EFFECTS OF MACRO-ECONOMIC FACTORS ON NON-PERFORMING LOANS OF COMMERCIAL BANKS IN KENYA

JAMES MWANGI

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DECLARATION

This research project is my original work and has not been presented for a degree in any other university.

Signed………………………………………… Date………03 December 2020………………….

James Mwangi

D63/5478/2017

This research project has been submitted for examination with my approval as University Supervisor.

Signed……………………………………………... Date………December 3, 2020………………….

Dr. Winnie Nyamute
Department of Finance and Accounting
University of Nairobi

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DEDICATION

I dedicate this research study to the Finance Industry to help them in their pursuit to mitigate Non-Performing Loans in the country.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

BBK   Barclays Bank of Kenya Limited

BOP   Balance of Payment

CBA   Commercial Bank of Africa Limited

CBR   Central Bank Rate

CBK   Central Bank of Kenya

CRB   Credit Reference Bureau

CSMs   Credit Scoring Models

IFRS   International Financial Reporting Standards

KCB   Kenya Commercial Bank Limited

NPL   Non-Performing Loan

PMT   Protection Motivation Theory

SMS   Short Message Service

SPSS   Statistical Package for Social Science

ABSTRACT

The increase in NPLs of a commercial bank is a major concern for the bank, of which necessitates the review of its lending policies. The reduction in the amount available to borrowers affect financial intermediation and aggravates economic deterioration. It therefore becomes a loop in which adverse macroeconomic factors such as increase in inflation rate or interest rate increases NPLs in Kenyan commercial banks. This study looks the effects of macroeconomic factors on NPLs in commercial banks in Kenya. The research used a descriptive and cross-sectional research design and focused on the whole banking industry focusing on the 39 commercial banks. The study used secondary data and utilized quarterly data for a ten-year period starting from 2010 to 2019. The model used for this research is a multiple regression model. The research used NPL ratio as the dependent variable with GDP, BOP, Interest Rates, Exchange rates, Inflation rate and Money Supply as the independent variables. NPLs were seen to be increasing and GDP, BOP and Inflation had an influence on NPLs. The study recommends banking managements and government agencies to formulate policies that would mitigate the fluctuations in interest rates and inflation rates respectively and develop strategic mechanisms that would ensure GDP growth, optimal currency levels in the market and a reduction in BOP deficit.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Schumpeter (1934) points out the relevance of the financial sector as far as economic growth and stability of macro-economic factors is concerned. The financial intermediation in the economy includes enhancing mobilization of savings, enhancing project evaluation as well as facilitation of transactions. Financial intermediation is a prerogative of commercial banks in an economy. The stability and the growth of commercial banks therefore translates to increase in financial intermediation in the economy. Mensa and Adjei (2015) states that distortions on macroeconomic variables such as interest rates, exchange rate fluctuations, inflation and GDP affect the balance between the total amount lenders are willing to lend out, and the amount borrowers are willing and able to borrow. This ultimately affects the pricing and cost of borrowing which then affects ability to repay loans that may result to either increase or decrease in NPLs in Kenyan commercial banks. Agade (2014) hints at the effect of macroeconomic factors on individual economic units such as commercial banks. The performance and profitability of commercial banks is adversely affected if its function of lending money and accepting deposits from savers is affected. The increase in non-performing loans of a commercial bank is a major concern for the bank, of which necessitates the review of its lending policies. The reduction in the amount available to borrowers affect financial intermediation and aggravates economic deterioration. It therefore becomes a loop in which adverse macroeconomic factors such as increase in inflation rate or interest rate increases non-performing loans in commercial banks. The commercial banks undertake to caution themselves against such losses and therefore adopts policies that limit financial intermediation in the economy. This further aggravates the state of the economy that further increases NPLs in Kenyan commercial banks (Nanteza, 2015).

The relation between macroeconomic factors and non-performing loans has been theorized by various theories. Protection motivation theory originated from Rodgers (1975) on response that is related to fear appeals. The fear of lenders is to understand how they would be able to receive loan repayments plus interest accrued from the borrowers. The fear may therefore be stated in other words as the fear of reducing or eliminating non-performing loans in their loan portfolios. This fear appeal is aggravated by adverse macroeconomic factors. The other theory that will also be

instrumental in the study is the theory of information asymmetry which was first proposed by Akerlof (1970). The theory is based on information asymmetry that is between the lenders and the borrower. When the borrower is aware of information that may significantly change his risk level as assessed by the lender, and of which the lender is not aware of such information, this brings about information asymmetry and may result to increase in non-performing loans. This theory is also related to the third theory of adverse selection theory that was proposed by Stiglitz and Weiss (1981). The situation where borrower has information but the lender is not privy to such information. They called such a situation adverse selection and which result in biased review of the borrower in terms of creditworthiness. This would eventually have an impact on the NPLs level in the loan portfolio of the lender.

In the global environment, macroeconomic factors have been found to have varying effects the NPLs level. In Moldova, NPLs increased with decrease in GDP, exports as well as remittances. NPLs also increased as a result of increase in unemployment (Clichici & Colesnicova, 2017). Mascu and Beca (2016) after undertaking effect of inflation, real interest rates, GDP per Capita, savings and government expenditure on non-performing loans found that only real interest rates had a positive impact on NPLs. In west Africa Ghana, HFC Bank was used as a case study to determine the effect of macroeconomic factors on NPLs. The macroeconomic factors of inflation and T-bills were cited to have significant effect on how loans performed in commercial banks.

1.1.1 Non – Performing Loans

CBK (2018) defines NPLs as the outstanding loans for which the principal amount together with the interest of the loans are due and have remained unpaid for a period of 90 days or more. Researchers have defined non-performing loans as the outstanding loans due but not generating income to the lender for a more than 90 days or more (Choudhury et al., 2002). Hennie (2003) further stated that non-performing loans are those loans in which have remained unpaid for more than 90 days and therefore do not generate income for the commercial bank that issued the loans. She therefore suggested that such loans would be determined from the ageing loan schedule for the commercial banks.

Non- performing loans have been used by commercial banks to assess the quality of their loan book. The main business of commercial banks is the sale of loans to borrowers. The interest earned from sale of loans have significant impact on performance of commercial banks. It therefore means that if borrowers fail to repay the loan together with interest accrued, then commercial banks would not be in business. Commercial banks therefore invest massively to ensure that they assess the creditworthiness of any borrower as much as possible while at the same time ensuring that they do not enforce so much bottlenecks that would turn away credit worthy borrowers. This means that banks are tasked with balancing between earning adequate commission from sale of loans and ensuring that they maintain non-performing loans at a low level (Kugiel, 2009).

The ratio of NPLs to total loans issued by the bank has been widely employed by researchers in measuring the loan quality of various banks (Festic, et. al. 2009) and the efficiency of the banking sector. The loans that have not been serviced in terms of principal repayment and /or the interest earned therefore for a period of 90 days or more is considered non-performing loans (Podpiera, 2006). NPLs have therefore been widely measured and determined as the ratio of total non-performing loans to the total loans issued by the bank.

1.1.2 Macroeconomic Factors

Nurlaily (2013) defines macroeconomic factors as external variables which are found outside the company and of which the management of the company has no control over, but they have influence on the operations of the company. These factors include economic growth, interest rates, exchange rates, inflation, money supply, BOP position among several others. GDP growth is determined by the total value of goods and services that have been produced in the country. The higher the economic growth, the more are the goods and services generated in the economy that signifies increased productivity. High economic growth would also be translated into better welfare of the economy and the better the position of the entire public that would improve the position of NPLs in the Kenyan commercial banks. Interest rates on the other hand represent the total cost of borrowing or the amount required by lenders for advancing loans (Smith & Stulz, 1985). Kenya capped interest rates imposed by commercial banks, decreasing the average interest rates imposed by commercial banks for loans issued. Exchange rate on the other hand is the price

at which the home currency is exchanged for a foreign currency. Inflation has also been defined as a measure of the increase in price of goods and services in a certain time frame.

Macro-economic factors explain the state of the economy at a particular time. It describes how scarce factors of production are utilized in order to produce and generate more resources. The process of turning inputs into outputs is affected by the state of the economy. On the other hand, the ability of turning inputs into outputs with ease also shapes the state of the economy. The two variables are therefore interdependent, that a change in one of the variables affects the other. Macroeconomic factors have been measured differently by various researchers. Ofori-Abebrese et al. (2016) measured macroeconomic factors that influenced NPLs as level of inflation and T-bills rate for a period of 8 years in Ghana. This is because despite the fact that these factors are experienced in an economy at different magnitude and intensity, they are more likely to be related with the condition of the economy. An economy that is not doing well, is characterized by drastic and significant changes of all macroeconomic factors, while a stable economy has consistent and predictable changes in macroeconomic factors (Smith & Stulz, 1985).

1.1.3 Relationship between Macroeconomic Factors and Non-Performing Loans.

In the event that macroeconomic factors experience dramatic changes, systematic risks increase significantly. Individuals and investors in the economy caution themselves against such increase in risk by increasing their precautionary transactions which act to decrease their disposable income. Decrease in disposable income means that consumption is reduced while total savings in the economy are severely affected. This therefore means that individuals who were initially able to meet their loan obligations will find it difficult to meet such obligations and hence the rate of NPLs rise. Clichici and Colesnicova (2017) in their study that investigated the effect of macroeconomic factors on NPLs in the country of Moldova found that NPLs increased with the decrease in GDP, exports, remittances and when unemployment increased. Similarly, Ofori-Abebrese et al. (2016) found that the macroeconomic factors that affected NPLs in Ghana's HFC Bank were Inflation and T-Bills rate. Other studies that found impact of macroeconomic factors on NPLs were Muthami (2016) who found a significant negative relationship between economic growth and non-performing loans while Thuo (2017) found significant influence of economic

growth, inflation and money supply on NPLs. In the contrary, a study conducted by Inekwe (2010) did not find a significant effect of inflation on NPLs for banks in Nigeria.

The findings of these studies on the relationship between these two variables therefore indicate that in an economy experiencing any adverse macroeconomic factor, then such a factor creates disruptions in the economy and precautionary measures are exercised that results in borrowers unable to fully meet their loan obligations and therefore increase NPLs.

1.1.4 Commercial Banks in Kenya

In Kenya, commercial banks are regulated by the Central Bank of Kenya (CBK) through the Banking Act, Microfinance Act, together with the Central Bank of Kenya Act, and other legislations such as Companies Act among other regulations and other guidelines issued. The commercial banks are thereby authorized to receive deposits from clients, disburse payments, act as collection agents, and invest in securities to maximize their returns as well as maintain safe custodial accounts of its depositors and other checking account holders. Commercial banks are vital institutions in any economy as they are the main source of financing for capital investment in the country. This means that, capital investors in an economy depends upon commercial banks to grant them loans to enable them undertake their investment successfully.

The banking history in Kenya dates back to the colonial times when there was need to use currency in the East African region through trade. The first commercial bank in Kenya was National Bank of India that was established in 1886. The banking sector have evolved ever since to the current 43 licensed commercial banks of which 3 of these banks have currently been placed under receivership. These commercial banks have been categorized into three groups depending on their sizes. The first group also called Tier 1 banks are the largest banks in Kenya which are made up of only 7 commercial banks with a market share of over 50%. The Tier 2 banks are middle sized commercial banks which are normally owned by private individuals, and the last group is composed of Tier 3 banks. The government of Kenya maintains a shareholding in 3 of the Tier 1 banks with 31 of the banks being locally owned while the rest are foreign owned (Central Bank of Kenya, 2018).

The greatest percentage of assets in a commercial bank are composed of loans advanced. This is because the primary investment of a commercial bank is issuance of loans. It therefore follows that the main source of income for commercial bank is interest earned from loans issued. However, the interest earned from advanced loans faces a major setback in NPLs. NPLs affect the income generated from the total assets and therefore they water down the earning capability of commercial bank's assets. NPLs in the Kenyan banking sector have gradually increased over time, with a specific increase of 27.2% in the year 2018. The NPLs increased to a total of Kshs 298.4 billion from Kshs 234.6 billion in 2017. The cause of such increase was that payments were delayed by government agencies government agencies as well as the private sector, business stagnation in 2017 due to the general elections and the slow uptake of developed houses in the real estate sector (Central Bank of Kenya, 2018). The reasons cited, indicate that NPLs are affected by macroeconomic factors in the economy and therefore this study endeared to understand the specific effect of these macroeconomic factors on NPLs in the commercial banks in Kenya.

1.2. Research Problem

Non-performing loans have been the greatest factor leading to bank failure in the history of commercial banks in Kenya. As per Obiero (2002) and Mwanza (2012) 39 commercial banks in the period between 1984 and 2002 failed, of which 38% of these banks failed as a result of poor lending practices that led to increased non-performing loans. The poor lending practices in commercial banks in the period 1984 to 2002 were influenced by poor macroeconomic policies influenced by government spending. The political instability, low economic growth, droughts, famine and direct interference by government motivated poor lending practices in commercial banks. The regulator (CBK) regularly monitors the NPLs in every licensed commercial bank, in order to certain that the commercial banks remain financially sound and thus protect the interests of depositors. The IFRS also provides for a framework for ensuring that NPLs are written off as expenses by increasing the provision for doubtful debts. The management of commercial banks are therefore in situations where they ensure that they undertake their due diligence before issuing loans to clients, to emphasize on good quality loans and lower the level of NPLs.

Mwanza (2017) suggested that tough economic conditions that worsened in the year 2017 increased NPLs in commercial banks to a ten-year record. Increased inflation rate, decrease in

economic growth, exchange rate fluctuations were all attributes that were experienced in the year 2017. The disputed national presidential elections that were undertaken twice and the unrest in the country increased systematic risks. The increased inflation rate, low economic growth and fluctuating exchange rate were experienced together with increase in the level of NPLs in commercial banks. This therefore acts as the motivation of the study, which seeks to elucidate whether macroeconomic factors have influence on NPLs in commercial banks in Kenya.

The macro environment has been reported to influence the performance of commercial banks (Mwanza, 2017). Similarly, it becomes a menace as the managements of the commercial banks are not in position to control the macro economic environment. This challenge has attracted global researchers to examine the effect of macroeconomic variables on non-performing loans. Clichici and Colesnicova (2017) undertook a research on the impact of macroeconomic factors on non-performing loans in Moldova, Nkusu (2011) prepared a working paper for IMF on NPLs and macroeconomic vulnerabilities in advanced economies. Karahanoglu and Ercan (2015) also studied how macroeconomic variables are impacting NPLs in the Turkish Banking Sector.

Local studies have also been undertaken on macroeconomic factors and NPLs in commercial banks. Muriithi (2013) undertook a research on the causes of non-performing loans in Commercial Banks in Kenya. Cheruiyot (2018) studied non-performing loans and how commercial banks were in Kenya. Muthami (2016) on the other hand undertook a case study for Kenyan commercial banks, on the NPLs and economic growth were related. The study was only focused on one macro-economic factor of economic growth while this study will focus on economic growth, inflation rate, BOP position, interest rates and exchange rate fluctuations. Thuo (2017) studied selected macroeconomic variables (Interest rates, GDP, exchange rate, inflation and money supply) and non-performing loans in Commercial banks in Kenya. The study however did not focus on the effect of balance of payment (BOP) position on non-performing loans which is a major gap that will be addressed by this study. Despite the growing interest on macroeconomic factors and how they may affect non-performing loans in commercial banks, there still exist more information that is not known of which requires research to be undertaken to bring the information into light. This research therefore will undertake a research that will try to answer the research question; what is the effect of macroeconomic variables on non-performing loans of commercial banks in Kenya?

1.3 Research Objective

The research objective of this study is to determine the effects of macroeconomic factors on non-performing loans in Kenyan commercial banks.

1.4 Value of the Study

This study will be of great help to Kenya Commercial banks as it will help them identify the macroeconomic factors that have adverse effect on NPLs. They may therefore be in good position to develop policies in regard to lending during anticipated periods of pronounced macroeconomic effects, such as anticipated increased inflation rate, reduced or increased interest rates, BOP position, exchange rate and economic growth. This will help them identify the period to issue loans that would qualify as quality loans.

The government will also find the study useful. This is because the government has control of major macroeconomic factors, or it may develop policies that may influence macroeconomic factors in a desired manner. This study will therefore highlight to the government desirable macroeconomic conditions that enhance reduced NPLs in commercial banks in the country. The government will therefore develop policies that would ensure that such factors are promoted and addressed accordingly.

Future researchers and academicians will also find the study useful. Proponents of protection Motivation theory, Classical theories and Keynesian theory will find the study supporting their propositions or critiquing them. This helps in the development of existing information in the area of non-performing loans and macroeconomic factors. The study will be helpful for future research as the academicians may quote the study in developing their literature review and identifying their respective research gaps.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter comprises of the theoretical framework that relate to the study. It then concludes with summary of literature review and conceptual framework.

2.2 Theoretical Review

The theories related to the study of macroeconomic factors and their effect on NPLs of commercial banks are discussed in this section. The theories are discussed based on the proposition of each theory, the existing critique of the theory and the relationship of the theory with the study. Other factors that influence non-performing loans and empirical research studies are also covered in this chapter

2.2.1 Protection Motivation Theory

This theory was proposed by Rogers (1975) on how to comprehend and cope with fear appeals. The theory was based on earlier studies by Lazarus (1960) who studied on how to cope and deal with stressful situations. Rogers (1983) improved on his propositions to make it a general theory that focused on effective persuasive communication. This theory states that a person protects themselves on the basis of four factors: perceived probability of occurrence of an event, the perceived severity of a threatening event, the efficacy of the recommended preventive behavior as well as the perceived self-efficacy.

The various criticism of this theory suggests that PMT theory overemphasizes on cognitive processes. They also suggest that the theory lacks clarification of emotional reaction to fear appeals on conduct and stance. The theory also does not clearly show the single distinction or the single effect on handling coping attitudes and fear appeals (Tanner et al., 1991).

This theory is appropriate to the study as it tries to justify the way individuals act on situations of possible loss. The theory explains how managers faced with risky macroeconomic factors, react by assessing the chance of the macroeconomic risk-taking root, perceived severity of occurrence of the loss as well as the efficacy of the recommended preventive behavior.

2.2.2 Theory of Information Asymmetry

The theory was brought up by George A. Akerlof in 1970. Akerlof developed asymmetric information using the automobile market as a case study. Akerlof argues that some market statistics where been used to measure the worth of goods by the buyer. Hence, the seller had in-depth understanding of the items while the buyer could only see the market average. Akerlof states that the information asymmetry now allows the seller to vend goods at an incentive of a lesser market quality. This will result in the average quality of goods reducing together with market size.

In contrast, it takes sometime between loan disbursements and loan repayments. The lender getting their money back with interest is dependent on the borrower's repayment probability. The theory is applied here in that the borrower knows more about his financial position than the lender. The theory states that in a market, an individual with the most information on a certain good that is been transacted (in this scenario the borrower) will be in a place to work out proper terms than the other faction (in this scenario, the lender) (Auronen, 2003) and Richard (2011). A commercial bank will have difficulty determining the likelihood of the borrower defaulting. Past credit history and the borrower's repayment ability will be used by the lender to try to control this.

Nonetheless, this only provides little knowledge. The side with less information about a particular item been transacted will result in either making right or wrong decisions in regards to that transaction. The theory is applicable in that, if borrowers could give out true and proper information about their financial position to banks when they are requesting for credit, then banks could ideally make better informed decisions and hence reduce credit risk.

2.2.3 Adverse Selection Theory

Adverse selection can be defined as to a scenario when sellers have more information than buyers. This theory emerged from the research paper by Stiglitz and Weiss (1981). The Adverse Selection Theory is founded on two principle assumptions: that banks cannot differentiate between borrowers of separate degrees of risk and that loan agreements are subject to little liability. The theory's problem arises when borrowers have private knowledge about themselves and the project they want to invest in even before the credit application process begins. The lender may have a rough idea about the average behaviour of a potential borrower, the bank may not have the true and complete knowledge of the borrower's characteristic and how risky the project is.

Information sharing is a way to reduce biased selection by enabling banks to have information on borrowers. The theory states that in a market, an individual with the most information on a certain good that is been transacted (in this scenario the borrower) will be in a place to work out proper terms than the other faction (in this scenario, the lender) (Auronen, 2003) and Richard (2011).

Banks are assumed to be ignorant of the attributes of each particular project and do not know the expected return of the project. Commercial banks have accumulated notable amounts of non-performing loans due to adverse selection (Bester, 1994; Beyond and Gobbi, 2003). The side with less information about a particular item been transacted will result in either making right or wrong decisions in regards to that transaction.

2.3 Macro-Economic Factors

Macroeconomic factor is explained as a characteristic, a trend or condition in which applies to a broad aspect of an economy rather than a certain population. The macroeconomic factors include gross domestic product, the rate of employment, business cycle phases, rate of inflation, money supply, rate of exchange rate fluctuations, interest rates, and level of government debt. These are economic indicators that are closely monitored and followed by governments, the private sector as well as private citizens as they are vital in crucial decision making.

2.3.1 Gross Domestic Product

Chappelow (2019) defines GDP as the absolute financial or shilling value of all the complete goods and services that have been manufactured within the border of a certain state/nation in a particular period of time. GDP operates as a rating of the economic welfare of a country. This means that the higher the economic growth, the better is the economic well-being of the country, as the country is able to produce a higher value of goods and services. The GDP of a country is in most cases determined annually, however most economies have established systems that enable the determination of quarterly GDP values for the economy in order to avail necessary information that is required by policy makers.

GDP can be measured by the use of nominal GDP that measures the raw data without considering the impact of inflation, while the GDP that is determined by taking into consideration the impact of inflation is referred to as real GDP. GDP can also be determined by GDP growth rate that shows

the increase in GDP from one quarter to the other. The last measure of GDP is the use of GDP per Capita that measures GDP per person in the national populace. This measure is effective when comparing GDP in distinct countries (Chappelow, 2019).

2.3.2 Inflation

Inflation has been defined as the rise in cost of goods and services over a period of time. Inflation alludes to the fact that one has to spent more cash in acquiring the same basket of similar goods one would have obtained at a previous date. Inflation therefore has a tendency of reducing one standard of living as it reduces the purchasing power of one unit of currency. Inflation may be determined by the use of inflation rate which is the percentage increase or decrease in prices during a certain specified period of time. CBK (2017) defines inflation rate as the percentage change in the monthly consumer price index (CPI).

2.3.3 Interest Rates

It is explained as the proportion or ratio of the whole amount given as loans and the amount that the lender charges as interest to the borrower and expressed as annual percentage. It is the rate lenders charges for one to borrow money and the rate at which they pay savers for keeping money in accounts. Interest rates are usually expressed in a period of one year, while other interest rates are expressed in a period of a monthly, half yearly, or quarterly. According to the CBK (2017) interest rates is composed of historical rates on commercial banks, monthly weighted average lending, Deposit, overdraft and saving rates and also the central bank interest rates that is comprised of Repo and Reverse Repo rate, CBR (Central Bank Rate) and interbank rate. Kenya significantly reduced interest rates charged by commercial banks for loan issued through a legislative bill that pegged interest rates as of end of year 2016. The interest paid on savings and deposits on commercial banks accounts was also increased significantly.

2.3.4 Money Supply

It is explained as the total value of currency and other liquid assets that are in a country's circulation system at a point in time. The money supply in an economy is mostly accounted by cash, coins and balances held in checking and saving accounts, as well another near money substitutes. The aspect of money supply has been vital to economics in assessing the

macroeconomic factors in a country that also guides the development of macroeconomic policy suitable to ensure that the well-being of citizens is addressed.

Governments control money supply by the use of monetary policies such as increasing or reducing interest rates, Money supply classifies money in various categories such as M0, M1, M2 and M3 which depends on the type and size of the account in which the instrument is kept. The classification of the money supply is as a result of different liquidity types that is in each type of money (Nanteza, 2015).

2.3.5 Balance of Payment

Balance of Payment is defined as a record of all transactions made between organizations in one nation and the rest of the world over a certain period of time for example, a quarter or a year. BOP transactions comprise of imports and exports of capital, goods and services also including transfer payments like foreign aid and remittances.

To consider how exchange rate is affected by a current account balance, a comprehension of the patterns and constitution of international trade is key. The current account balance is mostly bent on the measure of net exports as the other parts of the current account are mostly little. Upon payments for imports surpasses money received from exports then a deficit occurs. Nevertheless, imports usually trade using foreign exchange, a deficit will result in rise in the need for foreign currency. This will mean the country is piling up foreign liabilities. Foreign exchange derived from other sources will have to pay for the liabilities. (Central Bank of Kenya, 2017).

2.3.6 Exchange Rate

Exchange rate is defined as the value of a country's currency versus the currency of another country. Kenya's amount of exports and imports will determine the exchange rate by having a strong effect on the supply and demand of foreign exchange. A reason why the exchange rate is also known as relative price. When a currency depreciates this result to exports been cheaper than imports. This leads to foreigners buying more of the country's exports increasing the quantity of exports. This also will result to an increase in the value of exports and also an increase in the current account balance. However, depreciating a nation's currency will result to imports

becoming more costly to a country and hence there will be a reduction in imports to the country. This will lower the deficit (Central Bank of Kenya, 2017).

2.4 Empirical Literature Review

Mazreku et al. (2018) undertook a study that sought to understand the what determines the NPLs in commercial banks of certain countries. The study was motivated by the 2008-2009 economic crisis as well as the subsequent credit crunch. The study was conducted on macroeconomic factors of GDP, inflation, unemployment as well as export. Data belonging to the countries was collected from World Bank sources as well as IMF for the period 2006 to 2016. The study found out that GDP growth as well as inflation had significant negative effect on NPLs, while unemployment was positively related to non-performing loans.

Mileris (2014) undertook a study on macroeconomic factors and impact on NPL in commercial banks of EU countries. The justification of the study was based on the Basel III agreement that suggested the consideration of macroeconomic conditions of countries before advancing loans to borrowers. The study used econometric models in determining the relationship between the macroeconomic factors and NPLs in EU countries. The research came to a conclusion that there was a positive correlation between a country's economic deterioration with increase in NPL percentage. This was evident in Lithuania as well as other EU countries that had adverse economic conditions. The study however found out that business cycle fluctuations in developed economies in the EU had insignificant effect on NPLs.

Mascu and Beca (2016) undertook a time series analysis for the period 1997-2014 that sought to undertake the impact of macro factors on NPLs in Romania. The study used VAR method to check on the relationship between the variables. The research had inflation, real interest rates, GDP growth rate as macro factors. The study found out that real interest rates had significant impact on levels of NPL in the study period.

Pradhan and Pandey (2016) examined the effect of firm specific and macro factor variables on NPL for Nepalese commercial banks. The study sampled 21 commercial banks in Nepal for the

period 2008 to 2014 and used multiple regression analysis. The study found out that microeconomic factors of ROA, ROE and loans to total deposit ratio were the major determinants of non-performing loans in Nepalese banks. The macro economic factors of GDP and annual money supply growth had insignificant effect on NPLs.

Cheruyoit (2018) examined the effects of NPLs on Kenyan commercial banks' financial performance. Secondary data was collected from annual reports for the banks for the period 2011 to 2016. Multiple regression model was employed to determine the relationship between the independent and dependent variables. The findings of the study showed negative significant relationship between NPLs, age of the firm and operational costs on financial performance. However, a significant relationship was established on collateral value for NPLs and financial performance, which supported the moral hazard theory.

Thuo (2017) studied selected macroeconomic variables (Interest rates, GDP, exchange rate, inflation and money supply) and NPLs in Commercial banks in Kenya. The study was undertaken for a period of 10 years where secondary quarterly data was collected from appropriate websites as well as annual reports. Descriptive research design was employed and use of econometric models. The study used Gretel statistical software to analyze the data. The research found out that there was an insignificant negative relationship between GDP and NPL, NPL had insignificant positive relationship with exchange rates. Therefore, the study concluded that NPL was influenced by economic growth, inflation and money supply. The study however ignored the macroeconomic factor of BOP which will be addressed by this study.

Muthami (2016) undertook a study to investigate the relationship between economic growth and NPL among Kenyan banks for the study period 2005-2015. The study used quarterly secondary data from KBA and CBK. The study used descriptive research design and econometric models to determine the relationship between the variables. Analysis was undertaken by the use of EViews software and the study found out that there was negative correlation between the variables. The study was limited to one macroeconomic factor of economic growth and our study will address the gap by assessing the effect of five macroeconomic variables on NPLs.

Muriithi (2013) studied what caused NPLs in Commercial Banks in Kenya, he used exploratory research design and used both primary and secondary data collection methods. The analysis was

undertaken by the use of multiple linear regression where the study found that the main causes of NPLs in commercial banks, included poor credit rating of customers, lack of adequate information, political upheavals, and inflation rate. Economic growth was found to have minimal effect on NPL in commercial banks in Kenya.

2.5 Summary of Literature Review and Research Gaps

The chapter highlights various theories that are relevant to the study. The theories are defined criticized and the relation of the theory to this study is established. The theories discussed are PMT Theory, Theory of Information Asymmetry and adverse selection theory. These theories are based on decision making in risky environments as well as trade-off between risk and return. The theories are crucial to the study as they provide a basis on which the study may be conducted. The result findings of the study would either enhance or support the theories, or else fail to agree with the propositions of the theory or else show indifference in the propositions.

The empirical studies that have been addressed in the study involve international studies as well as local studies. The findings of these studies are not consistent with one another and other studies may be related to this study but do not measure the direct effect of macroeconomic factors to NPLs in Kenyan commercial banks. The study conducted by Thuo (2017) however, comes quite close to the variables and concepts that this study intends to undertake. However, Thuo (2017) only considered four independent variables and therefore ignored the macroeconomic variable of balance of payment position. This study therefore intends to address the research gap created by the study by answering the research question on determining the effect of macroeconomic factors on NPLs in commercial banks in Kenya.

2.6 Conceptual Framework

A conceptual framework is a pictorial format that shows the relationship that exist between the independent and the dependent variable. The theory hypothesizes that poor economic growth, increased inflation rate, increased money supply, poor economic growth and unfavourable balance of payment position would increase the NPLs in commercial banks in Kenya. This section therefore highlights the relationship between the two types of variables in a pictorial presentation.

Independent Variables

Dependent Variable

Macroeconomic Variables
• GDP
• Interest Rates
• Exchange Rates
• Money supply
• BOP position
• Inflation

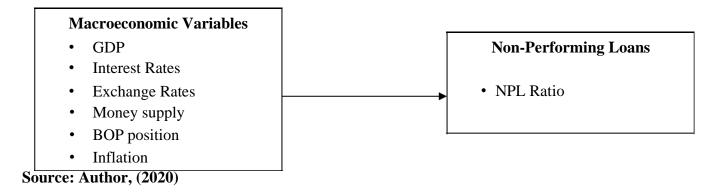| Non-Performing Loans |
| --- |
| • NPL Ratio |

Source: Author, (2020)

Figure 2.1: Conceptual Model

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter consists of the means the researcher will use to sample, collect and analyze the data. It consists of the following; Research design, population, sampling frame and sample size, data collection techniques, reliability test and data analysis techniques.

3.2 Research Design

A research design spots the sampling procedure and size as well as the technique used in data analysis (Cooper and Schindler, 2003). Kothari (2004) states that research design eases the several research operations, hence making the research process efficient and cost effective.

A descriptive and a cross-sectional study design was applied. The descriptive research, defines the information and attributes about the population or phenomenon being researched. Kothari (2004) describes a descriptive survey design as an outline that looks to represent the attributes of a specific person, condition or group. To do so, the study highly focused on both primary and secondary data.

3.3 Population

The study undertook a census of the whole population which covers all the 39 Kenyan commercial banks licensed by the CBK as per the CBK Bank Annual Supervision Report 2018. The study looked at the whole banking sector.

3.4 Data Collection

The study collected secondary data. NPLs for the whole industry were obtained from CBK website while macroeconomic data was obtained from KNBS website. Quarterly data was collected for the period of 10 years from 2010 to 2019. The data that was collected for NPLs involved gross loans and total NPLs for the whole banking sector. The average interest rates used was charged by commercial banks, exchange rate of Kshs to 1 USD, Money Supply (M3), BOP position and inflation rate.

3.5 Data Analysis

Data was analyzed by the use of descriptive statistics as well as inferential statistics. Correlation and multiple regression models were used in data analysis. The study used SPSS version 26.0 software to undertake the analysis. The regression model was as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon$$

Where,

Y = Total Non-performing loans for the whole sector determined through NPL

Ratio X_1 = GDP that was measured by annual GDP rate

X_2 = Real interest rates that were determined by the average annual interest rates charged by commercial banks.

X_3 = Exchange rates that were determined by the amount of Kenya shillings exchanged for one US dollar

X_4 = Money supply that were determined by broad money supply (M3) in every quarter.

X_5 = BOP that were determined by the natural log of the square of balance of payments position in a quarter.

X_6 = Inflation rate determined by the effective inflation rate existing in every quarter.

β_0 and ε represents constant and error term respectively.

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5,$ and $\beta_6,$ represents the coefficient of $X_1, X_2, X_3, X_4, X_5,$ and X_6 respectively.

3.6 Test of Significance

The study used p values at 95% confidence level to determine the statistical significance of the individual variables. A p value of less than 0.05 indicates a significant relationship while a p value of more than 0.05 indicates insignificant relationship.

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter looks at the results and the interpretations of the analyzed data. The chapter contains descriptive statistics, graphical presentations, correlation and the pooled regression analysis and finally Interpretations of the findings.

4.2 Descriptive Statistics

This chapter contains summary statistics and graphical analysis.

4.2.1 Summary Statistics

Table 4.1 Summary Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
NPL	40	0.035	0.12	0.064718	0.02686
GDP	40	3.5	11.6	5.842	1.3847
IR	40	12.24	20.28	15.456	2.39251
FX	40	77.33	105.29	93.6657	8.8049
MS	40	13.92	15.09	14.6073	0.3527
BOP	40	21.22	23.38	22.4553	0.46294
INFLATION	40	3.2	18.93	7.0725	3.70118
Valid N (listwise)	40				

Author 2020

The Table above indicates that average NPL ratio is 0.0647175, which indicates that 6.47% of the loan advanced by Commercial Banks in Kenya are non-performing. The average GDP over the

analysed time was 5.84%. The tables show that the minimum and maximum for the exchange rate was 77.33 and 105.29 respectively while its mean was 93.67.

The table indicates that the average inflation rate over the considered time frame was 7.07 while its minimum and maximum was 3.2 and 18.93 respectively. Further, on the table it is observed that the average interest rates that banks charged over time was 15.46 while the minimum rate was 12.24 and the maximum rate was 20.28. The table also indicates the average for Money Supply was 14.6 while its minimum was 13.92 and the maximum was 15.09. Finally, the tables indicate that the average for BOP was 22.4553 while its minimum and maximum was 21.22 and 23.38 respectively.

4.3 Correlation analysis

The researcher set to find out about the relationship between the variables of the study. For this to be determined, a correlation analysis was conducted. The relationships were determined using the Pearson's correlation coefficient.

Table 4.2: Relationship between variables

		NPL	GDP	IR	FX	MS	BOP	INFL
NPL	Pearson Correlation	1.000	0.016	-.771**	.655**	.719**	.430**	-.388**
	Sig. (1-tailed)		0.460	0.000	0.000	0.000	0.003	0.007
	N	40	40	40	40	40	40	40
GDP	Pearson Correlation	0.016	1.000	-.337*	-.265*	-.351*	-.470**	-.276*
	Sig. (1-tailed)	0.460		0.017	0.050	0.013	0.001	0.043
	N	40	40	40	40	40	40	40
IR	Pearson Correlation	-.771**	-.337*	1.000	-.455**	-.422**	-0.259	.333*
	Sig. (1-tailed)	0.000	0.017		0.002	0.003	0.053	0.018
	N	40	40	40	40	40	40	40
FX	Pearson Correlation	.655**	-.265*	-.455**	1.000	.885**	.679**	-0.069
	Sig. (1-tailed)	0.000	0.050	0.002		0.000	0.000	0.336
	N	40	40	40	40	40	40	40
MS	Pearson Correlation	.719**	-.351*	-.422**	.885**	1.000	.751**	-.279*
	Sig. (1-tailed)	0.000	0.013	0.003	0.000		0.000	0.040
	N	40	40	40	40	40	40	40
BOP	Pearson Correlation	.430**	-.470**	-0.259	.679**	.751**	1.000	0.015
	Sig. (1-tailed)	0.003	0.001	0.053	0.000	0.000		0.464
	N	40	40	40	40	40	40	40
INFLATION	Pearson Correlation	-.388**	-.276*	.333*	-0.069	-.279*	0.015	1.000
	Sig. (1-tailed)	0.007	0.043	0.018	0.336	0.040	0.464	
	N	40	40	40	40	40	40	40

The results showed that NPL ratio had a weak and negative correlation with inflation but showed a strong and negative correlation with interest rates. The results also showed that NPL ratio had weak and positive correlation with Balance of Payments (BOP), Exchange rates and GDP. The table also shows that NPL ratio had a strong and positive correlation with Money Supplied during the considered time frame. As all the correlation values are below 0.75, hence there was no multicollinearity observed among the research variables.

Table 4.3: Model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
				R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
.896	0.803	0.767	0.012971	0.803	22.386	6	33	2.49 E-10	0.600

Author 2020

The R square value (Coefficient of determination) is 0.803 which means 80.3% of the variation in NPL ratio can be explained by the independent variables. The results also show that the P value is 2.49 E-10, which is less than 0.05 significance value. This highlights that the regression model is significant and the model is fit.

The Durbin-Watson measures autocorrelation and a value towards 0 indicates a positive autocorrelation. The results show the value is 0.6 hence indicating a positive autocorrelation.

Table 4.4: Regression coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-0.262	0.219		-1.192	0.242
GDP	-0.002	0.002	-0.082	-0.733	0.469
IR	-0.007	0.001	-0.603	-5.636	0.000
FX	0.0000027	0.001	-0.082	-0.417	0.679
MS	0.049	0.018	0.642	2.691	0.011
BOP	-0.011	0.008	-0.191	-1.475	0.150
INFLATION	0.0000078	0.001	-0.034	-0.320	0.751

From Table 4.5 the model derived is as below

$$Y = -0.262 - 0.002\ X_1 - 0.007\ X_2 + 0.0000027\ X_3 + 0.049\ X_4 - 0.011\ X_5 + 0.0000078\ X_6 + \varepsilon$$

The regression equation found an insignificant negative relationship between non-performing ratio and GDP whereas there is an insignificant positive relationship between non-performing ratio and Money Supply. The findings also found out that inflation had an insignificant positive relationship with NPL ratio. Further the table shows that exchange rates had a positive relationship with NPL ratio. The findings further showed that BOP has a negative relationship with NPL ratio whereas NPL ratio had a negative relationship interest rate.

4.4 Test for Multicollinearity

Table 4.5: Collinearity Diagnostics

Variable	Tolerance	VIF
GDP	0.473	2.114
IR	0.522	1.915
FX	0.156	6.404
MS	0.105	9.529
BOP	0.355	2.815
INFLATION	0.536	1.865

Author 2020

The collinearity tests show that Variance inflation factors (VIF) were between 1 and 10. This indicates that there is no multicollinearity among the variables.

4.5 Interpretation of Findings

The results of the research showed an insignificant negative relationship between interest rate and NPL ratio. This shows that interest rates do not affect the level of NPLs in commercial banks. However, Mascu and Beca (2016) found out that real interest rates had significant impact on levels of NPL in the study period. The study found out that money supply had an insignificant positive relationship with non-performing loans, this shows that an increase in money supply lead to an increase in NPLs. A study by Pradhan and Pandey (2016) revealed a negative insignificant relationship between money supply and NPL ratio. A study done by Thuo (2017) showed that money supply had a significant negative relationship with the non-performing ratio.

The research observed that gross domestic product had an insignificant negative relationship with non-performing loan ratio hence showing an inverse relationship between the two variables hence showing that when the economy is growing, NPLs are decreasing. Similarly, Mesai and Jouini (2013) also revealed that non-performing loans have an inverse relationship with gross domestic product. The study showed that nonperforming loan ratio had an insignificant positive relationship with exchange rates hence showing that an increase in exchange rates lead a slight increase in Non-Performing Loans. A study by Thuo (2017) also revealed a positive relationship between NPLs and exchange rate fluctuations.

The study also found out that inflation had an insignificant positive relationship with non-performing loan ratio. This highlights that an increase in inflation would lead to an increase in NPLs. According to Mazreku et al. (2018) inflation had significant negative effect on level of NPLs.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter looks at the findings of the study, the conclusions as a result of the findings and the recommendations made to the study. This study also looks at the limitation of the research and makes suggestions of areas that further research is needed.

5.2 Summary

The purpose of the study was to look at the effect of macro-economic factors on NPLs in Kenyan commercial banks. The research had NPLs as the dependent variable and interest rates, GDP, exchange rates, inflation rates, money supply and BOP as the independent variables. The study used a descriptive and a cross-sectional study design and targeted all the 39 Kenyan commercial banks. The research used secondary data. Descriptive statistics and inferential statistics were the mode of statistics.

The average NPL ratio for commercial banks was 0.0647 while the average exchange rate was 93.67 whereas the average interest rate was 15.46. The results also showed that the average GDP over the research period was 5.84 while the average money supply was 14.6 whereas the average inflation was 7.07 over the considered period.

The correlation results obtained showed that NPL ratio had a weak and negative correlation with inflation but showed a strong and negative correlation with interest rates. The results also showed that NPL ratio had weak and positive correlation with Balance of Payments (BOP), Exchange rates and GDP. The table also shows that NPL ratio had a strong and positive correlation with Money Supplied during the considered time frame. As all the correlation values are below 0.75, hence there is no multicollinearity among the research variables. The R square value is 0.803 which means 80.3% of the variation in NPL ratio can be explained by the independent variables. The results also show that the P value is 2.49 E-10, which is less than 0.05 significance value. This showed that the regression model is significant and the model is fit.

The results showed that NPL ratio had a weak and negative correlation with inflation but showed a strong and negative correlation with interest rates. The results also showed that NPL ratio had weak and positive correlation with Balance of Payments (BOP), Exchange rates and GDP. The table also shows that NPL ratio had a strong and positive correlation with Money Supplied during the considered time frame. As all the correlation values are below 0.75, hence there is no multicollinearity among the research variables.

5.3 Conclusions

The findings of the study show that there is a positive relationship between inflation rates and the non-performing loans hence the conclusion that if inflation increases then there will be a slight increase in NPL ratio. The research obtained that GDP had a negative relationship with nonperforming loans hence signifying that GDP and NPLs have an inverse relationship.

The findings showed that NPLs and money supply had an insignificant positive relationship hence showing that an increase in money supply has a slight increase in NPLs. The research obtained that exchange rates had a positive relationship with NPLs hence when exchange rates increased it would lead to an increase in NPL.

The findings showed that a decrease in interest rates would lead to a slight increase in NPLs as the relationship between NPLs and interest rates was a negative relationship. The research also found out that BOP and NPLs had an inverse relationship and hence an increase in BOP would decrease NPLs.

5.4 Recommendations

The researcher came to a conclusion that interest rates do not significantly affect NPLs among banks in Kenya. However, the research recommends that bank managements should be wary about their interest rate fluctuations as it could affect NPLs. The researcher recommends that bank managements should have policies on how to reduce exchange rate fluctuations.

The researcher came to a conclusion that GDP, inflation, money supply and BOP have an effect on NPLs and the government should have policies to mitigate the adverse effects of inflation, and

have strategic mechanisms to ensure GDP is growing, there is optimal amounts of currency in the market and that BOP deficit will continue to decrease.

The findings of the study came to a conclusion that BOP has a negative insignificant effect on NPLs hence the study recommends that more research is done involving all macro-economic factors and their effect on NPLs.

5.5 Limitations of the study

The study did not consider all macroeconomic factors like oil prices, CPI, foreign direct investments, unemployment among others hence the research is only based on the research macroeconomic factors.

The research population only looked at Kenyan commercial banks and did not cover the whole financial sector that incudes insurance firms, microfinance banks and institutions, savings and cooperatives, credit societies, among other financial institutions.

The research period used was only for 10 years and hence results obtained from the study only explain what has caused NPLs in the study period.

Collection of data was a challenge as some of the macro economic factors are not readily available to the public and it needed certain approvals and payments to acquire.

The study looked at a macro level and how it affected NPLs but it should have also looked at the Micro level and what internal factors would lead to an increase in NPLs in Kenyan commercial banks.

5.6 Suggestion for Further Research

The research suggests further study to be done using other macroeconomic variables among them national income, oil prices, unemployment and CPI.

The study also recommends further research to include other institutions in the finance sector like microfinance banks and institutions, insurance firms and Saccos. Finally, a research should be done on the effects of microeconomic factors on NPLs in the Kenyan finance industry.

The research recommends that further studies to be conducted to have a longer time period so as to clearly find out what has caused NPLs during that time period.

The study recommends that CBK and data vendors to provide easy access of macro-economic data to enable researchers and students to increase further research without having to pay to get data.

The research recommends that further studies to incorporate micro economic factors so to have full picture of what might affect NPLs in Kenyan commercial banks.

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