FACTORS AFFECTING CREDIT RISK IN COMMERCIAL BANKS IN KENYA

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DECLARATION

I the undersigned declare that this research project is my original work and has not been submitted and approved for the award of a degree by this or any other university. To the best of my knowledge, the research project contains no material previously published or written by another person except where due reference is made in research project.

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ABSTRACT

Credit risk is one of the main problems that affect most of the commercial banks in Kenya. Failure to minimizing the risk leads to many banks becoming bankrupt and collapsing in the end. Therefore, it is vital to ascertain the factors that affect credit risk in commercial banks in Kenya and thus come up with ways to solve the problem. The main research objective was to determine the factors affecting credit risk in commercial banks in Kenya. The specific objectives were to determine the effect of capital adequacy, management efficiency, interest rate and GDP on credit risk in commercial banks in Kenya. The study used descriptive research design. The target population was the 11 commercial banks listed on the Nairobi Security or stock exchange. The study period was from 2016- 2020. The study used secondary data and the linear multiple regression model was used to analyze the data. The study concluded that only management efficiency had a significant effect on credit risk while the other variables had insignificant relationship on credit risk. On the other hand, capital adequacy had a negative relationship on credit risk while interest rate, management efficiency, interest rate and GDP had a positive effect on credit risk. Research findings were proposed to government to ensure that management body in banks is comprised of individuals with ethical standards to ensure that loan is granted to creditworthy individuals only who have less chances of default.

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ABBREVIATIONS AND ACRONYMS

CBK	- Central bank of Kenya
SPSS	- Statistical package for the social sciences
GDP	- Gross Domestic product
CAR	- Capital Adequacy ratio
CIR	- Cost to income ratio
IR	- Interest rate

CHAPTER ONE

INTRODUCTION

1.1 Background

Credit risk is one of the major threats that faces both local and international banks. Banking problems that normally arise around the globe are caused by increase in credit default or losses. Credit risk increases non-performing loans in banks resulting to adverse effects on the banks. This increase in non- performing loans reduces bank profit and exposes banks to illiquidity, financial distress and this may pose the threat of a bank becoming insolvent (Mubeen & Bashir, 2017).

Banks are the backbone of every economy. They dominate every financial system and provide financial services and products to the economy. Firms rely on banks for funds to expand and finance their daily operations (Githinji, 2017). When banks give firms the funds, it increases money supply in the economy leading to expansion and growth of the economy (Grauwe, 2008). Moreover, banks also offer financial services to farmers who take part in agricultural production hence enhancing the agricultural sector which is one of the key indicators of economic growth. In addition, banks help in finding investment. Banks mobilize savings and directs them to firms that want to invest but have deficits. Increase in investment speeds up economic growth (Mohamed, 2020).

On the other hand, bank failure has enormous negative impact on the economy. When banks fail, it means that firms won't have access to the funds anymore. Lack of capital by the firms hinder their daily operations resulting them to cut down the cost of production such as laying-off their employees leading to unemployment and reduced production (Githinji, 2017). Therefore, the actualization of how important banks are to the economy has led to different scholars researching on factors that would result to bank failure and finding measure to avoid banks going into a crisis (Mwaurah, 2013).

According to Pavla(2003), loans are the greatest assets of the banks and hence credit risk, which is default of loan payment can lead to a bank becoming bankrupt and fail in the long run. In Nigeria, Ugoani(2012) also indicated that credit risk which is the prominent risk is critical and greatly influences the survival and failure of the banks. Failure to identify the factors affecting credit risk and coming up with credit risk management practices would lead

banks into insolvency. Llewellyn(2002) highlighted the factors affecting credit risk to be both macroeconomic factors and bank internal or specific factors.

1.1.1Factors affecting credit risk

According to Twum and Agyemang(2020), credit risk is affected by both the macroeconomic factors and microeconomic factors. Macroeconomic factors are external factors brought about by the economic and financial environment. On the other hand, microeconomic factors are internal factors which are also bank specific factors (Mwaurah, 2013).

Macroeconomic factors are further divided into three classes, the general macroeconomic factors such as inflation and unemployment. The second class being GDP and lastly the interest rate (Mwaurah, 2013). The microeconomic factor or the internal bank specific factors include, management efficiency or operation efficiency and capital adequacy(Twum & Agyemang, 2020). Many researchers have tried to study the above factors and their effect on credit risk . According to Marouf and Guellil(2017), the main macroeconomic indicators of credit risk are GDP, interest rate and unemployment.This study therefore,decided to focus on the two main macroeconomic factors which are GDP and interest rate as the main factors affecting credit risk.On the other hand, there has been minimal variation on the internal factors.Capital adequacy, management efficiency have been the main internal determinants .The study relied on the two as the main micro factors affecting credit risk in commercial banks in Kenya.

Capital adequacy refers to the ability of a bank having enough funds to be able to meet the needs of the banks such as bank development or expansion whenever needed and also to mitigate any possible risk that occurs. If a bank takes a greater risk then it must have enough capital to anticipate any unforeseen occurrence (Sebayang, 2019). Capital adequacy is measured by the capital adequacy ratio which is obtained by dividing the total banks capital with Total Risk-Weighted assets.A higher capital adequacy ratio means that the bank has enough capital and hence they can finance their operations and they can also assume any risk (Yulianti, Aliamin, & Ibrahim, 2018).

Interest rate can be defined as the price a person pays for the money borrowed. Individuals take loans from the banks and hence as a result banks have to apply an interest rate on the money borrowed as a reward for giving out the money as opposed to using the money for

other purposes. A higher interest rate increase the burden of the borrower hence a higher chance of the borrower defaulting leading to credit risk in banks (Amanollahi, 2016).

GDP refers to the market value of all goods and services produced in the economy during a partcular time. GDP is used to measure the level of economic welfare and standards of living among the citizens of a particular country. A negative GDP leads to economic recession. Economic recession has adverse negative effects on the economy. It results to unemployment, poor standards of living and decline in the purchasing power (Chigozie, Chijioke, & Nebechi, 2018). During economic recession, a number of companies lay of their employees rendering them unemployed hence lack of disposable income to pay their loans. On the other hand, poor standards of living implies that majority of the people are unable to meet their daily needs and therefore the payment of loans they took earlier before the economy declined becomes a burden making them to default .

Management efficieny is also another factor that affects credit risk management in banks.It is measured by efficiency ratios.Management efficiency refers to how managers work successfully to produce the desired results while management inefficiency comes about due to agency problem where managers end up pursuing their own interest that is not in line with the organization or shareholders goal.This include using the company resources for their own gains. This may even manifest during credit granting process (Bouckova, 2015).

1.1.2Credit risk in commercial banks.

Credit risk is a type of risk that arises when the bank borrower is unwilling to perform their obligation as stated in the contract (paying the loan when it matures) or the ability of the borrower to perform their obligations is impaired. This risk is very critical since it results to serious damages and loss to the bank.Credit risk in banks can be measured by the non - performing loans that occur as a result of default in payment by the borrower(Al-Jarrah, 2012).

Credit risk in banks is not only caused by failure of borrowers repaying the loan amount, but also delays in payment when the loan has matured already.This credit risk negatively affects the bank image and the credit stand of the bank. A bank with high non performing loans in their book account degrades the bank asset quality and their share prices in the market.Banks in order to avoid the risk, they create a loan provision in their books of account. This loan provison are funds set a side to cover the credit risk that arises due to the non- performing

loans.Increased credit risk makes the bank set a high loan provision and this is an expense to the bank which reduces the profits of the banks (Makri, 2015).

Therefore, the only efficient way bank can minimize credit risk is to implement credit risk management strategies to mitigate the loss rather than having a loss provison account that affects the profitability of banks. Credit risk management refers to the rules, regulations and procedures that are put in place by the bank to minimize the credit risk (Mileris, 2015).Credit risk management in banks result to several advantages to the banks.The type of measures taken to manage the credit risk differ from one bank to another depending on amount of credit they offer to the public.

1.1.3 Overview of commercial banks in Kenya.

Commercial banks are financial institution whose function include accepting deposits from individual and they also have savings and current account where individuals deposits their money.They further offer this savings that lie idle as credit to individuals and private firms for investment purposes and the bank earn interest income in exchange when the firms pay back.Commercial banks also offer bank checks,bank assurance and advices on investments.

Commercial banks in Kenya are regulated by the Central Bank in Kenya .The Central Bank of Kenya ensures that the Commercial Bank comply with the banking regulations. Kenya has a total of 42 banks. Out of the 42, 40 are privately owned, 23 out of the 40 are locally owned while 17 are foreign owned (Central Bank of Kenya, 2020). Central bankof Kenya has further classified the commercial banks based on their assets. Banks with large assets have been classified as tier one while the medium sized and small banks have been classified as tier two and three respectively (Central Bank of Kenya, 2020).

Commercial banks in Kenya play an important role in the economy and also the financial sector.They offer financial services such as lending .Through lending, banks earn their main source of revenue which is interest income.Lending business also ensures efficient allocation of resources in the country since the surplus is taken from the deposits account and given to those with deficit to invest and later pay back. Moreover, individuals with access to the funds can use the funds to invest and hence the growth of the economy.Commercial banks also provide saving facilities to individuals and organization hence ensuring safety of their funds(Nyasha &Odhiambo, 2012).

Although banks play an important role in the economy, they are faced by a number of challenges which if not adressed or given attention, may lead to bankruptcy among the banks

and collapse of the banks in the long run.Some of the problems are operational risk, liquidity risk and poor credit granting and monitoring process that results to credit risk.Commercial banks in Kenya lack information sharing strategies and hence they have little knowledge of the creditworthiness of the borrower.This lack of information about the borrower has resulted to inverse selection and in the end banks have high non performing loans due to granting loans to individual or firms that have a higher chance of defaulting or have a history of taking loans but fail to service the loan.(Nyasha &Odhiambo, 2012).

1.2 Problem statement.

Globally bank are faced with the credit risk problem which negatively affects the banks. When there is default in payment, bank suffer more due to high liquidity problems thus rendering banks bankrupt and in the end it leads to financial global crisis (El-Bannany, 2015). Moreover, credit risk also leads to the role of banks acting as intermediaries to be undermined.Savers deposit money in the bank with the hope of their money being refunded to them with an interest.The bank on the other hand, take the money and lend it out to the borrowers with the hope that the borrowers will repay the money with interest. When the borrowers fail to repay the money, the bank may be at risk of failing to pay the savers thus leading to lack of trust in the banks (Kellen, 2007).

In Kenya, several banks have also collapsed or remained stagnant due to this risk . One of the factors that made chase bank collapse was poor credit risk management that resulted to high non- performing loans (Gathaiya, 2017). National bank of Kenya and consolidated bank of Kenya were nearly on the verge of collapsing in 1990s due poor credit risk management until the government intervened (Mwaurah, 2013).

To protect the banking sector in Kenya, the government decided to implement some changes on these factors affecting credit risk in commercial banks in Kenya in order to minimize the adverse effects they bring to the banks and to the economy in the long run.Interest rate which is one of the factors was capped in 2016 and later removed in 2019, capital adequacy of banks has also been affected by the guidelines on the minimal capital to be held by the bank. A number of studies have been conducted in Kenya to determine the relationship these factors have with credit risk, whether they have a positive or a negative relationship. However , the research period was upto 2015 before the changes were implemented on the factors. This study therefore seeks to fill this gap by investigating whether these factors still

significantly affect credit risk even after the changes were put in place and later removed.The research period for this study will be from 2016 to 2020.

1.3 Research objectives

The main objectives of this study is to investigate the factors affecting credit risk in commercial banks in Kenya for the period 2016-2020. The specific research objectives are:

1. To investigate the effect of capital adequacy on credit risk in commercial banks in Kenya.
2. To evaluate the effect of Interest rate on credit risk in commercial banks in Kenya.
3. To assess the effect of management efficiency on credit risk in commercial banks in Kenya.
4. To examine the effect of GDP on credit risk in commercial banks in Kenya.

1.4 Research Questions

1. What is the effect of capital adequacy on credit risk in commercial banks in Kenya?
2. What is the effect of Interest rate on credit risk in commercial banks in Kenya?
3. What is the effect of management efficiency on credit risk in commercial banks in Kenya?
4. What is the effect of GDP on credit risk management in commercial banks in Kenya?

1.5 Significance of the study

This study will benefit the following body:

1.5.1 Commercial banks

Commercial banks will benefit since they would be able to know the microeconomic factors and macroeconomic factors and how significantly they affect credit risk in commercial banks in Kenya.Banks will therefore come up with measures in order to minimize the credit risk and ensure they get maximum profit and stability.

1.5.2 Policy makers.

The findings of the study will add information to the regulators such as Central bank of Kenya to come up with guidelines or adjust their guidelines to ensure the banks are protected from the credit risk and also the funds of the depositors are given back to them even though banks lend them out to borrowers.

1.5.3 Researchers

The findings of the study will further be useful as reference in other research and even form basis for more debate on other factors affecting credit risk.

1.6 Scope of the study.

The scope of the study was limited to commercial Banks in Nairobi county.The factors identified were capital adequacy,Interest rate, Management efficiency and GDP.The dependent variable for the study was credit risk in commercial banks in Kenya.The study was grounded on Modern portfolio theory, Agency theory and Lidquidity preference theory.A quantitative approach was used to solve the research questions .

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the theoretical review, which explains different theories that support the study, the empirical review that evaluates research findings of other researchers concerning the topic of study, the research gap and concludes with conceptual framework.

2.2 Theoretical review

This section describes the theories that supports this study. The theories include the modern portfolio theory, the agency theory, and the liquidity preference theory.

2.2.1 Modern portfolio theory.

This theory was developed by Harry Markowitz in 1952. The theory states that investors are risk averse, and therefore, they would want to maximize their returns while minimizing the risk by investing in diversified portfolio of assets whose prices move inversely in each market or they are not highly correlated with one another (Mwaurah, 2013).

Banks are faced with credit default problem due to the rise of non – performing loans. This credit default results to banks becoming less profitable and having less liquidity due to non-repayment of the loans. Therefore, it is important for banks to have a diversified portfolio to split and minimize the risk (Kazin, 2014).

This theory is therefore relevant to the study, since it seeks to explain how diversification by the commercial banks, results to minimization of the credit risk while still getting maximum return in their portfolio. Generally, banks diversify their revenue portfolio by operating with both nontraditional source of income and traditional source of income. Nontraditional source of income which is the noninterest income includes fees such as deposit and transaction fees, monthly account service charges and commissions while traditional source of income include interest on loans granted to individuals and corporations (Ferreira, 2018).

Noninterest source of income as opposed to interest source of income is less affected by economic instability or recessions such as inflation, unemployment which makes people to default in loan payment and thus increase in credit risk. Therefore, by holding this source of income in the portfolio, it reduces the risks brought about by only relying on or holding interest source of income (Theygerson, 1995).

2.2.2 Agency theory.

The theory was developed by Michael Jensen and William Meckling in 1976.The theory states that there are two parties in a contract, the principal, and the agent. The principal and the agent are in a contractual relationship. The principal will authorize the agent to make decisions on their behalf and expect the agent to make the decisions wisely or perform actions in favor of the principal. The agents will perform the actions in exchange for a reward. However, the two parties are rational economic persons who are motivated by self - interest. The agent may want to satisfy their own interest which is not in line with the goals of the principal hence leading to agency problem (Bouckova, 2015).

Agents therefore can engage in opportunism by seizing any chance to enrich themselves and this may involve using the firm's resources to satisfy their own demands or engage in fraudulent activities (Kasum, 2011) . An example of fraud is in poor quality bank loans. This is where loan officers, the agent collides with the recipient, the borrower, whom the loan officer has business interest with. The recipient in this case may provide false documents to obtain the loan. The loan officer approves these false documents and the loan granted to the recipient without the principal, shareholders, being aware of it (Akelola, 2012).This leads to information asymmetry where one party is more informed than the other part. The Agent is more informed that the principal. This results to market failure and inefficiencies (Bouckova, 2015).

2.2.3 Liquidity preference theory

This theory was developed by Lord John Maynard Keynes in1936. The theory seeks to explain that with other factors held constant, people hold money for three motives, speculative motive which is holding cash to cater for unforeseen circumstances, transaction motives to bridge the gap between receipt of income and planned expenditures and precautionary reasons incase the interest rate on alternative assets rise (Ogiriki, 2014).

Therefore, if banks, individual and enterprises decide to give out cash and the cash is not to be used for purchase of goods, they will demand a reward or compensation which is interest rate on the money (Pusch, 2012).

Banks do part with liquidity by lending out money to both individuals and private sector and this is known as bank credit. Banks in return will demand payment or compensation from both the individuals and the private sectors just as the theory of Keynes seeks to explain. The

price of acquiring the credit is interest rate (Ogiriki, 2014). This interest rate which is a compensation factor used by banks is a factor affecting credit risk among commercial banks in Kenya. Banks will charge a higher interest rate when the probability of default is seen in the borrower (Mwaurah, 2013).The higher the interest rate charged, the higher the probability of default due to increased burden of payment on the borrower.

2.3 EMPIRICAL REVIEW

This section seeks to explore the numerous studies done to determine the relationship of each variable with the dependent variable which is credit risk.

2.3.1 Capital adequacy

According to Toby (2019) , capital adequacy is one of the factors affecting credit risk among commercial banks in Nigeria. The author defined capital adequacyratio as shareholders funds over total assets and emphasized that banks need to hold capital in order to absorb or mitigate risks when they arise. The findings of the study further suggested that capital adequacy is an effective mechanism that can be used to minimize credit risk in the banking sector.

Moreover,the study sought to investigate whether there exist any relationship between capital adequacy and credit risk management in Nigeria. The study used data from the annual financial statement of 15 banks listed in the Nigeriastock exchange from the period 1989-2015.The study concluded that capital adequacy had a significant effect and bidirectional link with credit risk. This implies that as capital adequacy of banks increases, the credit risk reduces since banks have enough capital , they would minimize the amount of loans they offer hence reduced default rate among the borrowers .

Naveed (2015), examined the determinants of credit risk in commercial banks of Pakistan. The study identified capital adequacy ratio as one of the independent variables affecting credit risk in commercial banks of Pakistan. The findings of the study concluded that capital

adequacy had a positive and highly significant impact on credit risk of commercial banks in Pakistan. The study also concluded that banks with weak capital ratio have a difficulty in absorbing any loan default.

According to Appiah (2020), there are seven variables that are determinants of credit risk among commercial banks in Ghana, one of the variable being capital adequacy . The results of the study concluded that there is an inverse relationship between capital adequacy ratio and non performing loans, where non performing loans was used to measure credit risk among commercial banks in Ghana. The author further explained that banks with low capital adequacy ratio may take part in risky lending which may result in high non performing loans thus resulting to increase in credit risk while banks with high capital adequacy ratio may refrain from provision of risky loans and hence minimization of non performing loans and credit risk in the end.

In yet another study, Kharabsheh (2019) in a study conducted on determinants of credit risk in Jordanian banks concluded that bank capital had a positive and significant relationship with credit risk.The study used dataset of all Jordadian commercial banks over the period 2000-2017 The positive relationship was contrary to their expectation as banks with low capital are often attracted to risky and profitable business and therefore, they may end up taking more risk which leads to high credit risk.

Sarker (2018) sought to investigate various explanatory variables and their relationship with credit risk. The study was done on 22 commercial banks in Bangladesh for the period 2001-2015.The data was collected from annual reports published by banks. The findings concluded that capital ratio had a negative and significant relationship on credit risk.This implies that as capital of the banks increase, credit risk decreases as well.

2.3.2 Interest rate

Sarker(2018) examined the determinants of credit risk in Bangladesh banks and investigated the micro and macro variables that affects credit risk in the Bangladesh region.The study was conducted on 22 banks for a consecutive period of 15 years. Interest rate was one of the macro variables being studied.The findings revealed interest rate had a positive relationship with credit risk. This findings was attributed to the fact that higher interest rate increase the burden of payment on the borrower hence higher default rate while lower interest rate means that there is a high chance of the borrower being able to afford payment of the loans hence

minimizing the credit risk in the banks that could have been caused by non repayment of the loan.

Mwaura (2013) in a research of 20 banks during the period 2003-2012 in Kenya puts an empahasis on the determinants of credit risk measured with different indices. The findings pointed out interest rate as one of the determinants.The author reveals that interest rate has a negative relationship with credit risk implying that as cost of borrowing increase, credit reduced.

In yet another study, Morina (2020) sought to investigate the determinants of credit risk in commercial banks in Kosovo.The study used regression analysis and the data was collected from publications of Central Bank of Kosovo and from Kosovo Agency of statistics. The findings of the study revealed that Interest rate being one of the determinants had a positive and significant impact on credit risk.The author reveals that as interest rate increases, it increases the debt of the borrowers thus default in payment of the loan received.

Muchoki (2016) studied the determinants of credit risk among commercial banks in Kenya ; whose fundamental point was to investigate the main micro and macro determinants of credit risk. The research used a total 44 banks listed in the Central Bank directory.Real interest rate was one of the macro variables. The findings revealed that real interest rate had a positive and most significant relationship with interest rate.

According to Munene (2013), interest rate is one of the independent variable influencing management of credit risk for micro and medium enterprises loans in Equity bank. The study used descriptive research design (questionnaires) and the target population were customers who had taken micro business loans in Equity bank who tallied to 5200 customers. The findings of the study concluded that there is a negative relationship between interest rate and credit risk.The author further revealed that interest rate is the price of credit. Higher interest rate causes inflation which increases the cost of goods sold and produced and therefore reduces the earnings before tax and interest.With reduced earnings, it means nothing is left for loan repayment and hence borrowers will be unable to repay their loans leading to debt default.

2.3.2 Management efficiency.

Mwaurah (2013) in a study on determinants of credit risk in commercial banks in Kenya for the duration 2003-2012 concluded that management efficiency was a determinant of credit risk in commercial banks in Kenya. According to the study, management efficiency which was measured as a ratio of cost to income proved to have a positive and significant relationship with credit risk. The study further explained that as management efficiency improved credit riks reduced.

In yet another study, Kharabsheh (2019) aimed to investigate the credit risk determinants in Jordadian banking sector.Finding revealed that operating ineffficiency had a positive and significant relationship with credit risk.This was explained within the context of bad management since the process of granting and monitoring loans was negatively affected by inefficient managers. Inefficient managers offer bad and poor quality loans leading to high probability of default and hence increase in credit risk.

According to Appiah (2020), on the study determinants of credit risk on the banking sector of Ghana , concluded that bank inefficiency which was measured by cost -to- income ratio has a positive and significant relationship with non- performing loans which is a measure of credit risk. This implies that an Increase in the cost to income ratio increases the nonperforming loans and also indicates inefficiency in the banking sector. Inefficient banks tend to ignore the lending principles and poorly allocate resource to monitor the behaviors of borrowers which in the end results to high non-performing loans due to default from the borrowers.

Sarker (2018) examined the determinants of credit risk in Bangladesh banks . The study used quantitative analysis, regression analysis and descriptive statistics to identify whether the determinants had a significant effect and the relationship with the credit risk. Management or operating efficiency was one of the determinants the study sought to investigate.The findings of the study concluded that management inefficiency had a positive relationship with credit risk. The author explained this positive relationship to be similar to the bad managememnt hypothesis that states inefficiency is positively associated with credit risk.

2.3.4 GDP

According to Laxmi, Ram, & Shouyang (2020) , GDP is one of the macroeconomic determinants of credit risk in high income countries.The study used a sample of 49 developed

countries as classified by the World bank and the International Monetary fund.The findings of the study revealed that GDP had a negative relationship with credit risk in the high income countries.The author concluded that high export percentage in GDP prevents trade deficit and increases economic growth .When the economy is doing well, people are able to meet their expenses and even repay their loans thus a proportionate decrease in non performing loans in banks.

Mwaurah (2013) in the study, determinants of credit risk in commercial banks in Kenya concluded that GDP was one of the variables that had an effect on credit risk. A descriptive research design and correlation and regression was used to investigate and analyse the variables.The study concluded that GDP had a negative relationship with credit risk. This implies that as the economy grows ,credit risk declines due to increase in job creation and employment thus majority of borrowers are able to repay their loans hence decrease in non performing loans.

Appiah (2020) on the study determinants of credit risk in the banking sector of Ghana revealed that GDP had a significant negative relationship with nonperforming loans. A panel data of 16 universal banks in Ghana was used and the period was from 2010-2016.The findings revealed that strong economic performance as a result of increase in GDP leads to a decrease in non- performing loans and minimization of loan default in the banking sector.

Naveed (2015) conducted research on determinants of credit risk of commercial banks in Pakistan. The study covered 26 commercial banks in Pakistan from 2007-2013.The findings revealed that that GDP was one of the macroeconomic variable that had a positive relationship with credit risk.This implies that as GDP increases, the credit risk also increase.

2.4 Research gap

A number of researches have been conducted around the globe to identify the determinants of credit risk in commercial banks .The studies have attempted to investigate the relationship between the determinats and credit risk and whether they significantly or insignificantly affect credit risk.

Kasan and Naveed(2016)in the study determinants of credit risk in Pakistan observed that there are a number of macro factors and banks specific factors that have an effect on credit risk.The determinants were studied and only one bank specific factor, capital adequacy and macro factor, GDP which had a significant effect on credit risk .In Kenya, similar studies have also been carried out. Mwaurah(2013) in his study determinants of credit risk in

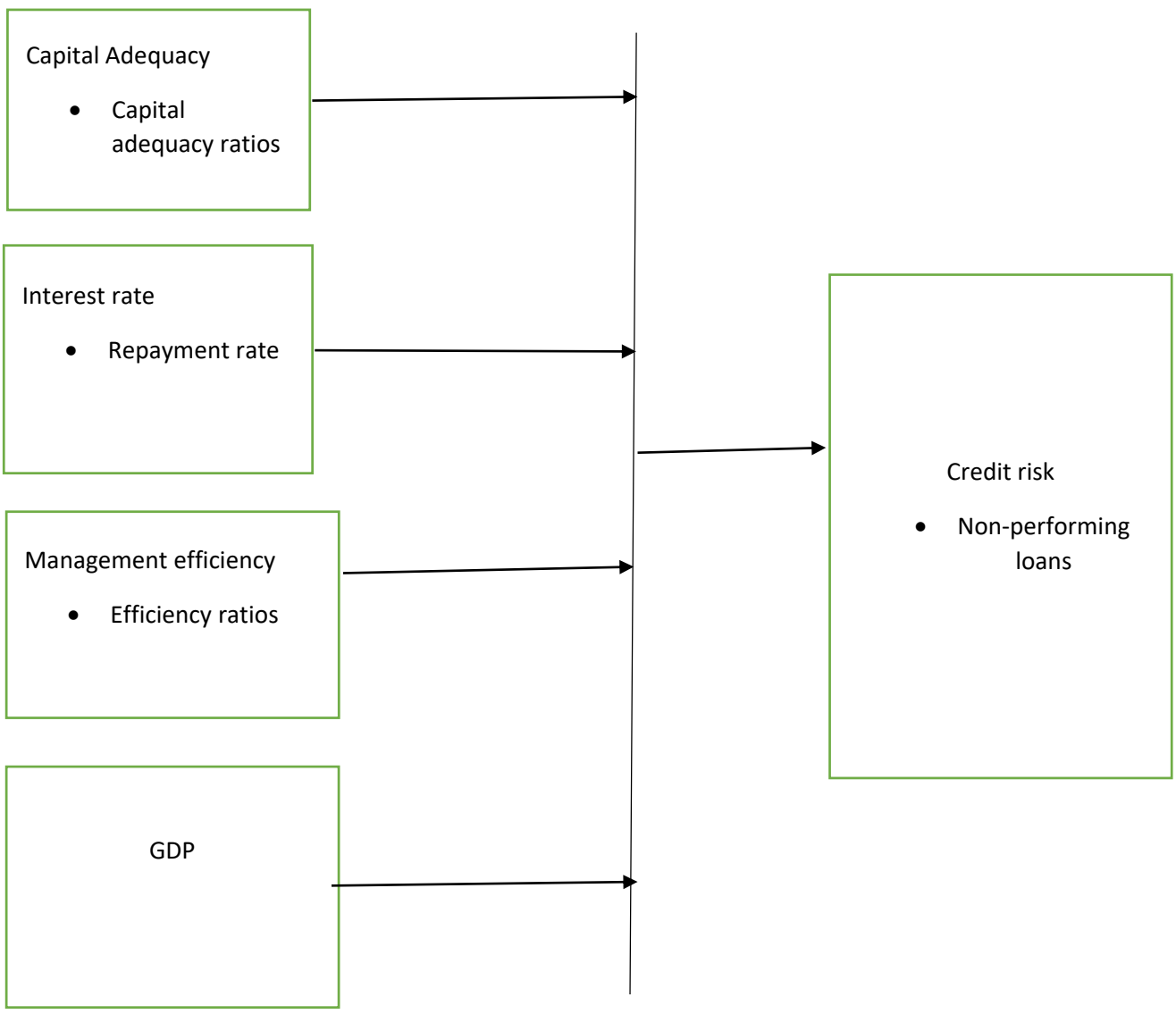
commercial banks in Kenya sought to investigate the macro and micro factors affecting credit risk in Kenyan banks. The study analysed 20 out of the 43 banks in Kenya for the period 2003- 2012. In yet another study Michuki (2016) sought to find the main micro and macro factors that determine credit risk in Kenyan banks.The study used a sample of 25 banks over the periods 2002-2015.In the two studies, the research period was until 2015.However the macro factors such as GDP and interest rates have been affected by governmental changes such as interest capping implemented by the CBK in 2016 and later removed in 2019 and the monetary and fiscal policies that affected GDP as well. Moreover, bank specific factors have also been affected by the regulation from CBK on the minimum capital to be held by the banks.

This study therefore seeks to investigate whether interest rate ,GDP , capital adequacy and management efficiency still have a significant effect on credit risk and their relationship with credit risk even after the regulations from the CBK.The study will therefore be from 2016 – 2020.

2.5 Conceptual framework

The conceptual framework of the study determines the independent and dependent variables.The dependent variable is credit risk and the independent variables are interest rate, GDP, Capital adequacy and management efficiency.

Figure 1: The Conceptual Framework



Source: Author 2021

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction.

This chapter reviews the procedure that was followed in solving the research problem. This study focused on the research design, population and sampling, data collection, data analysis, validity testing and ethical issues.

3.2 The research design

Research design refers to the plan initiated to solve the research question. It involves collecting data that relates to a particular event, analyzing the data and giving the conclusion (Baha, 2016).

This study adopted a descriptive research design. A descriptive research method refers to systematic and accurate description of the characteristics of a given population or area of study (Nassaji, 2015)Moreover, descriptive research seeks to investigates the relationship between two events. This study used the independent variables and dependent variables to find out the relationship and the effect the independent variable has on the dependent variable. This study considered the descriptive research design because of the objectives of the study and the analytical tools to be used (Baha, 2016).

3.3 Population and sampling

Population refers to the group of units with the same characteristics where the researcher intends to conduct their research and determine the outcome or the findings (Shukla, 2020). The population of the research was 11 commercial banks listed on the Nairobi Stock Exchange.

Sampling refers to a subset of individual randomly selected from the larger population (Shukla, 2020).The study used census sampling and selected all the 11 commercial banks listed on the Nairobi Stock Exchange as the sample of study.

3.4 Data collection.

The study used secondary data. The capital adequacy ratios and the efficiency ratios were collected from the financial statements of the commercial banks and reports from the Nairobi

security exchange. The macroeconomic data was collected from Central Bank of Kenya website on macroeconomic indicators.

3.5 Data Analysis.

The study used the quantitative method to analyze the data. Descriptive statistics was used to find the mean, median, mode, variance, and standard deviation. The study used the SPSS package to analyze the data. The study also conducted inferential statistics. The inferential statistics done was multiple regression model to determine the relationship between the independent variable and the dependent variable.

The multiple linear regression model adopted was of the form,

$$\mathbf{Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \varepsilon}$$

Where:

Y = Credit risk (measured by non-performing loans)

β0 =Intercept coefficient

X1 =Capital Adequacy

X2 =Interest rate

X3=Management efficiency

X4 =GDP

E= error term

3.6 Validity testing.

This study used diagnostic test such as Normality, homoscedacity and autocorrelation to test validity. Durbin Watson test was conducted to test the autocorrelation. Residual plot was used to check the homogeneity.

3.7 Ethical issues

This study preserved and took into consideration all ethical issues needed during research period. The study obtained clearance from the Ethics Review office in Strathmore University, before going for the research. Permit was also received from the Capital Market Authority in Kenya, to easily access data from the Nairobi Exchange Market. The study ensured that the data collected was only used for research purposes and confidentiality of data was upheld.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter entails the analysis, interpretation and discussion of the results obtained. Analysis, interpretation, and discussion of the data were based on the objectives of the study. All the 11 commercial banks listed at the Nairobi security exchange formed the population of the study.

4.2 Validity tests

This was done using the diagnostic tests such as normality test, homoscedacity tests and autocorrelation.

4.2.1 Normality test

Appendix ii contains the histogram testing for normality of the variables. For the variables, capital adequacy, management efficiency, interest rate and GDP the histogram showed a normal distribution curve indicating that there is normal distribution between the independent variables and the dependent variable.

4.1.1 Homoscedacity

Appendix iii contains the scatter plots testing for homoscedasticity of the independent variables. The scatter plot shows that the plots are randomly distributed and there is no systematic pattern hence the variables exhibit homoscedacity.

4.1.2 Autocorrelation

Autocorrelation test was carried using the Durbin-Watson statistic which is displayed in the table below.

Table 4. 1 Test for Autocorrelation

Durbin-Watson
1.941

The results show a value of 1.941 which is close to 2. Values between 1.5 -2.5 indicate that there is no autocorrelation. Hence there is no autocorrelation between the independent variables.

4.3Descriptive statistics

The table below explains the descriptive statistics of the study. The data collected was from 2016- 2015. The population of the study was 11 banks listed on the Nairobi security exchange.

Table4. 2Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
NPL	55	.03	.29	.1126	.06546
CAR	55	.00	.91	.1979	.10832
CIR	55	.32	1.71	.5453	.22853
IR	55	6.86	8.51	7.6840	.70486
GDP	55	6.88	6.94	6.9159	.02430
Valid N (listwise)	55				

Source: Author (2022)

From the findings, the minimum number of non- performing loans is 3% while the highest number is 29 %. The average non- performing loan or the credit risk was 11.26%. The variability of non-performing loans was 6.546%.

Further results from the study showed that the lowest number of capital adequacy ratio was 0% since the data was rounded off to two decimal places. The highest number of capital adequacy ratio was 91%. The average mean of capital adequacy ratio was 19.79 and the variability was 10.832%.

From the findings, the minimum cost to income ratio was 32% while the highest cost to income ratio was171%. The mean was 54.53% while the variability was 22.853%.

The results from the study indicated that the minimum interest charged by the banks was 6.86% while the highest interest charged was 8.51%. The average interest charged was 7.684% and the variability is 70.486%.

From the findings of the results, the lowest value of the growth rate which is GDP was 6.88% while the highest value was 6.94%. the average growth rate was 6.9159% and the variability was 2.43%

4.4Multiple linear regression

The research variables were analyzed using fixed effects panel regression model.

Table 4. 3Anova

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.082	4	.020	6.838	.000(a)
	Residual	.150	50	.003		
	Total	.231	54			

Source: Author (2022)

The regression analysis was carried out at 5% significance level. The above table explains the level of significance. From the findings, the significant P Value was 0.000 which is less than 0.05. This indicated that a significant relationship exists between the credit risk, capital adequacy, management efficiency, interest rate and GDP. These variables combined effectively predict credit risk.

Table4. 4model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.595(a)	.354	.302	.0546957	.354	6.838	4	50	.000	1.941

Source: Author (2022)

The model summary above illustrated the strength of the relationship between credit risk and the factors affecting credit risk (capital adequacy, management efficiency, interest rate and GDP). The R value was .595 indicating a strong linear relationship. The R squared indicated that only 35.4% of credit risk has been explained by the independent variables.

Table4. 5 coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-10.227	10.216		-1.001	.322
	CAR	-.079	.087	-.130	-.908	.368
	CIR	.174	.040	.606	4.345	.000

IR	3.080	4.944	.332	.623	.536
GDP	1.449	1.423	.538	1.018	.313

Source: Author (2022)

The established regression equation for the study was

Non -performing loans =-10.227 -0.079CAR + 0.174CIR+3.080.IR+1.449 GDP +ε

The model depicted that holding the independent variables constants (CAR, CIR, IR, GDP); credit risk will be at 10.227 million. This implies even if commercial banks do not give loans; they will still experience some credit risk exposure.

The model indicated that capital adequacy which was measured by the capital adequacy ratio (CAR) had an insignificant negative relationship with credit risk. This implies that as capital adequacy increases, credit risk reduces. When banks have enough capital, they can set aside more loan loss provision thus reducing the non- performing loans which measures credit risk.

The model further indicated that cost to income ratio which was used to measure management efficiency had a significant positive relationship with credit risk. This implies that when management inefficiency increases, the level of non -performing loans increases and hence credit risk. When managers are not efficient in their work such as granting loans without looking at the creditworthiness of borrower, it may pose the threat of default hence increase in credit risk.

Interest rate had an insignificant positive relationship with credit risk. This implies that increase in interest rate increases the financial burden of the borrower hence the borrower defaults. When the borrower defaults the level of credit risk increases.

GDP had an insignificant positive relationship with credit risk. This implies that when GDP increases, credit risk also increases. GDP growth rate has not been stable in Kenya since it is dependent on agriculture and tourism which are quite unstable. This implies that even though the GDP increases, there is no significant change in the disposable income of the citizens. The level of disposable income is still low or insufficient to enable them pay back the loan in due time hence default in loan repayment, leading to increase in non- performing loans.

4.5Summary of findings and interpretation

The objective of the study was to analyze the factors affecting credit risk in commercial banks in Kenya. Credit risk was established as the dependent variable measured with gross non-performing loans as a percentage of gross loans while the independent variables taken were GDP, interest rates management efficiency and capital adequacy.

The study found out that all the variables were valid through the validity tests carried out. Moreover, holding all the variables together, they significantly affect credit risk since the P-value was less than 0.005. However, holding them independently, only cost to income ratio which measure management efficiency had a significant relationship with non- performing loans. On the other hand, capital adequacy, interest rate and GDP has an insignificant relationship with credit risk.

A multiple regression analysis conducted established a linear relationship with a coefficient of determination of 35.4%. This implies that the independent variables chosen influenced credit risk in Kenya banks during year 2016-2020 by 35.4% and 64.6% of credit risk was associated with other unexplained factors.

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATION.

5.1 Introduction.

This chapter explains summary of the findings, conclusions, and recommendations on the research topic. It further explains the limitations of the study and suggestions for other studies.

5.2 Summary of the findings

This research aimed at determining the factors affecting credit risk in commercial banks in Kenya. The population of the study included the 11 banks listed in the Nairobi Security Exchange. The study period was from 2016-2020 after the enactment of interest rate capping in 2016 which was later again terminated in 2019. The study used secondary data which was collected from the financial statements of the banks and from the Central Bank of Kenya website. Multiple linear regression was used to find out the relationship between the dependent variable and the independent variables.

5.2.1 Effect of capital adequacy on credit risk in commercial banks in Kenya.

The findings were that capital adequacy had a negative effect on credit risk. This means that when capital increases, credit risk reduces. The research findings are in line with the research done by Appiah(2020) who concluded that capital adequacy had a negative relationship with credit risk.

5.2.2 Effect of interest rate on credit risk in commercial banks in Kenya.

The study revealed that interest rate had a positive effect on credit risk. This indicates that when interest rate charges on the loan increases, the level of credit risk also increases. This implies that during the time when interest rate was capped, the level of credit risk reduced. However, when the interest rate was terminated the level of credit risk increased. The finding was in agreement with Sarker (2018) whose findings conluded that interest rate had a positive relationship with credit risk.

5.2.3 Effect of management efficiency on credit in commercial banks in Kenya.

Research findings were that management efficiency had a positive effect on credit risk. The findings of the study agreed with Mwaurah (2013) who concluded that management

efficiency had a positive relationship with credit risk. Moreover, the finding was also consistent with agency theory that states that when the agent does not work for the best interest of the pricipal, it may lead to agency problems. When the management does not follow the right procedure during granting loans, they may grant to individuals who have a high risk of default hence increase in credit risk.

5.2.4 Effect of GDP oncredit risk in commercial banks in Kenya.

The findings concluded that GDP had a positive effect on credit risk. This means that when GDP increases, credit risk increases. This was in agreement with Naveed(2015) who also concluded that GDP had a positive effect on credit risk in commercial bank in Pakistan. The findings was in contradictory with that of Mwaurah (2013) who concluded that GDP had a negative effect on credit risk , in that when GDP increases, credit risk reduces.

5.3 Conclusion

The individual objectives were achieved by determining the effect of capital adequacy, management efficiency, interest rate and GDP on credit risk in commercial banks in Kenya. The general objective was also realised since all the factors held jointly affect credit risk in Kenya.

The research concluded that only management efficiency which was measured by cost to income ratio had a significant positive effect on credit while capital adequacy, interest rate and GDP had insignificant relationship or effect on credit risk.

5.4 Recommendations.

The findings concluded that management efficiency had a positive and significant relationship with credit risk. The government should therefore implement laws on the management structure of banks to ensure that the management appointed to head banks are those who have integrity, accountability and adhere to the laws or rules to be followed during the loan granting process to minimize the level of credit risk in banks.

The government should also monitor the macroeconomics factors that affect credit risk. From the findings , interest rate has a positive relationship with credit risk.. The government should therefore aim to reduce the interest charged in order to minize the level of credit risk exposure.

5.5 Suggestions for further research.

The study used secondary data , therefore other researchers can use the primary data sources to carry out their research since there are other factors that affect credit risk but they can only be measured using primary source data.

Moreover other research could use other variables since there are more variable that affect credit risk but the study only used four variables which were capital adequacy, management efficiency, interest rate and GDP.

5.6 Limitations of the research.

Most of the banks lacked the other disclosure segment on their financial statement that indicates the amount of gross non – performing loan which was to be used to calculate the non- performing loan ratio. Therefore, one had to look further for the audited financial report which were quite hard to find on their websites.

The research used Secondary data . Collecting data was quite tedious and required formating of the data before being analyzed and imputted into SPSS.

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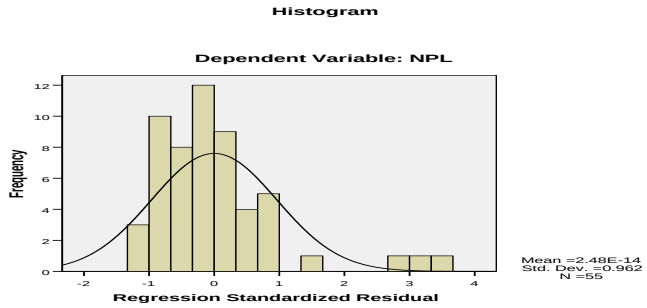
APPENDICES

Appendix 1 Commercial banks listed in Nairobi Security Exchange

1	KENYA COMMERCIAL BANK
2	EQUITY
3	ABSA
4	COOPERATIVE BANK
5	I&M BANK
6	STANDARD CHARTERED
7	STANBIC HODINGS
8	HOUSE OF FINANCING BANK
9	BANK OF KIGALI BANK
10	DIAMOND TRUST BANK
11	NCBA

Appendix ii Test for normality



Appendix iii Test for homoscedasticity