A research report submitted to the University of Greenwich in partial fulfilment of the award of a Master's Degree in International Business

COURSE CODE	**: BUSI1359**
COURSEWORK	**: DISSERTATION**
TOPIC TITLE	**: EVALUATION OF THE EFFECTIVENESS OF MONETARY POLICY IN ZAMBIA FROM 1996 TO 2016**
STUDENT NUMBER	**: 000991169**
SUPERVISOR	**: Dr Kwesi Sakyi**
DEADLINE	**: 25 March, 2019**
WORD COUNT	**: 9,874**

DECLARATION

I hereby declare that this submission is my own work towards the Masters Degree in International business and that, to the best of my knowledge, it contains no material which has been previously accepted for the award of any degree of the University, except where due acknowledgment has been made in the text. The contents of the research have been published before by other scholars with full acknowledgment embedded in this study. Copyright of this research rests with the author and quotation from it is permitted, provided that full acknowledgement is made.

Student Signature……. Submitted on …….

DEDICATIONS

I dedicate this study to the most-high Jehovah God, for leading the way, granting me wisdom, faith and the strength to complete the study, without which I would have not accomplished my goal. Additionally, my husband (Malama I Chikwashi) and children (Muma, Mapalo, Bupe, Katebe and Mushota) have been the source of unconditional strength, support and encouragement, they game me time away from home to do my school assignments and reminded me every day the meaning of true family, I dedicate this work and effort to each one of them.

ACKNOWLEDGEMENTS

From the initial stages to the final draft of this project for the partial fulfilment of the Masters Degree in International Business, I owe immense debt of gratitude to my supervisor, Dr Kwesi Sakyi for his invaluable support towards this project. His constructive criticism, careful guidance and patience have been very instrumental to the completion of this project in time. I would like to acknowledge all my lecturers (Dr. Mbewe, Dr. Kayombo, Mr. Mukuma, Dr. Lengwe, Mr. Mukosa and Dr. Mweshi, for sharing their knowledge with me which has greatly contributed to my successful completion of the MBA program, I am grateful. Lastly to my siblings and other family members' who believe in education, lifted my spirits high, they always referred to me as 'our graduate', I say thank you for believing in me.

Acronyms and Abbreviations (Put in alphabetical order)

MAT - Monetary aggregate targeting

IT - Inflation targeting

CBE - Central Bank of Egypt

GDP - Gross Domestic Product

BOU - Bank of Uganda

BOZ - Bank of Zambia

OMO - Open Market Operations

OLF - Overnight Lending Facility

IMF - International Monetary Fund

ZMW - Zambian Kwacha (Zambian Currency)

US$ - United States Dollar (United States of America Currency)

List of Charts

List of Tables

Contents

ABSTRACT

Purpose - The purpose of the study is to evaluate the effectiveness of the Bank of Zambia Monetary Policy from1996 to 2016. The study was done broadly on the Bank of Zambia, which is the central Bank of Zambia.

Research design and methodology - The study was steered by the epistemological method of Positivism and Critical Realism. The study was based on both qualitative and quantitative research methods with data collected from secondary sources. Annual reports, books and online literature were review to satisfy the research objectives.

Findings - The main conclusion of the study showed that the Bank of Zambia monetary policy has been effective during the period under review. In cases where the study revealed otherwise, was as a result of factors outside monetary policy such us high electricity tariffs and high costs of oil procurement among others.

Limitations - The study could have revealed more results if complete data was available. The limitation of data restricted the researcher from finding out the full correlation on interest rates, bonds yield rates, inflation, foreign exchange rates, money supply as well as financial stability in terms of number of commercial banks and other financial institutions. Nonetheless, the limitation did not compromise validity of the research findings.

Recommendations - The study recommends that Bank of Zambia maintains the current monetary policy stance as the study shows that is it effective. The central bank will benefit more if the concentration of monetary policy implementation focusses on interest rates and treasury bill yields to inject short liquidity and mop up surplus liquidity into and from the market.

Conclusion - The research concludes that that there is negative relationship between money supply and the yield rates on treasury bills and also on money supply and interest rates. The findings also revealed that there is a positive relationship between money supply and government bonds yield rates and money supply and exchange rates

Key words: Monetary Policy, money supply, interest, foreign exchange rates

CHAPTER ONE

1.0 Introduction

Chapter one will look at the research background and spell out the statement of the Problem. The section will highlight the main objective and specific Objectives. It includes research questions, significance of the study, scope of the study and definition of terms.

Friedman (2000, p. 1) wrote that monetary policy is a tool employed by the government agent to influence direction and pace of the overall national economic activity. Friedman (2000, p. 1) added that it entails influencing the level "*at which prices rise or fall*". This refers to movement in interest rates and exchange rate (foreign) among others. The aim of monetary policy is to have minimal unemployment numbers, stable and low inflation and a stable financial system, capable to meet economic needs as credit and services. Bernanke and Gergler (1995, p. 27), wrote that monetary policy as most would agree, influence the real economy in the short run. Analysis of monetary policy effects takes the transmission mechanism as "black box" (Bernanke and Gergler (1995, p. 27). This is because the transmission mechanism will tell if the monetary policy has been effective or not, and where implementation has gone wrong.

1.1 Research Background

Governments around the world use monetary policy as a macroeconomic instrument to manage a country's economy (Abdulrahman, 2009, p. 2). Globally, it has been accepted that the key goals of economic policy are steady prices, high employment levels and rapid economic growth (Friedman, 1968, p. 1). Chen (2018), added that this is the reason why from time to time, economic policies are reviewed and set to influence prevailing economic variables. With this, Central banks are continuously monitoring economic developments including cost of funds (that is lending and exchange rates), inflation and level of money supply. There is no doubt though that an effective monetary policy and its implementation is cardinal to every economy of the country. This is so because it stabilises and supports economic variables towards the achievement of a sustainable economic growth, which has seen varying monetary stances that suit respective countries' economic conditions.

Oxenford (2016, p. 6), wrote that monetary policy standards are recent, emanating from the failure of the Bretton Woods system in the 1970s. These standards comprise inflation targeting, the independence of central banks from political influence, and the separation of regulatory activity such as bank supervision from monetary policy (Oxenford, 2016, p. 6). Central bank belief, has until recently, principally overlooked global spill-over consequences of monetary policy, absence of reliable frameworks and imperfect market theory (Issing, 2008, p. 5). This statement brings out one reason why monetary policy may prove ineffective.

However, in the last decade, some countries in Europe have steadied their respective economies, built institutions and legal keystones of economies, which have helped in achieving sustainable economic expansion (Kutan and Brada, 2000, p. 31). Furthermore, Kutan and Brada (2000, p. 31), added that the conduct of macro-economic policies in these nations have been evolving swiftly during the period. Academic research needs to prove that there is need by central banks to communicate monetary policy to stakeholders for improved understanding of it, for policy effectiveness and also for stakeholders to make well-versed decisions, in line with wages and price setting (Carvalho and Nechio, 2014, p. 2). Furthermore, Carvalho and Nechio, (2014, p. 2), added that in open economies, the practice has been to immediately disseminate any monetary policy adjustment to stakeholders.

Primus (2016, p. 3), stated that to effectively conduct monetary policy, monetary authorities need to have precise assessment of the effects of the policy on an economy. Developing nations' monetary institutions characteristically function with two primary policy tools in order to attain desired macroeconomic goals. The first one being short term policy interest rate and secondly the required reserve ratio. Though, from the 2000s, monetary authorities in these countries have progressively de-emphasized reserve requirements and instead have adopted market-based methods of monetary policy which focusses more on monitoring short term interest rates.

1.2 Research hypotheses

To answer the problem of the research and to aid the solution to questions raised, the researcher came up with a number of hypotheses founded on the gathered information, to assume as following:

- Monetary policy is one of the most cardinal ways of economic policy to sway economic activity and development.
- Monetary policy presentation could be efficient and effective if controls and standards are offered and maintained

1.3 Statement of the Problem and Defence

Abdulrahman (2009, p. 2), wrote that monetary policy is a macroeconomic instrument to manage a country's economy. Carrera (2013, p. 1), articulated that there is still debate on the design of monetary policy in focussed literature. There is no doubt though that monetary policy is an important instrument that helps achieve macroeconomic policy objectives.

The importance of an effective monetary policy cannot be over-emphasised as stakeholders and the country at large are pretentious about it. Because of this, central banks can only prove that the monetary policy in place is effective by observing if targets designed are met in terms of interest rates, inflation and financial stability. However, there seems to be inadequate literature on how effective the Bank of Zambia monetary policy has been from 1996 to 2016. This study will examine variables that would assist measure the effectiveness of the Bank of Zambia monetary policy during the period under review.

1.4 Main Objective

The main objective of the research is to evaluate the effectiveness of the Bank of Zambia's monitory policy in stabilizing interest rates, foreign exchange rates and government yield rates (Treasury bills and bonds) from 1996 to 2016.

1.5 Specific Objectives

Specific objectives of the research are to:

- **RO1**: Evaluate Impact of monetary policy on interest rates between 1996 and 2016. Mote (n.d, p. 15), articulated that interest rates are said to be fundamental elements in determining economic activity. With stable interest rates, savers offer a platform to investors to utilize surplus funds for investment.

- **RO2:** Evaluate Impact of monetary policy on exchange rates between 1996 and 2016.

- **RO3**: Evaluate Impact of monetary policy on government Securities yield rates between 1996 and 2016.

1.6 Research Questions

To aid the direction of the study, the following questions will be reflected upon:

- **RQ1**: How stable have the interest rates been between 1996 and 2016?
- **RQ2**: What has been the effect of interest rates on inflation in Zambia during the period under review?
- **RQ3**: How stable has been the financial system in Zambia during the period under review?

1.7 Significance of the Study

The paper will measure the effectiveness of monetary policy. The results of the study will benefit the central bank to understand if the monetary policy has been effective and possible relevant aspects that could be put in place when conducting monetary policy evaluation. The study will also assist the central bank to craft an appropriate strategy to influence market conditions which are favourable to the economy. Stakeholders will also benefit by having an amplified appreciation of how monetary policies made by the central bank influence the area of the economy and the country at large. The research will be a contribution to other research papers done on the effectiveness of monetary policy in Zambia.

1.8 Scope of the Study

The study was conducted on Bank of Zambia with a focus on economics, financial markets and bank supervision departments.

1.9 Definition of Terms

(a)Monetary Policy:

Falade and Folorunso (2015, p. 1), stated that monetary policy is a measured effort by central banks to regulate supply of money and credit conditions in order to achieve full economic goals of a country. Hynková (n.d, p. 1), added that monetary policy is a policy that has to satisfy targets required through currency or monetary policy mechanisms.

(b) Interest Rates.

It is the cost of funds which is applied to the principal and is presented in percentage form (Kagen, 2017). Interest rates affect all stakeholders as the cost of getting a loan up to the price of finished goods and services, could impact positively or negatively on the economy.

(c) Open Market Operations (OMO):

Execution of monetary policy entails maintaining suitable liquidity levels conducive to help the central bank achieve monetary policy objectives. Open market operations alter the money supply through borrowing, lending, purchasing and selling government securities. This is done in order to influence short term interest rates (Federal Reserve Bank of New York, 2017, p.5).

(d) Interbank Money Market:

Interbank lending facility is vital because it is the key channel for monetary policy (Rempel, 2014, p. 1). It is a market which allows banks to trade loans between each other for an agreed term.

(e) Inflation:

It is the rate of increase in prices of goods and services in a given period of time (Oner, 2010, p. 44). Dr. Econ (2002), added to the definition of inflation that it is the overall increase in the price level.

(f) Reserve Requirement:

It is the amount of funds commercial banks maintain in deposit with the central bank every night as part of their reserves (Amadeo, 2018). Carrera (2013, p. 1), added that commercial banks are required to maintain a certain percentage of all deposits from the public, both in local and foreign currency in the form of a Cash Reserve Ration (CRR). By so doing, the monetary authority controls reserve requirements in terms of how much commercial banks lend and borrow.

(g) OLF: Overnight Lending Facility

Zeng and Liu (2017, p. 1), wrote that an overnight lending facility is a monetary policy tool for central banks, which control market liquidity. It is generally for commercial bank's prerequisite to smoothen short-term liquidity tightness. The Central Bank of Seychelles (2017, p. 2), added that it is an overnight lending facility with collateral that offers funds to the eligible Depository Corporations (DCs). The facility is offered at a pre-arranged interest rate, in order to cater for

shortfalls that could occur during the daily payment settlements (Central Bank of Seychelles, 2017, p. 2).

(h) Broad Money

According to the IMF (n.d), broad money is termed as *"Monetary Aggregate"*, just as money in general is perceived. Furthermore, Lim and Sriram (2003, p. 57), added that it is the "*general national currency holdings*" and that the central bank is mandated to be the custodian. There are three simple scopes of monetary aggregates namely*: "(1) the financial assets that are components of monetary aggregates, (2) the sectors that are money holders, and (3) the sectors that are money issuers"* (Lim and Sriram, 2003, p. 57).

1.10 Research Design

The research will focus on quantitative methods in order to satisfy the objectives of the study. For the purpose of analysis, data will be gathered from secondary sources.

1.10.1 Research Method

The research will be based on both quantitative and qualitative approaches which will include charts, tables and regular data.

1.10.2 Data Collection and Analysis

Curtis (n.d, p. 1), wrote that data collection could be done through two approaches, that is primary data collection, that is carried out by the researcher and secondary data collection, that is carried out using data already published by other researchers. Therefore, the research will be based on secondary data approach, through the analysis of already available statistical data. The objective of the research is to reach a conclusion on the effectiveness of the Bank of Zambia monetary policy. The software of SPSS as well as use of charts and tables will be carried out to examine information collected.

1.11 Dissertation Structure

The structure of the dissertation will be as follows:

- Chapter One: Introduction
- Chapter two: Literature Review
- Chapter three: Research Methodology

- Chapter four: Findings and Analysis
- Chapter Five: Recommendations and Conclusions
- Appendices
- References

1.12 Chapter Summary

Chapter one has highlighted the background of the research, statement of the problem, research objectives and questions. It has looked at research questions, significance of the study, scope of the study, definition of monetary terms and research design, research method, data collection, analysis and dissertation structure. Chapter two will look at the literature review.

CHAPTER TWO

Literature Review and Theoretical Framework

2.0 Introduction

Monetary policy for some time now has been an instrument to regulate money supply in an economy (Seth and Kalyanaraman, 2017, p. 796). Friedman as cited in Seth and Kalyanaraman (2017, p. 796), reported that this is done to maintain inflation at acceptable levels and accomplish optimal output growth in the economy. The design of monetary policy comprises the development of a ploy directed at steady prices, inflation level and generally a stable financial system (Akhta, 1997, p. 1).

Bernanke and Mihov (1998, p. 869), reported that it is cardinal to measure monetary policy for better policy making. Seth and Kalyanaraman (2017, p. 797), indicated that the extent of effectiveness of monetary policy is its effect on output in an economy. Bernanke and Blinder (1992) and Kierzenkowski (2004), added that the impact of monetary policy on output and prices are contingent upon the inclusion of interest rate, credit and exchange rate, meaning that the output and prices proliferate depending on the demand for money and changes in interest rates.

Chapter two will review literature on academic framework, evolution and effectiveness of monetary policy. The chapter will also cover literature on monetary policy in Egypt, Uganda and Zambia. The literature will bring out important information that shall be helpful to attain the objectives highlighted in chapter one. The information will also classify prevailing literature gaps in relation to the research theme.

2.1 Theoretical Framework

(a) Keynesian Point of View

The Keynesian point of view states that monetary policy plays an important role in economic activity (Ajaud *et al*, 2015, p. 104). It states that any change in money supply could change interest rates, employment level, income and output permanently, because of the Keynesian Liquidity Preference Curve or Demand for money proposition and the Keynesian Aggregate Demand and Supply propositions.

(b) Classical Point of View

Ajaud *et al*, (2015, p. 104), said that classicals believe that full employment level in the economy is always present, due to their belief in interest inelasticity of money demand, also identify that unemployment downward trend could exist if there are rigidities in wages and could be adjusted by an expansionary monetary policy. According to Mabrouk and Hassan (2012, p. 11), classicals also recognise that increase in money supply brings about inflation.

(c) Monetarists View Point

Modern monetary economists discard the Keynesian viewpoint of interest rate linkage with money supply and output (Ajaud *et al*, 2015, p. 104). They stated that modern monetary policy is founded on portfolio change processes. Adding that when the monetary authority purchases securities in the open market, substitution and wealth effects are set in motion, because public portfolio entails a number of assets like equities, bonds, mortgages and savings. These actions ultimately increase aggregate money demand and swell output. Phillip (1965), as cited in Mabrouk and Hassan (2012, p. 13), added that aggregate demand rises as a result of speculative motives influenced by increase in money supply.

2.2 The Evolution of Monetary Policy

Kutan and Brada (n.d, p. 31), reported that after the stabilisation of macroeconomics and the development of the required institutions and markets, monetary policy has advanced towards the use of less direct tools as open market operations and towards a new target of seeking lowering inflation to acceptable levels. It has been noted that the evolution of monetary policy has been as a result of continuously seeking ways to enhance monetary policy. For instance, Browne (2001, p. 1), wrote that the Federal Reserve Bank had made several activity changes for the last three decades, with low inflation, public interest and confidence in monetary policy as targets. Akhta (1997, p. 1), added that the Federal Reserve Bank of New York, currently use monetary policy instruments to persuade changes in interest rates, quantity of funds and credit in the economy. These variables over time, influence levels of expenditure, productivity, employment, and prices.

Developing countries such as Egypt, had also undergone changes in monetary policy, from government controlling policies to free open market policies and lastly economic structural reforms (Mabrouk and Hassan, 2012, p. 10). Zambia like any other country, has also undertaken general macroeconomic reform programs, in order to reinforce economic growth (Zgambo and

Chileshe, 2014, p.5). With the evolution of monetary policy as discussed, different policy frameworks have been implemented aligned to economic objectives.

2.3 Effective Monetary Policy

Rasche and Williams (2007, p. 447), articulated that the topic of effectiveness of monetary policy has been a long-standing subject among academicians. Viewpoints on the topic have literally been influenced partly by changes in the monetary model and partly by clarifications of monetary history. Effective monetary policy needs to focus on influencing instruments with emphasis on use of interest rates and inflation to manage a country's economy (Ajaud *et al*, 2015, p. 103). However, Seth and Kalyanaraman (2007, p. 796) pronounced that monetary policy employed to manage the economy has varying levels of effectiveness in economies with different stages of financial growth or development. In this case, a combination of fiscal and monetary policies is recommended for developing countries such as Zambia.

2.4 Conduct of Monetary Policy in Selected Countries

2.4.1 Egypt

In the late 1990s, Egypt experienced high inflation levels, financial imbalances and fragile economic performance (IMF, 2004, p. 23). That led the monetary authority to come up with economic reform programs at the beginning of 1991, aimed at enhancing financial markets and monetary policy execution (IMF, 2004, p. 25).

The Central Bank of Egypt (CBE) conducted monetary policy through money market operations to manage interest rates (IMF, 2004, p. 26). It was however, proven that managing interest rates had inadequate scope for dependence on money market operations and monetary policy implementation. Therefore, the Central Bank of Egypt's decision to change to an elastic exchange rate regime in 2003, led to interest rate elasticity, which brought about better reliance on money market operations (IMF, 2004, p. 26).

The Central Bank of Egypt (2016, p. 3) reported that in the year 2005, the monetary authority adopted inflation targeting framework in place of a money targeting framework, with price target being the operational target. Furthermore, the ECES (2011, p. 1), wrote that the Central Bank of Egypt had overnight lending and deposit facility as main policy tools, offering the outer limit of a corridor in which the overnight interbank rate varied. The Bank also implemented open market

operations, by buying or selling government securities, to withdraw or inject funds in the market ECES (2011, p. 1).

2.4.2 Uganda

IMF (2004, pp. 70- 72), wrote that Uganda underwent economic reforms since the 1980's, and its dominant objective of monetary policy had been to hold annual inflation at lower levels and maintain a flexible exchange rate reactive to fluctuations in Uganda's terms. With the introduction of major changes in its monetary policy platform, the Bank of Uganda had adopted money market operations, which contained unwarranted volatility in interest rates that emanated from liquidity management actions (IMF, 2004, pp. 70-72). The operations were steered through foreign exchange interventions and Treasury bill auctions. All this helped achieve low and steady inflation from double to single digit.

The Bank of Uganda had subsequently shifted the weight toward more foreign exchange auctions in the policy blend for sterilization processes (IMF, 2004, pp. 70-72). Money market operations reliance have been with challenges in light of immature financial market operations to deal with liquidity allegations of the discharge of donor money. Another setback has been gravity for exchange rate. The new monetary policy framework demanded changes in the use of several instruments (IMF, 2004, pp. 70-72).

The challenge for the Bank of Uganda has been to preserve inflation objective by counteracting the effects of the government injected liquidity as donor money is released in the financial system (IMF, 2004, p. 73). To deal with this is problem, the Bank of Uganda (BOU) embarked on sterilization operations, which at times had resulted in volatility of interest rate, because of weaknesses in monetary management framework and low money market.

Uganda has demonstrated that a mixture of money market operations and instruments could be effective even under limited market development conditions, as long as backup policies are put in place. It has been seen that Bank of Uganda (BOU) had reacted to the possible interest rate volatility using a mechanical devotion to base money by levelling liquidity management actions in a way that does not intensify interest rate volatility IMF (2004, p.73). Uganda also had shown the significance of the monetary authority communicating clearly with the market.

1.4.5 Zambia

(a) Structural Reforms

IMF (2004, p.94), wrote that after independence, Zambia's economy was led by state owned enterprises, trade protection and controlled prices. The financial segment and monetary policies were driven toward the delivery of funded credit to state enterprises. After almost twenty years of controls, macroeconomic performance declined sharply and key problems arose in the financial segment (IMF, 2004, p. 94). Furthermore, the IMF (2004, p. 94), wrote that by 1990, it was imminent that it was unsustainable to have in place a policy of providing subsidized credit to favoured sectors. Kalyalya (2001), as cited in Zgambo and Chileshe (2004, p. 5), added that in the course of this era, monetary policy depended mainly direct instruments as direct credit provision, control of interest rates including core liquid assets and statutory reserve ratios. Kalyalya (2001), added that this was based on the predominant economic model, which was led by the state leaving the central bank minimal control on money supply as the banking sector was led by foreign banks that were inclined to issuing loans to mainly foreign owned firms, without concern for predominant financial and economic conditions.

Zambia's economy became stagnant and inflation rose to 76.9%. The banking system lost the intermediation role with declining credit to the private sector's relative share of GDP (Kalyalya, 2001). Following this, according to Zgambo and Chileshe (2014, p. 5), Zambia undertook a general macroeconomic reform program, in order to reinstate economic growth focussed on the creation of a market-based economic structure, motivated by the private sector. The reforms brought about greater role in the market-based distribution of resources as prices were not controlled and most subsidies were abolished. Another measure was to liberalise the foreign exchange market by removing exchange controls and bringing a stop to interest rate controls (Zgambo and Chileshe 2014, p. 5.)

(b) Conduct of Monetary policy

Zgambo and Chileshe (2014, p. 6), wrote that after the amendment of the Bank of Zambia Act in 1996, the Bank of Zambia 's objective was narrowed to price and financial system stability. This gave impetus to the central bank to focus on a suitable monetary policy aimed at supporting viable economic growth (Zgambo and Chileshe, 2014, p. 6). The central bank adopted monetary aggregate targeting, a tactic believed to be a solid and stable relationship between inflation and

money supply (Zgambo and Chileshe, 2014, p. 6). Friedman and Kuttner, (1982) as cited in Zyambo and Chileshe (2014, p. 7), indicated that money is beneficial if its rate of growth is steady with a favourable level of inflation. Zyambo and Chileshe (2014, p. 7), further, reported that the central bank controlled the general monetary conditions in market through the maintenance of reserve money at a level in line with the desired broad money expansion and inflation.

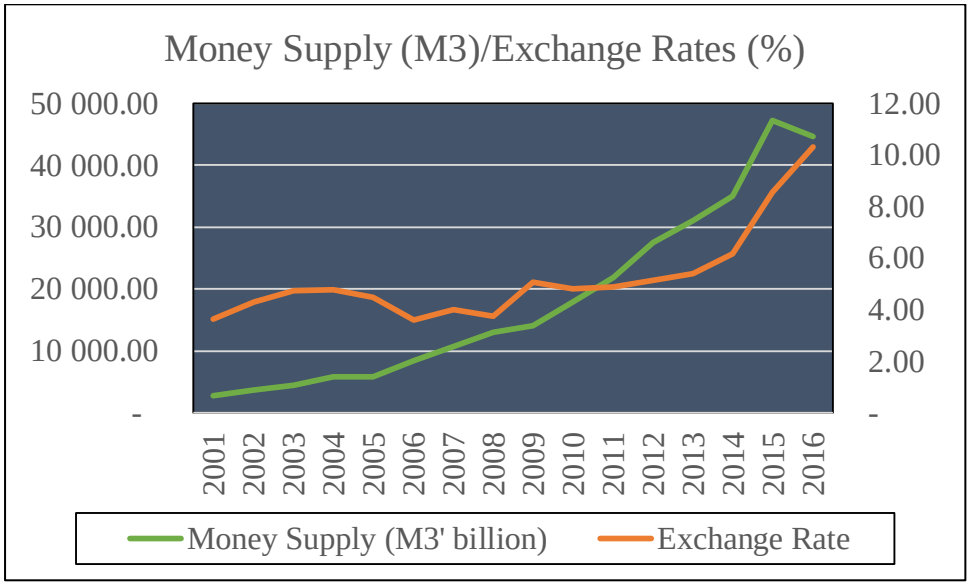
Zgambo and Chileshe (2014, p. 6), reported that despite the adoption of aggregate targeting regime, excess liquidity had been in the interbank market with lack of short term liquidity tools to sooth short-term liquidity finance, forcing banks to keep liquid cash in current account at the central bank. This meant constant withdraw of liquidity by the monetary authority, in order to attain the operating target (Zgambo and Chileshe, 2014, p. 6), but the constraint was that Bank of Zambia (BOZ), was short of amount of government securities to withdraw excess liquidity which led to interest rate volatility dominating overnight interbank money market, because of limited facilities for funds, expensive rediscount facility.

The IMF (2004, p. 98), indicated that futher, the monetary authority used liquid asset ratio, where it was a requirement that banks were to hold a percentage of the currency deposits in liquid in kwacha (local currency) and foreign currency deposits. The ratio was exposed to frequent variations in reaction to liquidity developments in the market (IMF, 2004, p. 98). The other option used was deposit auctions, where the central bank had the right to accept or reject offers according to market fundamentals (IMF, 2004, p. 98). Furthermore, the IMF (2004, p. 98), added that the auctions were undersubscribed, notwithstanding surplus liquidity in the market. The third monetary operation used was credit auctions that offered credit to commercial banks, though the facility had rarely been utilised because of structural surplus liquidity in the market (IMF, 2004, p. 98).

IMF (2004, p. 98), further indicated that the Bank of Zambia outrightly purchased, sold and repurchased government securities. The operation was not used frequently as the central bank did not have sufficient treasury bills in its portfolio (IMF, 2004, p.98). All these monitoring operations were intended to mop up surplus liquidity and inject short liquidity and achieve inflation targets (Zgambo and Chileshe, 2014, p. 6).

Statistics in figure 1 show that money supply kept on swelling from ZMW2.7 billion to almost ZMW47.2 billion between 2001 and 2015, only decreased in 2016 at ZMW44.6 billion. As for exchange rates, the trend during the period shows that it went up from 2001 to 2005, the trend repeated between 2009 and 2016.

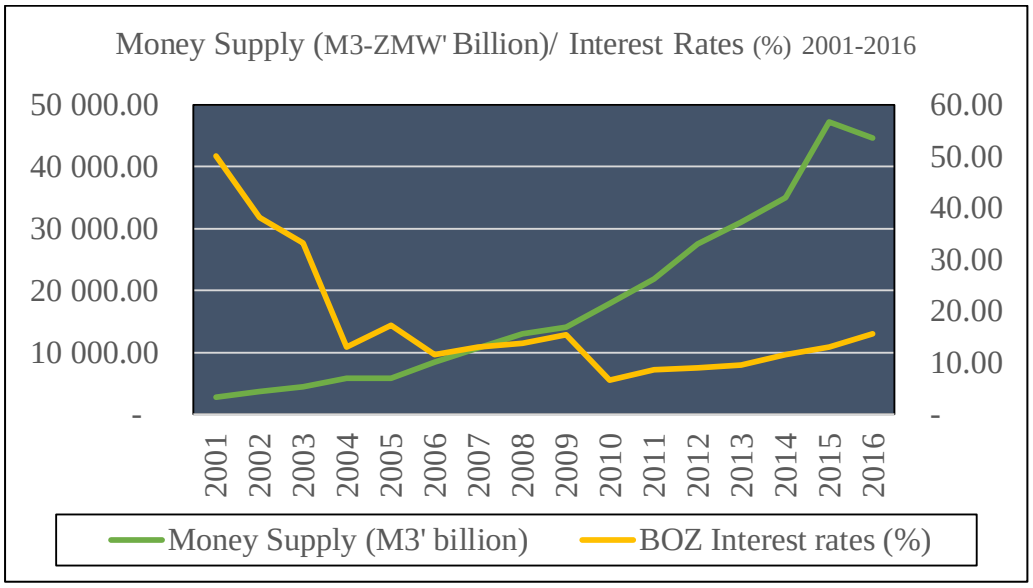
Chart 1. Money Supply M3 (ZMW' Billion)/Exchange Rates (%) 2001-2016



Source: Bank of Zambia

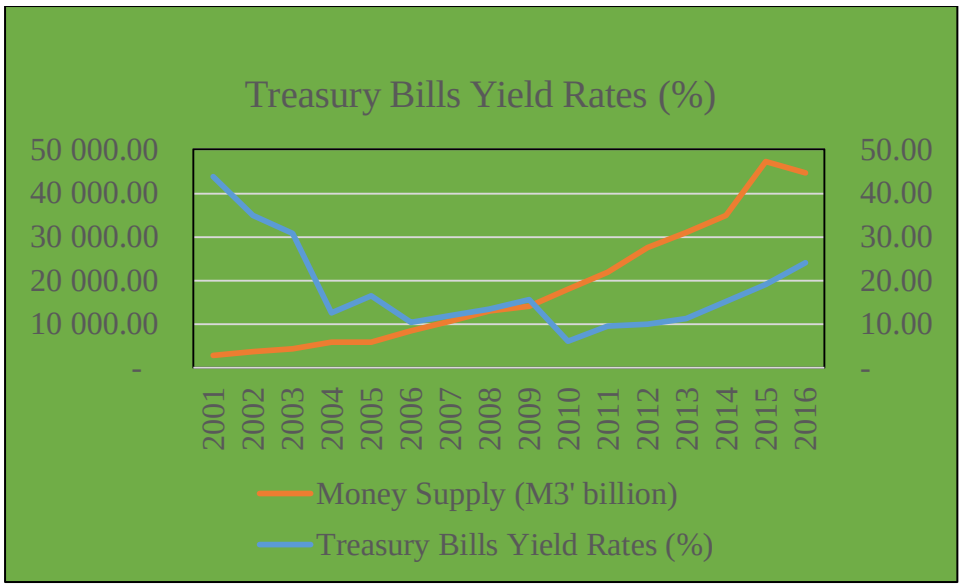
Chart 2 below indicates the trend on interest rates and money supply during between 2001 and 2016. The Bank of Zambia interest rate average was recorded at 17.5% during the period, with the lowest at 6.63% in 2010 and highest at 50.1% in 2001

Chart 2. Money Supply (ZMW' Billion)/ Interest Rates (%)



Source: Bank of Zambia

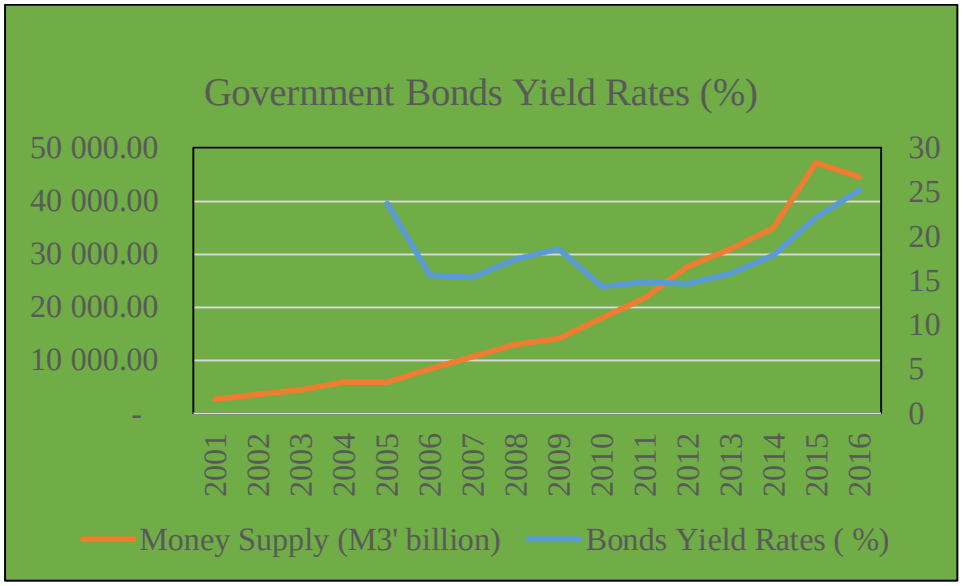
Chart 3. Money Supply (M3)/Treasury bills Yield Rates (2001-2016)



Source: Bank of Zambia

Earlier, participation of commercial banks in government securities and foreign exchange market became intensive as the two markets seemed the major avenues for income (IMF, 2004, p. 95). Charts 3 and 4 below show a trend in government securities yield rates. The trend shows that treasury yield rates were above 40% in 2001 and slowly took the downward trend to slightly above 10% between 2002 and 2004. It can be seen that both treasury bills and bonds yield rates rose gradually between 2010 and 2016 to about 25%.

Chart 4. Money Supply (M3) /Bonds Yield Rates (%) 2001-2016



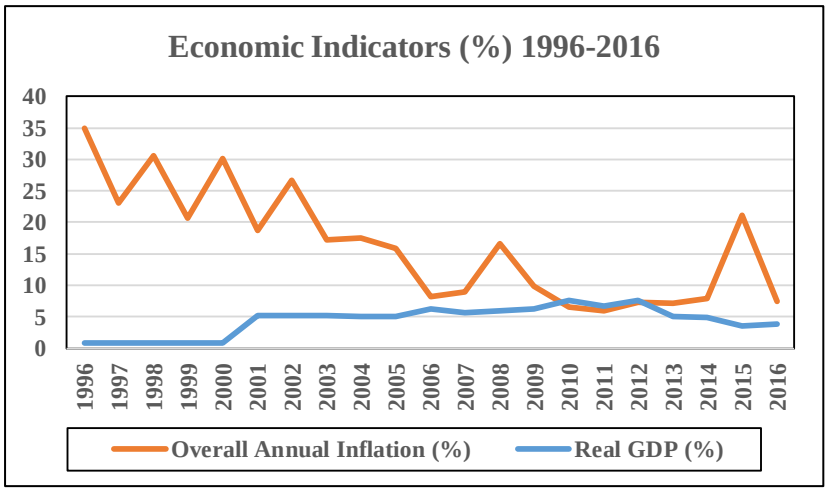
Source: Bank of Zambia

Zyambo and Chileshe (2014, p. 6), wrote that the central bank had another focus on exchange rate stability, with less emphasis on conservative monetary policy, where the central bank managed foreign exchange rate through sales and purchases of foreign exchange. The multiple policy goals generated some inconsistencies between the specified objective of price and exchange rate stability (Zyambo and Chileshe (2014, p. 6). These goals influenced behaviour of market players and helped develop control of money supply and inflation. Below is a trend in foreign exchange rates for the central bank and commercial banks.

Chart 5 below shows economic indicators between 1996 and 2016. Overall inflation was recorded around 35% and 17% between 1996 and 2003. From 2003 to 2014, inflation was recorded around 15.5% and 9.5%. There was a sharp surge upwards in 2015 at about 21%, then

declined sharply in 2016 to about 7.5%. As for real GDP, the trend shows a stagnant grown between 1996 and 2000. The outlook improved from 2001 to 2015, as data shows improved growth.

Chart 5. Real GDP/Inflation 1996-2016



Source: Bank of Zambia and World Bank

(c) Change of Policy Framework - 2012

Mabrouk and Hassan (2012, P. 9), wrote that in 2008, the Bank of Zambia reviewed the monetary policy framework from monetary aggregates to inflation targeting (IT). In view of this the central bank introduced the benchmark policy rate to lever interest rates and increase focus on managing inflation before any other objective, to achieve price stability (Mabrouk and Hassan, 2012, P. 9). Haabazoka and Nanchengwa (2014, p. 142), added that this allowed commercial banks to set respective interest rates, and influence central bank operations like OMO, discount rate and reserve ratio.

Bomhoff (1992), as cited in Haabazoka and Nanchengwa (2014, p. 142), reported that the change in the policy stance prompted commercial banks to impose a reasonable mark-up to the interbank rate when coming up with individual lending rates. The aim of monetary policy was to maintain a 30-day interbank overnight average of about 9 %, though within a corridor of 7% and 11% (Bank of Zambia, as cited in Haabazoka and Nanchengwa, 2014, p. 142). During this period the monetary policy seemed favourable, with the operational target change from reserve money to

overnight interbank money market rate. As at end of 2014 the policy rate was recorded at 12.5 per cent (Haabazoka and Nanchengwa, 2014, p. 142). The central bank employed OMO, discount rate and reserve ratio tools to influence operations in the interbank market, resulting in changes in interest rates structure in the economy.

According to Zgambo and Chileshe (2014, p. 6), the change of monetary policy framework and its conduct contributed to improvement in the macroeconomic environment of the country, with declines in money growth, inflation and lending rates. Real GDP growth increased steadily. Haabazoka and Nanchengwa (2014, p. 142), further, wrote that as the monetary authority lowers policy rate, financial institutions respond in a similar manner allowing more borrowers. According to Alexander and Enoch (1995) as cited in Haabazoka and Nanchengwa (2014, p. 142), this results in consumers having more funds to expend, triggering economic growth and increase in inflation. When interest rates increase, the reverse comes true (Haabazoka and Nanchengwa, 2014, p. 142).

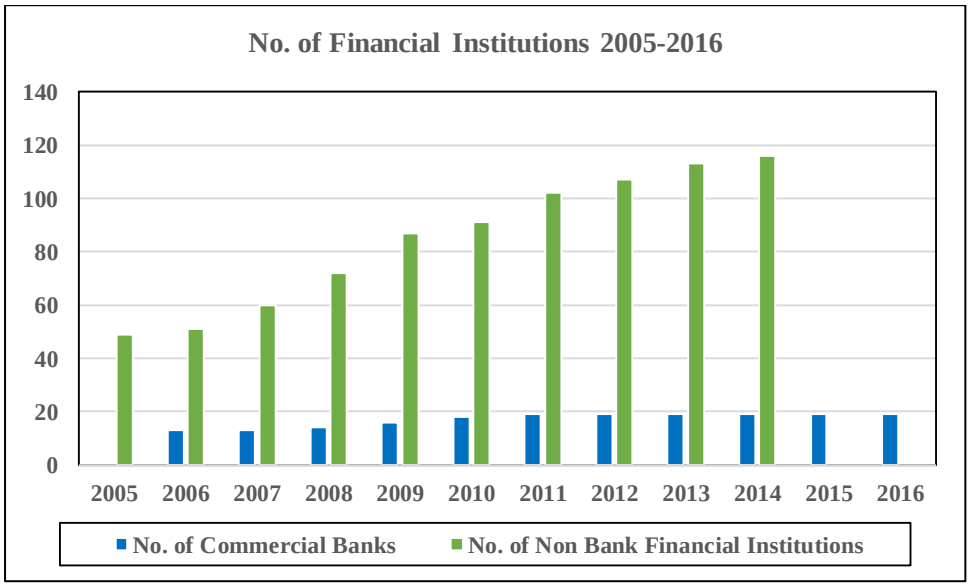
Table 1. Annual Bank Lending by Economic Sector (ZMW' Billion) 2001-2016

Year	Total
2001	
2002	
2003	
2004	
2005	
2006	
2007	4,106.50
2008	5,864.30
2009	6,136.80
2010	6,534.40
2011	8,106.20
2012	10,840.30
2013	11,739.00
2014	13,074.20
2015	17,576.20
2016	15,454.80

(c) Financial System

In 1993, the IMF (2004, p.95), indicated that the market share of the state owned bank rose between 1994 and 1998, due to the closure of nine local commercial banks. The Reserve bank of Australia (2017), reported that after the global financial crisis, countries realised how much the global economy is interconnected, because of swift spread of the financial structure to different parts of the world. This realisation emphasizes the point that the central bank was not only a player in ensuring financial stability, but it was for every policymaker. Because of this, Australia has set monetary policy to interact between macroeconomic and financial stability objectives. There are issues around the globe that contribute to financial stability such as risks. Chart 7 below indicates the growth of commercial banks and other financial institutions between 2005 and 2016.

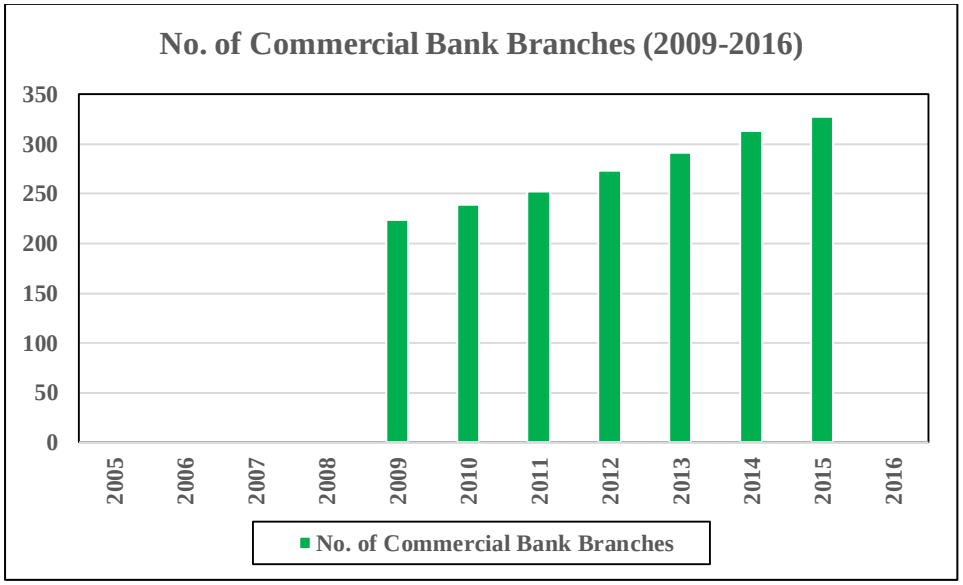
Chart 6. Number of Financial Institutions in Zambia- 2005-2016



Source: Bank of Zambia

It can be seen from the chart that commercial banks gradually grew from 2005 to 2016, while other financial institutions' growth had not been impressive during the period. Chart 8 below indicates number of commercial bank branched between 2005 and 2016.

Chart 7. Number of Commercial Bank Branches in Zambia (2005-2016)



Source: Bank of Zambia

There was increase in commercial bank branches, which indicated growth in the financial system. This was a positive side to the Zambian economic.

Lowe (1992) as cited in the Reserve Bank of Australia (2017 p. 8), stated that changes in the financial system could have a vital effect on economic conditions, because allocation of resources in the financial system allows investment to take place, enhancing income and asset prices.

Chand (n.d.), reported that monetary policy can speed up the process of economic development by improving the currency and credit system of the country. For this purpose more banks and financial institutions need to be established to provide larger credit facilities and to mobilise savings for productive purposes. Furthermore, Chand (n.d.), wrote that in under-developed countries there is death of financial institutions and banking facilities are available only to a limited extent. This being the case, the savings of the people cannot be mobilised effectively for economic development and consequently the rate of growth of the economy is very slow. The monetary authorities can help in the expansion of financial institutions by granting subsidies and special concessions in the form of free remittance and rediscounting facilities to new institutions.

For the attainment of the objective of growth with stability, the monetary authorities of developing economies, therefore, have to play a positive role in creation, working and expansion of banking and other financial institutions and extend credit facilities where needed (Chand (n.d.).

2.4.5 Challenges of Monetary Policy

Adam (2007), as cited in Blatter *et al* (2008, p. 5) narrated that the public and financial markets are unable to foresee the central bank's actions to adjust plans in time, which could contribute to high volatility levels in the real economy. Blattner*et al* (2008, p. 5) stated that the past decades have seen monetary authorities gradually increasing emphasis on transparency and certainty of actions taken in both short and long term. This is viewed as best practice by monetary authorities. This allows financial markets make informed plans of actions and enhance credibility on the part of a central bank.

The challenge has been predictability on the long term, because it is not easy to predict. It has been observed that information released by monetary authorities is not the only aspect as how it is communicated to stakeholders also matters (Blattner*et al*, 2008, p. 31).

2.5 Literature Gap

It can be seen that from the literature studied, there is a gap in data relating to past years. Information concerning interest rates, GDP and financial structure has been lacking. The information would have helped in assessing the full trend in monetary policy implementation.

2.6 Chapter Summary

A critical evaluation of landmark and classical literature was carried out in the chapter, in order to recognise evolution of monetary policy, how it is conducted in selected countries including Zambia. The chapter also looked at challenges of monetary policy and literature gap. Chapter three will deliberate on the research methodology that will be used during the research study.

CHAPTER THREE

3.0 Research Methodology

3.1 Introduction

Chapter three will give an outline of the research approach adopted. Research methodology shows a step by step process to be used to give answers to the research questions. Furthermore, the chapter will look at methods used to gather and analyze data, at the same time justify the choice of sampling technique used. The chapter will then conclude by looking at ethical matters reflected when conducting a research

3.2 Research Method and Strategy Validation

The researcher adopted the epistemological position of positivism and critical realism to carry out the research. According to Saunders *et al* (2007, pp. 102-103), positivism philosophy entails collection of data through prevailing theory, which will be tested and confirmed. This philosophy reflects a natural scientist's observing social reality through tests and experiments.

Furthermore, Saunders *et al* (2007, pp. 105), narrated that critical realism recognizes the status of different levels of study, which is capable of changing the understanding of the researcher on what is being studied.

These approaches are selected as they are flexible and at the same time they offer a method that will allow production of credible information that will be verified and confirmed.

3.2.1 Deductive and Inductive Methods

Saunders *et al* (2009, p. 490) stated that inductive method entails data collection and exploring data to see which issues to be followed up and concentrated on. While the deductive approach is a scientific research which comprises the development of a model subjected to demanding tests, which include testing the proposal on the correlation between two or more variables Saunders *et al* (2007, p. 117). The researcher will employ both deductive and inductive methods in order to critically look at data necessary for the study.

3.2.2 Independent and dependent variables

Variables are qualities or attributes measured (Kombo and Tromp, 2006, p. 21). Independent variables are explanatory factors that the researcher attempt to explain variations in the dependent variable (Kombo and Tromp, 2006, p. 21). The researcher in this case took interest rates, inflation and foreign exchange rate as independent variables. Dependent variable is the outcome the researcher tries to predict. In this case, the researcher took broad money (M3) as a dependent variable.

3.3 Research Design

According to Saunders *et al* (2007, p. 131), research design is the overall strategy of how to go about answering the research questions, specifying sources of data to be collected. In order to speak to concerns highlighted by the research questions, the researcher will apply both qualitative and quantitative research methods in what is called triangulation. Saunders *et al* (2007, p. 145) defined this method as being a mixture of quantitative and qualitative data collection techniques and procedures as well as a mixture of other research approaches which is referred to as triangulation. Therefore, the research will be a combination of a survey, case study, and review of secondary data.

3.4 Method of Data Collection

Saunders *et al* (2007, p. 152), wrote that it is logical to accept that the way data is collected will yield valid or effective data, and that there was no bias. The student carried out the study using secondary data collected from journals, books and conference papers. According to Saunders *et al* (2007, p. 65), secondary is well covered by the academic literature and that "*the number of secondary literature sources available to you is expanding rapidly, especially as new resources are developed or made available via the Internet".* This statement qualifies the use of internet based data and other information, provided the information is published and authentic.

3.5 Data Analysis

The researcher applied a qualitative research which uses accounts, numbers and statistical procedures, while qualitative research is soft data in form of images, narratives or words (Ngulube, 2015, p. 3). Firstly, qualitative data was collected from secondary sources, secondly the analysis of data was done using statistical software, SPSS. Specifically, Linear regression was used to test the research model. Pearson's correlation was employed to examine the

correlation between interest rates, inflation and exchange rates. Data was presented by use of percentages, tables, bar charts and percentages graphs.

3.6 Validity and Reliability of Data

Saunders *et al* (2007, p. 149) stated that reliability entails the extent to which data collection methods will produce dependable findings. Mohajan (2016, p. 1), adds that validity and reliability of data is cardinal and fundamental in the assessment instruments for good research. To ensure validity and reliability of data collected, the researcher employed the use of authentic data from reliable sources.

3.7 Ethical Considerations

Research is a scientific effort that is organized according to guidelines, methods and legislation. Information and data collected was solely for the purpose of the research. All studies done by other researchers have been acknowledged as required.

3.8 Chapter Summary

Chapter three covered the research method employed in carrying out the research including the design, data collection techniques and analysis. The chapter also looked at data validation and reliability issues and lastly ethical considerations when conducting a research.

Chapter four will consider analysis of data and explanations of outcomes with the use of methods mentioned in methodology.

4.0 CHAPTER FOUR: Presentation, Discussion and Interpretation of the Findings

4.1 Introduction

The chapter focuses on the analysis of individual variables used in the study and analysis of each objective and it is divided into two (2) sections. In the first section descriptive statistics were used to check the characteristics of independent variables(Interest Rates, Exchange Rate,Treasury Bills and Bonds). The second section discusses the extent to which monetory policy is affected by independent variables using the linear regression model.

4.2 Descriptive Statistics

4.2.1 Inferential Statistics

4.2.2 Introduction

The study involves more than one independent variables. Therefore, linear regression analysis was used to determine the extent to which monetory policy is affected by interest rates, exchange rate, treasury bills and bonds. It allows several variables to be included in the analysis Albright *et al*.

(2006).

Table 2 Correlations

Model	Unstandardised		Standardised	t	Sig.
	B	Std. Error	Beta		
(Constant)	38390.025	15263.497		2.515	.029
Interest Rates	-4741.793	1872.791	-3.925	-2.532	.028
Exchange Rate	686.930	3330.896	.085	.206	.840
Treasury Bills(%)	5133.406	2127.855	3.651	2.412	.034
Bonds	-1803.354	602.510	-.394	-2.993	.012

Correlation is a measure of the relationship between two variables. It ranges from negative one (-1) to positive one (+1). Negative one (-1) implies the variables are perfectly negatively correlated while positive one (+1) implies a perfect positive correlation. How is correlation of the dependent and independent variables? Money Supply is negatively correlated with interest rates, implying that as money supply increases interest rates reduces. Similarly, money supply and treasurery bills are negatively correlated implying that as money supply increases treasurly bills yeilds reduces.

However, money supply and exchange rates are positively correlated, suggesting that when the supply of money increases, exchange rates also increase. Similarly, money supply and bonds yield rates are positively correlated, suggesting that as money supply increases bonds yield rates also increase.

4.2.3 Assumptions of Regression Model

The validity of the results depend on the results of the tests for assumptions. Serial autocorrelation test, multicollinearity test and the normality test for residuals were done.

4.2.4 Serial Autocorrelation Test

The study was set out with testing autocorrelation using the Durbin-Watson test. The Durbin-Watson statistic should be between 1.5 and 2.5 indicating the absence of autocorrelation.

Table 3. Durbin-Watson test

Model	**Durbin-Watson**
1	1.839

Table 3 shows the results of the Durbin-Watson test; 1.839 lies between 1.5 and 2.5. Therefore, we could assume that there is no linear auto-correlation in the data.

4.2.5 Test for Multicollinearity

Multicollinearity is a state of very high inter-correlations or inter-associations among the independent variables. It is, therefore, a type of disturbance in the data, and if present in the data the statistical inferences made about the data may not be reliable.

The two main approaches to test multicollinearity are Tolerance and Variance Inflation Factor (VIF) in regression analysis. Tolerance is the percentage of variance in the independent variable that is not accounted for by the other independent variables. The independent variable is regressed on to the other independent variables in a multiple regression analysis and produce an R-square value, which is then subtracted from one ($1-R^2$). The difference is Tolerance. Perhaps most commonly, a value of 0.10 is recommended as the minimum level of tolerance. However, a recommended minimum value as high as 0.20 has also been suggested.

In multiple regression, the VIF is used as an indicator of multicollinearity. Computationally, it is defined as the reciprocal of tolerance: 1 / (1 - R2). The recommended maximum VIF value of 5, however, the value greater than 5 is often problematic.

4.2.6 Testing Multicollinearity

Table 4

Model	Collinearity Statistics	
	Tolerance	VIF
Interest Rates	.003	315.013
Exchange Rate	.045	22.062
Treasury Bills	.003	300.283
Bonds	.440	2.272

Table 4 shows the results of multicollinearity test. Tolerance values for interest rates, exchange rates and treasury bills yeild rates are all below 0.2, suggesting the presence of multicollinearity. However, Bond yield rates have the torelance above 0.2, indicating the absence of

multicollinearity. Similarly, VIF for interest rates, exchange rates and treasury bills are above 5, suggesting the presence of multicollinearity, except for bond yield rates, which have VIF of 2.272, suggesting the absence of multicollinearity.

4.2.7 Test for Normality of Residuals

The test for normality of residuals is an important way of scrutinising whether the regression model has realised its objective of explaining the variation in the dependent variable. The results showed that the residuals are approximately normally distributed (See figure 1 in the appendices).

4.3 Extent to which money supply is affected by interest rates, exchange rates, treasury bills and Bonds yield rates

Table 5: Model Summary

Model	**R**	**R Square**	**Adjusted R**
1	.957	.916	.886

Table 5 shows that 91.6 % of the variation in Monetory Policy (Money supply) is explained by the independent variables; interest rates, exchange rate, treasury bills and bonds yield rates.

4.3.1 Regression Coefficients

Table 6

Model	Unstandardised		Standardised	t	Sig.
	B	Std. Error	Beta		
(Constant)	38390.025	15263.497		2.515	.029
Interest Rates	-4741.793	1872.791	-3.925	-2.532	.028
Exchange Rate	686.930	3330.896	.085	.206	.840
Treasury Bills(%)	5133.406	2127.855	3.651	2.412	.034
Bonds	-1803.354	602.510	-.394	-2.993	.012

Table 6 shows the regression coefficients. The interest rates have a negative effect on Money Supply (p-value = .028). This implies that a unit increase in interest rates would reduce money

supply by ZMW 4741.793 billion . Similarly, bond yield rates were found to have a negative effect on money supply (p-value = .012), implying that a unit increase in bond yield rates will reduce money supply by ZMW 1803.354 billion. Treasury bills yield rates were found to be statistically significant (p-values . .034), at 0.05 level of significance. This implies that a unit increase in treasury bills yield rates will increase money supply by ZMW 5133.406 billion. The Beta coefficients for interest rates (-3.925), treasury bills yield rates (3.651) and bonds yield rates (-0.394), suggest that treasury bills yield rates contribute more in explaining money supply compared to the rest of the variables , the least being interest rates. The variable exchange rates (p-value .840), is considered not significant since its above 0.05 level of significance, hence not significant in explaining the dependent variable (money supply).

The model has been rewritten as $\mathbf{Y= 38390.025 -4741.793X_1+ 686.930X_2 + 5133.406X_3 - 1803.354X_4}$

Where:

Y= Money Supply

X_1=Interest Rates

X_2 =Exchange Rates

X_3 = Treasury Bills

X_4 = Bonds

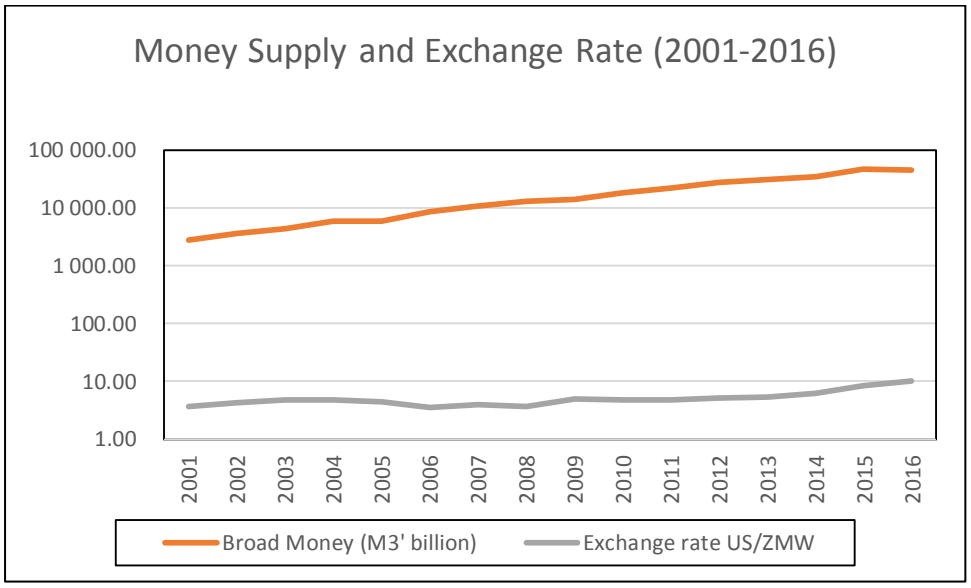
4.4 Discussion of Findings

4.4.1 Introduction

This section reflects on the main findings of the research in terms of its contributions to factors affecting money supply focusing on the extent to which independent variables (interest rates, exchange rates, treasury bills yield rates and bonds yield rates) affect money supply.

The Figure below shows the relationship between Money Supply and Exchange rate from 2001 to 2016

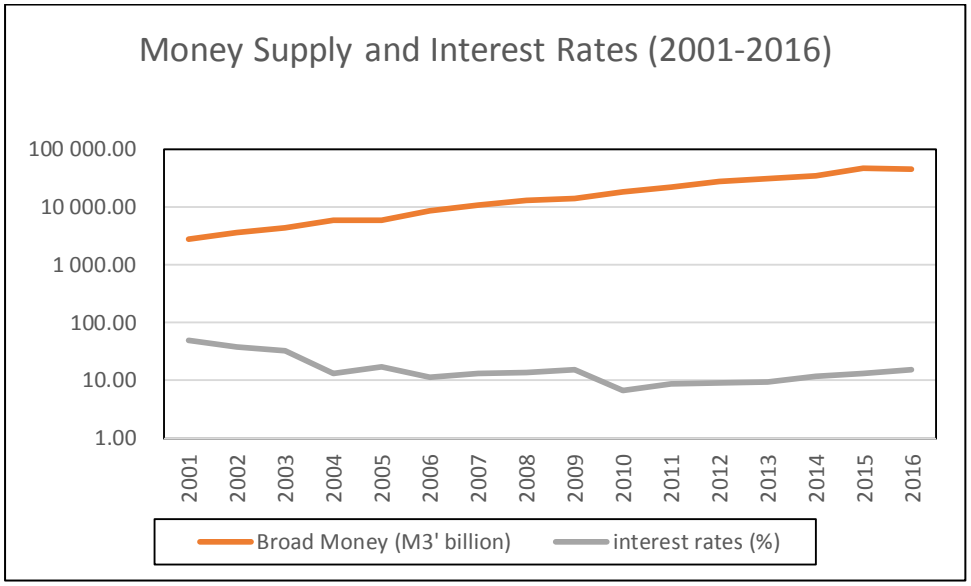
Chart 7. Correlation Money Supply and Foreign Exchange Rates (2001-2016)



The chart shows a positive relationship between money supply and exchange rates between 2001 and 2016. As money supply was increasing, the exchange rate also went up in the reference period. This is true according….. to that as money supply increases in the economy the exchange rate of the local currency depreciates while that of the foreign currency appreciates, or the price goes up. In this case, the Zambian Kwacha lost value to the United States Dollar, which went up.

The chart 8 below shows the relationship between Money Supply and Exchange rate from 2001 to 2016.

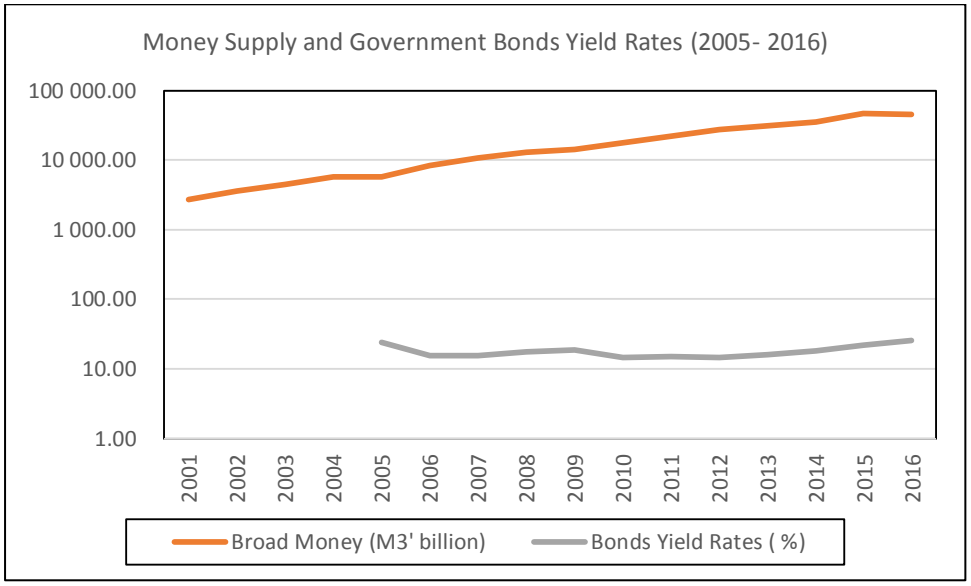
Chart 8. Money Supply and Interest Rates (2001-2016)



The results show that as money supply was increasing, interest rates were falling. This shows that there is a negative relationship between money supply and interest rates. This agrees to …. Who stated that……

The chart 9 below shows the relationship between money supply and government bonds yield rates from 2001 to 2016.

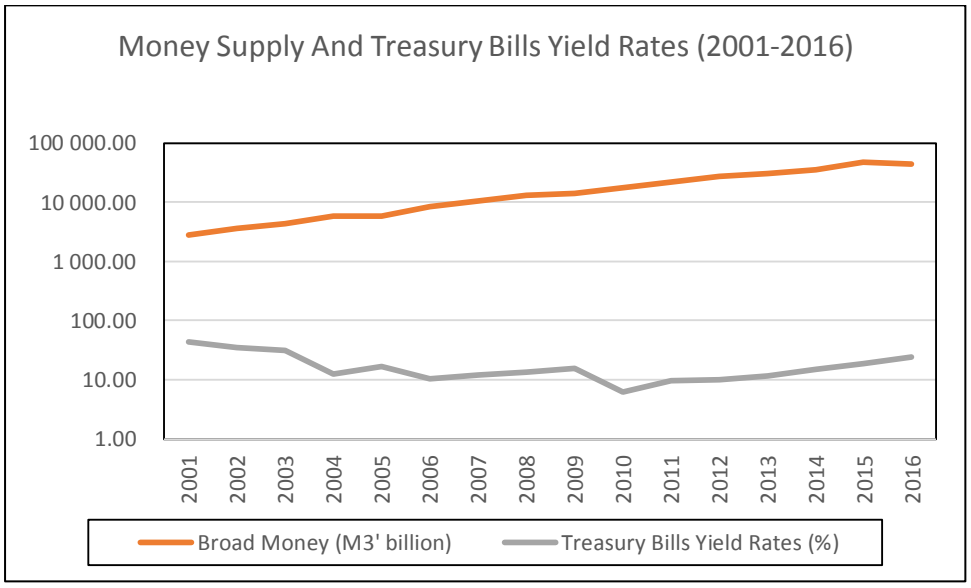
Chart 9. Money Supply and Government Bonds Yield Rates (2001-2016)



The results revealed that there is a positive relationship between money supply and government bonds yield rates. As money supply was increasing, yield rates on government bonds were increasing.

The 11 below shows the relationship between Money Supply and Treasury bills yield rates from 2001 to 2016.

Chart 10. Money Supply and Treasury Bills Yield Rates (2001-2016)



The results show that there is a negative relationship between money supply and the yield rates on Treasury Bills. As money supply surged up, the yield rates on treasury bills were falling. In 2015, there was a relative decline in money supply and an increase in yields rates on treasury bills due to the negative relationship that exists between the two variables.

4.5 Chapter Summary

The analysis and findings from data collected have been discussed, in order to answer the research questions and fulfil the research objectives. The research discovered that there is negative relationship between money supply and the yield rates on treasury bills and also on money supply and interest rates. The findings also revealed that there is a positive relationship between money supply and government bonds yield rates and money supply and exchange rates.

Following the analysis and findings, chapter five will provide conclusions and recommendations of the study.

CHAPTER FIVE

5.0 Conclusion and Recommendations

The intention of chapter four is to deliberate on findings of the study, which focussed on the effectiveness of the Bank of Zambia monetary policy. The statistical method of SPSS package was applied to analyse figures collected and to show main findings in form of charts and tables.

5.1 Period of statistics

The researcher mainly considered figures from 2001 to 2016, as reliable data from 1996 to 2000 could not be found. Data collected amounted to 16-year period, which was 80% of the needed data, instead of 20-year period. Most of the statistics were collected from the Bank of Zambia.

5.2 Introduction

The aim chapter five is to present a summary of the research outcome in form of conclusions and recommendations. The chapter will also show the degree to which research goals were delivered, at the same time put across recommendations drawn on the basis of conclusions made.

The research focussed three research objectives:

- **RO1**: Evaluate Impact of monetary policy on interest rates between 1996 and 2016. Mote (n.d, p. 15), articulated that interest rates are said to be fundamental elements in determining economic activity. With stable interest rates, savers offer a platform to investors to utilize surplus funds for investment.
- **RO2:** Evaluate Impact of monetary policy on exchange rates between 1996 and 2016.
- **RO3**: Evaluate Impact of monetary policy on government Securities yield rates between 1996 and 2016.

5.2 Research Findings Summary

- **5.2.1 RO1**: Evaluate Impact of monetary policy on interest rates between 1996 and 2016

  Findings revealed that there is a negative correlation between money supply and interest rates. As money supply increased, interest rates fell.

- **5.2.2 RO2:** Evaluate Impact of monetary policy on exchange rates between 1996 and 2016.

  Research findings showed that there is a positive relationship between money supply and exchange rates.
- **RO3**: Evaluate Impact of monetary policy on government Securities yield rates between 1996 and 2016.

  Findings of the research revealed that there is a negative relationship between money supply and the yield rates on treasury bills. The findings also revealed that there is a positive relationship between money supply and government bonds yield rates

5.3 Effects of Outcomes and Recommendations

The recommendations are that the bank of Zambia should continue with its current monetary policy implementation as it effectively influence the economy of the country in terms of price stability. The central bank should consider influencing prices in the economy using interest rates and treasury bills, to inject short liquidity and mop up surplus liquidity, because these tools have proven from this study to be more effective than other variables tested.

5.4 Study Limitations and Directions for Impending Research

Published and reliable data in relation to monetary policy from 1996 to 2003 could not be found. This impacted negatively on the research, as full analysis for a twenty-year period (1996-2016) could not be done.

5.5 Chapter Summary

Chapter five summarized research findings, conclusions and recommendations with all three research objectives answered. The research concluded that that there is negative relationship between money supply and the yield rates on treasury bills and also on money supply and interest rates. The findings also revealed that there is a positive relationship between money supply and government bonds yield rates and money supply and exchange rates. Following the analysis and findings, chapter five will provide conclusions and recommendations of the study.

References

Appendices