DECLARATION

I declare that this thesis is my original work and has not been submitted for any other award of a degree and published at any institution of higher learning.

.......................................................... ..........................................................
Uwanyirigira Enatha                              Date
1153-05026-01369
APPROVAL

This is to acknowledge that this work entitled “Monetary Policy and Financial Performance of Commercial Banks in Kigali, Rwanda” by Uwanyirigira Enatha, has been done under my supervision.

Date 07/11/2017

Dr. Emenike, O. Kalu
DEDICATION

I dedicate this thesis to my family members, and close friends; they have been very instrumental in my academic pursuit.
ACKNOWLEDGEMENTS

My sincere gratitude is accorded to the almighty God for the gift of life that He gave me throughout my studies.

I would like to acknowledge and extend my sincere and hearty gratitude to my supportive supervisor, Dr. Emenike, O. Kalu for his critical reviews, expert advice, and regular availability to me throughout the course of my research work.

I cannot forget my exemplary lecturers at the College of Economics and Management for their great assistance and excellent academic pieces of advice. I owe a special debt of gratitude to all of them.

I acknowledge the authors whose works have been cited in this study.

Finally, I also thank my parents, my relatives and friends for both their emotional and financial support. It is through them that I successfully completed this piece of work.
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<th>Full Form</th>
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<tr>
<td>BNR</td>
<td>National Bank of Rwanda</td>
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<td>CBR</td>
<td>Central Bank Rate</td>
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<td>CRR</td>
<td>Cash Reserve Ratio</td>
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<td>CRR</td>
<td>Cash Reserve Requirement</td>
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<tr>
<td>EAC</td>
<td>East African Community</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>IMF</td>
<td>International Monetary Fund</td>
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<tr>
<td>MPC</td>
<td>Monetary Policy Committee</td>
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<td>NIM</td>
<td>Net interest Margin</td>
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<td>NPL</td>
<td>Non-performing Loan</td>
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<tr>
<td>OLS</td>
<td>Ordinary Least-Squares</td>
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<tr>
<td>OMO</td>
<td>Open Market Operation</td>
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<td>ROA</td>
<td>Return on Assets</td>
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<tr>
<td>ROCE</td>
<td>Return on Capital Employed</td>
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<td>ROE</td>
<td>Return on Equity</td>
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<tr>
<td>RSE</td>
<td>Rwanda Security Exchange</td>
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<td>SLR</td>
<td>Statutory Liquidity Ratio</td>
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This study investigated the effect of monetary policy on the financial performance of commercial banks in Rwanda. The following objectives guided the study: i) to evaluate the effect of Central Bank's open market operations on the financial performance of Commercial Banks in Rwanda; ii) to examine the effect of Central Bank Rate (CBR) on the financial performance of Commercial Banks in Rwanda; and iii) to investigate the effect of Reserve Requirement ratio on the financial performance of Commercial Banks in Rwanda. The study adopted ex post facto research design. The data source was from annual report publications by the National Bank of Rwanda. Data was analysed using multiple regression model. The study found no significant effect of Central Bank's Open Market Operations on the financial performance of commercial banks in Rwanda ($p=0.200>0.05$). Similarly, the study found no significant effect of the central bank rate on the financial performance (Return on Assets) of commercial banks in Rwanda ($p=0.531>0.05$). In addition, the study found no significant effect of reserve requirement ratio on the financial performance (return on assets) of commercial banks in Rwanda ($p=0.605>0.05$). The study concluded that monetary policy has no significant effect on return of assets of commercial banks in Rwanda. The study made the following recommendations: the need for commercial banks not to keep excess reserve on which they can draw in the event of a restrictive monetary policy because it affects open market operations, the need for the monetary authorities to make efforts towards having a relative stability in the level of interest rate and the need for the central bank of Rwanda to make reserve requirement ratio a major fulcrum on which monetary policy would be based in order to improve the effectiveness of the monetary policy on the commercial banks.
CHAPTER ONE
INTRODUCTION

This chapter covered the background of the study, problem statement, purpose of the study, research objectives and question, scope of the study, and significance of the study.

1.1 Background of the Study
This section covered the historical perspective, theoretical perspective, conceptual perspective and contextual perspective.

1.1.1 Historical Perspective
Monetary policy is associated with interest rates and availability of credit. Instruments of monetary policy included short-term interest rates and bank reserves through the monetary base (Bordo, 2008). For many centuries there were only two forms of monetary policy: decision about coinage and decisions to create paper money to create credit. Interest rates, while now thought of as part of financial authority, were not generally coordinated with the other forms of monetary policy during this time. Monetary policy was seen as an executive decision, and was generally in the hands of the authority with the power to coin. With the advent of larger trading networks came the ability to set the price between gold and silver, and the price of the local currency to foreign currencies. This official price could be enforced by law, even if it varied from the market price (Bordo, 2008).

In 1694, Bank of England was created and acquired the responsibility to print notes and back them with gold, hence the idea of monetary policy as an independent executive action began to be established (Abdel-Monem, 2003). The goal of monetary policy was to maintain the value of the coinage, print notes which would trade at par to specie, and prevent coins from leaving circulation. The establishments of central banks by industrializing nations was associated then with the desire to maintain the nation’s peg to the gold standard, and to trade in a narrow band with other gold-backed currencies. To accomplish this end, central banks as part of the gold standard began setting the interest rates that they charged, both their borrowers and other banks who required liquidity (Abdel-Monem, 2003).
However, today, monetary policy take into account a wider range of factors such as short-term interest rates; long-term interest rates; velocity of money through the economy; exchange rates; credit quality; bonds and equities; government versus private sector spending/savings; international capital inflows of money on large scales; financial derivatives such as options, swaps, futures contracts (Sullivan & Steven, 2003). In recent years, Central Banks appear to have conducted prudent monetary policies in several countries. In such a context, the role of monetary policy as a stabilization policy is becoming more powerful and well determined. As argued by Blinder (2009), Central Banks have never been more powerful than now. Monetary policy has become the principal means of macroeconomic stabilization, and in most countries it is entrusted with the responsibility of an independent Central Bank.

The central bank influences interest rates by expanding or contracting the monetary base, which consists of currency in circulation and banks’ reserves on deposit at the central bank. Central banks have three main tools of monetary policy: open market operations, the discount rate and the reserve requirements. The most commonly used tool by which the central bank can affect the monetary base is by open market operations. This entails managing the quantity of money in circulation through buying and selling of various financial instruments, such as bills (Yellen, 2007).

A revised Central Bank statute underpinning the National Bank of Rwanda's independence in conducting the country's monetary policy was adopted in 1998/99 and a period between 2000/2001 was characterized by an enhanced structural adjustment facility program supported by IMF and World Bank. Based on this strategy, the macroeconomic objectives included an annual average real Gross Domestic Product (GDP) growth of 8 percent a year during the period 1998-2000; and a reduction in inflation to 5 percent by end 1999. In the period 1999-2002, the macroeconomic objectives were to achieve an annual real GDP growth of 6%, while keeping inflation at or below 3%. In such program, the monetary policy played a central role in producing macroeconomic stability. It stated that monetary and credit policies would aim at further reducing the rate of inflation, and the authorities would continue to monitor development in both reserve money and broad money closely (IMF, 2009).
What is clear from the Rwandan Central Bank behavior is that an achievement of the inflation target seems to be a fundamental goal of the monetary authority. On the basis of all the macroeconomic objectives mentioned above, Rwandan monetary authorities seem to assess the performance of monetary policy rules in terms of their effect on inflation and output. Such an assessment can be based on a situation in which the Central Bank refers to an equation, which is intended to establish the goal that has actually been influencing the actions of the Central Bank. One could interpret such behavior as being approximated by a particular rule referred to as the Taylor rule. In such a rule, monetary policy is adjusted in response to the deviation of inflation from its target value and the deviation of output from potential (IMF 2011).

More than a decade and half years have passed since the monetary policy was given a central role in maintaining macroeconomic stability and a new statute has provided rule for monetary policy objectives and Central Bank independence. Enough observations have become available to perform an assessment of the Rwanda Central Bank’s conduct of monetary policy based on choosing a rule and then using a model of the economy to examine how the economy would have behaved under the rule (IMF 2011).

In addition to the above, the Government of Rwanda recognizes that the commercial banks’ ability to play its role in mobilizing savings, conducting effective intermediation and financing its ambitious economic reform agenda is still far from achievable because of financial sector emerging challenges that need to be addressed in the Economic Development and Poverty Reduction Strategy II (EDPRS II). According to Rwanda Ministry of Finance (2013), Rwandan commercial banks face a challenge of low domestic savings estimated at 5% of Gross Domestic Product (GDP) which is lower than 10% when compared to the benchmark countries like Vietnam and Malaysia. There are many reasons for Rwanda’s low savings rates including low saving culture, low levels of financial literacy, limited and unattractive savings products, and low incomes which translate into low savings.

The Rwanda Ministry of Finance and Economic Planning (2015) report also indicated that one of the key challenges facing Rwanda’s commercial banks’ finance performance is the mobilization of long-term stable financing. Rwanda’s capital market is small and
underdeveloped to enable public and private sector accessing long term financing. In terms of Market depth/breadth, the Rwanda capital market offers limited securities and products compared to other East Africa Countries (EAC), equity investments dominate other asset classes such as sovereign and municipal bonds, corporate bonds, and other convertible investments. The listings on Rwanda Security Exchange (RSE) are still limited. Since the establishment of the capital market, there has been no issuance of municipal bonds, infrastructure, commercial paper and real estate investment trust. This study therefore investigated the impact of monetary policy on the performance of commercial banks in Rwanda.

1.1.2 Theoretical Perspective

This study was the following theories: Loanable Funds Theory (Bibow, 2000); Credit Market Theory Ewert et al. (2000); and New Keynes Model, Keynes (1936).

Under the loanable Funds theory of interest, the rate of interest is calculated on the basis of demand and supply of loanable funds present in the capital market. The loanable funds theory of interest advocates that both savings and investments are responsible for the determination of the rates of interest in the long run while short-term interest rates are calculated on the basis of the financial conditions prevailing in an economy. The determination of the interest rates in case of the loanable funds theory of the rate of interest depends on the availability of loan amounts. The availability of such loan amounts is based on factors like the net increase in currency deposits, the amount of savings made, willingness to enhance cash balances and opportunities for the formation of fresh capitals (Bibow, 2000).

On the other hand, Credit Market Theory by Ewert et al. (2000) postulates that the terms of credits clear the market, that is, if collateral and other restrictions (covenants) remain constant, the interest rate is the only price mechanism. With an increasing demand for credit and a given customer supply, the interest rate rises, and vice versa. It is thus believed that the higher the failure risks of the borrower, the higher the interest premium (Ewert et al, 2000).

Last but not least, the New Keynes Model (1936) posits that if most shocks to the economy are aggregate demand shocks or permanent aggregate supply shocks, then
policy that stabilizes inflation will also stabilize economic activity, even in the short run. If temporary supply shocks are more common, then a central bank must choose between the two stabilization objectives in the short run; In the long run there is no conflict between stabilizing inflation and economic activity in response to shocks.

1.1.3 Conceptual Perspective
Monetary policy refers to the combination of measures designed to regulate the value, supply and cost of money in an economy (Chowdhury, Hoffman & Schabert, 2013). It can be described as the art of controlling the direction and movement of credit facilities in pursuance of stable price and economic growth in an economy (Loayza, and Schmidt-Hebbel, 2011). Put differently, Monetary policy refers to the actions of the Central Bank to regulate the money supply which could be through discrentional monetary policy instruments such as the open market operation (OMO), discount rate, reserve requirements, moral suasion, direct control of banking system credit, and direct regulation of interest rate (Ajayi, and Atanda, 2012). Monetary policy in this study was operationalized as open market operations, Central Bank Rate, and Reserve requirement ratio.

Financial performance is defined by Pandy (2010) as a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues. This term is also used as a general measure of a firm’s overall financial health over a given period of time, and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation. Wedhon (2014) defines financial performance as the level of performance of a business over a specified period of time, expressed in terms of overall profits and losses during that time. In this study, financial performance was operationalized using return on assets.

1.1.4 Contextual Perspective
According to National Bank of Rwanda (2015) report, there was a sound banking system, however, there were slight changes in the banking sector performances in the first quarter of 2015 compared to the fourth quarter of 2014 and generally, the little movements observed were mixed. On one hand, a slight improvement was observed in liquidity ratio, return on average assets (ROA), and return on average equity (ROE) whereas earning
assets ratio, Non-performing loans ratio, credit risk due to large exposure, foreign exchange exposure to capital ratio assets recorded a marginal decline.

The National Bank of Rwanda (2015) report further revealed that despite the resulting decline of earning assets to total assets ratio, the profitability indicators improved in the first quarter of 2015 compared to the fourth quarter of 2014 as ROA increased to 2.6% whereas ROE improved to 14.0% from 10.7% in the fourth quarter of 2014. This profitability of the banking sector was positively revamped by slightly lower cost incurred by banks in the first quarter of 2015.

The National Bank of Rwanda (2015) report also revealed that the capital adequacy ratio was above the BNR prudential benchmark of 15% with a record of 25.9% in the first quarter of (2015Q1) from 24.2% in 2014Q4. This indicates that the Rwandan banking system is resiliently growing to a greater level to absorb unexpected losses to their balance sheets before becoming insolvent. Regarding banks’ assets quality in 2015Q1, the ratio of earning assets to total assets reduced reaching 79.3% from 93.1% in 2014Q4 whereas the ratio of non-performing loans to total loans slightly increased to 6.3% from 6.0% in 2014Q4, and were still suspended above the benchmark of 5%. The concentration of credit risks increased as the large exposures to gross loans ratio raised to 19.3% from 17.7% in 2014Q4. Meanwhile, this pose less threat as may be mitigated by quite higher level of provision either for NPLs or by lower level of NPLs ratio in some banks. The ongoing increase in ratio of provisions to non-performing loans reduced to 52.3% from 56.8% in 2014Q4, which is in line with strong growth and improving quality in the banking sector assets that facilitates banks to reduce this cost of holding more provisions. This study investigated the effect of central bank monetary policy on the financial performance of commercial banks in Rwanda.

1.2 Statement of the Problem

According to a report by the Ministry of Finance and Economic Planning (MINECOFIN, 2015), Rwanda commercial banks are faced with a challenge of poor financial performance due to low domestic savings estimated at 5% of GDP which is lower than 10% when compared to the benchmark countries like Vietnam and Malaysia. There are many reasons for Rwanda’s low savings rates including low saving culture, low levels of financial literacy, limited and unattractive savings products, and low incomes which
translate into low savings (MINECOFIN, 2015). This therefore implies that with poor savings culture, the return on assets, return on equity, and non-performing loans of commercial banks are greatly affected. Furthermore, several studies on the effect of monetary policy on financial performance of commercial banks have been done by Younus and Akhta (2009), Gul et al. (2011), Syafri (2012), Ongore and Kusa (2013), Kimani (2013), Udeh (2015), and Cekrezi (2015) in and outside Africa; however, none of these studies were done in Rwanda. It is against this background that this study investigated the effect of monetary policy on the financial performance of commercial banks in Rwanda.

1.3 Purpose of the Study

The purpose of this study is to determine the effect of monetary policy on the financial performance of commercial banks in Rwanda.

1.4 Objectives of the Study

i. To evaluate the effect of Central Bank’s open market operations on the financial performance of Commercial Banks in Rwanda.

ii. To examine the effect of Central Bank Rate (CBR) on the financial performance of Commercial Banks in Rwanda.

iii. To investigate the effect of Reserve Requirement ratio on the financial performance of Commercial Banks in Rwanda.

1.5 Research Questions

i. What is the effect of Central Bank’s open market operations on the financial performance of Commercial Banks in Rwanda?

ii. What is the effect of Central Bank Rate (CBR) on the financial performance of Commercial Banks in Rwanda?

iii. What is the effect of Reserve Requirement ratio on the financial performance of Commercial Banks in Rwanda?
1.6 Hypotheses

H01: There is no significant effect of Central Bank’s open market operations on the financial performance of Commercial Banks in Rwanda.

H02: There is no significant effect of Central Bank Rate (CBR) on the financial performance of Commercial Banks in Rwanda.

H03: There is no significant effect of Reserve Requirement ratio on the financial performance of Commercial Banks in Rwanda.

1.7 Scope of the Study

1.7.1 Geographical Scope

This study was conducted among the commercial banks in Rwanda. Rwanda has nine commercial banks and they include: Access Bank Rwanda, Bank of Kigali, Banque Populaire du Rwanda SA (BPR), Commercial Bank of Africa (Rwanda), Compagnie Générale de Banque (Cogebanque), Crane Bank Rwanda, Ecobank, Equity Bank (Rwanda), Guaranty Trust Bank (Rwanda), I&M Bank (Rwanda), Development Bank of Rwanda (BRD), Kenya Commercial Bank, and Urwego Opportunity Bank (UOB). The study chose the commercial Banks in Kigali because all commercial banks have their headquarters in Kigali which is the capital of Rwanda.

1.7.2 Theoretical Scope

This study was guided by the following theories. Loanable Funds Theory (Bibow, 2000); Credit Market Theory Ewert et al. (2000); and New Keynes Model, Keynes (1936).

1.7.3 Content Scope

The study was confined to monetary policy (independent variable). In Rwanda’s context, monetary policy is measured using open market operations, Central Bank Rate, and reserve requirement ratio. Furthermore, this study reviewed the financial performance (dependent variable) of commercial banks in terms of return on assets. In addition to that, the effect of open market operations, central bank rate and reserve requirement ratio on the financial performance of commercial banks was also established. The researcher choice to measure monetary policy using open market operations, central bank rates and
reserve requirement ratio because they are the ones used by the National Bank of Rwanda.

1.7.4 Time Scope
This study reviewed a period of 15 years, that is, from 2000-2015. This is because most commercial banks in Rwanda are still new and only a few of them have been operating for more than 15 years in the country, if a period expanding to more than 15 years is included, most commercial banks will be left out since they do not have financial statements expanding to more than 15 years. Furthermore, it is during this period that several reforms in the financial sector were effected. For example the Policy Support Instrument that the country has been implementing since 2010 with the support of the international community, notably the IMF and World Bank.

1.8 Significance of the Study
While this study may be of value to any person interested in monetary policies, it is anticipated that its findings will specifically benefit the following groups of people.

Investors will be in a position to utilize the research findings and recommendations from the study to forecast the financial performance of Commercial Banks and rebalance their portfolios accordingly given the changes in monetary policy tools.

The study will also enlighten management teams of commercial banks on the short-term and long-term effects of the monetary policy implementations by the Central Bank. This will greatly help them in designing the risk management measures to employ given anticipated changes in monetary policies.

The study is expected to contribute to the existing literature in the field of monetary policies. Future scholars can use this research as a basis for further research in the area of monetary policy theories.

1.9 Operational Definition of Terms

Monetary policy refers to the actions of the Central Bank to regulate the money supply, which could be through discretionary monetary policy instruments such as the open market operation, discount rate, reserve requirements, moral suasion, direct control of banking system credit, and direct regulation of interest rate.
Financial performance refers to the level of performance of a business over a specified period of time, expressed in terms of overall profits and losses during that time.

Open market operation: refers to the purchase and sale of short term and long term securities by the central bank in the open market.

Central bank rate: refers to the standard rate at which the bank is prepared to buy or rediscount bills of exchange or other commercial paper eligible for purchase under the central bank Act.

Reserve Requirement Ratio: refers to the percentage of commercial bank's net demand and time liabilities which commercial banks have to maintain with the central bank.

Return on Assets: refers to the percentage which measures the net income earned on the assets of a banking institution.
2.0 Introduction
This chapter covers the literature from different publications and authors regarding the subject matter. The chapter is sub-divided into theoretical review, conceptual framework and review of related literature.

2.1 Theoretical Review
This study was guided by the following theories: Loanable Funds Theory (Bibow, 2000); Credit Market Theory Ewert et al. (2000); and New Keynes Model, Keynes (1936).

2.1.1 Loanable Funds Theory
This study was guided by the Loanable Funds Theory by (Bibow, 2000). Under the loanable Funds theory of interest, the rate of interest is calculated on the basis of demand and supply of loanable funds present in the capital market. The loanable funds theory of interest advocates that both savings and investments are responsible for the determination of the rates of interest in the long run while short-term interest rates are calculated on the basis of the financial conditions prevailing in an economy. The determination of the interest rates in case of the loanable funds theory of the rate of interest depends on the availability of loan amounts. The availability of such loan amounts is based on factors like the net increase in currency deposits, the amount of savings made, willingness to enhance cash balances and opportunities for the formation of fresh capitals (Bibow, 2000).

The nominal rate of interest is determined by the interaction between the demand and supply of loanable funds. Keeping the same level of supply, an increase in the demand for loanable funds would lead to an increase in the interest rate and the vice versa. An increase in the supply of loanable funds would result in fall in the rate of interest. If both the demand and supply of the loanable funds change, the resultant interest rate would depend much on the magnitude and direction of movement of the demand and supply of the loanable funds. The demand for loanable funds is derived from the demand from the final goods and services which are again generated from the use of capital that is financed
by the loanable funds. The demand for loanable funds is also generated from the government (Bernake, 2000).

This study adopted the Loanable Funds Theory because of the Rate of Interest which has similarity with the Liquidity-Preference Theory of Interest in the sense that both of them identify the significance of the cash balance preferences and the role played by the banking sector to ensure security of the investment funds. Wray (1992) in his work titled alternative theories of the Rate of Interest criticizes the liquidity preference theory by pointing out that the rate of interest is not purely a monetary phenomenon. Real forces like productivity of capital and thriftiness or saving by the people also play an important role in the determination of the rate of interest which is ignored by the Keynes liquidity preference theory. Wray adds that liquidity preference is not the only factor governing the rate of interest. There are several other factors which influence the rate of interest by affecting the demand for and supply of investible funds. The liquidity preference theory does not explain the existence of different rates of interest prevailing in the market at the same time. He further notes that Keynes ignores saving or waiting as a means or source of investible fund. To part with liquidity without there being any saving is meaningless. The Keynesian theory only explains interest in the short-run and gives no clue to the rates of interest in the long run. He finally says that Keynes theory of interest, like the classical and loanable funds theories, is indeterminate as one cannot know how much money will be available for the speculative demand for money unless they know how much the transaction demand for money is.

2.1.2 Credit Market Theory

This study was also guided by Credit Market Theory by Ewert et al. (2000). A model of the neoclassical credit market postulates that the terms of credits clear the market. If collateral and other restrictions (covenants) remain constant, the interest rate is the only price mechanism. With an increasing demand for credit and a given customer supply, the interest rate rises, and vice versa. It is thus believed that the higher the failure risks of the borrower, the higher the interest premium (Ewert et al, 2000).

The increase in demand for credit brought about by low interest rates eventually may lead to depreciation of currency. Central bank therefore must adjust the interest rate to increase
the cost of borrowing. Commercial banks in their turn must increase their rates and therefore lending is lowered as credit becomes expensive (Ewert et al, 2000).

According to Haugen (2015), the basics of lending are to provide a loan today and get it repaid, usually with an interest rate, sometime in the future. This natural time delay in a debt contract, as compared to an instant exchange of two goods, makes lending potentially risky. A credit contract involves a promise of future payments. Unless the provider of credit can ensure that this promise is kept in the future, there will always be a risk that the promise is not kept, and hence, repayment can fail. In formal credit markets in well-developed countries these problems are largely overcome by strong legal enforcement in combination with some kind of collateral and information databases where information about individuals’ creditability is stored and equally available for all lenders. In developing countries such devices are not readily available and formal lending institutions are usually not willing to lend to poor individuals who are landless and with an unknown credit history (Haugen, 2015).

2.1.3 New Keynes Model
This study was lastly guided by the New Keynes Model (1936) which posits that if most shocks to the economy are aggregate demand shocks or permanent aggregate supply shocks, then policy that stabilizes inflation will also stabilize economic activity, even in the short run; If temporary supply shocks are more common, then a central bank must choose between the two stabilization objectives in the short run; In the long run there is no conflict between stabilizing inflation and economic activity in response to shocks.

Keynes (1936) however points out that sometimes the negative aggregate demand shock is so large that at some point the central bank cannot lower the real interest rate further because the nominal interest rate hits a floor of zero. In this situation when the zero-lower-bound problem arises, the central bank must turn to nonconventional monetary policy. Knight (1937) advised that monetary policy should try to minimize the difference between inflation and the inflation target; in the case of both demand shocks and permanent supply shocks, policy makers can simultaneously pursue price stability and stability in economic activity. Following a temporary supply shock, however, policy makers can achieve either price stability or economic activity stability, but not both. This tradeoff poses a dilemma for central banks with dual mandates.
The principle of effective demand in Keynes’s monetary analysis reveals the narrow and tacit special assumptions that support the belief in neutral money and efficient financial markets. Of particular current concern is the role that real analysis plays in deflecting attention away from the central banks’ role in maintaining financial stability. The central bank, as the monopoly supplier of ‘green cheese’ is the only institution that can provide the necessary ‘green cheese’ in a crisis. Consequently, if it is to avoid being drawn into creating moral hazard and facilitating fragility in financial markets it must have some responsibility and therefore some instrument(s) for maintaining financial market stability.

There is growing recognition that monetary policy must again be extended in that direction. The process will be better understood and the right medicine delivered if the perspective of Keynes’s monetary analysis is adopted. There is nothing to lose by taking this step as it requires a general monetary analysis perspective that will remove many of the distortions in economists’ thinking induced by the use of real analysis.
2.2 Conceptual framework

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Source, adapted from: Irankunda (2014), Wedhon (2014)

Figure 1: conceptual framework showing the relationship between bank monetary policy and financial performance of commercial banks in Kigali, Rwanda

The monetary policy (independent variable) was measured using open market operations, central bank rate, and reserve requirement; while financial performance (dependent variable) was measured using return on assets. The effect of monetary policy on financial performance of the commercial banks is that when the central bank increases its bank rates, commercial banks are forced to increase their interest rates hence discouraging the local masses from borrowing hence affecting their financial performance and the reverse is true. Furthermore, if the central bank through open market operations sells to the commercial banks, it forces them to buy it hence causing a transfer of money from the commercial banks to the central bank. This implies that the commercial banks will not be able to invest in other business entities hence affecting their financial performance in terms of return on assets. Similarly, as a way of maintaining reserve requirement and liquidity of the commercial banks, they end investing in different assets hence causing an increase in return on assets.

2.3 Review of Empirical Studies

2.3.1 Monetary Policy

Central bank according to Acocella et al. (2012) is an institution that manages a State’s currency, money supply, and interest rates. Central banks usually oversee the commercial banking system of their respective countries. The primary function of a central bank is to control the nation’s money supply (monetary policy) through active duties such as managing interest rates, setting reserve requirement and acting as a lender of last resort to
during times of bank insolvency or financial crisis. The National Bank of Rwanda implements the monetary policy through three tools: Open market operations; Bank rate; and reserve requirement.

A Commercial bank is a type of Bank / Financial Institution that provides services such as accepting deposits, making business loans, and offering basic investment products (Khambata, 2011). Commercial bank can also refer to a bank, or a division of a large bank, which more specifically deals with deposit and loan services provided to corporations or large/middle-sized business - as opposed to individual members of the public/small business - Retail banking, or Merchant banks (Matyszak, 2017).

According to Loayza & Schmidt (2012), monetary policy comprises the formulation and execution of policies by the central bank to achieve the desired objective or set of objectives; the policies and decisions are aimed at guiding bank lending rates to levels where credit demand and money growth are at a level consistent with aggregate supply elasticity. Loayza & Schmidt (2012) adds that the objectives and goals that the central bank seeks to achieve generally are low inflation (usually targeted), protection of value of currency, full employment and sustainable economic output (economic growth).

Faure (2010) however, argues that the monetary policy covers the monetary aspect of the general economic policy which requires a high level of co-ordination between monetary policy and other instruments of economic policy of the country. Faure (2010) goes on to add that the effectiveness of monetary policy and its relative importance as a tool of economic stabilization varies from one economy to another, due to differences among economic structures, divergence in degrees of development in money and capital markets resulting in differing degree of economic progress, and differences in prevailing economic conditions.

Bordo (2012) argues that the instruments of monetary policy are of two types: first, quantitative, general or indirect; and second, qualitative, selective or direct. They affect the level of aggregate demand through the supply of money, cost of money and availability of credit. Of the two types of instruments; Bordo (2012) says that the first category includes bank rate variations, open market operations and changing reserve requirements. They are meant to regulate the overall level of credit in the economy
through commercial banks. The selective credit controls aim at controlling specific types of credit. They include changing margin requirements and regulation of consumer credit.

Irankunda (2014) in her report, however, point out that the National Bank of Rwanda (BNR) implements a monetary targeting regime using the broad monetary aggregate (M3) as an intermediate target to achieve the objective of price stability. In other words, the transmission mechanism of monetary policy sets out from the quantity of monetary base (B) as an operational target and moves towards inflation through the money supply (M3). In formulating its monetary policy, BNR sets M3 growth targets in line with targets on inflation and economic growth and an estimated money demand in the economy. According to Nibeza and Tumusherure (2015), a set of policy instruments are at the disposal of the Central Bank to achieve these targets; in Rwanda, those instruments include: money market operations, reserve requirement ratios and foreign exchange sales or key repo rate.

Folawewo and Osinubi (2006) opined that monetary policy is a combination of measures designed to regulate the value, supply and cost of money in an economy, in consonance with the expected level of economic activity. For most economies, the objectives of monetary policy include price stability, maintenance of balance of payments equilibrium, promotion of employment and output growth, and sustainable development. These objectives are necessary for the attainment of internal and external balance, and the promotion of long-run economic growth.

According to Folawewo and Osinubi (2006), there are two major control mechanisms of monetary policy used by Central Banks at any point in time and these control mechanisms are usually referred to as tools/instruments of monetary policy and they have effects on the proximate targets. Monetary instruments can be direct or indirect. The direct instruments include aggregate credit ceilings, deposit ceiling, exchange control, restriction on the placement of public deposit, special deposits and stabilization securities while indirect instruments include Open Market Operation (OMO), cash reserve requirement, liquidity ratio, minimum discount rate and selective credit policies. Monetary policy has vital roles in the short-run i.e. it is used for counter-cyclical output stabilization, while in the long run; it is used to achieve the macro-economic goals of full employment, price stability, rapid economic growth and balance of payments equilibrium.
Macroeconomists have established the theoretical relationship between real output and monetary policy measures. According to the Keynesians school of thought, a discretionary change in money supply permanently influences real output by lowering the rate of interest and through the marginal efficiency of capital, stimulate investment and output growth (Athukorala, 1998). In contrast to Keynesian policy prescription, McKinnon (1973) and Shaw (1973) in their hypothesis of finance led growth advocated that market force induced higher interest rate, would enhance more investment by channeling saving to productive investment and stimulate real output growth such as the manufacturing sector.

Monetary policy is one of the prime economic management tools that governments use to shape economic performance. Measured against fiscal policy, monetary policy is said to be quicker at resolving economic shocks. Uniamikogbo and Enoma (2001), observes that monetary policy objectives are concerned with the management of multiple monetary targets among them price stability, promotion of growth, achieving full employment, smoothing the business cycle, preventing financial crises, stabilizing long-term interest rates and the real exchange rate.

2.3.2 Financial Performance
Financial performance is the conclusion drawn from financial analysis of a firm. Financial analysis is the selection, evaluation, and interpretation of financial data, along with other pertinent information, to assist in investment and financial decision-making. Financial analysis may be used internally to evaluate issues such as employee performance, the efficiency of operations, and credit policies, and externally to evaluate potential investments and credit-worthiness of borrowers, among other things (Mary, 2015). Financial performance is subjective of how well a firm uses its assets from its primary mode of business to generate revenue. This term is also a general measure of the firm’s overall financial health over a given period of time and can be used to compare industries or sectors in aggregation (Hales, 2005).

Some of the key aspect that is looked at in financial performance is profitability, liquidity, solvency, financial efficiency and repayment capacity. Further analysis of financial performance uses methodologies such as financial ratio analysis, benchmarking, measuring performance against budget or a combination of these (Liargovaset al. 2008).
Dess & Robinson (1984) performed a study that compared subjective measures to objective measures of profitability. They used a three-step approach to test the correlation between objective and subjective measures of return on assets (ROA), sales growth, and overall financial performance. Both objective and subjective measures of the ROA and sales growth were used in addition to two measures of overall financial performance. The measures of overall financial performance were compared to the objective and subjective ROA and sales growth.

Dess and Robinson (1984) found that a firm’s subjective perceptions of how well it had done over a specific time period were in agreement with the objective measures of change in return on assets and sales. They were also in agreement with the firm’s subjective evaluation of overall financial performance. Finally, it will be stated that subjective performance measures were probably the most appropriate for examining relative performance within an industry (Dess & Robinson, 1984).

Some of the key aspects that are looked at in financial performance are profitability, liquidity, solvency, financial efficiency, and repayment capacity. Further analysis of financial performance uses methodologies such as financial ratio analysis, benchmarking, measuring performance against budget or a combination of these (Barnet et al, 2006). Profit is the ultimate goal of a firm. To measure the profitability, there are various ratios used of which Return on Asset, Return on Equity, and Net Interest Margin are the major ones (Murthy & Sree, 2003).

ROA is a major ratio that indicates the profitability of a bank. It is a ratio of income to its total assets (Khrawish, 2011). It measures the ability of an organization’s management to generate income by utilizing company assets at their disposal. Net Interest Margin (NIM) is a measure of the difference between the interest income generated by banks and the amount of interest paid out to their enders, relative to the amount of assets. It is usually expressed as a percentage of what the financial institution earns on loans in a specific time period and other assets minus the interest paid on borrowed funds divided by the average amount of the assets on which it earned income in that time period (the average earning assets). ROE is a financial ratio that refers to how much profit a company earned compared to the total amount of shareholder equity invested or found on the balance sheet. ROE is what the shareholders look in return for their investment. Return on Assets
(ROA) is the ratio of Net Income after Taxes divided by Total Assets. The ROA signifies managerial efficiency. In other words it depicts how effective and efficient the management of banks has been as they seek to transform assets into earnings. A higher ratio indicates a higher performance of the banks. It is a useful tool for comparing profitability of one bank with other or the whole commercial banking system. Moreover, the ROE is said to measure the rate of return on the bank's shareholders equity and it is calculated by dividing banks net income after taxes by total equity capital which includes common and preferred stock, surplus, undivided profits, and capital reserves.

A number of prior studies have measured performance using both financial and market criteria, including return on investment (ROI), market share, profit margin on sales, the growth of ROI, the growth of sales, the growth of market share, and overall competitive position (Stock et al., 2010; and Li et al., 2012). Measuring and evaluating the financial performance of a business allows decision-makers to judge the results of business strategies and activities in objectivemonetary terms (Vickery et al., 2011).

Size-profit relationship for the firms functioning in the financial services sector was tested by Amaton and Burson (2007). They tested both linear and cubic form of the relationship. Even though a negative influence of firm size on profitability was revealed with the linear specification in firm size, evidence of a cubic relationship was detected between return on assets and firm size.

Becker et al. (2010) studied the effects of firm size on profitability in the firms operating in manufacturing sector in USA using the data of years 1987 to 2002. Results of the study showed that negative and statistically significant relations exist between the total assets, total sales and number of employees of the firms and their profitability.

Velnampy (2005) pointed a study on investment appraisal and profitability of toddy bottling project in Sri Lank which found that the management of the project failed to attain the budgetary results, even though the Net Present Value (NPV), Internal Rate of Return (IRR) and benefit cost ratio showed the project as commendable.

Velnampy (2006) studied the financial position of the companies and the relationship between financial position and profitability with the sample of 25 public quoted companies in Sri Lanka through the use of Altman Original Bankruptcy Forecasting
Model. According to his verdicts, out of 25 companies only 4 companies were in the danger of going bankrupt in the near future. Moreover, he also found that in deciding the financial position of the quoted companies, earning/total assets ratio, market value of total equity/book value of debt ratio and sales/total assets in times were the most significant ratios.

Banchuenvijit (2012) studied factors affecting performances of the firms operating in Vietnam. A positive relation has been found between total sales and profitability of the firms but on the contrary, a negative relation has been found between profitability and total assets. Additionally, the author found statistically on-significant results between number of employees and profitability.

Velnampy and Nimalathasan (2010) studied the relationship between firm size and profitability of all the branches of Bank of Ceylon and Commercial Bank in Sri Lanka over the period of 10 years from 1997 to 2006. They observed that there was a positive relationship between firm size and profitability in Commercial Bank, but there was no relationship between firm size and profitability in Bank of Ceylon.

Velnampy (2013) discovered that there was no correlation between corporate governance and firms’ performance measures. The sample of 28 manufacturing companies using the data representing the period of 2007 to 2011 revealed that the determinants of corporate governance were not correlated to the performance measures of the organization.

Kabajeh et al. (2012) examined the relationship between ROA, ROE and ROI ratios together and separately with Jordanian insurance public companies share prices. They used four regression models to test the hypotheses of the study; and found that the pooled analysis of the three ratios of ROA, ROE and ROI together indicated a strong and positive relationship with share prices, and a strong explanatory power. They also found that the separated pooled analysis showed a positive but low relationship between each of ROA and ROI ratios with market share prices. However, they found no relationship between the separated pooled analysis and the ROE ratio with market share prices.

Dehuan and Zhenhu (2008) explored correlation between firm performance as measured by return on equity, earning per share, profit margin, return on asset, changes in sales, and total asset turnover) and stock price of the top performing stocks listed on Shanghai Stock
Exchange, and found that all the variables are significantly correlated with stock price in the year before crisis.

Tondee and Boonmunewai (n.d.), examined the factors affecting the stock price of listed companies in agricultural industry and the food industry group in the stock Exchange of Thailand. Their findings showed that, internal factors in the aspect of return on assets (ROA), return on equity (ROE), and price to book ratio (P/BV) have more positive effect on stock price of listed companies on agricultural industry and the food industry group.

Porter (2005) analysed 31 industries and found that investment returns are highly correlated with the industry portfolio returns. In addition, it was found that the portion of investment returns orthogonal to equity returns is associated positively with changes in profitability and negatively with lagged differences between equity and investment returns.

Circiumaru et al. (2010) studied a sample of 73 Romanian companies and analysed if the return on sales (ROS), the asset turnover and the financial leverage impact return on equity (ROE) by employing regression analysis. A correlation between ROS and ROE was found, however it was not observed that ROS impacts ROE. Empirical results by Kim and Kim (2010) found that there is a significant mutual Granger causality between equity returns and equity fund flows. By introducing the dividend yield effect, significant Granger causality is also found among the three variables.

Ahmad et al (2013) explore the co-determinants of capital structure and stock return of 100 non-financial companies in the Karachi stock exchange (KSE) over the period (2006-2010). The results show that stock return and leverage affect each other, while liquidity, growth and profitability have a significant effect on both leverage and stock return. The relationship between profitability and financial leverage is negative but it affects the stock return positively, there is a positive impact of growth on leverage and stock return, but there is a negative relationship between liquidity and both financial leverage and stock return, finally, the size of the firm has insignificant relationship with financial leverage and stock return.

Acheampongetal.(2014) examined the impact of market size and financial leverage on stock return of five companies in manufacturing sector in Ghana for the period (2006-
The results show a significant and negative impact of financial leverage on stock return and a positive and significant impact of the firm's size on stock return. In addition, there is a direct relationship between the size of tradable shares and stock liquidity; tradable shares have a stronger size effect than the non-tradable shares. For a given level of leverage, small companies generate higher returns than larger ones, and with higher decrease of leverage this effect increases. There is decreasing stock-price sensitivity to leverage for large companies, because of the large market capitalization and highly levered firms; the size effect on stock returns is limited and very small.

2.3.2.1 Return on Assets

Return on Assets (RoA) Ratio is defined by Mustefa (2014) as a percentage (%), which measures the net income earned on the assets of a banking institution. Simply put, it measures how well the institution uses all its assets.

According Prastowo (2002), Return on Assets (ROA) is used to measure the effectiveness of the company in generating profits by exploiting its assets. This ratio may give an indication of good or bad neighbour management in implementing cost control or management of his property. Return on Assets (ROA) is often used as a tool to measure the rate of return on total assets after interest expense and taxes (Brigham, 2005). The high Return On Assets (ROA) will be good for the company. According to Riyanto (2001), Return on Assets (ROA) is a financial ratio used to measure the degree to which the assets have been used to generate profits. The greater Return on Assets (ROA) shows that the better the company's performance, because of the greater rate of return on investment.

According to Pandey (2010), RoA is an overall measure of profitability that reflects both the profit margin and the efficiency of the institution. For calculating this Ratio, average total assets are used, rather than performing assets. This is because, the entire organisation is being measured on its total financial performance, including decisions made to purchase fixed assets or invest in land and buildings (in other words, using funds that could be used for other revenue-generating investments), or invest in securities.

Richard, Devinney, and Johnson (2013) argue that analysis of this Ratio will improve the ability of a banking institution to determine the revenue impact of policy changes,
improved delinquency management, or the addition of products. Return on assets reflects how much has been earned on the investment of all the financial resources committed to the banking institution.

Thus, the RoA measure is appropriate, if one considers the investment in the banking institution to include current liabilities, and owners' equity, which are the total sources of funds invested in the assets. Richard, Devinney, and Johnson (2013) explain that it is useful measure if one wants to evaluate how well a banking institution has used its funds (short-term creditors, long-term creditors, bondholders, and shareholders). The ROA ratio can be used by banking institution top management to evaluate individual managers within a multi-branch banking institution. The branch manager has significant influence over the assets used in the branch, but has little control over how those assets are financed, because the branch does not arrange its own loans or in many cases pay its own bills (current liabilities).

2.3.3 The Effect of Open Market Operation (OMO) on the Financial Performance of Commercial Banks

Open market operation is defined by Devereux and Engel (2013) as the purchase and sale of short term and long term securities by the central bank in the open market. This is very effective and popular instrument of the financial policy. The OMO is used to wipe out shortage of money in the money market, to influence the term and structure of the interest rate and to stabilize the market for government securities, etc. Clarida, et al. (2012) says it is important to understand the working of the OMO. For example, if the central bank sells securities in an open market, commercial banks and private individuals buy it. This reduces the existing money supply as money gets transferred from commercial banks to the central bank. However, Devereux and Engel (2013) adds that when the central bank buys the securities from commercial banks in the open market, commercial banks should sell it and get back the money they had invested in them. Obviously the stock of money in the economy increases. This way when the central bank enters in the OMO transactions, the actual stock of money gets changed.

In addition Clarida, et al. (2012) say during the inflation period in order to reduce the purchasing power, the central bank sells securities and during the recession or depression phase she buys securities and makes more money available in the economy through the
banking system. Thus under OMO there is continuous buying and selling of securities taking place leading to changes in the availability of credit in an economy (Clarida, et al., 2012).

Nibeza and Tumusherure (2015) goes on to point out that in Rwanda, whenever it is deemed necessary and in order to keep the reserve money constantly close to the desired level, the central bank intervenes on the money market to mop up or inject liquidity from or in the banking system. For example, during the period between August 1997 and August 2005, instruments that were used to intervene on the market were three fold, namely weekly tender for liquidity injection or liquidity mop up; refinance window and Treasury bills issuance.

Irankunda (2014) says based on liquidity situation, the BNR launched weekly tenders, specifying required conditions but not disclosing the amount to inject or mop up. Commercial banks responding to tenders were the ones to decide the amount for bids and interest rates. The BNR, after estimating banks' liquidity and taking into account the objectives set regarding the money supply growth, determined the total amount of liquidity to mop up or inject and made market allocation based on offered interest rates. According to Rwangombwa(2014), the refinancing rate had often been used during this period to supply liquidity to the banking system and as this rate was considered costly, banks used this facility as the last resort.

Furthermore, Malunda(2017) also documents that in line with provisions of the instruction, BNR intervenes on the money market by issuing Treasury bills ranging from 4 to 52 weeks. In conjunction with the Ministry of Finance and Economic Planning, monetary authorities determine the public debt to issue and, before the beginning of every quarter, the Bank publishes for the Treasury a schedule indicating planned issues, the approximate amounts, dates, categories of bills and their maturities. According to Chuku (2016), some issues are made to finance temporary Treasury deficits occurring when government expenditures exceed revenues. This way of financing government spending was as a result of financial reforms that aimed at limiting the inflationist lending from the central bank by providing overdrafts, and inciting the Treasury to use private savings, a resource allocation that should sensibly be done in order to avoid the crowding out effect.
Hamid et al. (2013) on the other hand assert that other issues are made for monetary policy purposes, to sterilize excess liquidity when treasury bills and other liquidity mop up instruments fail to bring the reserve money to the targeted level. The later should, in normal circumstances, be called Bank’s bills. However, because the total cost incurred by issuing bills is born by the government, they are all called treasury bills. The issue of monetary policy for monetary policy purposes aims at sterilizing the banking system excess liquidity for longer periods than the duration of other monetary policy instruments (Hamid et al. 2013).

2.3.4 The Effect of the Central Bank Rate on Financial Performance of Commercial Banks

Central bank rate is defined by Jahan (2014) as the standard rate at which the bank is prepared to buy or rediscount bills of exchange or other commercial paper eligible for purchase under the central bank Act. Central Bank Rate is a very important technique used in the monetary policy for influencing the volume or the quantity of the credit in a country.

According to Enria (2014), the central bank rate affects the actual availability and the cost of the credit. Any change in the bank rate necessarily brings out a resultant change in the cost of credit available to commercial banks. If the central bank increases the bank rate then it reduces the volume of commercial banks borrowing from the central bank. It deters banks from further credit expansion as it becomes a more costly affair. Even with increased bank rate the actual interest rates for a short term lending go up checking the credit expansion.

On the other hand, Noyer (2016) argues that if the central bank reduces the bank rate, borrowing for commercial banks will be easy and cheaper. This will boost the credit creation. Thus any change in the bank rate is normally associated with the resulting changes in the lending rate and in the market rate of interest. However, the author advises that the efficiency of the bank rate as a tool of monetary policy depends on existing banking network, interest elasticity of investment demand, size and strength of the money market, international flow of funds, etc.
Enria (2014) elaborates that the CBR is the lowest rate of interest charged on loans to commercial banks by the CBK. The level of the CBR is reviewed and announced by the Monetary Policy Committee (MPC) at least every two months and its movements, both in direction and magnitude, signal the monetary policy stance. An increase in the CBR signals an increase in the bank’s lending rates hence a tightening of the bank’s loan books. However, this is expected to reduce the banks’ profitability.

2.3.5 The Effect of Reserve Requirement Ratio on the Financial Performance of Commercial Banks

Reserve Requirement Ratio is defined by Bernanke (2013) as the percentage of commercial bank's net demand and time liabilities which commercial banks have to maintain with the central bank. On the other hand, statutory liquidity ratio (SLR) refers to some per cent of reserves to be maintained in the form of gold or foreign securities (Bernanke, 2013). The Commercial Banks have to keep a certain proportion of their total assets in the form of Cash Reserves. Some part of these cash reserves are their total assets in the form of cash. Apart of these cash reserves are also to be kept with the central bank for the purpose of maintaining liquidity and controlling credit in an economy. These reserve ratios are named as Cash Reserve Ratio (CRR) and a Statutory Liquidity Ratio (SLR). The RRR refers to some percentage of commercial bank's net demand and time liabilities which commercial banks have to maintain with the central bank and SLR refers to some per cent of reserves to be maintained in the form of gold or foreign securities (Bernanke, 2013).

In India the CRR by law remains in between 3-15 per cent while the SLR remains in between 25-40 per cent of bank reserves. Any change in the VRR (i.e. CRR + SLR) brings out a change in commercial banks reserves positions. Thus by varying VRR commercial banks’ lending capacity can be affected. Changes in the VRR helps in bringing changes in the cash reserves of commercial banks and thus it can affect the banks credit creation multiplier. Central bank increases VRR during the inflation to reduce the purchasing power and credit creation. But during the recession or depression it lowers the VRR making more cash reserves available for credit expansion (Benchimol&Fourçans, 2012).
2.6 Related Studies

Ajayi and Felix (1992) investigated the effect of monetary policy instruments on banks' performance between 1980 and 2008. The study revealed that monetary policies adopted during the period under review have been effective in contributing the volume of the economy. The multiple regression analysis result reveals that the monetary policies do have significant effects on the performance of banks. The study reveals the negative influence of liquidity ratio, interest rate and money supply are positively related. Based on their findings the study reveals the liquidity ratio and interest rate causes the economy ineffectiveness. Investors did not have access to the cash in other to increase their productivity due to high interest rate.

Baiji (2000), undertook a more elaborate view of monetary policy by focusing on the developing economy as a whole, He made use of a very broad explanatory variables which include all the ones in Friedman’s Theory of Money Demand, that is, special deposit, return on bonds, returns on equity and inflationary rate after applying ordinary least square. He found out that the $R^2$ was very encouraging and many of the parameters in the estimated model fulfilled the Apriori Expectations. Finally, he concluded that monetary policy has significant impact on the growth of Nigerian Economy. He further emphasized that monetary policy is an important means through which government authorities in a market economy regularly influence the pace and direction of overall economic activity, not only the level of aggregate output and employment but also the general rate at which prices rise or fall.

Van den Heuvel (2000) argued that monetary policy affects bank lending through two channels. They argued that by lowering reserves, contractionary monetary policy reduces the extent to which banks can accept deposits if reserve requirements are binding. The increase in reserve requirements will in turn lead banks to reduce lending if they cannot easily switch to alternative forms of finance or liquidate assets other than loan.

Alade and Ajayi (2003) carried out a study on the role of monetary policy in making credit available for development process in an economy. Nigerian economy was used as a case study and they assessed critically the supply of and demand for loanable funds and made use of the loanable funds model which represents or postulates that the demand for and supply of credit determines the interest rate in the financial markets. They concluded
that there exists an inverse relationship between the rate of interest and demand for loanable funds while a direct relationship is expected between the rate of interest and supply of loanable funds. They went further to suggest that empirical evidence has highlighted various factors affecting the demand for and supply of credit. These factors include public sector deficit, private/corporate savings, regulatory and monetary policy.

However, Ojo (2004) was concerned mainly with establishing that in a developing economy like Nigeria characterized by underdeveloped money market and lack of financial assets, the choice facing on individual is more between money and physical asset rather than between money and financial assets. Consequently, he specified and estimated (using the OLS technique) two kinds of relationship (in bing linear form) between money and its determinants. He first specified real money balance as a function of current nominal income and interest rate. Following the significance of interest rate money balance as a function of nominal income and expected rate of inflation, in this framework he adopted the adaptive expectation hypothesis of derive expected rate of inflation that eventually enter the equation for money demand. He, estimated in his equation that the demand for money is inelastic with respected to income and price change expectation. The coefficient of inflation rate appears with the right (negative) sign and was statistically significant.

Punita and Sonaiya (2006) investigated the impact of monetary policy on the profitability of banks in India between 1995 and 2000. The monetary variables are bank rate, lending rates, cash reserve ratio and statutory ratio, and each regressed on banks profitability independently. Lending rate was found to have exact positive and significant influence on banks profitability, which indicates a fall in lending rates will reduce the profitability of the banks. Also bank cash reserve ratio and statutory ratio were found to have significantly affected profitability of banks negatively. Their findings were the same when lending rate, bank cash reserve ratio, statutory ratio were pooled to explain the relationship between bank profitability and monetary policy instrument in the private sector.

Younus and Akhta (2009) examined the significance of Statutory Liquidity Requirement (SLR) as a monetary policy instrument in Bangladesh. Using descriptive analysis techniques like trend analysis and summary statistics, they found that statutory liquidity
requirement has experienced infrequent changes and past evidence has shown that reduction in SLR produced positive impact on bank credit and investment especially prior to the 1990s. SLR and Cash Reserve Requirement (CRR) were found to be significant tools of reducing inflation and both for scheduled banks are used only in situation of drastic imbalance-resulting from major shocks. They observed that Bangladesh Bank has used open market operations (OMOs), more frequently rather than changes in the Bank rate and SLR as instruments of monetary policy in line with its market oriented approach.

Abdurrahman (2010) empirically examined the role of monetary policy on economic activity in Sudan for the period which spanned between 1990 and 2004 found that monetary policy had little impact on economic activity during the period under consideration. Mangani (2011) assessed the effects of monetary policy in Malawi by tracing the channels of its transmission mechanism, while recognizing several factors that characterize the economy such as market imperfections, fiscal dominance and vulnerability to external shocks. Using vector autoregressive modeling, Granger-causality, and innovation accounting analyses to describe the dynamic interrelationship among monetary policy, financial variables and prices. The study established the lack of unequivocal evidence in support of a conventional channel of the monetary policy transmission mechanism, and found that the exchange rate was the most important variable in predicting prices.

Olweny and Chiluwe (2012) explores the relationship between monetary policy and private sector investment in Kenya by tracing the effects of monetary policy through the transmission mechanism to explain how investment responded to changes in monetary. The study utilize quarterly macroeconomic data from 1996 to 2009 and the methodology draws upon unit roots and co-integration testing using a vector error correction model to explore the dynamic relationship of short-run and long-run effects of the variables due to an exogenous shock. The study showed that monetary policy variables of government domestic debt and Treasury bill rate are inversely related to private sector investment, while money supply and domestic savings have positive relationship with private sector investment consistent with the IS-LM model. Based on the empirical results the study suggests that tightening of monetary policy by 1% has the effect of reducing investment
by 2.63% while the opposite loose monetary policy tends to increase investment by 2.63%.

Kimani (2013) studied the effect of monetary policy on the lending behaviors of Commercial Banks of Kenya. The study established that CBR, cash reserve ratio, open market operation and uncertainty caused by possible outcomes caused by monetary policy changes influences lending behavior of commercial banks in Kenya.

Ekpung et al. (2015) carried out a study to investigate the effect of monetary policy on Banking sector performance in Nigeria. The study period covered 36 years from 1970 to 2006, using selected indicator and employing the OLS regression technique. The study tested the null hypothesis of no significant relationship between bank deposit liabilities and chosen indices of banking performance, namely Exchange Rate (EXR), Deposit Rate (DR) and Minimum Discount Rate (MDR). The results showed that overall; monetary policy had a significant effect on the banks deposit liabilities. Meanwhile, on individual basis, the study discovered that Deposit Rate (DR) and Minimum Discount Rate (MDR) had a negative influence on the banks deposit liabilities in Nigeria, whereas Exchange Rate (EXR) had a positive and significant influence on the banks deposit liabilities in Nigeria. The study concluded that monetary policy plays a vital role in determining the volume of bank’s deposit liabilities in Nigeria. The study recommended that government and its monetary authorities should strive to create a conducive environment for banking sectors to grow in the country by packaging appropriate monetary policies that would guarantee and enhance growth and development of the banking sectors in Nigeria.

Udeh (2015) examined the impact of monetary policy instruments on profitability of commercial banks in Nigeria using the Zenith Bank Plc experience. The paper used descriptive research design. It utilized time series data collected from published financial statements of Zenith Bank Plc as well as Central Bank of Nigeria Bulletin from 2005 to 2012. Four research questions and four hypotheses were raised for the study. Pearson Product moment correlation technique was used to analyze the data collected while t-test statistic was employed in testing the hypotheses. The study discovered that cash reserve ratio, liquidity ratio and interest rate did not have significant impact on the profit before tax of Zenith Bank Plc. However, minimum rediscount rate was found to have significant effect on the profit before tax of the bank. The paper concluded that a good number of
monetary policy instruments do not impact significantly on profitability of commercial banks in Nigeria. The paper recommended that management of commercial banks in Nigeria should look beyond monetary policy instruments to enhance their profits.

Ndugbu and Okere (2015) investigated the impact of monetary policy on the performance of deposit money banks – the Nigerian Experience (1993-2013). Data for this study were collected from the Central Bank of Nigeria (CBN) statistical bulletin, annual reports and statement of accounts. Ordinary Least Square and co integration were used to evaluate the impact of monetary policy on the performance of deposit money banks. The Augmented Dicker Fuller (ADF) unit root test and co integration proved that the variables are stationary and a long-run relationship exist among the variables. The OLS revealed that amongst all the monetary policy variables (bank deposit rate, bank lending rate, cash reserve ratio and liquidity ration) considered in the model, only bank deposit rate has significant relationship through inverse relationship. On this premise, the study recommended among others, that the Central Bank of Nigeria (CBN) should moderate the deposit rate as a tool for regulating deposit money banks operation. Again there is need to modify the monetary policy instruments to reflect and respond more rapidly and easily to local economic conditions.

Gul et al. (2011) research was focused on examining the effect of bank specific and macroeconomic factors on bank profitability by using data of top 15 Pakistan commercial banks over the period 2005-2009. The Pooled Ordinary Least Square (POLS) method was used to investigate the impact of assets, loans, equity, deposits, economic growth, inflation and market capitalization on profitability, measured through return on asset (ROA), return on equity (ROE), return on capital employed (ROCE) and net interest margin (NIM). The results found evidence that both internal and external factors have a strong influence on profitability.

Syafri (2012) study analyzed the factors that affect the profit of commercial banks in Indonesia, using polling data from commercial banks listed on the Indonesia Stock Exchange between 2002 and 2011. Bank profitability was measured by return on assets and results showed that loan to total assets, total equity to total assets and loan loss provision to total loan have positive effect on profitability.
Ongore and Kusa (2013) study examined the effects of bank specific factors and macroeconomic factors on the performance of commercial banks in Kenya during the period from 2001 to 2010. They analyzed ten years panel data for 37 commercial banks, using linear multiple regression model and Generalized Least Square on panel data to estimate the parameters. The findings showed that bank specific factors significantly affect the performance of commercial banks in Kenya, except for liquidity variable. But the overall effect of macroeconomic variables was inconclusive at 5% significance level. The moderating role of ownership identity on the financial performance of commercial banks was insignificant. Thus, it was concluded that the financial performance of commercial banks in Kenya is driven mainly by board and management decisions, while macroeconomic factors have insignificant contribution.

The study by Frederic (2014) examined the factors responsible for determining the performance of domestic commercial banks in Uganda. The study used linear multiple regression analysis over the period 2000-2011 to analyze the data of all licensed domestic and foreign commercial banks. The study found that, management efficiency; asset quality; interest income; capital adequacy and inflation influence on the bank’s performance in Uganda.

Cekrezi (2015) carried a study to explore the factors that mostly affect financial performance of commercial banks which operate in Albania. The study population consisted of 16 commercial banks with domestic and foreign capital, during the period 2010 to 2013 with a total of 48 data. The investigation used cross sectional time series data which were collected from the Balance Sheet Annual Reports. The study concluded that bank size has a negative but statistically insignificant effect on banks profitability, capital adequacy was one of the bank specific factors that influence the level of bank profitability while liquidity was negatively related with profitability.

Kagoyire and Shukla (2016) sought to determine the effect of credit management on the financial performance of commercial banks in Rwanda. The study adopted a descriptive survey design. The target population of study consisted of 57 employees of Equity bank in credit department. Entire population was used as the sample giving a sample size of size of 57 employees. Purposive sampling technique was used in sampling where the entire population was included in the study. Primary data was collected using
questionnaires which were administered to the respondents by the researcher. Descriptive and inferential statistics were used to analyze data. The study found that client appraisal, credit risk control and collection policy had effect on financial performance of Equity bank. The study established that there was strong relationship between financial performance of Equity bank and client appraisal, credit risk control and collection policy. The study established that client appraisal, credit risk control and collection policy significantly influence financial performance of Equity bank. Collection policy was found to have a higher effect on financial performance and that a stringent policy is more effective in debt recovery than a lenient policy. The study recommends that Equity bank should enhance their collection policy by adapting a more stringent policy to a lenient policy for effective debt recovery.

King’ang’ai et al. (2016) investigated the effect of agency banking on financial performance of commercial banks in Rwanda. The study found that the move by the central bank to regulate agency banking had a positive influence on the financial performance of commercial banks in Rwanda. The study also found that low transaction cost through agency banking had a positive impact on the financial performance of commercial banks in Rwanda. The study revealed that financial services accessibility by customers through baking agencies had a positive impact on financial performance of commercial banks in Rwanda. The study found that increased market share had a positive effect on the financial performance of commercial banks with many banking institutions indicating that increased market share allowed a company to achieve greater scale in its operations which generally improved its profitability.

2.7 Gaps of the Study
Several studies have been done by Younus and Akhta (2009), Gul et al. (2011), Syafri (2012), Ongore and Kusa (2013), Kimani (2013), Udeh (2015), and Cekrezi (2015) in and outside Africa; however, none of the above studies were done in Rwanda hence presenting a contextual gap which this study intended to close my adding knowledge. Furthermore, the above studies used different measures of monetary policies and financial performance, which are not in the current study hence presenting a content gap that the current study closed by using the following as measures of monetary policy: open market
operation, central bank rate and reserve requirement ratio, while finance performance was measured in terms of return on assets.
CHAPTER THREE
METHODOLOGY

3.0 Introduction
The chapter covered research design, model of the study, data sources, data analysis, ethical considerations and limitations of the study.

3.1 Research Design
This study adopted Expost facto research because it is ideal for conducting social research when is not possible or acceptable to manipulate the characteristics of human participants. It is a substitute for true experimental research and can be used to test hypotheses about cause-and-effect or relationships, where it is not practical or ethical to apply a true experimental, or even a quasi-experimental, design. Despite studying facts that have already occurred, ex post facto research shares with experimental research design some of its basic logic of inquiry. For example, attempts are made to: explain a consequence based on antecedent conditions; determine the influence of a variable on another variable. and test a claim using statistical hypothesis testing techniques.

Kerlinger and Rint (2006) explained that in the context of social science research an ex post facto investigation seeks to reveal possible relationships by observing an existing condition or state of affairs and searching back in time for plausible contributing factors. Ex post facto research uses data already collected, but not necessarily amassed for research purposes. Ex post facto literally means from what is done afterwards. Ex post facto research can be viewed as an experimental research in reverse. Cohen et al. (2000) noted that instead of taking groups that are equivalent and subjecting them to different treatments to determine differences in the dependent variables, an ex post facto experiment begins with groups that are already different in some respect and searches in retrospect for factors that brought about those differences. In this way, ex post facto research can transform a non-experimental research design into a pseudo-experimental study. Ex post facto research, then, is a method of teasing out possible antecedents of events that have happened but cannot, be manipulated by the investigator.
3.2 Model Specification

This study adopted regression model. This model is a generalized linear modelling technique that may be used to model a single response variable which has been recorded on at least an interval scale (Hutcheson & Moutinho, 2008). The technique may be applied to single or multiple explanatory variables and also categorical explanatory variables that have been appropriately coded.

At a very basic level, the relationship between a continuous response variable (Y) and a continuous explanatory variable (X) may be represented using a line of best-fit, where Y is predicted, at least to some extent, by X. If this relationship is linear, it may be appropriately represented mathematically using the straight line equation 'Y = α + βX'. In our study, financial performance of commercial banks (FP) was predicted by Monetary Policy (MP);

**Single explanatory variable**

\[ FP_t = α + βMP_t + ε_t \] \hspace{1cm} (1)

**Where:**

- \( α \) = the value of FP when MP is equal to zero (also known as the intercept)
- \( β \) = the slope of the line (also known as the regression coefficient)

The regression coefficient \( β \) describes the change in FP that is associated with a unit change in MP.

**Multiple explanatory variables**

\[ FP_t (ROA) = α + MP_t (β1OMO_t + β2CBR_t + β3RRR_t) + ε_t \] \hspace{1cm} (2)

FP = Financial Performance:- refers to the level of performance of a business over a specified period of time, expressed in terms of overall profits and losses during that time.

MP = Monetary Policy: - refers to the actions of the Central Bank to regulate the money supply which could be through discretionary monetary policy instruments such as the open market operation, discount rate, reserve requirements, moral suasion, direct control of banking system credit, and direct regulation of interest rate.

MP = Monetary Policy:

\( OM_O = \) open market operation
\( CB R = \) discount rate
\( R R R = \) reserve requirements.
Where:

ROA  Return on Assets

OMO  Open Market Operations

CBR  Central Bank Rate

RRR  Reserve Requirement Ratio

t  time trend [this covered the period from 2000-2015]

□  Error Term [this is the error or disturbance term of an observed value which is a surrogate for all the omitted variables in the regression model].

3.3 Data Sources
This study used secondary data from the National Bank of Rwanda and National Institute of Statistics of Rwanda regarding monetary policy.

3.4 Data Analysis
The quantitative data was analysed using unit roots test and regression analysis. In order to test for unit root and the order of integration of the variables in the data set, the study employed the Augmented Dickey Fuller (ADF) test. The ADF test was used to test for unit root to find out whether an individual series is stationary or not. Existence of unit roots in a series denotes non-stationarity.

Furthermore, the study used regression analysis to predict the effect of monetary policy (Open Market Operations, Central Bank Rate, Reserve Requirement Ratio) on the financial performance (ROA) of commercial banks. The hypothesis was tested using p-value and t-statistics at 0.05 (5%) level of significance. If p-value ≤ 0.05, the null hypothesis was accepted, otherwise rejected.

3.5 Ethical Considerations
The following strategies were adapted to ensure the moral justification of the investigation.
Ascriptions of authorships: The researcher accurately attributed to the sources of information in an effort to celebrate the works of past scholars or researchers. This ensured no plagiarism occurred.

Scientific adjudication: The researcher worked according to generally acceptable norms of research.

3.6 Limitation of the Study

- The researcher was limited by the availability of data on the websites of commercial banks since most of the banks in Rwanda are not technologically established. However, the researcher mitigated this by using annual publications of the National Bank of Rwanda on the performance of commercial banks.
4.0 Introduction

This chapter presents the analysis of the data gathered and interpretation thereof.

4.1 Unit Root test

Unit root test was done in this section to substantiate whether a time series variable is non-stationary and possess a unit root. In other words, a null hypothesis defines the presence of a unit root, and the alternative hypothesis is either stationary, trend stationarity or explosive root depending on the test used. In this study, augmented Dickey-Fuller test (ADF) was used to test the null hypothesis that a unit root is present in the time series sample at 5% (0.05) level of significance. The unit root test was done for all the variables in the study, that is; Open Market Operation (OMO), Central Bank Rate (CBR), Reserve Requirement Ratio (RRR), and Return on Assets (RoA). The following tables give the summary of the findings.

Table 4.1: Unit Root Test for Open Market Operation (OMO), Central Bank Rate (CBR), Reserve Requirement (RR), Monetary Policy (MP), and Return on Assets (ROA)

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>( R^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>.002</td>
<td>.013</td>
<td>.159</td>
<td>.876</td>
<td>.006</td>
</tr>
<tr>
<td>LAGS(OMO,1)</td>
<td>-.064</td>
<td>.155</td>
<td>-.113</td>
<td>-.411</td>
<td>.688</td>
</tr>
<tr>
<td>LAGS(CBR,1)</td>
<td>-.478</td>
<td>.157</td>
<td>-.645</td>
<td>-3.046</td>
<td>.009</td>
</tr>
<tr>
<td>LAGS(RR,1)</td>
<td>-.272</td>
<td>.198</td>
<td>-.355</td>
<td>-1.370</td>
<td>.194</td>
</tr>
<tr>
<td>LAGS(MP,1)</td>
<td>-.143</td>
<td>.163</td>
<td>-.236</td>
<td>-0.875</td>
<td>.397</td>
</tr>
<tr>
<td>LAGS(ROA,1)</td>
<td>-1.243</td>
<td>.277</td>
<td>-.780</td>
<td>-4.495</td>
<td>.001</td>
</tr>
</tbody>
</table>

\( H_0: \gamma = 0 \) (unit root)
\[ H_0: \gamma \neq 0 \text{ (no unit root)} \]

where \( t_{cal} = t \) (calculated value); \( t_{tau}= \) standard critical value = -3.33

If \( t_{cal} > t_{tau} \), the null hypothesis is accepted, signifying the presence of a unit root. However, if \( t_{cal} < t_{tau} \), the null hypothesis is rejected, signifying the presence of stationarity.

As for open market operation (OMO), since \( t_{cal} > t_{tau} = -0.411 > -3.33 \), the null hypothesis is accepted, hence presence of unit root test. This therefore implies that before regressing OMO, its first difference must be taken.

Furthermore, in central bank rate (CBR), since \( t_{cal} > t_{tau} = -3.046 > -3.33 \), the null hypothesis is accepted due to presence of a unit root. Therefore the first difference of central bank rate was taken before using it in a regression.

Similarly, in reserve requirement ratio (RRR), since \( t_{cal} > t_{tau} = -1.370 > -3.33 \), the null hypothesis was accepted because of the presence of a unit root. The first difference of RRR was therefore taken before using it for regression.

In addition, in monetary policy (MP), since \( t_{cal} > t_{tau} = -0.875 > -3.33 \), the null hypothesis was accepted due to presence of a unit root. The Correct procedure is then to take first differences of monetary policy before using it in a regression.

Last but not least, in return on assets (ROA), since \( t_{cal} > t_{tau} = -4.495 < -3.33 \), the null hypothesis was rejected due to presence of stationarity in the data. There is therefore no need to take first differences of return on assets before using it in a regression.

### 4.2 The Effect of Central Bank's Open Market Operations on the Financial Performance of Commercial Banks in Rwanda

The first objective of this study was to evaluate the effect of Central Bank's open market operations on the financial performance (Return on Assets) of Commercial Banks in Rwanda. Table 4.2 gives the summary of the findings.
Table 4.2: Result of the Effect of OMO and Return On Assets

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>P-value</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.926</td>
<td>.120</td>
<td>.120</td>
<td>16.089</td>
<td>.000</td>
</tr>
<tr>
<td>DIFF(OMO,1)</td>
<td>-.120</td>
<td>.089</td>
<td>-.351</td>
<td>-.1350</td>
<td>.200</td>
</tr>
</tbody>
</table>

\[ \hat{y} = 1.926 - 0.120x_{t-1} \]

At 5% level of significance, the p-value is greater than \( \alpha (0.200 > 0.05) \), implying that open market operation is an insignificant determinant of return on assets. Therefore, the null hypothesis that there is no significant effect of Central Bank’s Open Market Operations on the financial performance of Commercial Banks in Rwanda is accepted and the alternative hypothesis is rejected. This is also further evidenced by a very low coefficient of determination \( (r^2 = 0.123) \); only 12.3% of the decline of return on assets is explained by the open market operation.

4.3 The Effect of Central Bank Rate (CBR) on the Financial Performance of Commercial Banks in Rwanda

The second objective of this study was to examine the effect of Central Bank Rate (CBR) on the financial performance of Commercial Banks in Rwanda. Table 4.3 gives the summary of the findings.

Table 4.3: Result of the Effect CBR and Return On Assets

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>P-value</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.974</td>
<td>.123</td>
<td></td>
<td>15.992</td>
<td>.000</td>
</tr>
<tr>
<td>DIFF(CBR,1)</td>
<td>.192</td>
<td>.299</td>
<td>.176</td>
<td>.643</td>
<td>.531</td>
</tr>
</tbody>
</table>

\[ \hat{y} = 1.974 + 0.192x_{t-1} \]

At 5% level of significance, the p-value is greater than \( \alpha (0.531 > 0.05) \), implying that central bank rate is an insignificant determinant of return on assets. Therefore, the null
hypothesis that there is no significant effect of Central Bank Rate (CBR) on the financial performance of Commercial Banks in Rwanda is accepted and the alternative hypothesis is rejected. This is further evidenced by a very low coefficient of determination \( r^2 = 0.013 \); only 1.3% of an increase of return on assets is explained by the central bank rate.

### 4.4 The Effect of Reserve Requirement Ratio on the Financial Performance of Commercial Banks in Rwanda

The third objective of this study was to investigate the effect of Reserve Requirement Ratio on the financial performance of Commercial Banks in Rwanda. Table 4.4 gives the summary of the findings.

**Table 4.4: Result on the Effect of Reserve Requirement Ratio and Return on Assets**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>P-value</th>
<th>( R^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>1.960</td>
<td>0.123</td>
<td>15.917</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>DIFF(RR,1)</td>
<td>-.045</td>
<td>0.084</td>
<td>-.145</td>
<td>-.530</td>
</tr>
</tbody>
</table>

\[ \hat{Y} = 1.960 - 0.045X_{t-1} \]

At 5% level of significance, the p-value is greater than \( \alpha(0.605 > 0.05) \), implying that Reserve Requirement Ratio is an insignificant determinant of return on assets. Therefore, the null hypothesis that there is no significant effect of Reserve Requirement Ratio on the financial performance of Commercial Banks in Rwanda is accepted and the alternative hypothesis is rejected. This is also further evidenced by a very low coefficient of determination \( r^2 = 0.021 \); only 2.1% of the decline in return on assets is explained by the Reserve Requirement Ratio.
Table 4.5: A Multiple Regression of First Difference of OMO, CBR, and RR on Return on Assets

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.930</td>
<td>.131</td>
<td></td>
<td>14.753</td>
<td>.000</td>
</tr>
<tr>
<td>DIFF(OMO,1)</td>
<td>-.139</td>
<td>.121</td>
<td>-.406</td>
<td>-1.150</td>
<td>.275</td>
</tr>
<tr>
<td>DIFF(CBR,1)</td>
<td>.141</td>
<td>.311</td>
<td>.129</td>
<td>.454</td>
<td>.658</td>
</tr>
<tr>
<td>DIFF(RRR,1)</td>
<td>.039</td>
<td>.109</td>
<td>.127</td>
<td>.358</td>
<td>.727</td>
</tr>
</tbody>
</table>

$\hat{Y} = 1.930 - 0.139X_{t1-1} + 0.141X_{t2-1} + 0.039X_{t3-1} + \epsilon_t$

At 5% level of significance the p-values are greater than $\alpha$, implying that Open Market Operation, Central Bank Rate and Reserve Requirement Ratio are all insignificant determinants of Return on Assets. This is also further evidenced by a very low coefficient of determination ($r^2 = 0.147$); only 14.7% of the general change in return on assets is explained by the monetary policies included in the model.

Table 4.6: A Regression of First Difference of Monetary Policy and Return on Assets

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.943</td>
<td>.122</td>
<td></td>
<td>15.870</td>
<td>.000</td>
</tr>
<tr>
<td>DIFF(MP,1)</td>
<td>-.045</td>
<td>.049</td>
<td>-.246</td>
<td>-9.14</td>
<td>.377</td>
</tr>
</tbody>
</table>

$\hat{Y} = 1.943 - 0.045X_{t-1}$

At 5% level of significance the p-value is greater than $\alpha (0.377 > 0.05)$, implying that monetary policy is an insignificant determinant of return on assets. This is also further evidenced by a very low coefficient of determination ($r^2 = 0.060$); only 6% of the decline in return on assets is explained by the Monetary Policy.
CHAPTER FIVE
DISCUSSION, CONCLUSION AND RECOMMENDATION

5.0 Introduction
This chapter discusses the findings in the preceding chapter, concludes and gives recommendations in accordance to the objectives of the study.

5.1 Discussion

5.1.1 The Effect of Central Bank's Open Market Operations on the Financial Performance of Commercial Banks in Rwanda
The first objective of this study was to evaluate the effect of Central Bank’s open market operations on the financial performance (Return on Assets) of Commercial Banks in Rwanda. The study found no significant effect of Central Bank’s Open Market Operations on the financial performance of commercial banks in Rwanda (p=0.200>0.05). The null hypothesis was accepted and the alternative hypothesis rejected. The central bank uses OMO to wipe out shortage of money in the money market, to influence the term and structure of the interest rate and to stabilize the market for government securities. In order to achieve this, the central bank sells securities in an open market during inflation, and commercial banks and private individuals buy it hence reducing the existing money supply as money gets transferred from commercial banks to the central bank. On the other hand, when the central bank buys the securities from commercial banks in the open market during recession or depression periods, commercial banks get back the money they had invested in them and this increases money stock in the economy. However, the effect of OMO is very minimal on the return on assets of commercial banks. This is because commercial banks mostly use the assets in their possession to generate more profits and these assets are not necessarily the ones used in the purchase of securities from the central bank during depression.

This study is in agreement with the previous study of Younus and Akhta (2009) who examined the significance of Statutory Liquidity Requirement (SLR) as a monetary policy instrument in Bangladesh and found that SLR and OMOs were significant tools for
reducing inflation and consequent improvement in the performance of return of assets of commercials banks in Bangladesh.

5.1.2 The Effect of Central Bank Rate (CBR) on the Financial Performance of Commercial Banks in Rwanda

The second objective of this study was to examine the effect of Central Bank Rate (CBR) on the financial performance of Commercial Banks in Rwanda. The study found no significant effect of the central bank rate on the financial performance (Return on Assets) of commercial banks ($p=0.531>0.05$). The null hypothesis that there is no significant effect of Central Bank Rate (CBR) on the financial performance of Commercial Banks in Rwanda was accepted and the alternative hypothesis was rejected. This implies that the effect of central bank rate on return of asset of commercial banks though not significant, has a small magnitude of impact which is variably negligible. This is because, all that the central bank rate does is to reduce and increase interest rates. In the case when they increase, the commercial banks will reduce their borrowing, and in the case when they reduce the rates, the commercial banks will increase their borrowing. It should therefore be noted that when the central bank increases their rates, it does not stop the commercial banks from making profits from their assets since they will be trading on current liabilities and stakeholders’ equity which has got nothing to do with increase or decrease in the central bank rate. In other words, the central bank rate as an instrument of monetary policy does little in influencing the return of assets of commercial banks.

However, the finding of this study disagrees with that of the previous studies. For instance, a study by Punita and Somaiya (2006) investigated the impact of monetary policy on the profitability of banks in India between 1995 and 2000. The monetary variables were bank rate, lending rates, cash reserve ratio and statutory ratio. Lending rate was found to have exact positive and significant influence on banks profitability, which indicates a fall in lending rates will reduce the profitability of the banks. Also bank cash reserve ratio and statutory ratio were found to have significantly affected profitability of banks negatively.
5.1.3 The Effect of Reserve Requirement Ratio on the Financial Performance of Commercial Banks in Rwanda

The third objective of this study was to investigate the effect of Reserve Requirement Ratio on the financial performance of Commercial Banks in Rwanda. The study found no significant effect of reserve requirement ratio on the financial performance (return on assets) of commercial banks in Rwanda ($p=0.605>0.05$). This implies that Reserve Requirement Ratio though very valuable in ensuring the financial performance of commercial banks, in this case, it is negligible. This could be attributed to the fact that there is poor saving culture among the people of Rwanda or the central bank rates are often too high hence making commercial banks to shy off from borrowing. Therefore, whether there is a reserve or not, the available assets when traded can help the commercial bank to make profits which can boost their financial performance.

However, the findings of this study disagrees with that of Van den Heuvel (2000) who found that monetary policy affects bank lending through two channels. They found that by lowering reserves, contractionary monetary policy reduces the extent to which banks can accept deposits if reserve requirements are binding. The increase in reserve requirements will in turn lead banks to reduce lending if they cannot easily switch to alternative forms of finance or liquidate assets other than loan.

Furthermore, the study found that monetary policy had no significant effect on the financial performance (Return on Assets) of commercial banks in Rwanda ($p=0.377>0.05$). This was attributed to the fact that only 6% of the decline in return on assets was explained by Monetary Policy ($r^2=0.060$). This could be because all the variables used for measuring monetary policy, that is, open market operations, central bank rate, and reserve requirement ratio are insignificant determinants of return on assets. The sole purpose of monetary policy is to ensure stable financial flow in the economy by managing interest rates, setting reserve requirement and acting as a lender of last resort to during times of bank insolvency or financial crisis. Indeed these attributes may not directly or significantly have any effect on the return on assets of the commercial banks. This is because, return on assets of commercial banks simply reveal how the commercial banks have been able to generate profits from all their assets such as current liabilities and owners' equity. In other words, how the bank has invested these assets and later reaped
profits has to a great extent nothing do with the central bank policy targeted at maintaining price stability, maintenance of balance of payments equilibrium, promotion of employment and output growth, and sustainable development.

The finding of the current study agrees with that of Ndugbu and Okere (2015) who investigated the impact of monetary policy on the performance of deposit money banks in Nigerian using Augmented Dickey Fuller (ADF) unit root test and found that monetary policy had no significant effect on bank lending rate, cash reserve ratio, return on assets and liquidity ratio.

However, the finding of the current study disagrees with the previous studies of Ajayi and Felix (1992), and Kimani (2013). For instance, Ajayi and Felix (1992) investigated the effect of monetary policy instruments on banks’ performance between 1980 and 2008 and found that the negative influence of liquidity ratio, interest rate and money supply are positively related and negatively affect return on assets. Furthermore, a study by Kimani (2013) on the effect of monetary policy on the lending behaviors of Commercial Banks of Kenya found that CBR, cash reserve ratio, open market operation and uncertainty caused by possible outcomes caused by monetary policy changes, influences lending behavior and return on assets of commercial banks respectively.

5.2 Conclusion

There is no significant effect of open market operation on return on assets, hence the purchase and sale of securities by the National Bank of Rwanda to control money supply in the market does not affect the performance of the return on assets of commercial banks.

There is no significant effect of central bank rate on return on assets, that is, the National Bank of Rwanda’ strategy of setting a standard rate at which it can buy or rediscount bills of exchange cannot affect the performance of return of assets of commercial banks.

There is no significant effect of Reserve Requirement Ratio on return on assets; in other words, having a minimum requirement that the commercial banks can deposit with the National Bank of Rwanda and have in their reserves for operational purposes does not affect the performance of return on assets of the commercial banks.

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The study found that all the monetary policy instruments used by the central bank of Rwanda, that is, open market operations, central bank rate and reserve requirement ratio have no significant effect on the financial performance (return on assets) of commercial banks. Therefore it can be concluded that monetary policy has no significant effect on return of assets of commercial banks in Rwanda.

5.3 Recommendations

Objective one: In order for the open market operation to succeed in influencing the financial performance of commercial banks in Rwanda, there is need for commercial banks not to keep excess reserve on which they can draw in the event of a restrictive monetary policy and also, they must not be able to borrow or rediscount bills on a continuous basis to prevent the nullification of the effects of an Open Market Operations in which securities are sold to deplete bank reserves.

Objective two: The study has shown that central bank rate has no significant effect on the financial performance of the commercial banks in Rwanda. Therefore, there is need for the monetary authorities to make efforts towards having a relative stability in the level of interest rate. This will help improve the grip of monetary policy on the performance of the commercial banks.

Objective three: Furthermore, reserve requirement ratio has been shown to have no significant effect on the financial performance of commercial banks in Rwanda. Therefore, the central bank of Rwanda should make it part of the major fulcrum on which monetary policy will be based in order to improve the effectiveness of the monetary policy on the commercial banks.

Furthermore, administration of monetary policy by the central bank should be such that it is flexible to enable the commercial banks to discharge their duties effectively to the public.

In addition, in order to encourage high savings culture among the Rwanda people, there is need for the commercial banks to place incentives to the public in form of higher interest on deposit in order to encourage and mobilize more funds from the public.
Last but not least, there is need to for the monetary authorities in Rwanda to modify the monetary policy instruments to reflect and respond more rapidly and easily to local economic conditions.

5.4 Areas for Future Studies
This study looked at only on aspect of financial performance (return on assets). Future studies should incorporate other measures of financial performance such as return on investment, return on equity, profit margin or sales growth for purposes of comprehensiveness.

Given the limitation of data in the current study, only a period of 15 years was considered; however, future studies should expand to a period of 25-30 years so as to provide a better picture of the impact of monetary policy on the financial performance of commercial banks.

5.5 Contribution to Knowledge
Several studies from different countries found that monetary policy affects financial performance in terms of profitability, return on investments, return on sales, return on assets etc. However, the current study looked at the effect of each component of monetary policy (i.e. OMO, CBR, and RRR) on return on assets in commercial banks in Rwanda, and found no significant effect. Therefore, this finding has added to the body of knowledge that in Rwanda, monetary policy using OMO, CBR, and RRR does not affect the performance of return on assets of commercial banks.
REFERENCES


# APPENDIX I: DATA

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