanzania.

1.6.3 Time scope

The study was carried out in the period of four (4) months, whereby the researcher took the proposal for supervision in the first month. Then later continues with the data collection from the field to accomplish with chapters of data analysis, discussions and conclusions in the second and third months of the research schedule. Proposal was worked on in May, data was collected from the respondents in month of June together with data entry, data cleaning and analysis. The researcher was disseminated the findings in the month of July and submission of the dissertation in August 2019.

1.7 Significance of the study

The study helped the researcher to acquire his bachelor's degree of science in statistics since is a partial fulfillment of College of Economics and Management of Kampala International University.

Macroeconomic instability frustrates "the efforts of the private sector, depresses investment and exacerbates income inequality" (Penales & Turnovsky, 2006). Hence macroeconomic stability in any given nation cannot be attained without due consideration to inflation or deflationary tendencies within the economy; Thus a study with respect to the effectiveness of the monetary policy by the monetary authority, in curbing inflation is an essential contribution to the management of macroeconomic goals of the country.

This study is intended to establish whether there is a strong link between monetary policy tools and their impact on inflation. Also, the study is also expected to provide empirical evidence that supports the use or otherwise of these monetary policy tools to enhance policy tool mix optimization by the monetary authority, taking into cognizance Uganda's economic setting.

Furthermore, there was the provision of material(s) available for further research on monetary policy tools at the disposal of the Central Bank

1.8. Operational Definitions of the key terms

1.8.1 Inflation rate

Inflation as a concept in finance and economics has been described as too much money chasing too few goods. Inflation is due to an increase in the average level of price.

1.8.2 Monetary policy

Monetary Policy is the process by which the Central Bank or the monetary authority in any country controls the supply of money in the economy. It has been the fundamental instrument over the years in attaining macroeconomic stability and as a prerequisite to attaining sustainable output growth.

1.8.3 Monetary Policy Tools

Monetary policy tools are measures adopted by the monetary authority in order to influence inflation and inflationary pressures as means to ensure macroeconomic stability in the economy. Such tools are the monetary aggregates M1 and M2, Monetary Policy Rate (MPR), Open Market Operations (OMO), Bank Reserve Requirement (Cash Reserve Ratio), etc. these tools are defined as below;

Narrow Money (M1)

This is Currency in circulation with non-bank public and demand deposits or current accounts in the banks. Focus is on means of payment.

Broad Money (M2)

Broad money (M2) is made up of Narrow money, savings and time deposit, as well as foreign currency denominated deposits. Hence, Broad money refers to the measure that gives the total volume of money supply in the economy. When the money supply is greater or higher than the amount needed to achieve a non-inflationary output growth in the economy, there is excess money supply (or excess liquidity).

Open Market Operation (OMO)

The buying and selling of government securities in the open market (primary or secondary). This is done to increase or reduce the amount of money in the banking system and indirectly in the economy. The purchase and sale of securities in the open market by a Central Bank is a key tool used by the Federal Reserve in the implementation of its monetary policy. An open market operation (OMO) is an activity by a central bank to give (or take) liquidity in its currency to (or from) a bank or a group of banks. A central bank uses OMO as the primary means of implementing monetary policy. The Fed can use various forms of OMO, but the most common OMO is the purchase and sale of government securities. Buying and selling government bonds allows the Fed to control the supply of reserve balances held by banks, which helps the Fed increase or decrease short-term interest rates as needed. When the Inflation is high in the economy then the Central Bank sells off the Gov. Securities so that the money from the commercial banks or other sources flow towards itself and leaving less liquidity in the system. Hence, decreasing demand and lowering down the prices in the economy.

Restricted Credit

A restricted letter of credit refers to a letter of credit which restricts negotiation to the bank which the issuing bank has nominated in the credit. A restricted letter of credit refers to a letter of credit which restricts negotiation to the bank which the issuing bank has nominated in the credit.

Central Bank Rate

Bank rate, also referred to as the discount rate in American English, is the rate of interest which a central bank charges on its loans and advances to a commercial bank. ... Whenever a bank has a shortage of funds, they can typically borrow from the central bank based on the monetary policy of the country.

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Interest Rate

Effect of raising interest rates. The Central Bank usually increase interest rates when inflation is predicted to rise above their inflation target. Higher interest rates tend to moderate economic growth. They increase the cost of borrowing, reduce disposable income and therefore limit the growth in consumer spending.

1.8.4 Exchange rate

The maintenance of the stability as regards the value of the domestic currency against a basket of foreign currencies is essential, if there are wide swings in the currency exchange rate, it will impact on inflation, growth, price stability and was balance of payment situation

1.8.5 Economic Growth

Economic growth has been severally defined as an increase in the quantity of goods and services produced in a country. Jhingan (2011) saw economic growth as the process whereby the real per capita income of a country increases over a long period of time

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter focuses on reviewed literature on the effects of monetary policy on inflation. It is presented in three sections: the first section presents a review of theoretical literature on economic theories deemed appropriate for this study. The second section also presents a review of empirical studies various researchers have done in relation to this study.

2.1 Conceptual Framework

Conceptual framework shows the diagrammatic depiction of the variables under the study. It shows the relationship between Monetary policy and inflation in Uganda.

Independent Variable   **Dependent Variable**

Monetary Policy   **Inflation**

Figure 1: Conceptual Framework
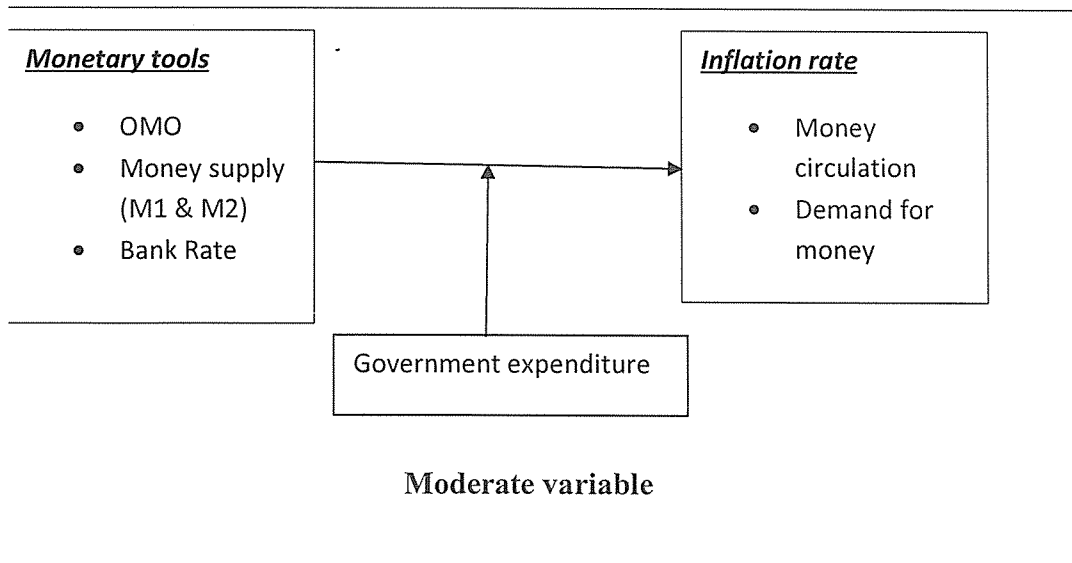
Source: Author, 2019

Figure1 shows a depiction of relationship between monetary policy and inflation. Monetary Policy is the process by which the Central Bank of Uganda or the monetary authority in any

country controls the supply of money in the economy. It has been the fundamental instrument over the years in attaining macroeconomic stability and as a prerequisite to attaining sustainable output growth. Wrightsman (1976) did see monetary policy as a deliberate effort by the monetary authorities (Central Banks) to control the money supply and credit conditions for the purpose of addressing certain broad economic objectives. Monetary policy can thus be simply put as "the adjusting of money supply in the economy to achieve some combination of inflation and output stabilization" (Mathai, 2012). Monetary policy tools are measures adopted by the monetary authority in order to influence inflation and inflationary pressures as means to ensure macroeconomic stability in the economy. Such tools are the monetary aggregates M1 and M2, Monetary Policy Rate (MPR), O87pen Market Operations (OMO), Bank Reserve Requirement (Cash Reserve Ratio), etc.

2.2 Theoretical Review

2.2.1 Quantity Theory of Money

According to monetarists, inflation is always and everywhere a monetary phenomenon. This monetarist assertion is based on the quantity theory of money which states that price level is determined by the quantity of money available. This theory can be written as $MV = PY$, where

M is nominal quantity of money supplied, V is the velocity of money, P is price level and Y is real output.

The above approach is based on the assumptions below:

- ✓ V which is velocity of money is constant: $V*$
- ✓ Real output is constant since physical capital, human capital, labour and technology determine the level of output: $Y*$

Rewriting the quantity theory taking into consideration the above assumptions gives $MV* = PY*$. Thus, $M = P$. This suggests that both quantity of money supplied (M) and price level (P) move in the same direction. Price level rises as a result of an increase in the quantity of money supplied whereas a fall in the quantity of money supplied reduces price levels. Thus, they are positively related. According to Pigou (1947), money is just a veil on which the real variables are concealed. Therefore, changes in money supply are transmitted into price movements.

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2.2.2 Taylor Rule

According to Alvarez et al (2001), the use of interest rate as the key monetary policy instrument is chosen by several Central Banks these days leaving the determination of the supply of money to the economy. Usually, inflation is kept at a predetermined target level by Central Banks. The

Central Bank will raise interest rate if inflation rises above the target level. The general form of the Taylor Rule which supports the use of interest rate as the operating monetary policy tool can be stated as:

$$I = i^* + c\,(\pi - \pi^*) + d(y - y^*) \quad c > 0 \quad d > 0$$

Where i is the real rate of interest set by the Central Bank, i^* is the real rate of interest consistent with long run equilibrium in the economy. π is the target inflation rate. $(\pi - \pi^*)$ is the deviation of actual rate of inflation from the target inflation rate weighted by an amount c .

Conversely y is real output, y^* is full employment and $(y - y^*)$ is the output gap weighted by d

When the output gap is positive $(y - y^*)$ or when $(\pi - \pi^*)$ is positive that is when inflation is above its target, the interest rate was raised by the Central Bank and this amount depends on the values both c and d. Central Banks choose parameters c and d directly depending on their aversion to inflation and output instability. The need for Central Banks to move inflation and output to their target levels through a steady adjustment pattern is the main objective of manipulating the interest rate using the Taylor Rule.

2.2.3 Neo-fisherism Theory

According to the neo- fisherian proposition, a persistent contractionary monetary policy that is an increase in interest rate will lead to higher inflation in the long run. This contradicts the conventional banking wisdom or conventional banking practice. Principle of conventional banking is to increase nominal interest rate target when inflation is high and to decrease the nominal target when inflation is low. This is because an increase in interest rate reduces investment spending as well as inflation whereas a fall in interest rate increases investment and inflation. This view states that the Central Bank should decrease interest rate when it wants to reduce inflation and increase interest rate in order to increase inflation.

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According to the Neo-fisherians prediction of inflation has been difficult recently. This is as a result of inflation being heavily influenced by factors that are not mainly determined by monetary policy. Such factors include oil prices, the dollar rate, rents and cost of healthcare. The above factors suggest that inflation could increase even as Central Banks raises the interest rate.

2.2.4 Monetary Policy Transmission Mechanism

Samuelson and Nordhaus (2010) defined monetary policy transmission mechanism as the route by which monetary policy gets transmitted into the economy. In other words, it is the process through which the actions of the monetary policy affects or gets transmitted to the real economy. Since prices are determined by the demand and supply of many goods and services, Central Banks cannot directly control prices. However, monetary policy can help Central Banks attain their inflation target by influencing the price determination process. Therefore, it is important for Central Banks to understand the monetary policy transmission particularly, the price determination process. Monetary policy influences inflation through the following channels.

a) Credit Bank Ratio

A policy induced fall in interest rate by the Central Bank will directly affect the interbank rate which is the rate at which banks borrow from each other. This also affects the retail market interest rate that is the lending rate. Thus, a fall in the lending rate will increase aggregate demand since saving is discouraged and borrowing as well as spending is encouraged. This will eventually lead to an increase in prices. In other words, the cost of credit declines and the demand for credit rises when the Central Bank reduces interest rate. In effect, investment and consumption rises leading to an increase in aggregate demand consequently, higher inflation (Mishkin, 2004). This analysis can be presented schematically as follows:

$$Me \uparrow \rightarrow r \downarrow \rightarrow I \uparrow \rightarrow AD \uparrow \rightarrow P \uparrow$$

Where Me is an expansionary monetary policy, r is interest rate, I is investment, AD is aggregate demand and P is price levels.

b) Credit Channel

According to Bernanke and Gertler (1995), monetary policy does not only affect interest rates but also the size of external finance premium. This can be explained by the credit channel. The

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credit channel may be enlightened by two possible linkages; the bank lending and the balance sheet channel. The bank lending channel emphasizes on the effects of monetary policy on inflation through banks' supply of loans. An expansionary monetary policy for instance, a reduction in reserve requirement will lead to an increase in bank reserves hence increasing the quantity of bank loans available. As a result, aggregate demand will rise due to an increase in investment and spending hence, higher inflation. The effect of monetary policy can be shown schematically as follows:

$Me \uparrow \rightarrow$ Bank loans $\uparrow \rightarrow I \uparrow \rightarrow AD \uparrow. \rightarrow P \uparrow$

How monetary policy affects the net worth of firms of borrowers can be shown in the balance sheet channel. This is based on the balance sheets of borrowers and income statements. Equity prices of borrowers may fall as a result of a decrease in money supply which is induced by a contractionary monetary policy (Mc). In effect, lending will decline since lenders will get less collateral from borrowers for their loans. Moral hazard problems and an increase in adverse selection are expected to occur due to a fall in investment spending and aggregate demand.

Adverse selection occurs when a decline in net worth leads to a decrease lending to finance investment. This is because they are likely to pay a higher premium or interest on loans since there is a loss in the value of collateral. However, moral hazard problems arise when firms have lower net worth which gives them the incentive to riskier portfolios which are likely to be defaulted (Bernanke and Gertler 1995). Ultimately, inflation will fall as a result of a decline in aggregate demand. This process is summarized schematically as follows:

$Mc \downarrow \rightarrow Pe \downarrow \rightarrow$ Adverse Selection $\uparrow$ and Moral Hazard $\uparrow \rightarrow$ lending $\downarrow \rightarrow I \downarrow \rightarrow AD \downarrow \rightarrow P\downarrow$

c) Exchange Rate Channel

Domestic financial assets become more attractive to investors relative to investments in other currencies when interest rate is increased by the Central Banks. This contractionary monetary policy move appreciates the exchange rate. Imports however become cheaper hence more goods was imported. Consequently, fewer goods were exported since the value of domestic goods was expensive to foreign countries. This weakens the demand for domestic products thereby easing inflationary pressure. This analysis can be presented in the following mechanism:

$Mc \downarrow \rightarrow r \uparrow \rightarrow E \uparrow \rightarrow$ Imports $\uparrow \rightarrow$ Exports $\downarrow \rightarrow P \downarrow$

2.2.5 The Monetarists' Theory of Inflation

Modern quantity theorists of the neo classical school of economic thought see inflation as a monetary phenomenon that arises from a more rapid expansion in the quantity of money than in total output (Friedman, 1956). Friedman (1963) was of the opinion that previous attempts to carry out counter cyclical monetary policy had performed so poorly that the best way to conduct stabilizing policy is to prevent altogether and simply keep the money stock constant. Nuutilainen (2016) stated that Friedman further advocated that money stock should be allowed to grow only at a constant rate k corresponding to the growth rate of the economy, a measure the CBN adopted in its monetary aggregate targeting regime in 2008.

Contemporary monetary policy literature is of the opinion that the monetary authority should be involved in carrying out counter-cyclical measures to smoothen out economic fluctuations. Inflation everywhere is said to be based on an increased demand for goods and services as stated in the fact that people try to spend their cash balances Jhingan (2003). Their conclusion was that inflation is always and everywhere a monetary phenomenon relying on Fisher's equation;

$MV=PQ$

where M- money supply, V- velocity of money, P- price level, Q- the level of real output. V and Q are assumed constant, the price level (P) varies proportionally with the supply of money (M).

Jhingan (2011) observed that both Keynesians and the Monetarists believe that inflation is caused by the increase in the aggregate demand pointing to the following factors; (1) increase in money supply, (2) increase in disposable income, (3) increase in public expenditure, (4) increase in consumer spending, (5) cheap money, (6) deficit financing, (7) expansion of the private sector, (8) Black money, (9) repayment of public debt, (10) increase in exports. Factors affecting supply are (1) shortage of factors of production, (2) industrial disputes, (3) natural calamities, (4) artificial scarcities, (5) lop-sided production, (6) increased exports, (7) law of diminishing returns, (8) international factors.

2.3 Empirical Literature

Numerous studies have been done in many countries on the impact of monetary policy instruments and macroeconomic variables such as inflation. Few of these researches are considered relevant and hence reviewed here: Amarasekara (2009) examined the impact of monetary policy on inflation and economic growth in Sri Lanka. The impact of money supply growth, changes in exchange rate and interest rate on inflation and economic growth was analyzed using a vector autoregressive (VAR) framework using two lags. The study adopted a quarterly, seasonally adjusted data from 1978 to 2005 on variables such as interest rate, money

supply, inflation and real GDP in Sri Lanka. Results from the study indicated that inflation in Sri Lanka does not fall after contractionary changes in monetary policy. Furthermore, inflation reduced immediately exchange rate appreciated and the rate of interest also rose following a contractionary reserve shock. Gul et al (2012) studied how monetary instruments influence macroeconomic variables such as, inflation, interest rate, real GDP, exchange rate and money supply in Pakistan. OLS was used to analyze and explain the relationship between the above mentioned variables. Secondary source of data from 1995 to 2010 was used. Results from the study showed that money supply has a strong positive correlation with inflation whereas a negative correlation with output. Exchange rate also has a negative impact on output in Pakistan. A tightening monetary policy is expected to reduce inflation but in the case of Pakistan, a positive interest rate shock (contractionary monetary policy) led to an increase in price level.

Dalhatu (2012) investigated the impact of monetary policy on price stability in Nigeria. He examined shocks in monetary policy and its responses on inflation, market interest rate and exchange rate. Monetary policy rate was used as a proxy for monetary policy indicators. Secondary sources of data were collected from December, 2006 to February, 2012. 2006 was chosen because this was when the monetary policy rate was introduced. Structural VAR framework was used to estimate the model. Results from the study revealed that market interest rate and exchange rate are more responsive to shocks in monetary policy rate than inflation in Nigeria. Furthermore, expected changes in inflation cannot be guaranteed by variations in the monetary policy rate. Other instruments mainly reserve requirement and open market operation used along with the monetary policy rate can effectively reduce inflation in Nigeria.

Ahiabor (2012) focused mainly on the effect of monetary policy on inflation in Ghana. Variables such as interest rate, inflation, money supply and exchange rate were studied. The research adopted secondary data source from 1985 to 2009 and critically analyzed the variables quantitatively. Findings from the study confirmed a theoretically expected long-run positive correlation between inflation and money supply, an inverse relationship between inflation and interest rate as well as a positive relationship between inflation and exchange rate in Ghana.

Quartey and Afful-Mensah (2014) reviewed recent monetary and financial policies pursued as well as the possible inter-relationships in Ghana. They posited that any effective monetary policy should be accompanied by fiscal discipline to ease monetary difficulties associated with huge

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budget deficits. Data on money supply, exchange rate, inflation and lending rates were compiled from Ghana Statistical Service and Bank of Ghana statistical bulletin from 1997 to 2012. They concluded that the key monetary indicators improved during the period of study. However, fiscal imbalance in the country has restricted these results.

The effectiveness of monetary policy in controlling inflation in Nigeria was examined by Ngerebo (2016). Relationship between variables such as inflation, savings rate, monetary policy rate, prime lending rate, maximum lending rate, treasury bill rate, growth of narrow money supply, net domestic credit, growth of broad money supply, net credit to government and credit to private sector were analyzed and tested using OLS. Secondary source of data from 1985 to 2012 was collected from the statistical report of the Central Bank of Nigeria. The study revealed that monetary policy rate, maximum lending rate, prime lending rate, net domestic credit and treasury bill rate are not statistically significant while growth of broad money supply, credit to private sector, growth of narrow money supply, savings rate, net credit to government are statistically significant in explaining how they affect inflation in Nigeria. Findings indicate that some monetary policy instruments in Nigeria are effective in managing inflation while others are not.

All the above studies mainly focus on studying the interactions of monetary policy shocks on inflation and real GDP by researchers in different countries. However, little has been conducted in Uganda. This study seeks to analyze specifically how effective monetary policy has so far been able to control inflation in Ghana due to increased focus for Ghana to attain single digit inflation. Also, non-monetary factors which may render monetary policy ineffective in Uganda were investigated.

Krueger (2005) posited that in "its own right inflation was damaging in that it distorts the calculus of profitability and encourages short-term investments to the detriment of long-term investments as well as diminishing the value of relative price signals". Investors hence should not hold and view equities as long-term investments providing with compensation for loss of purchasing power, rather they should hold them as good buys in the short to medium term. Constancio (2015) did expatiate further that "the main remit of monetary policy refers to the relevant variables of business and services and the level of real economic activity as monetary policy simultaneously affects all sectors of the economy.

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Choi, Smith and Boyd (1996) observed a consensus amongst professionals in practice and the academia both in Finance and Economics that high rates of inflation cause "problems", not just for some individuals, but for aggregate economic performance. The CBN has adopted monetary targeting, with elements of inflation targeting to succeed at arriving at an inflation target that fall between 6-9% Nigeria, like any other emerging market economies have two important features, (1) institutional weakness, (2) exposure to commodity prices changes in terms of trade shocks, Hove (2012). The monetary authority aimed at shaping the macroeconomic dynamics of monetary policy seen through responses of different monetary policy regimes to terms of trade shocks in emerging economies like Nigeria.

2.4 Research Gaps

This study has identified the following gaps that requires immediate attention, these includes:

2.4.1 Literature gap

Ahiabor (2012) focused mainly on the effect of monetary policy on inflation in Ghana. Variables such as interest rate, inflation, money supply and exchange rate were studied. However, this study had scanty literature review in relation to Uganda, thus the need for the research to conduct this study so as to fill this gap.

2.4.2 Empirical gap

The researcher identifies a gap from the contexts where other researchers did from, it's evidenced that most researches are done from the rest of African countries and in Europe and in different time scopes. Many studies have been undertaken on monetary policy's impact on inflation, thus the researcher intends to put forward a current research about the impact of monetary

2.4.3 Theoretical gap

According to monetarists (Quantity theory of money), inflation is always and everywhere a monetary phenomenon. This monetarist assertion is based on the quantity theory of money which states that price level is determined by the quantity of money available. Although this was clearly explained, it had no stronger theoretical basis for literature review.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter described the methodology employed in conducting the study. The chapter consisted of model specification, research design, data source, data processing, data analysis and presentation, validity and reliability of instruments and finally the limitations of the study.

3.2 Model Specification

This study used general formulation of inflation in Uganda.

$$INF = (M, ER, CRB, EG, GEX, TO)$$

Where *INF* represent inflation, *M* represents monetary variables which is a combination of two monetary aggregates (*M1*, *M2*), *ER* represents exchange rate, *CRB* represents credit bank ratio, *EG* represents economic growth, *GEX* represents government expenditure and *TO* represents trade openness.

3.3 Research Design

A research design is defined as the overall blueprint that defines the conduct of a research (Bryman & Bell, 2011). It is the overall plan and strategy that informs the key decisions that are adopted in research. A researcher chose from an exploratory, descriptive and inferential designs. This is informed by the overall objective of the study or research. This study will adopt a descriptive research design. A descriptive research design involves the gathering of data with the purpose of describing trends, a phenomenon or case (Bryman & Bell, 2011)

3.4 Data analysis

Data analysis was done using different tests. These tests include; stationarity, linearity and normality tests.

3.4.1 Diagnostic Test

The diagnostic tests which this study employed were: the data in question is time series, preliminary tests were carried out to establish normality, multicollinearity and stationarity of the

series. Jarque-Bera test was employed to test for normality Augmented Dickey-Fuller (ADF), Johansen Co- integration procedure for testing co- integration on variables.

3.4.2 Multicollinearity Test

The correlation matrix for the variables was drawn and analyzed. When the correlation value is very close to zero it is concluded that the variables have no close relationship. When the R-square of the run regression is high and the partial coefficients of the regression are statistically different from zero then we are bound to conclude that there is no multicollinearity.

3.4.3 Unit Root Tests

Using the Augmented Dickey-Fuller (ADF) test for stationarity, unit root tests were carried out for each variable. The ADF-Test was used on series in level and in the 1st difference. Conclusions about stationarity were made by comparing the ADF-Statistic and the Critical values (C.V) at 1, 5 and 10 percent. When the ADF-Statistic is greater in absolute terms than the critical value, the series is said to be stationary and the reverse implies non-stationarity. Series that are stationary in levels are integrated of order zero {1(0)}. While those stationary after the first difference are integrated of order one {1(1)} and if stationary after the second difference, then the series are integrated of order two {1(2)} and so on.

3.5 Limitations of the study

The researcher was limited by the increased costs on internet charges, stationary costs and limited time being attached to disseminate the report. However, the researcher withstood with all limitations and completed the research study as it was planned for.

CHAPTER FOUR

RESULTS AND DISCUSSIONS OF FINDINGS

4.0 Introduction

This chapter presents Results and conclusions of findings. The analysis focused on the three tests. These tests included the following; normality, stationarity and linearity tests among the variables in this study. The specific objectives of the study were; to analyze trend of inflation in Uganda, to examine the stationarity of monetary policy indicators and inflation in Uganda and to examine the relationship between monetary policy indicators and inflation in Uganda

4.2 The distribution of Inflation in Uganda from 2000 to 2018

In this section the behavior of inflation and the stationarity test about inflation was tested.

4.2.1 The trend of Inflation in Uganda from 2000-2018

To find the trend of inflation was among the specific objectives of this study. Its trend is shown as in the figure below

Figure 1: Trend or Behavior of Inflation rate
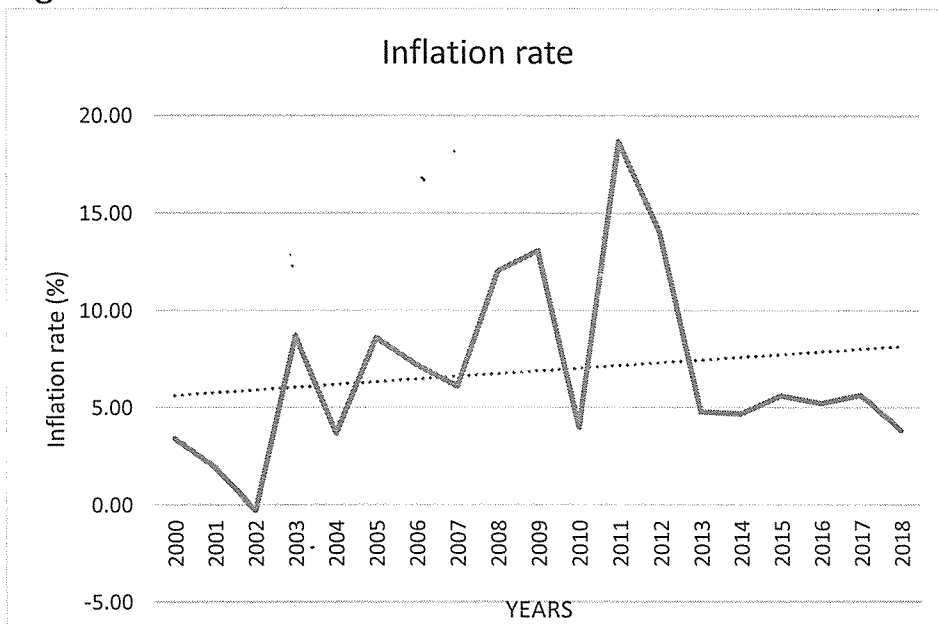
Source: Author, 2019

Figure 1 shows the trend of inflation rate in Uganda over years from 2000 to 2018. In 2000, the inflation rate was 4%. From 2000 to 2002 there was a decline of inflation from 4% to − 0.3%. From 20002 to 2003 there was a rapid increase of inflation from -0.3% to 8.71% from 2003 to 2009 there was a gradual increase of inflation rate. There is upward movement behavior of inflation from 2000 to 2018.

Table 2: Stationarity Test Using Autocorrelations about Inflation rate

lags	Autocorrelations	Statistic	
		Df	Prob>Q
1	.233	1	.251
2	.173	2	.354
3	.327	3	.175
4	.095	4	.266
5	-.144	5	.323
6	-.035	6	.437
7	-.351	7	.181
8	-.092	8	.235
9	-.230	9	.183
10	-.352	10	.054
11	-.231	11	.038
12	.001	12	.056
13	-.139	13	.059
14	-.037	14	.081
15	.049	15	.106
16	.089	16	.118

Source: Author,2019

The criterion is that accept Ho: there is no stationarity. If most of the (Prob>Q) are less than 0.05(significance level). From the table 1 above, most of the (Prob>Q) values are greater than 0.05 level of significance, thus the null hypothesis is rejected. This means that data about inflation is stationary.

Table 2: Normality Test for Inflation rate using Shapiro-Wilkson's Test

		Shapiro-Wilk W test for normal data			
Variable	Obs	W	V	z	Prob>z
inflationr~e	19	0.91209	2.007	1.399	0.08087

Source: Author,2019

Table 2 shows the normality test about the inflation rate. The criterion is that when Swilk's value (W) is approaching to 1, the data is normally distributed. From the above output the data came from a normally distributed population since W= 0.91209.

4.3 Distribution of Monetary Policy Indicators

4.3.1 Stationarity Testing

To test for stationarity about the indicators of Monetary policy was among the objectives of this study.

Table 3: Summary Results for Augmented Dickey Fuller Stationarity Test (Unit Root test)

	Variable	Test Statistic	5% Critical
	Interest Rate(CBR)	-5.260	-3.000
Z(t)	M1	-3.803	-3.000
	M2	-5.984	-3.000
	External Reserves(ER)	-3.695	-3.000

Source: Author,2019

The criterion is that if the test statistic is more negative compared to the critical value, accept HO: data is stationary. Considering the data about Interest rate, the Test Statistic (-5.260) has got more negatives than the 5% critical value (-3.000). thus the data about interest rate is stationary for quit period of time. Also, M1 and M2 have got Test statistic values of (-3.803 and -5.984) respectively are all greater than the 5% critical value (-3.000) in terms of negatives. Therefore, the data about monetary aggregates that is M1 and M2 is stationary since the null hypothesis is accepted at 5% level of significance. Furthermore, External reserves have got more negatives (-

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3.695) than the critical value (-3.000). thus the null hypothesis is accepted. This implies that the data about ER is stationary.

4.3.2 Normality Testing about Monetary policy indicators using Shapiro Wilkson's Test

Table 4: Summary statistics for Normality tests about Monetary policy indicators

Shapiro- Wilk test for normal data					
Variables	Obs	W	V	Z	Prob>Z
M1	19	0.9103	2.008	0.097	0.07081
M2	19	0.9971	3.001	1.003	0.01246
Exchange Rate	19	0.9872	2.006	1.023	0.00321
CRB	19	0.8999	3.786	2.014	0.06965
Government expenditure	19	0.9012	2.012	1.534	0.00213
Trade Openness	19	0.9786	3.765	0.007	0.08715

Source: Author,2019

Interpretation

Table 4 shows normality test on monetary policy indicators. All the indicators of monetary policy emanated from normally distributed populations since their Wilksons' values are all approximately to 1

4.4 Linear Relationship Between Inflation and Monetary Policy Indicators

To test for the relationship between monetary policy indicators and the inflation rate in Uganda was the third objective of this study.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.917[a]	.842	.741	2.383

Source: Author,2019

Table 4 shows the model summary of independent variable indicators and the dependent variable in this study. The model shows a multiple correlation coefficient(R) of 0.917 which indicates that there is strong relationship between the dependent variable (inflation) and the independent variable indicators. Also, the model shows that the R-square is 0.842, this implies that the independent variables impact the variation in inflation rate by 84%.

Table 5: Analysis of Variance

Model		Sum of Squares	Df	Mean Square	F	Sig.Value
1	Regression	331.521	7	47.360	8.343	.001[b]
	Residual	62.439	11	5.676		
	Total	393.960	18			

Source: Author,2019

Table 5 elaborates the ANOVA table. Ho: the model is not significant. The criterion is that when the Sig value is less than 0.05 (level of significance), reject the null hypothesis. From the above table 5, the Sig value is 0.001 which is less than the level of significance (0.05) thus rejecting the null hypothesis. This implies that the model is significant at 5% level of significance.

Table 6: Testing for Autocorrelation using Durbin Watson's Alternative test

Durbin's alternative test for autocorrelation

lags (p)	chi2	df	Prob > chi2
1	0.000	1	1.0000
H0: no serial correlation			

Source: Author,2019

Interpretation:

The criterion is that; reject H_0: that there is no serial correlation if prob>chi2 is less than 0.05. From the above output, since prob>chi2 = 1.000 is greater than 0.05 we accept Ho that there is no serial correlation. This implies that correct results about the independent variables and Inflation rate are obtained.

Table 7: Coefficients [a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	115.865	23.873		4.853	.001
M1	-.098	.165	-.224	-.595	.004
M2	-.170	.214	-.349	-.791	.000
Exchange rate	-.462	.114	-.605	-4.071	.002
CRB	.096	.083	.161	1.157	.001
economic Growth	.465	.337	.226	1.379	.03
government Expenditure	-2.832	.539	-1.123	-5.257	.000
Trade Openness	-.547	.331	-.387	-1.652	.007

Source: Author, 2019

a. Dependent Variable: Inflation rate

Table 7 depicts the linear relationship between the variables under the study using the regression analysis. The linear regression model is stated as below;

Inflation rate = 115.865 − 0.098*M1* − 0.170*M2* - 0.462*Exchange Rate* + 0.096*Interest rate* -2. 832*Gov.Expenditure* − 0.547*Trade openness*

From the above regression model, it is observed that when all the monetary policy indicators are kept constant, the level of inflation is 115.865 units. A unit change in M1 and M2 holding other indicators constant, leads to the reduction of inflation rate by M1 (0.098) and M2 (0.170). But a unit change in Exchange rate holding all other factors constant, inflation rate decreases by 0.462, when interest rate changes by one unit holding other indicators constant, inflation rate increases by 0.096 units. Furthermore, a unit change in Government expenditure keeping other indicators of monetary policy constant, inflation rate decreases by -2.832 units and when trade openness changes by a unit, inflation rate reduces by 0.547 units.

Table 7 showed that all the monetary policy indicators were significant since their sig values are all less tam the level of significant at 5%. By considering the level of determination of monetary policy indicators towards inflation, the absolute values of Beta are used. It is believed that the higher the absolute value of beta, the higher the level of determination to the variable in the question it portrays. In table 6 above, government expenditure has got a higher absolute beta

value of 1.123 followed by exchange rate with 0.605 in absolute terms and so on. This implies that government expenditure and exchange rate have got greater impacts on the inflation rate of Uganda from 2000 to 2018.

CHAPTER FIVE

SUMMARY FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

The summary of results, conclusions and recommendations were presented. The results were presented according to the purpose and the specific objective of the study. The study aimed at investigating the impact of monetary policy on inflation in Uganda. The specific objectives of the study were; to analyze trend of inflation in Uganda, to examine the stationarity of monetary policy indicators and inflation in Uganda and to examine the relationship between monetary policy indicators and inflation in Uganda.

5.1 Summary of findings

5.1.1 Behavior of inflation

The findings showed the trend of inflation rate in Uganda over years from 2000 – 2018. In 2000, the inflation rate was 4%. From 2000 to 2002 there was a decline of inflation from 4% to – 0.3%. From 20002 to 2003 there was a rapid increase of inflation from -0.3% to 8.71% from 2003 to 2009 there was a gradual increase of inflation rate. The findings showed that there was a positive trend.

The findings showed that most of the (Prob>Q) values were greater than 0.05 level of significance, thus the null hypothesis was rejected. This means that the data about inflation rate was stationary from the year 2000 to 2018.the findings also showed that inflation originated from the normally distributed population.

5.1.2 The stationarity of Monetary Policy Indicators

From the findings the criterion was that if the test statistic is more negative compared to the critical value, accept HO: data is stationary. Considering the data about interest rate or CBR, the test Statistic (-5.260) got more negatives than the 5% critical value (-3.000). Thus, the data about interest rate stationary.

Also, M1 and M2 have got test statistic values of (-3.803 and -5.984) respectively are all greater than the 5% critical value (-3.000) in terms of negatives. Therefore, the data about monetary

aggregates for M1 and M2 was stationary since the null hypothesis was accepted at 5% level of significance. Furthermore, External reserves had more negatives (-3.695) than the critical value (-3.000). Thus, the null hypothesis was accepted. This implied that the data about exchange rate was also stationary. The monetary policy indicators originated from normally distributed populations.

5.1.3 Relationship between Monetary Policy indicators and Inflation rate

The findings showed a multiple correlation coefficient (R) of 0.917 which indicated that there was strong relationship between the dependent variable (inflation) and the independent variable indicators. Also, the model showed that the R-square was 0.842, this implied that the independent variables affected the variation in inflation rate by 84%.

In addition, by considering the level of determination of monetary policy indicators towards inflation, the absolute values of Beta were used. It was believed that the higher the absolute value of beta, the higher the level of determination to the variable in the question it portrays. In the findings, government expenditure had a higher absolute beta value of 1.123 followed by exchange rate with 0.605 in absolute terms and so on. This implied that government expenditure and exchange rate had greater impacts on the inflation rate of Uganda from 2000 to 2018.

5.2 Conclusions

5.2.1 The trend of inflation in Uganda

This was the first objective of the study. The study concluded that the trend of inflation in Uganda from 2000 to 2018 was trending upwards. This was because the trend of inflation showed the gradual ups and downs as time was articulating. According to the Neo-fisher's prediction of inflation has been difficult recently. This is as a result of inflation being heavily influenced by factors that are not mainly determined by monetary policy thus changing at any given time of the day, weekly, monthly, quarterly or yearly. Such factors include oil prices, the dollar rate, rents and cost of healthcare. The above factors suggest that inflation could increase even as Central Banks raises the interest rate.

5.2.2 The stationarity of monetary policy indicators.

To examine the stationarity of monetary policy indicators and inflation. The study concluded that that data about inflation rate was stationary. The indicators of monetary policy were stationary. This showed that the data about monetary policy indicators were fit to be used in the analysis. According to Nordhaus. (2010) the process through which the actions of the monetary policy affects or gets transmitted to the real economy. Since prices are determined by the demand and supply of many goods and services, Central Banks cannot directly control prices. However, monetary policy can help Central Banks attain their inflation target by influencing the price determination process. Therefore, it is important for Central Banks to understand the monetary policy transmission particularly

5.2.3 Relationship between Monetary policy and inflation in Uganda

The study concluded that there was a significant relationship between monetary policy and inflation in Uganda since 2000 to 2018. This was done by analyzing the strength of Multiple correlation and the Adjusted R-square with strong level of determination.

The purpose of the study was to examine the impact of monetary policy and inflation in Uganda from 2000 to 2018. The study concluded that monetary policy using its indicators such as interest rate, Government expenditure, monetary variables (M1 and M2) and exchange rate affects inflation rate.

5.3 Recommendations

The government should regulate the amount of money in circulation through the central bank of Uganda. This can be done by using the central bank's monetary policies of Bank rates, open market operation, and selective credit control among others to solve the problem of inflation.

The government through central bank should increase the CBR at which commercial banks get money. This will help to reduce the amount of money in circulation.

The government through central bank should increase the exchange rate. This makes imports more expensive thus reducing on the inflation arising from trading countries.

5.4 Recommendation for further research

The researcher recommends other researchers to investigate other factors which lead to inflation since interest rate only cannot decide on the inflation rates in Uganda. The researcher recommends other researchers to investigate other factors which many lead to inflation and these factors include; embezzlement of government funds, issuance of excess currency in the country among others.

The researcher recommends other researchers to investigate other measures which should be put forward to solve the problem of inflation in the country. The solutions could be from either the economic, social or political perspectives.

The researcher recommends other researchers to carry out researches on the way how Central bank of Uganda issues out money in the country. Inflation could have been caused by the limited auditing and accountability provided by the bank of Uganda officials.

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APPENDIX

Appendix A: Record Sheet

YEARS	Quarters	M1	M2	ER(index)	CRB(%)	EG (%)	GEX (%)	TO (%)
	Q1	-0.10	-0.04	26.00	0.09	1.43	3.12	2.03
	Q2	-0.02	-0.41	54.21	12.35	0.03	12.01	3.03
	Q3	-0.25	-0.21	17.20	4.12	1.23	4.12	2.02
2000	Q4	-0.02	-0.11	27.00	5.21	1.21	0.21	4.01
	Q1	5.15	2 .16	26.20	2.00	3.2	2.02	2.00
	Q2	3.20	4.20	54.21	4.20	2.2	13.00	4.20
	Q3	3.12	3.40	17.20	3.10	1.2	4.06	3.10
2001	Q4	4.50	7.01	27.00	1.31	2.2	2.22	1.31
	Q1	3.01	0.05	5.07	3.03	2.02	0.10	0.12
	Q2	6.02	3.01	50.00	10.10	13.00	13.25	3.33
	Q3	0.02	5.03	30.45	2.20	4.06	8.30	3.33
2002	Q4	4.03	7.00	21.32	2.01	2.22	0.10	4.04
2003	Q1	3.11	1:13	0.23	4.00	1.01	1.12	3.10
	Q2	0.01	2.34	30.12	15.34	0.10	10.00	3.12
	Q3	4.00	1.20	30.41	2.21	3.04	5.02	3.18
	Q4	1.10	2.00	30.00	1.01	2.05	5.22	3.00
2004	Q1	7.05	7.16	10.00	3.00	1.00	1.00	3.00
	Q2	6.01	9.32	20.00	3.33	2.20	10.23	5.67
	Q3	3.21	1.20	30.37	3.00	1.30	5.00	2.00
	Q4	3.10	5.10	30.00	1.00	1.30	4.00	3.00
2005	Q1	4.00	3.00	21.00	1.00	2	3.18	6.06
	Q2	7.77	5.00	30.00	1.24	4	1.00	4.00
	Q3	2.00	6.51	30.95	1.00	3	4.60	5.00
	Q4	2.00	2.00	20.00	1.10	1	10.00	1.00
2006	Q1	7.35	5.10	20.1	4.06	1	9.00	4
	Q2	10.00	10.18	32.00	10.71	3	2.00	2
	Q3	2.40	5.00	40.00	2.00	2	5.77	6
	Q4	5.00	2.00	10.0	5.00	1	1.00	4
2007	Q1	7.0	5.44	35.20	5.00	2.0	14.00	6.00
	Q2	10.12	10.00	50.12	5.71	4.1	5.07	5.00
	Q3	5.00	5.34	10.00	2.20	1.0	4.00	2.07
	Q4	2.01	2.00	10.17	3.00	1.0	4.10	5.00
2008	Q1	3.00	4.00	10.21	3.00	1.2	5.1	7.29
	Q2	2.01	4.23	40.00	3.00	2.2	5.4	2.29
	Q3	3.00	4.00	20.00	2.56	2.0	2.1	6.00

	Q4	2.00	4.00	39.00	2.42	5.0	4.2	2.10
2009	Q1	4.30	4.10	10.01	2.00	2.0	2.13	4.02
	Q2	5.21	4.40	47.00	7.10	2.0	7.00	2.01
	Q3	4.00	2.00	30.00	2.23	2.1	5.12	10.02
	Q4	2.00	10.48	20.10	2.11	2.0	1.00	2.00
2010	Q1	3.00	1.04	25	-3.10	2.2	4.20	1.02
	Q2	2.30	10.12	25	-3.65	2.3	3.43	1.14
	Q3	3.30	2.01	25	-3.0	2.0	4.21	5.00
	Q4	2.19	1.00	25	-3.0	1.2	7.00	10.00
2011	Q1	-1.00	-1.00	94.22	1.04	1.2	5.00	5.00
	Q2	-1.00	-0.43	30.20	2.21	2.2	4.00	5.02
	Q3	-0.65	-0.33	20.12	2.02	1.2	4.17	5.33
	Q4	-1.20	-1.00	20.00	3.42	2.2	4.00	5.01
2012	Q1	1.00	2.00	10.00	4.00	1.0	4.10	5.04
	Q2	4.20	1.57	40.20	4.44	0.2	4.01	5.10
	Q3	4.22	1.10	40.54	4.00	1.0	4.20	5.00
	Q4	1.00 ·	1.00	10.20	4.00	0.0	4.20	5.00
2013	Q1	5.00	2.00	17.00	1.00	1.1	4.10	5.00
	Q2	5.26	5.10	20.00	0.81	1.2	4.23	5.01
	Q3	5.00	4.02	50.12	1.00	1.3	4.40	3.00
	Q4	5.33	4.00	20.14	1.00	1.1	4.00	3.10
2014	Q1	2.10	1.10	29.00	4.00	41.1	2.0	5.0
	Q2	1.03	1.20	50.11	4.41	1.3	4.00	4.20
	Q3	1.20	1.11	20.12	5.00	1.2	10.0	7.10
	Q4	1.10	2.00	10.00	5.10	1.0	2.10	2.12
2015	Q1	-1.10	-2.00	25.00	4.00	0.1	5.0	6.00
	Q2	-4.07	-2.03	42.12	3.38	2.2	5.42	5.11
	Q3	-2.00	-8.22	30.18	4.00	2.3	5.20	5.00
	Q4	-8.00	-1.21	10.20	6.20	1.1	4.22	5.00
2016	Q1	1.10	1.02	11.10	4.20	0.1	4.28	7.10
	Q2	2.32	2.10	40.23	4.35	1.0	5.00	4.10
	Q3	2.40	1.12	20.00	4.10	0.2	3.28	5.22
	Q4	1.00	2.01	30.12	4.10	1.0	5.12	3.1.2
2017	Q1	6.1	1.0	30.1	5.00	1	8.20	6.18
	Q2	6.0	4.2	37.4	4.00	1	5.32	5.10
	Q3	5.2	5.7	20.2	5.44	2	4.20	3.21
	Q4	5.0	4.0	10.1	5.10	1	1.20	4.00
2018	Q1	13	2	20.00	2.01	1.0	5.01	5.20
	Q2	6	4	30.26	3.10	1.1	5.00	4.34
	Q3	5	4	30.00	4.01	2.0	5.11	5.00
	Q4	3	5、	10.20	5.00	2.1	5.30	4.20

Source: IMF, 2019

Year	Inflation rate
2000	3.382
2001	1.922
2002	-0.3
2003	8.71
2004	3.666
2005	8.602
2006	7.205
2007	6.073
2008	12.041
2009	13.074
2010	3.972
2011	18.677
2012	14.017
2013	4.779
2014	4.668
2015	5.59
2016	5.21
2017	5.63
2018	3.83

APPENDIX B: PROPOSED BUDGET

Particulars	Quantity	Amount(Uganda Shillings)
Stationary	3 copies@ 17,000	51,000
Internet costs		20,000
Miscellaneous		40,000
Total		**111,000**

APPENDIX C: RESEARCH TIME FRAME

Activity	May	June	July	August
Proposal development				
Data analysis				
Submission of final thesis				