

Influence of Macro-Economic Factors on Financial Performance of Commercial Banks in Tanzania

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Abstract

This study was designed to determine the influence of macro-economic factors on financial performance of commercial banks in Tanzania. The study was geared towards achieving the following objectives (i) to assess the influence of interest rate on the financial performance of commercial banks in Tanzania (ii) to determine the influence of inflation rate on the financial performance of commercial banks in Tanzania and (iii) to determine the influence of exchange rate on the financial performance of commercial banks in Tanzania.

Data were collected using secondary source. The study applied descriptive and explanatory research design to describe trend of the exchange rate, interest rates and inflation rate for the period of 10 years from 2010 to 2019 in which the relationship between macroeconomic variables mentioned and the financial performance of commercial banks were explained. The data collected for this study was keyed into excel sheet and then the descriptive and correlation analysis was conducted.

The study indicates that the correlation analysis conducted between interest rate and return on assets reveal a strong negative relationship of 74.99%. This means that increase in return on assets results in a decrease in interest rate by 74.99%. Further more it is indicated that the correlation analysis conducted between inflation rate and return on assets reveal a positive relationship of 59.22%. Also, the study showed that the correlation analysis conducted between exchange rate and return on assets reveal a negative relationship of 65.52%.

The study concluded that interest rate, inflation rate and exchange rate influence financial performance of commercial banks. The study recommended that the government to continue maintaining the lending interest rate to curb a drop in financial performance of commercial banks, to continue maintaining the policies that protect commercial banks in case of inflation rate rising and lastly, the government to continue maintaining the policies that protect commercial banks in case of exchange rate fluctuations.

Keywords: macro economic factors, commercial banks, interest rate, inflation rate, exchange rate and financial performance

1. Introduction

1.1 Background of the Study

The relationship between organizational performance and macroeconomic factors is a topic that has drawn keen interest among many scholars and other stakeholders. Sharma and Singh (2011) explain that macroeconomic factors such as interest rate, inflation rate, exchange rate, gross domestic product, market risk and money supply are the most influential macroeconomic factors.

According to Kipichirchir (2011), globalization and advancement in technology has greatly contributed in changing the methods of operation in the business environment. This has led to organizations and its management constantly assessing macro-economic factors influencing its performance. Due to the increase in demand and supply for quality goods and services, there has been an increase in international trade, also by commercial banks, aspiring to fulfill the growing demand for quality financial services. For commercial banks to make investment decisions, foreign exchange rates, interest rates and inflation rates have to be involved. Commercial banks have keen interest and conduct analyses to determine the impact of the smallest changes in these variables on their business (Vines, 2017).

Ali (2014) explains that interest rates are rarely static and hence changes with change in the macroeconomic environment. Interest rates are known to react to occurrences in both domestic and international markets. As per Cytonn Investment (2017), capping interest rate influences the efficiency and effectiveness of the whole industry due to failure to factor in other variables that contribute to a particular spread picked by a bank. Furthermore, pegging of interest rate displays the how inefficient and ineffective the current economy's monetary policies are in analyzing its condition.

On inflation, Sharma and Singh (2011) explain that the consumer price index is mostly used as the inflation proxy. It is utilized in measuring the current price level in comparison with the base year period. The role of the consumer price index is to determine the level of fluctuations in consumer price index at the retail level and also determine the level of purchase price of goods used by private households (Sharma & Singh, 2011). Ali (2014) explains that increase in inflation leads to investors demanding higher returns due to reduction in value of their investment. As per Chimkono (2017), the continuous increase in prices of goods and services is a common occurrence in many economies. Increase in the supply of money in comparison to economic growth leads to high inflation rates (Omondi, 2014).

Lagat and Nyandema (2016) explain that the increase in international trade leads to increase in international market competitiveness and this in turn leads to increase in demand and supply for foreign currency. Eventually, there is a rise in the flow of foreign currency due to increased transactions. The end result of is the increase in volatility of the exchange rate which leads to either lose or profit in the market. Firms such as commercial banks that conduct international transactions participate in international markets and end up greatly affected.

The commercial banks usually conduct foreign transactions for the customers at a profit. The constant exchange rate fluctuations can result into the commercial banks incurring losses on their assets, cash flow and liabilities (Manyok, 2016). The continuous fluctuation makes it difficult to predict trends in future exchange rates. In a study by Otuori (2013), it is stated that factors such as inflation rate, interest rates, supply of currencies, price of commodities and economic growth influences the fluctuation of currencies.

Ongore (2013) informs that there are various variables affecting the value of a currency and this includes; geo-political risk, balance of payment, tourism and investment level among others. The constant fluctuations also lead to variation in cash flow that is required to make payments at a certain intervals of time. Otuori (2013) explains that the central bank of any nation controls the demand and supply of the currency. The central bank uses two key policies to control the demand and supply of its currency. This includes; monetary policy and fiscal policy. Monetary policy deals with the demand side of the currencies while the fiscal policy deals with the supply side of the currency (Otuori, 2013).

Alessandri and Nelson (2015) explain that financial performance involves the tools that quantify the results of the operations of the firm in monetary terms. Due to intense competition for market share, firms have felt the need to add more resources into its operation in order to gain maximum profit. The growth of a company is majorly quantified through financial performance. It is also used to measure the financial health of the firm and also establish comparisons with other firms in the industry or in different industries.

According to Farah (2014) financial performance is majorly measured using tools such as profitability and liquidity. Other researches have shown that other tools that can be used include return on assets, cash flows and return on investments. Farah (2014) further explains that there are ways to measure performance of an organization and this includes; flexibility, reliability and efficiency in operations. Therefore, for an organization to fully understand how it's performing, both the financial perspective and the non-financial perspective need to be taken into consideration. This will give the organization a wider view of where it's performing well and where it needs to improve.

Alessandri and Nelson (2015) elaborate that financial performance gives results to stakeholders such as managers, creditors, tax individuals and shareholders a deeper understanding of the financial position of the firm for a particular given period. Therefore, preparing financial statements is crucial as it forms the foundation of the financial performance of organizations. Financial statements include; income statement and balance sheet. Involvement of banks in international trading activities has exposed them to foreign exchange risks (Maigua & Mouni, 2016). In situations whereby banks carry out international purchases or sales of assets in foreign currencies, there will be an influence on the value of the currencies. Most of the times, financial institutions such as banks use techniques such as hedging to cushion themselves against such foreign exchange risks (Maigua & Mouni, 2016). As per Gatobu (2013), one of the main roles of commercial banks is to act as an intermediary between the supply side and the demand side of the foreign currency and therefore, any harsh measures on operations of the commercial banks would have an impact on their financial performance. Young (2012) explains

that like any other organization, commercial banks aim to maximize its shareholder wealth. In order to achieve higher returns, commercial banks have to operate in a risky business. In endeavors to provide satisfactory financial services, commercial banks have to assume various types of financial risks. The risks vary in nature depending on the activity conducted by the bank.

As per Lukango (2017), the Arusha Declaration of 1967 brought about the liberalization of the banking industry in Tanzania. Before declaration, the National Bank of Commerce (NBC) was the monopoly with a 92% of all bank deposits and a total of 189 branches. The only other bank that was operational at the time was the Cooperative and Rural Development Bank – CRDB which owned 1.8% of the total deposits and had 11 branches and the third was the Peoples “ Bank of Zanzibar – PBZ, which owned 2.1% of deposits and had 4 branches. According to Temba (2014), commercial banks in Tanzania have undergone tremendous reforms since the liberalization of the banking system in the nation. The reforms that the banking sector in Tanzania has undergone include removal of barriers to entry of commercial banks and great improvement in institutional frameworks of the banks. This has had a tremendous impact as it has improved the performance of the banks (Temba, 2014). As per the directory of the Bank on Tanzania (2020), there are 38 commercial banks in Tanzania.

1.2 Statement of the Problem

The level of international trade has increased due to the rise in demand for various products and services and this has in turn increased globalization activities. Institutions that provide financial services conduct its activities in international trade market where foreign exchange, interest rate and inflation rate have a large dominance (Alessandri & Nelson, 2015).

Despite a rapidly changing macro-economic environment, the sector of banking in Tanzania has remained steadfast. The banking sector has faced various challenges such as rise in interest rates, exchange rate fluctuations and rise in prices of goods and services which has affected it negatively. There has been a great depreciation of the Tanzanian shilling in comparison with other world currencies due to all these factors.

Farah (2014) adds that organizations operate in an ever-changing business environment where they constantly face risks that exposes the firm and threatens the success of the firm. Due to this participation in the foreign exchange market, commercial banks constantly face risks. Their participation in the foreign exchange market has not been effective due to constant fluctuation of the currencies. Commercial banks find it hard to predict the trend hence; they are constantly exposed to risks.

A study conducted by Desaro (2012) investigated the relationship between macroeconomic factors and financial performance of commercial banks in Kenya. The study revealed that return on assets positively correlated with gross domestic product, money supply, lending rate and inflation, and negative correction with exchange rate. According to a study by Kipngetch (2010), interest rates and monetary performance of commercial banks in Kenya had a positive correlation. A study by Wamucii (2010) investigated the relationship between inflation and financial performance of commercial banks in Kenya. The findings revealed that the performance of commercial banks realized an increase with the rise in inflation. As per Ongore (2013), insignificant macro-economic factors impact the profitability of commercial banks in Kenya. Several studies have been conducted to study foreign exchange rate in relation to performance of commercial banks. In a study conducted by Ahmed (2015) to determine the effect of macroeconomic factor such as foreign exchange on commercial banks performance revealed that foreign exchange exposure has negative relationship on the performance. In a study by Opaluwa, Ameh and Emeh (2010), on effect macroeconomic factor such as foreign exchange on organizational performance in the Nigerian manufacturing sector revealed a positive relationship between foreign exchange and organizational performance. Further studies by Owoye and Ogunmakin (2013) on effect of macroeconomic factor such as foreign exchange rate on organizations performance of Nigerian banks reveals that they are positively correlated. A study by Manyo (2016) examined effect of macroeconomic factor such as foreign exchange transaction on profitability of Nigerian banks from 2010 to 2014. The findings show that there is a negative and insignificant relationship between foreign exchange income and profitability for the given period of time.

The studies reveal inconsistent results on the effect of macroeconomic factors on financial performance of commercial banks. Moreover, most studies were done in other countries. Due to this, there is inadequate study conducted on the topic in the Tanzanian market. Therefore, this study seeks to fill the knowledge gap by examining the influence of macroeconomic factors on financial performance of commercial banks in Tanzania.

1.3 General Objective

The general objective of the study was to determine the influence of macroeconomic factors on financial

performance of commercial banks in Tanzania.

1.4 Specific Objectives

- To establish the influence of interest rate on the financial performance of commercial banks in Tanzania.
- To determine the influence of inflation rate on the financial performance of commercial banks in Tanzania.
- To assess the influence of exchange rate on the financial performance of commercial banks in Tanzania.

1.5 Significance of the Study

1.5.1 Commercial Banks

The findings of the study will be beneficial to commercial banks as it can be used to determine where the banks need to improve in order to strengthen its financial performance.

1.5.2 Policy Makers

The study will enable policy makers to have a clear view in formulating effective policies and achieve economic growth. Also, the study will give a clear view to policy makers in order to implement efficient policies after realizing the reason of falling or rising in performance of commercial banks.

1.5.3 Investors

This study will be beneficial to individual investors both local and international and firms in improving their forecasting performance on commercial banks through further understanding and investigating the macroeconomic factors affecting the banks. A better forecast performance will help investors reduce investment risk and avoid losses when making investment decisions.

1.6 Scope of the Study

The study covered the influence of macroeconomic factors on the financial performance of commercial banks in Tanzania. The study analyzed the data for a period of ten years from the year 2009 to 2019 towards the Tanzanian economy. The variables of the study which are the independent variables include; interest rate, inflation rate and exchange rate. The financial performance represents the dependent variable.

1.7 Definition of Terms

1.7.1 Financial Performance

Alessandri and Nelson (2015) define financial performance as a measure of organizations achievement in terms of its financial goals guided by financial goals and objectives.

1.7.2 Inflation

Inflation is defined as 'a sustained upward trend in the general level of prices' and not the price of only one or two goods (Bashir, 2016).

1.7.3 Exchange Rate

An exchange rate is the value of a nation's currency in terms of the currency of another nation or economic zone (Raja & Naeem-Ullah, 2014).

1.7.4 Interest Rate

Interest rate is the amount charged, expressed as a percentage of principal, by a lender to a borrower for the use of assets (Ahmed, 2018).

2. Literature Review

2.1 Introduction

This section will give a comprehensive literature review that will be based on the research objectives. The discussion will look into the influence of interest rate on the financial performance, influence of inflation on the financial performance and the influence of exchange rate on the financial performance, all from the year 2009 to 2019.

2.2 Theoretical Review

2.2.1 Market Portfolio Theory

The Market Portfolio Theory (MPT) was formulated by Harry Markowitz and published in 1952. The theory gives a maximum portfolio expected return for a certain amount of portfolio risk, or consequently minimizes the risk associated for a certain level of expected return, through careful selection of the proportions of several assets.

Portfolio construction is established in four steps. These includes; performance measurement, asset allocation, portfolio optimization and security valuation.

The theory strives to establish that the evaluation of the risk involved in an investment should completely tackle how the investment will impact the overall risk and return on the portfolio. Therefore, through combination of various assets that does not possess perfectly correlated returns; the market portfolio theory strives to decrease the total risk of portfolio return.

The portfolio theory gives an opportunity to understand the relationship between risk and reward. It has provided a roadmap of how institutions manage and motivate portfolios through the usage of passive investment techniques. Financial risk management uses the mathematics of portfolio theory and also, in the current world's market-at-risk measures.

2.2.2 Arbitrage Pricing Theory

The Theory of Arbitrage Pricing was formulated by Ross (1976). The theory relates macroeconomic variables and the pricing of assets. According to this theory, there is a certain level of risk assumed by an investor the level of return expected. Sadiye (2014) explains that some factors associated with arbitrage pricing theory are macroeconomic factors while others are market indices.

Ouma and Muriu (2014) explain that Arbitrage Pricing Theory is based on three simple assumptions. The first assumption is that, with certainty investors have a preference for more wealth than less wealth. The second assumption is that the competition in the capital markets is perfect. The Arbitrage Pricing Theory is very critical for building portfolios as it assists managers of organizations to monitor whether their portfolios are exposed to certain macroeconomic factors.

Ouma and Muriu (2014) explain that the Arbitrage Pricing Theory connects several sorts of risks with fluctuations in interest rates, inflation and exchange rate. This theory is relevant to this study as it relates macroeconomic factors such as interest rate, inflation rate and exchange rate with as risk variables that proves difficult to be diversified and have a big change of influencing returns from investments and in effect financial performance of commercial banks.

2.3 Influence of Interest Rate on Financial Performance

Mwangi (2013) explains that the financial performance of an organization is usually determined by some critical macro-economic factors such interest rate, exchange rate, inflation, unemployment, supply of money and stock market. These variables are monitored closely by both governments and individual investors. The findings of this study revealed that there is a weak negative insignificant correlation between return on asset and average interest rate. A study by Baba and Nasieku (2016) revealed that interest rate has a negative significant relationship on the financial performance of banks in Nigeria. A study by Chimkono (2017) investigated the influence of both micro and macroeconomic variables on the financial performance of commercial banks in Malawi. The findings revealed that the lending interest rates have a significant effect on financial performance of banks in Malawi.

In a study by Njuguna (2013) on the effects of macroeconomic variables on financial performance of deposit taking microfinance institutions in Kenya revealed that rise in interest rate leads to a fall in financial performance as measured by return on assets. This is supported by a study by Muchiri (2012) that concluded that lowering interest rates leads to a better performance in the stock market. The study, done by Njuguna (2013) found that the performance of micro finance institutions can be determined by several microeconomic variables and among them is the interest rate. A study by Simiyu and Ngile (2015) investigated how macroeconomic factors influence profitability of commercial banks in Kenya. The findings revealed that there are negative significant relationship between profitability and interest rate.

A study by Kungu (2013) revealed the interest rate to be third in ranking after inflation, when it comes to microeconomic variables with the greatest positive effect on the financial performance of firms. This is supported by a study by Kipngetich (2011) which investigated the relationship between interest rates and financial performance of commercial banks in Kenya. The study found out that there is a positive relationship between interest rates and the performance of commercial banks in Kenya. As per Khan and Sattar (2014), the influence of interest rates on the financial performance of firms can go both ways. Therefore, it can either be negative or positive depending on its movement. A study by Osamwonyi and Chijuka (2014) studied influence of macroeconomic factors on the financial performance of commercial banks. The study revealed that there is a negative significant relationship between interest rate and the financial performance of commercial banks.

2.4 Influence of Inflation Rate on Financial Performance

As per Mwangi (2013), the financial performance of an organization is usually determined by some critical macro-economic factors such interest rate, exchange rate, inflation, unemployment, supply of money and stock market. These variables are monitored closely by both governments and individual investors. The findings of this study revealed that there is a weak negative insignificant correlation between return on asset and average inflation rate.

A study by Kungu (2013) revealed inflation rate to be second in ranking, after gross domestic product when it comes to microeconomic variables with the greatest positive effect on the financial performance of firms. This is supported by a study conducted by Flamini (2009), on determinants of commercial banks profitability in sub-Saharan Africa. The study found out that inflation revealed a positive influence on the profits the bank realized.

A study by Desaro (2012) investigated the effects of macroeconomic variables on financial performance of commercial banks in Kenya. The study revealed that return on assets positively correlated with inflation. This is supported by a study conducted by Ongeru (2014) that showed that inflation influences the profitability of banks positively due to the reasoning that the banks get a higher revenue realized from the circulation of money. This is also supported by Baba and Nasieku (2016) which revealed that there is a positive correlation between inflation rate and the financial performance of the banks. A study by Wamucii (2010) revealed that with increase in inflation, the financial performance of the banks also increased.

A study by Alemu and Negasa (2015) investigated the determinants of financial performance of commercial banks in Ethiopia. The findings revealed that measurement by return on assets and inflation displayed an insignificant positive influence on the financial performance of commercial banks in Ethiopia. A study by Baba and Nasieku (2016) revealed that inflation rate has an insignificant relationship on the financial performance of banks in Nigeria. This is disputed by a study conducted by Ongore and Kusa (2013) that investigated the effect of macroeconomic variables of the performance of Kenyan banks. The study revealed that inflation has a significant negative relationship with the profitability of the bank. A study conducted by Osamwonji and Chijuka (2014) that studied influence of macroeconomic factors on the financial performance of commercial banks. The study revealed that there is a negative insignificant relationship between inflation rate and the financial performance of commercial banks.

Researchers such as Vong and Chang (2009) disputed that there are no clarity when it comes to the direction regarding the relationship between the performance of a bank and inflation. San and Heng (2013) support that macroeconomic factor such as inflation do not have any influence on profitability.

2.5 Influence of Exchange Rate on Financial Performance

According to Mwangi (2013), the financial performance of an organization is usually determined by some critical macro-economic factors such interest rate, exchange rate, inflation, unemployment, supply of money and stock market. These variables are monitored closely by both governments and individual investors. The findings of this study revealed that there is a weak negative insignificant correlation between return on asset and average exchange rate.

A study by Muchiri (2012) revealed that exchange rate has a negative significant influence on stock market performance. This is supported by a study conducted by Desaro (2012) that investigated the effects of macroeconomic variables on financial performance of commercial banks in Kenya. The study revealed that return on assets negatively correlated with exchange rate. A study by Lagat and Nyandema (2016) also revealed that the fluctuations of exchange rate negatively affect the financial performance of banks.

According to a study conducted by Nyamwange (2009) on the relationship between a firm's performance for multinational corporations in Kenya and volatility of exchange rates, there is USD exchange rate, Japanese Yen exchange rate; sterling pound exchange rate and euro exchange rate all impact the performance of multinational corporations. A study by Baba and Nasieku (2016) revealed that exchange rate has a negative significant relationship on the financial performance of banks in Nigeria.

A study by Kungu (2013) investigated how macroeconomic variables affect financial performance of private equity firms in Kenya. The findings revealed that exchange rate has a negative weak relationship with return on investment. As per Ongeru (2014) on effect of macroeconomic variables on financial performance of non-banking financial institutions, the findings reveal that there is a strong positive relationship between return on assets and exchange rate. Kiganda (2014) studied the effect of macroeconomic variables on performance of commercial banks profitability. The findings revealed exchange rate had insignificant influence on profitability.

3. Research Methodology

3.1 Introduction

This section of the research elaborates the research methodology that will guide the study. The section will cover the research design, population and sampling design, data collection method, research procedures and data analysis methods.

3.2 Research Design

As explained by Saunders, Lewis and Thornhill (2016), a research design is the general plan of how a researcher goes about answering the research questions. Research design can be broadly classified into quantitative and qualitative research design. Further explanation classifies research designs into different types: Descriptive research design, experimental research design correlational research design, diagnostic research design and explanatory research design (Cooper & Schindler, 2008).

This study will analyze the way microeconomic variables such as interest rate, inflation rate and exchange rate determines the financial performance of commercial banks. Hence, the study applied descriptive and explanatory research design. The descriptive research design will assist in describing the trend of the exchange rate, interest rates and inflation rate for the 10 years from 2009 to 2019. The explanatory research design will assist this study explaining the relationship between microeconomic variables mentioned above and the financial performance of commercial banks where financial performance was the dependent variable depending on interest rate, inflation rate and exchange rate.

3.3 Population and Sampling Design

3.3.1 Target Population

Population is defined as the entire collection of elements about which a researcher wishes to generalize study findings (Cooper & Schindler, 2008). Alternative definition by Saunders et al. (2016) defines population as a well-defined or set of people, services, elements, and events, group of things or households that are being investigated.

Mugenda and Mugenda (2003) define target population as an entire group of individuals who have common observable characteristics. Alternative definition by Holloway and Wheeler (2010) states that target population is that accessible population having the experience and knowledge of the phenomenon under study which the researcher can draw a study population from.

The target population will be all the 38 commercial banks that were operational for the period between the years 2010 to 2019. The study targeted 10 years data on interest rates, inflation rates and exchange rate for the years 2010 to 2019 obtained from Central Bank of Tanzania website. As per the directory of the Bank on Tanzania (2020), there are 38 commercial banks in Tanzania.

3.3.2 Sampling Design

- Sampling Frame

As per the definition provided by Cooper and Schindler (2008), sampling frame is the listing of the entire population from which a sample size is selected. It represents a complete and correct list of population members. Further elaboration by Saunders et al. (2016) also states that a sampling frame must include a complete and updated list that includes the research population.

This study will use 10 year data from the period 2010 to 2019. Therefore, it is possible to relate interest rates, inflation rates, exchange rates and financial performance of commercial banks.

- Sampling Technique

Kothari (2004) defines sampling technique as the identification of the specific process by which the entities of the sample are being selected. This research will use census as the sampling technique.

Saunders et al. (2016) define a census as when every member of the population is considered a respondent. The authors advocate for the use of a census when the population is less than 100 people. This research therefore adopted a census sampling technique to get an accurate result due to the number of the target population.

- Sample Size

Kothari (2004) defines a sample as a subset of those entities that decisions relate to. Alternative definition by Saunders et al. (2016) defines a sample as a proportion or subset representative of the population of interest.

The sample size will be 38 commercial banks in Tanzania. This study will use entire population as sample size

period covered from 2010 to 2019. A period of 10 years was selected because it is broad enough to demonstrate the trend and influence of variables on the financial performance of commercial banks.

- **Data Collection Methods**

Saunders et al. (2016) explains that the choice of an effective tool and instrument to collect data for research depends primarily on the characteristics of the subjects, the proposed research topic, objectives of the study, the problem statement, research design, and the expected data results.

The study will use on secondary data which will be collected from the website of the Central Bank of Tanzania, for the period of 10 years between 2010 and 2019. The data that will be collected will include all the figures for the interest rate, inflation rate and the exchange rate. The datasets that will be downloaded from the website of the Central Bank of Tanzania will be validated through a thorough review and cleaning to ensure that only the necessary data will be collected and none is missing. The data on financial performance will be represented by return on assets and it will be obtained from Central Bank on Tanzania website.

- **Research Methods**

Cooper and Schindler (2008) explain that research procedures involves a systematic process that focuses on being objective and gathering a multitude of information for analysis so that the researcher can draw conclusions.

In this study, a secondary data collection sheet will be designed, tested and validated. The validation of the data will be done through a thorough review by the lecturer supervising the project then tested using data from the website of the Central Bank of Tanzania.

- **Data Analysis Methods**

The data collected for this study will be keyed into excel sheet and then the descriptive and inferential analysis will be done. In the descriptive statistics, the line graphs showing the trends of the interest rates, inflation rate and exchange rate from 2010 to 2019 will be portrayed. In the inferential statistics, correlation analysis was conducted to examine the significant relationship between interest rate, inflation, exchange rate and financial performance of commercial banks.

4. Data Analysis, Presentation and Interpretation

This section looks into the findings of the influence of interest rate on the financial performance of commercial banks in Tanzania, the influence of inflation rate on the financial performance of commercial banks in Tanzania and the influence of exchange rate on the financial performance of commercial banks in Tanzania.

4.1 Descriptive Analysis

4.1.1 Financial Performance

In this study, the financial performance was measured using 10 year data period on return on assets of the commercial banks from the year 2010 to 2019. As shown in Table 1, the year 2012 recorded the highest return on assets while the year 2018 recorded the lowest at 1.04. The mean of the return on assets is 2.11 while the standard deviation is 0.53.

Table 1. Return on Asset (ROA)

Year	Return on Asset
2010	2.16
2011	2.53
2012	2.58
2013	2.55
2014	2.51
2015	2.49
2016	2.09
2017	1.24
2018	1.04
2019	1.9
Mean	2.11
Standard Deviation	0.53

Figure 1 indicates that the trend of the return on assets for the 10 years, from 2010 to 2019 has been fluctuating over the years.

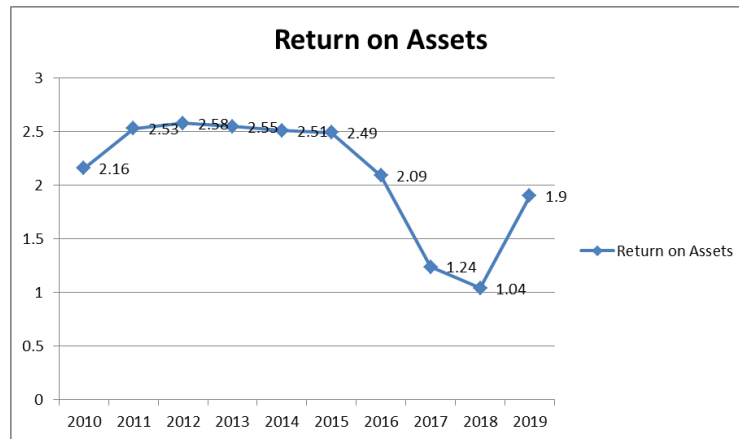


Figure 1. Return on Assets

4.1.2 Interest Rate

Table 2 shows the interest rates over the 10 years from 2010 to 2019. As shown under the Table, the highest interest rate was recorded in the year 2017 at 17.78% while the lowest was in the year 2010 at 14.55%. The average interest rate is 16.15 while the standard deviation is 0.97.

Table 2. Interest rates

Year	Interest rates %
2010	14.55
2011	14.96
2012	15.56
2013	15.86
2014	16.29
2015	16.12
2016	15.96
2017	17.78
2018	17.42
2019	17.02
Mean	16.15
Standard Deviation	0.97

Figure 2 indicates the trend of the interest rates over the 10 years from the year 2010 to 2019. The line graph shows that interest rate has been fluctuating over the years.

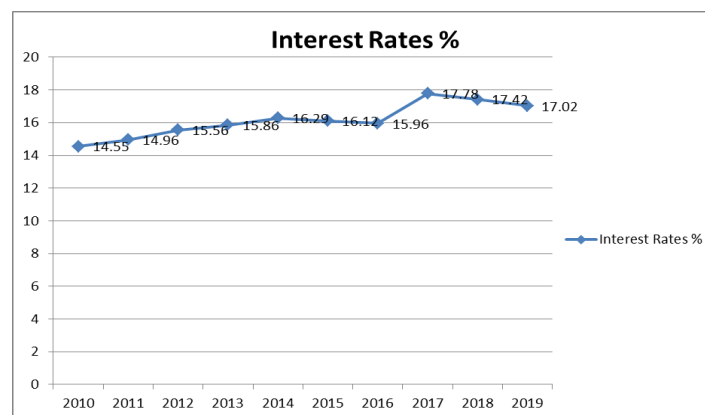


Figure 2. Interest rates

4.1.3 Inflation Rate

Table 3 shows the inflation rates over the 10 years from 2010 to 2019. As shown under the Table, the highest inflation rate was recorded in the year 2012 at 16.0% while the lowest was in the year 2019 and 2018 at 3.5% each. The average inflation rate 7.3 while the standard deviation is 3.83.

Table 3. Inflation rate

Year	Inflation Rate
2010	7.2
2011	12.7
2012	16.0
2013	7.9
2014	6.1
2015	5.6
2016	5.2
2017	5.3
2018	3.5
2019	3.5
Mean	7.3
Standard Deviation	3.83

Figure 3 indicates that trend of the inflation rates over the 10 years from the year 2010 to 2019. The bar chart shows that inflation rate has been fluctuating over the years.

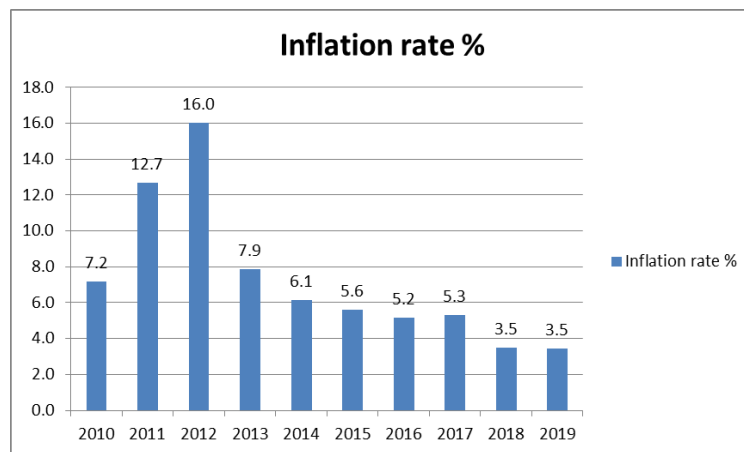


Figure 3. Inflation rate

4.1.4 Exchange Rate

Table 4 shows the exchange rates over the 10 years from 2010 to 2019. As shown under the Table, the highest exchange rate was recorded in the year 2019 at 2,307.06 while the lowest was in the year 2010 at 1,215.26. The average exchange rate is 1,872.20 while the standard deviation is 361.85.

Table 4. Exchange rate

Year	Exchange Rate TZS
2010	1,215.26
2011	1,598.24
2012	1,584.85
2013	1,616.43
2014	1,663.73
2015	2,037.17
2016	2,185.04
2017	2,237.30
2018	2,276.89
2019	2,307.06
Mean	1,872.20
Standard Deviation	361.85

Figure 4 indicate the trend of the exchange rates over the past 10 years from the year 2010 to 2019. The bar chart shows that exchange rate has been fluctuating over the years.

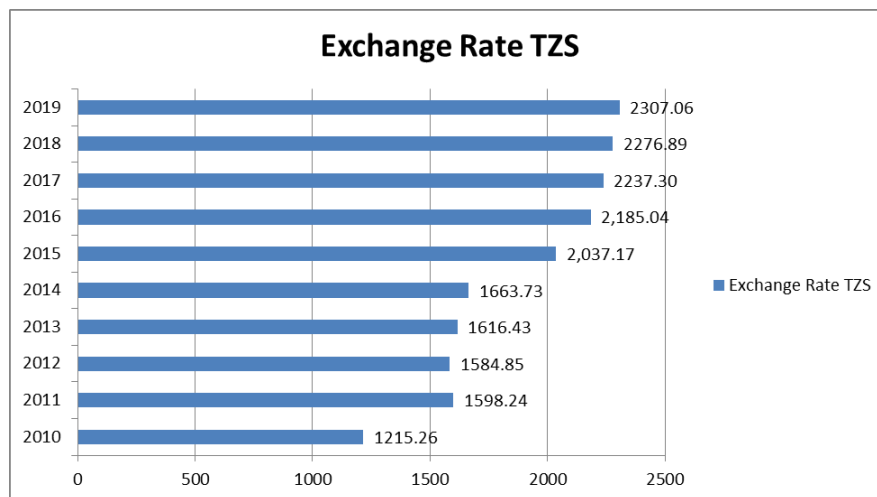


Figure 4. Exchange rate

4.2 Correlation Analysis

4.2.1 Interest Rate and Financial Performance

As shown under Table 5, the correlation analysis conducted between interest rate and return on assets reveal a strong negative relationship of 74.99%. This means that increase in return on assets results in a decrease in interest rate by 74.99%.

Table 1. Correlation analysis of interest rate and financial performance

	Return on Assets	Interest Rates %
Return on Assets	1	
Interest Rates %	-0.749853206	1

4.2.2 Inflation Rate and Financial Performance

As shown under Table 4.6, the correlation analysis conducted between inflation rate and return on assets reveal a positive relationship of 59.22%. This means that increase in return on assets results in an increase in inflation rate by 59.22%.

Table 6. Correlation analysis of inflation rate and financial performance

	Return on Assets	Inflation Rates %
Return on Assets	1	
Inflation Rates %	0.592192832	1

4.2.3 Exchange Rate and Financial Performance

As shown Under Table 7, the correlation analysis conducted between exchange rate and return on assets reveal a negative relationship of 65.52%. This means that increase in return on assets results in a decrease in exchange rate by 65.52%.

Table 2. Correlation analysis of inflation rate and financial performance

	Return on Assets	Interest Rates %
Return on Assets	1	
Exchange Rate TZS	-0.655239772	1

5. Discussion, Conclusions, and Recommendations

This section presents the summary of major findings, discussion and conclusions as per the main objectives of the study. Recommendations on the relationship between interest rates, inflation rates and exchange rate on financial performance of commercial banks are presented.

5.1 Summary of the Study

Section one gave an overview of the research topic which includes background to macroeconomic factors influencing financial performance of commercial banks, statement of the problem, general objective, specific objectives, significance of this study, scope of the study and definition of terms. The general objective of this study was to study the influence of macro-economic factors on financial performance of commercial banks in Tanzania. The research objectives are to establish the influence of interest rate on the financial performance of commercial banks in Tanzania, to determine the influence of inflation rate on the financial performance of commercial banks in Tanzania and to assess the influence of exchange rate on the financial performance of commercial banks in Tanzania.

Section two gave a review of literature related to the study. The section presented past studies explaining the various factors influencing the financial performance of commercial banks in different areas over the period of study. The section principally centered on reviewing literature related with the research queries of the study: interest rate, inflation rate and exchange rate.

Section three presented the research design, population and sample of the study, data collection method, research procedures and data analysis methods. Section four presents the results and finding. The study applied descriptive and explanatory research design. The descriptive research design assisted in describing the trend of the exchange rate, interest rates and inflation rate for 10 years from 2010 to 2019. The data collected for this study was keyed into excel sheet and then the descriptive and correlation analysis was conducted. In the descriptive statistics, mean, standard deviation, the line and bar graphs showing the trends of the interest rates, inflation rate and exchange rate from 2010 to 2019 was portrayed. In the correlation analysis, data was analyzed to examine the significant relationship between interest rate, inflation, exchange rate and financial performance of commercial banks.

The financial performance was measured using 10 years data period on return on assets of the commercial banks from the year 2010 to 2019. The findings show that the year 2012 recorded the highest return on assets while the year 2018 recorded the lowest at 1.04. The mean of the return on assets was 2.11 while the standard deviation was 0.53.

On the first objective of the influence of interest rate on the financial performance of commercial banks in Tanzania, the results of the findings indicate that the highest interest rate was recorded in the year 2017 at 17.78% while the lowest was in the year 2010 at 14.55%. The average interest rate was 16.15 while the standard deviation was 0.97. The interest rate has been fluctuating over the years. The correlation analysis conducted between interest rate and return on assets reveal a strong negative relationship of 74.99%. This means that increase in return on assets results in a decrease in interest rate by 74.99%.

On the second objective of the influence of inflation rate on the financial performance of commercial banks in Tanzania, the findings revealed that the highest inflation rate was recorded in the year 2012 at 16.0% while the lowest was in the year 2019 and 2018 at 3.5% each. The average inflation rate was 7.3 while the standard deviation was 3.83. The inflation rate has been fluctuating over the years. The correlation analysis conducted between inflation rate and return on assets revealed a positive relationship of 59.22%. This means that increase in return on assets results in an increase in interest rate by 59.22%.

On the third objective of the influence of exchange rate on the financial performance of commercial banks in Tanzania, the findings reveal that the highest exchange rate was recorded in the year 2019 at 2,307.06 while the lowest was in the year 2010 1215.26. The average exchange rate was 1,872.20 while the standard deviation was 361.85. The exchange rate has been fluctuating over the years. The correlation analysis conducted between exchange rate and return on assets reveal a negative relationship of 65.52%. This means that increase in return on assets results in a decrease in exchange rate by 65.52%.

5.2 Discussion

5.2.1 Influence of Interest Rate on Financial Performance

The correlation analysis conducted between interest rate and return on assets reveal a strong negative relationship of 74.99%. This means that increase in return on assets results in a decrease in interest rate by 74.99%. This is supported by a study by Baba and Nasieku (2016) that revealed that interest rate has a negative significant relationship on the financial performance of banks in Nigeria. A study by Njuguna (2013) on the effects of macroeconomic variables on financial performance of deposit taking microfinance institutions in Kenya revealed that rise in interest rate leads to a fall in financial performance as measured by return on assets. This is supported by a study by Muchiri (2012) that concluded that lowering interest rates leads to a better performance in the stock market.

The finding is also supported by a study by Simiyu and Ngile (2015) which investigated how macroeconomic factors influence profitability of commercial banks in Kenya and revealed that there is negative significant relationship between profitability and interest rate. A study by Osamwonyi and Chijuka (2014) on influence of macroeconomic factors on the financial performance of commercial banks revealed that there is a negative significant relationship between interest rate and the financial performance of commercial banks.

The finding of the study goes against findings of a study by Kungu (2013) that revealed that interest rate to be third in ranking after inflation, when it comes to microeconomic variables with the greatest positive effect on the financial performance of firms. Also, a study by Kipngetch (2011) which investigated the relationship between interest rates and financial performance of commercial banks in Kenya revealed that there is a positive relationship between interest rates and the performance of commercial banks in Kenya.

5.2.2 Influence of Inflation Rate on Financial Performance

The correlation analysis conducted between inflation rate and return on assets revealed a positive relationship of 59.22%. This means that increase in return on assets results in an increase in inflation rate by 59.22%. This is supported by a study conducted by Flamini (2009), on determinants of commercial banks profitability in sub-Saharan Africa. The study found out that inflation revealed a positive influence on the profits the bank realized. A study by Desaro (2012) investigated the effects of macroeconomic variables on financial performance of commercial banks in Kenya. The study revealed that return on assets are positively correlated with inflation.

The finding are supported by a study by Baba and Nasieku (2016) that revealed that there is a positive correlation between inflation rate and the financial performance of banks. A study by Wamucii (2010) revealed that with increase in inflation, the financial performance of banks also increases. A study by Alemu and Negasa (2015) investigated the determinants of financial performance of commercial banks in Ethiopia. The findings revealed that measurement by return on assets, inflation displayed an insignificant positive influence on the financial performance of commercial banks in Ethiopia.

The finding goes against findings of a study by Ongore and Kusa (2013) that investigated the effect of macroeconomic variables of the performance of Kenyan banks. The study revealed that inflation has a significant negative relationship with the profitability of the bank. A study conducted by Osamwonji and Chijuka (2014) that studied influence of macroeconomic factors on the financial performance of commercial banks. The study revealed that a negative insignificant relationship between inflation rate and the financial performance of commercial banks.

5.2.3 Influence of Exchange Rate on Financial Performance

The correlation analysis conducted between exchange rate and return on assets revealed a negative relationship of 65.52%. This means that an increase in return on assets results in a decrease in exchange rate by 65.52%. This is supported by a study by Muchiri (2012) that revealed that exchange rate has a negative significant influence on stock market performance. This is supported by a study conducted by Desaro (2012) that investigated the effects of macroeconomic variables on financial performance of commercial banks in Kenya. The study revealed that return on assets negatively correlated with exchange rate. A study by Lagat and Nyandema (2016) also revealed that the fluctuations of exchange rate negatively affect the financial performance of banks.

The finding is also supported by a study by Baba and Nasieku (2016) that revealed that exchange rate has a negative significant relationship on the financial performance of banks in Nigeria. A study by Kungu (2013) investigated how macroeconomic variables affect financial performance of private equity firms in Kenya. The findings revealed that exchange rate has a negative hence weak relationship with return on investment.

The finding goes against findings by Ongeru (2014) in a study on effect of macroeconomic variables on financial performance of non-banking financial institutions. The findings revealed that there is a strong positive relationship between return on assets and exchange rate.

5.3 Conclusion

5.3.1 Influence of Interest Rate on Financial Performance

The results of the data analysis reveal a strong negative relationship between interest rate and financial performance. The correlation analysis reveals that increasing interest rate by one percent, decreases financial performance by 75%. Therefore, the study concludes that interest rate influences financial performance of commercial banks.

5.3.2 Influence of Inflation Rate on Financial Performance

The results of the data analysis reveal a positive relationship between inflation rate and financial performance. The correlation analysis reveals that increasing inflation rate by one percent, increases financial performance by 59%. Therefore, the study concludes that inflation rate influences financial performance of commercial banks.

5.3.3 Influence of Exchange Rate on Financial Performance

The results of the data analysis reveal a strong negative relationship between exchange rate and financial performance. The correlation analysis reveals that increasing exchange rate by one percent, decreases financial performance by 66%. Therefore, the study concludes that exchange rate influences financial performance of commercial banks.

5.4 Recommendations

5.4.1 Recommendations for Improvement

- Influence of Interest Rate on Financial Performance

The study provides a recommendation to the government to continue maintaining the lending interest rate to curb a drop in financial performance of commercial banks.

- Influence of Inflation Rate on Financial Performance

The study provides recommendation for the government to continue maintaining the policies that protect commercial banks in case of inflation rate rising.

- Influence of Exchange Rate on Financial Performance

The study provides recommendation for the government to continue maintaining the policies that protect commercial banks in case of exchange rate fluctuations.

5.4.2 Recommendations for Further Research

The study analyzed the influence of interest rate, inflation rate, exchange rate on financial performance of commercial banks. Hence, the study provides recommendation that further research needs to be done on other micro-economic variables for example Taxes and Regulations to determine the length to which they influence the financial performance of commercial banks.

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