THE EFFECT OF CREDIT RISK MANAGEMENT ON THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN SENEGAL

BY

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DECLARATION

This research project is my original work and has not been presented in any other University for examination for an award of a degree.

…….. …….

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D61/83765/2016

This research project has been submitted for presentation with our approval as the University supervisor.

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I would not terminate without remembering my dear family with special thanks to my mum and my late dad who lay the foundation of my achievements.

DEDICATION

The research is a dedication to my dear husband who believed and always supported me all over the time I worked on the project and to my mother for her continuous prayers towards the successful completion of this work.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

AMCON	–	Asset Management Corporation of Nigeria
BS	–	Bank Size
CA	–	Capital Adequacy
CRM	–	Credit Risk Management
IR	–	Inflation Rate
LA	–	Loans and Advances
LL	–	Loan Loss Provisions
LTDR	–	Loan to Deposit Ratio
NIM	–	Net Interest Margin
NPL	–	Non-Performing Loans
ROA	–	Return on Asset
ROE	–	Return on Equity
WAEMU	–	West African Economic and Monetary Union

ABSTRACT

Credit is necessarily connected to a notion of profitability and risk. These two elements remain inseparable within the framework of the banking activity. Loan schemes need to be professionally managed so as to influence positively the bank's performance because without good credit risk management, numerous institutions encounter liquidity and inadequate working capital issues. The studyaim was to analyze the impacts of CRM on the performance financially of the banking institutes in Senegal. The design employed inresearch was the descriptive research design. Secondary data acquired from the BCEAO publications of banks financial statements was used by the researcher. The information collected usedmultiple regression and descriptive statistics analysis in analysis to come up with therelationship in regard to the direction, magnitude and nature between the variables ofstudy. Multiple regression model was adopted to ascertain the relationship of the dependent variable to multiple independent variables. The research findings established that the association between ROA and asset quality was statistically noteworthy and positive while the relationship between capital adequacy and ROA was negative and statistically significant respectively. The researchalso found that the relation between liquidity and ROA was positive and insignificant whereas the relationship between management efficiency and ROA was negative and statistically insignificant respectively. The research came to a conclusion that capital adequacy and CRMconsiderably affects commercial banks financial performance in Senegal and suggested that the commercial banks management in Senegal should come up with effective strategies of management of credit risk to mitigate the impact of credit risk on banks' financial performance.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

For very many years, credit risk constitutes a considerable source of the volatility of companies and financial institutions profit. Credit institutions are exposed to a multitude of risks which can entail their failure and bankruptcy. In Senegal, commercial banks are contributing to the economy of the country significantly with the considerable financial services they offer. The stability and the rapid growth of the Senegalese economy is partially determined by the ability of the banking industry to offer credit to various actors in the local economy value chain (BCEAO, 2016).

Ranson (2012) defines credit risk as total loss recorded on an operation further to the failure of the counterparty. In other words, it is the possibility that thereturn accrued from an investment is not the same as the returnthat's expected. Credit risk is very essential for investors,banks and obligationissuers. It's subjected at the same time to economic trends, situation of the business sector, political stability and to events related to the life of a company. It decreases in phase of economic expansion, because the considerable earnings by companies during this period reduce their probability of failure. On the contrary, it increases in period of recession, because of the decreasing company earnings. Credit Risk, thus, should be managed to limit risk as it represents banks principle income generating (Sangare, 2017).

Before being able to manage risks, it is imperative to identify them. Various sources of credit risk include risk resulting from the debtor, where it is a case of insolvency and in this case of external risk, the bank is not responsible for the degradation of the situation of the customer. There is also the risk resulting from the creditor, where the problem rests on the distributive policy of the credits of the bank. To limit such risks, the banking industry should have in place very well-capitalized service for a variety their clients, sharing clients' credit data, stable interest rates, non-performing loan reduction, increasing the bank deposits and ensuring increased loans provision to the borrowers (Basel Committee, 2006).

1.1.1 Credit Risk Management

Managing credit risk revolves around identifying, estimating, monitoring and controlling risks related to loan defaulting (Early, 1996; and Coyle, 2000). Among the essential threats concerning banks is Credit risk. Sometimes, it may be difficult to know the types of borrowers from the good to the bad (Auronen, 2003). Therefore, adverse selection often occurs in loaning. To limit credit risk, banking institutions should carry out due diligence of their clientele also known as ''the principle of know your customer'' (Basel Committee, 2006).

Credit risk management objective is to reduce at a maximum level the risk adjusted rate of return when banks face a certain credit risk. Commercial banks require a solid credit risk management for their whole portfolio and to oversee risk for credits and transactions. Commercial banks must also consider the connections between risk related to loans and other risks. Viable management ofcredit risk is animportant part of an extensive

management risk approach and it is fundamental for a sustainable efficiency of the banking system.

It's imperative for commercial banks to invest in a robust system ofCRM. Good CRM helps banks to reduce risk and reinforce their capacity to compete in the market (Van Greuning & Iqbal, 2007). Credit risk management empowers banks to proactively oversee loans with a specific end goal to reduce losses and increase satisfactory level of return for stakeholders. Banks utilize different credit risk management strategies generally determined by credit policies, credit scoring frameworks, regulatory system and the ability of the management (Van Greuning & Brajovic, 2004).

To undertake credit risk management obligations and duties, a bank need to understand its financial records, credit and environmental analysis. Banks should hold sound records of their credit performance of their portfolio of risky assets. Thus, any change in guaranteeing strategies and directions can essentially influence negatively their loan loss experience (Kenneth & Thygerson, 1995).

1.1.2 Financial Performance

As noted by Chege, (2008), the financial performance of a firm entity is the procedure of assessing the gains of the organization'sactivities in value in terms of money. It is the measure of the profit or loss during a given period. The internal factors, for example, asset quality, capital adequacy, management efficiency and liquidity management can vary amongst banks. The external factors are largely out of management's control and other financial institutions have a higher stake. These incorporate the political stability, the inflation rate, loan interest rates and monetary policies. The literature suggests several

factors susceptible to affecting a banks financial performance such as the size, the banking risk (Short, 1979; and Bourke 1989).

Using the financial performance of a firm, it is possible to quantify firm's overall financial health per year. The commonly used financial indicators to calculate performance financiallyinclude the ROE known as the coefficient of financial profitability, the ROA as coefficient of economic profitability and the NPM (Alexandru et al., 2008).

According to Pooja and Balwinder, (2009), ROA and ROE are the major ratios used in measuring commercial banks financial performance. Kaplan, Norton and Rugelsjoen (2010) proposed the use of balance scorecard in measuring the firm progress. Through use of balance scorecard, performance of afirm is established in four perspectives which include the customer, business context, prospects and development perspectives and financial perspectives.

1.1.3 Credit Risk Management and Financial Performance

The stability and the solvency of the banking system are an indispensable condition for the smooth running of the financial system. Commercial banks and other financial service providers essentially lend money to businesses, people, governments etc., but the most of their profit is originated from customer's loans (Gallagher, 1989). To ensure positive financial performance, banks should establish and monitor their loan process (Rahman & Mazlan, 2014).

The risk inherent to the banking sector distinguishes itself by its multiplicity and by its multi-sectoral nature which can only be ascertained using multiple indicators. Credit risk

positively influences the banking financial performance and banks manage credit risks by their operations on the derived markets of products where they exchange various instruments (forward financial contracts, options on instruments of debt, swaps of interest rate, etc.) (Lymon & Carles, 1978).

Achou and Tenguh (2008) noted that there exists a notable connection between the financial performance measured using credit risk management (as indicated by loan performance) and ROA.A well-structured credit risk management results in greater bank performance. Without good credit risk management, numerous entities encounter liquidity and inadequate working capital issues.

Pandley (2015) expressed that the credit policy defines an organization's performance. It implies that when an organization adopts a credit policy, it will empower borrower's investment revenue maximization in order to improve the financial performance. Therefore, a good credit strategy or policy significantly enhances banksfinancial performance.

1.1.4 Commercial Banks in Senegal

Senegal is a WAEMU member. The West African Economic and Monetary Union is composed of eight countries, has customs agreements between its members and a unique currency, the CFA franc (XOF). The economic union has a market of 112 million consumers. As in many other similar countries in Africa, the financial sector in Senegal is predominated by the banking industry, with commercial banks representing about 90 percent of the sector. Currently 25 of them operate across the country. Government of

Senegal controls a minority shareholding of between 10 to 25% of equity (BCEAO, 2016).

Commercial banks in Senegal operate under the Central Bank of West African Countries (BCEAO)supervision,a regional institution headquartered in Dakar. The banking sector seems to be relatively robust with loans concentration and asset quality generally being the principal risks. Financial soundness indicators show that banks are on an average basis adequately capitalized, profitable, and liquid. Loans in commercial banks in Senegal expose them to a great level of risk. The banks have been encountered to defaulting loans due to significant amount of credit that was given (BCEAO, 2011). In the past, the Senegalese banks have created complex risk management systems. They have developed policies which help in the implementation of advancing loan process and securing credit back via insurance.

1.2 Research Problem

The main goal of banking corporations is to function successfully with a view to maintaining security, stability as well as improving in terms of growth and expansion. Regardless of the fact that commercial banks maintain their credit risks within preferred levels, volatility of their portfolio at- risk ratios create bigger challenges (Manchon, 2011). The sources of these challenges include increased competition in the market, product diversification of long-term structures, expansion, move to individual lending, and efforts to intensify the outreach. Credit risk management practices should aid banks to lower their vulnerability to credit risks and boost their capability to bid in the market with other well-established global financial institutions and other financial institutions

like SACCOs and MFIs in their countries (Nouy, 2013). Loan schemes need to be professionally managed so as to influence positively the bank's performance because without good credit risk management, numerous institutions encounter liquidity and inadequate working capital issues (El-Gazzar & Pastena, 2010).

Since more and more commercial banks are being licensed to operate in Senegal as part of the financial inclusion and policy development initiatives of the BCEAO, keen attention to credit risk management is needed in to their liquidity and stability (Noumanath, 2014). The Senegalese banking sector faces challenges especially high non-performing loans and fluctuating interest rates. Therefore, Senegalese banks must manage risks related to credit in order to reduce exposure to credit risk and a decreasing level of returns that will negatively impact their financial performance (IMF, 2017). Patrick and Christina (2013) stated that credit risk for the most time emerges from non-performing loan portfolio in Senegal. The government or private owned banks in Senegal face five main risks namely currency risk, lending risk, internal compliance risk, asset/liability risk as well as risks related to money laundering with credit risk being the most pronounced. The current overall financial performance of Senegalese has stagnated over the last five years, asset quality generally being the principal risks (BCEAO, 2017).

Globally, Ahmad and Ariff (2007) and Brahim and Mansouri (2009) noted that in a number of European and Asian developed economies and Morocco respectively there was recurrent defaults in repayment of loans and increasing credit risk owing to global crisis of the 2009 financial sector which precipitated into closure of banks. Ledgerwood et al., (2013) established that the asset quality formerly known as portfolio quality is still a key measure of financial performance and stability for commercial banks in USA.

According to Altman et al., (2002) the effectiveness of credit risk management of banks largely dictates their success as these organizations create earnings from interests achieved on credits. The increasing non-performing loans deny the banks the much-needed revenue from the interest charged on loans compromising their financial performance and increasing credit risk. This further weaken the stability, viability and survival of the commercial banks, hence the wide-reaching banking crises in Europe and Asia (Anandarajan & Anandarajan, 2010 and Lobez, 2016).

A number of local studies on banks regulation and their capacity of failure prevention exists. For instance, Patrick and Christina K, (2013) found that out of the Senegalese banks which failed during the period of 1984 - 2002, 50% collapsed mainly due to poor quality of lending. This was attributable to recklessness in their lending activities and immense pressure especially in government-controlled banks to lend to politically connected individuals and institutions. Ndungu, (2013) found that sound asset and liability management had a noteworthyeffect on Kenyan banks profitability. The highlighted global and local empirical studies lack to focus on the most current data as they were done over five years ago. Given the banking system is highly fluid and dynamic; these previous studies require to be updated by a more current study. Therefore, the researchtries to evaluate the impacts of management ofcredit risk on commercial banks financial performance in Senegal. It will try to solve the research question,what is the influence of credit risk management on commercial banks'financial performance in Senegal?

1.3 Research Objective

This research objective is to determine the impact of credit risk management on the commercial banks'financial performance in Senegal.

1.4 Value of the Study

The research may add to a greater knowledge and perception of the role of CRM in enhancing financial performance. For the theoretical part, the study may give an extensive framework to the study of CRM new approaches and financial performance, hence valuable for future scholars.

Regulators and policy makers may find the study helpful in their effort of improving the banking industry. It may be of great significance to the banks that are under this study and additionally to other financial institutions for the appraisal of their policies in credit management and the review of their transactions for greater results regarding credit facilities.

The study may help the banks in Senegal to better manage credit risk vis a vis their financial performance. The study findings therefore may empower administration in various banks in Senegal to know how to get organized to have a good management of the credit risk and to clearly state the relationship enclosed by banks financial performance and credit risk. It may help in reducing deficits and maximize gains as well as to formulate better techniques for managing risks.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This part shows findings of other researchers on the study subject, the factors and methodologies they utilized and in addition their discoveries and suggestions. We looked at the theories that considered every variable related to the subject and including measures of credit risk and financial performance.

2.2 Theoretical review

The theoretical review intends to explain the theories relevant to credit risk management and financial performance. Liquidity risk theory, moral hazard theory and portfolio theory were found to help in underpinning the study.

2.2.1 Liquidity Risk Theory

This theory as proposed by Melton, (1974) argues that liquidity risk is the definitive indicator that leads to the high increase of credit risks in addition to market risks and can cause widespread collapses of financial institutions. The unmatched crisis in the United States mortgage market in 2007 was a classic example of liquidity risk. Acerbi and Scandolo (2007) depicts that any financial organization must be able to identify and rank liquidity risks. Liquidity requirements in financial institutions along with the liquidity resources on hand to convene these requirements rely extensively on the institutions

dealings, product portfolio, cash flows report as well as well as their balance sheet makeup.

Therefore, it is required for any financial organization to assess its position in regards to liquidity to dodge a declining effect on its earnings and capital. The theory is found significant to the research as it helps quantify the risk in regards to liquidity arising from loans that don’tperforming and portfolios at risk consequentially affecting the stability financiallyand performance of banks. This theory also aids in identifying the relevant changes in revenue and capital affecting the overall stability of the banks.

2.2.3 The Moral Hazard Theory

The theory was proposed by Arrow (1971). Within the framework of the banking relation, we observe certain degree of asymmetry of information between the creditor and the debtor. The borrower has a position superior to that of the bank because they know all the inside information at the request of loan. The banker therefore should collect relevant data to determine the motivations of the customer. Further to it, the credit institution has to emit an objective judgment to define if the project of the applicant of loan is solvent (Krugman, 2009).

The customer can sometimes forget or hide compromising information which are not favorable to the granting of a loan. If the banker failed to disclose all the information on the project and the situation, it would deny the client the credit they seek. However, these events can occur even if the banker remains very vigilant. The customer can decide to finance a very risky but sometimes very remunerative investment with a bank. Therefore,

commercial banks ought to have strong risk management rules to control the way they advance loan to their various customers (Colasse, 2010).

2.2.3 Portfolio Theory

The theory as proposed by Markowitz (1952) rest on the premise that risk-averse investors usually build portfolios so as to fully realize predicted return with a certain level of risk and with high attention that risk is a key part of high reward. The risk of an asset corresponds to the dispersal of the profitability around the average or expected profitability. The variance or its root called square standard deviation establishes a measure of risk according to Markowitz (1959). The management of a portfolio is a behavior of arbitration between the yield and the risk for various rival portfolios. For a given profitability, the best portfolio is the one with less risk. It is necessary to underline that when the market is efficient, the profitability is proportional to the risk.

Markowitz (1959) clarifies and formalizes the fundamental dilemma of the modern finance: obtain a low but certain profitability or agree to take a risk to increase this profitability, the hope of profitability being raised. This selection mode allows to have minimum risk for a chosen yield level.

Organizations perceive how credit concentrations can have an adverse effect on financial performance. Subsequently, various banks are effectively putting in place quantitative ways of credit risk controls. This sector is additionally improving toward putting various means of measuring credit risk when consequent portfolio exists. Banks also are utilizing other products to efficiently transfer risk while caring about their relationship with the customers (Kairu, 2009).

2.3 Determinants of Financial Performance

The performance of the banking industry financiallyand their determiners become an important stake within various revolutions context which impose the restructuring of the financial system which weaken numerous financial institutions. Indeed, the banking system deserve a particular attention, because the banking problems which arise can generate important systematic risks, which will have repercussions not only on the local economic environment, but also in the other countries and it’s due to the increasing financial markets integration (Haslam,1968).

Determinants of financial performance of a credit institution can be partitioned into internal and external variables. Studies have demonstrated that factors of abank influencecommercial banks performance. External factors which may impact performance include the interest rate, inflation and the economic growth. These variables are not under the direct control of the management. (Short,1979). The internal factors can be defined as the elements that bank's management policy, objectives and decisions can influence. Internal factors incorporate management efficiency, bank size, capital adequacy and risk management capacity (Athanasoglou et al., 2005).

2.3.1 Capital Adequacy

Several empirical studies revealed that Capital Adequacy exercises stimulating reaction on banks’financial performance (Bashir, 2000). It’s also a determinant of a bank’sfinancial health. It demonstrates the capacity to bear with operational deficits. It characterizes the capacity to go into new businesses.

Capital Adequacy Ratio dictates bank risk behavior. It is a determinant of the bank financial health and the capacity to eliminate risk. CAR helps in securing the various clients and guarantees the strength and capability of the financial system. The ratio is obtained by total equity over total asset. It represents a fundamental ratio for capital strength as capital allows absorbing easily the deficits and thus helps banks protect itself of insolvency. Besides, the less the capital of a bank is important, the more it will be exposed to bankruptcy in case of important losses.

2.3.2 Bank Size

Size'simpacts on financial performance, is difficult to ascertain. Some researches acknowledge that the size of a bank is a determinant of positive performance, (Bec, 2006; Pasiouras, 2007). Others think that the size has a negative impact (Kasman, 2010; and Jonghe, 2010). Finally, a last group considers that the impact is not significant (Goddard, 2004; and Micco, 2007). For large companies, the size empowers them to bargain more adequately, oversee prices and make prices that arehigher for a specific commodity (Agu, 1992). In several studieson finance, bank's total asset is considered as a proxy of size.

2.3.3 Non-performing Loan Ratio

The NPL were mainly used as measure of assets quality of credit firms and have mostly been related to the presence of a risk of bankruptcy. NPLR is considered as a statistically significant leading indicator of the insolvency (Lanine & Vennet, 2006). NPLR that's lower is linked to a rate of deposit and risk that's lower. Most of the banking institutions often have an important level of doubtful debts doubtful before the period of distress. The non-performing loans are among the main originators of economic stagnation (Nkusu,

2011). Management of banks risk allocation depends on risk diversification to lower the amount ofNPL.

Muasya (2000) researched the impact on the banking sectorperformancein Kenyaby non-performing loans and found NPLs affected negatively the banking sector profitability as measured by forecasted GPD growth factor. Shrestha (2015) found a negative interrelationship between the amount of NPL and stock price using data from Nepali commercial banks in India.

2.3.4 Management Efficiency

Good management is the most vital foundation for the quality and development of any financial institution since indicators of Management quality are fundamentally particular to individual institutions. Management Efficiency is one of the key aspects determinants of profitability. In addition, functional proficiency in dealing with the working costs is another measurement for administration efficiency. Some of the financial ratios regarding the financial statements go as an intermediary for administration proficiency (Beck, Chen & Song, 2012).

2.3.5 External Factors

The external factors are majorly not under the management control, but they have an effect on financial performance. The macroeconomic stability policy, the Interest Rate and the political instability are the most external factors that command banks performance. Gross Domestic Product and Inflation are other macroeconomic factors that also affect bank performance (Athanasoglou et al., 2005).

Vanroose (2008) studied macroeconomic factors in Sub-Saharan countries and the findings confirmed that the density of the population greatly determines the financial performance of the specific financial institutions operating there. And from the previous discussions on this paper, these huge numbers in terms of population are the same clientele for these financial institutions in the developing countries.

2.4 Empirical Studies

This topic showsstudies about the relation between financial performanceand credit risk both localand globally. Several researchers have researched on the study subject.

For instance, Awoyemi studiedcredit risk efficiency impacts on the performance of Nigeriancommercial banks(2014). Indicators used,to assess profitability,ROA and ROE and NPL as the indicators for credit risk management. Annual reports and accounts between 2005 and 2011 of 7 selected banks were examined. The results highlighted that management ofcredit risk positively affects banks performance financially.

Brahim and Mansouri (2009) studied the influence of credit risk management on commercial banks profitability in Morocco. An analysis of a sample of five principal banks between 1993 and 2006 were used. He studied the financial statements of those banks. The findings showed that the banks' profitability measured by resorting to the two complementary indicators ROE and ROA is significantly connected to credit risk management.

Moreover, Mainta (2014) appraised the correlation amongst financial performance and management of credit risk of BOA bank in Benin. His research focused on analyzing the

BOA financial statements during the years 2002-2012. He found that a critical and positive relation exists amidst sound credit risk management and profitability.

Valsamakis et al., (2005) carried out a research on the risk to income related to the borrowers' defaults in refunding of loans. His goal was to confirm if non-refund of loan could induce credit risk. The findings show that credit risk encloses the failure in benefit due to failure to gather expected interest income and in addition the loss of principal because of credit defaults.

Eng and Nabar (2007) investigated on firm performanceand management of credit risk. The results confirmed that important relation between credit riskand GRL (loan growth). The result explains that a rise in loan growth results in a credit riskdecrease. A possible reason for GRL to be negatively related to credit risk was that when banks increase their lending pursuant to high demand of credit, they tighten their credit standards and keep loans under control, which reduce banks' credit risk exposure. In contrast, when banks have a large proportion of funds available for lending, they relax their credit standards. As a result, the probability of adverse selection and moral hazard activities increase contributes to an increase in problem loans.

Afriyie (2011) studied Ghana bank’s profitability and credit risk for the time 2006 - 2010. The results revealed that credit risk management and profitability are significantly related. However, it exists different elements which can have an effect on banks performance financiallyespecially in rural areas. In rural areas there are factors such as low level of income, accessibility of the formal financial and also lack of information or

awareness. Most of the banks that perform well have their head office in urban areas and research could have given better results if all the banks were represented.

Kithinji (2010) examined the impacts of management ofcredit risk on the profit of Kenyan commercial banks. She calculatedthe management ofcredit risk using the advances and loans on total assets ratio and advances ratio and NPL to total loans. The researchdiscovered that the main component of profits ofcommercial banksdoes not relate to the non-performing loans and volume of credit. This signifies that apart from credit and non-performing loans there exists other factors that affect banks' profitability. His study's findingsshow the essence to put into consideration other aspects that could have an influence on banks financial performance.

Noumanath (2014) studied how commercial banks financial performance was affected bymanagement ofcredit risk in Senegal. In his research, he examined the credit risk management systems adopted by Ecobank Senegal and found that not only credit risk management empower the bank financial performance but also enable optimization of the economic resources and a better reputation of the bank in the industry. The study used a descriptive research design including secondary data attained from published financial reports and the multiple regression model was applied.

Ousmane (2008) studied credit risk management and bank performance in Senegal and discovered that around 90% of the UEMOA banks adopted credit management policies as a base for credit assessment. He used descriptive research design with secondary data obtained from the annual BCEAO reports and the analytical model was the multiple regression models which show positive signs of the coefficient that suggests that NPL

was very significant. The study revealed that the major risk in the banking sector was credit risk and therefore many of the banks put an important emphasis on their credit risk practices.

In his study on CAR and bank performance in Kenya, Odongo (2012) found out that capital adequacy announcement leads to underperformance of stocks in the market as they had negative cumulative abnormal return values especially in the post announcement dates. The study used secondary data for 2008 to 2012 and multiple regression for analysis.

Muasya evaluated the non-performing loans impactson the Kenyanbanks performance (2009). The research useda descriptive research design; the population target of interest was 42 Kenyancommercial banks. Both the collected secondary and primary data through questionnaires from the credit managers and annual financial reports were considered. According to the results NPLs negatively affected banking sector profitability as measured by forecasted GPD growth factor. It also found a negative relationship among the amount of NPL and stock price using data from Kenyancommercial banks.

Mutua (2014) examined the relationship between Kenyan commercial banks financial performance and credit risk management using regression model that included together secondary and primary data obtained from questionnaires and other secondary means such as published financial reports. The findings were that risk identification, risk analysis, NPLs and loans advances contributed significantly to Kenyan commercial banks financial performance.

Rahman and Mazlan (2014) studied Bangladesh's causes of sustainability financially of MFIs. Through multiple regression, the study measured financial self-sustainability against gross loan portfolio of the MFIs. The study established that many MFIs sustain themselvesfinancially to function in Bangladesh. Al-shakrchy (2017) reviewed the management ofcredit risk effects on profitability ofbanks in Sweden. The goal of the research was to find out the main issues arising from the bank lending activities that have serious impact on the banking industry and the financial instability. Furthermore, the research explored whether credit exposure manage procedures were changed during financial crisis. The study established that successful practices of credit risk management in Swedish banks were likely to improve the availability of bank credit.

Ho and Yusoff (2009) studied Malaysian selected banks application of CRM. The study found that diversity in the types of services, risks prevention, and staff capacity strengthening were most practiced CRM practices. The study used primary data in credit risk management strategy and revealed its significant contribution in the area of finance in Malaysia. Effective CRMis a necessary aspect of the generalsystem of management of risk. It's essential for eventually the survival of all banking establishments.

Hassan et al., (2007) did a comparative study of Management ofCredit Risk for UAE banks both foreign and nationally. The research confirmed that key risk that UAE banks faced were currency, credit and operating risk. Banks in UAE were found to be good in risk managing, identification and assessment which are among the variables that are most significant in practices ofrisk management. In addition, it is found evidence of a notable distinction between the foreign and national banks CRM.

2.5 Conceptual Framework

The conceptual framework showed below exposes the interaction between commercial banks financial performance in Senegal as a variable that is dependent and is going to be measured using ROA and management ofcredit risk as avariable that isindependent. The CRM of the commercial banks in Senegal will be measured using the following constructs: capital adequacy ratio, management efficiency, liquidity and asset quality. Asset quality measured using Non-Performing Loan Ratio indicates banks risk of bankruptcy. High capital adequacy implies banks higher capability to cope with unexpected deficits and vice versa. A lower NPLR implies higher asset quality and is related to a lower risk. Good management efficiency has a definite effect on banks financial performance. Liquidity given by the ratio of total loans to total deposits shows the ability ofa bankin assets'increase and meets obligations as they fall due. The higher the ratio above the statutory minimum requirement, it positively influences financial performance of banks.

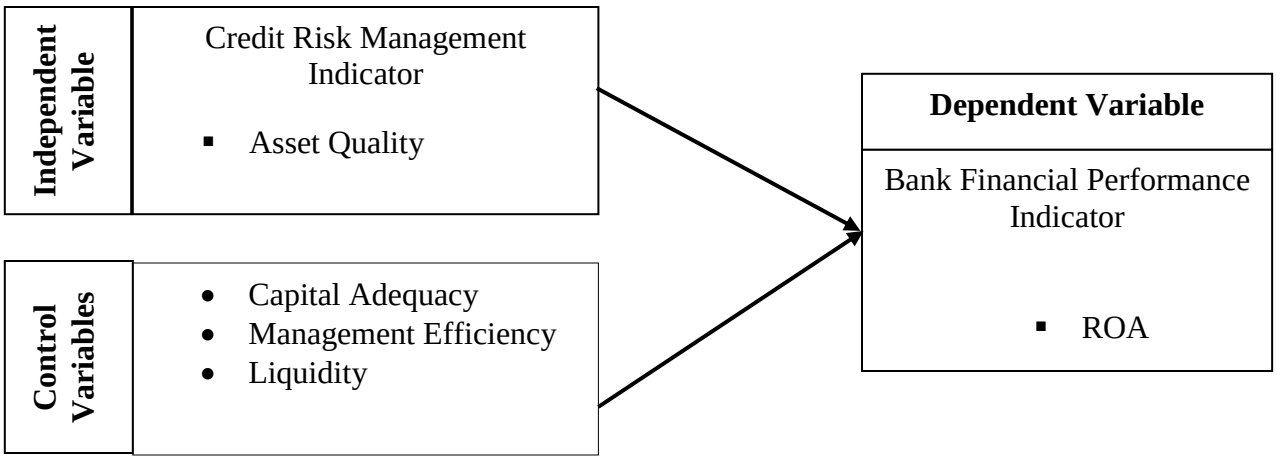

Figure 2.1: Conceptual Framework

Source: Author (2018)

2.6 Summary of Literature Review

The study reviewed several studies among them Awoyemi (2014) on credit risk efficiency in Brahim, Mansouri and Nigeria in regards to performance of banks (2009) on management ofcredit risk in regards to Morocco's bank's profitability. The research also reviewed Mainta (2014) study on performance and management of credit risk of BOA bank in Benin and also Afriyie (2011) on Ghana's banks profitability and credit risk. Further, the study reviewed the research by Kithinji (2010) on management ofcredit risk and profit of Kenyancommercial banks and Muasya (2009) on Kenyan banks performanceandnon-performing loans. This studies and many other however have been carried out in other countries and not in Senegal. This creates a contextual and empirical gap, which this research seeks to deal with by carrying out studies on the effectson Senegal's bank performance by credit risk management.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This section highlights the approach that was put into us. It includes theanalysis ofdata, the collection of data, target population andresearch design.

3.2 Research Design

Descriptive research design wasemployed in the research. It is suitable where a research is trying to explain and define particular group characteristics and to estimate the proportion of people in the group who possess particular characteristics, hence helping in generalizations and making predictions (Cooper & Schindler, 2011). The design is also appropriate in describing the phenomenon without manipulation of variables which is the aim of the study (Kothari, 2004). In spite of the fact that this study begun with the description of financial performance ofbanksand CRM, the definitive objective is to ascertain if they are related.

3.3 Target Population

The population targeted in the researchwas the twenty-five (25) licensed commercial banks in Senegal as shown on Appendix 1. From these recorded banks, only one is owned by the government.

3.4 Sample Design

The sample size was ten (10) selected from the twenty-five banks registered in Senegal. The criteria used were that the banks must have been registered for doing business in Senegal at least before 2013 and exclusively listed as commercial banks.

Therefore, only ten banks met these criteria for the period of 2013 to 2017 as from 2014 it has been noted a certain proliferation of banks in Senegal. According to their business sector and their coverage, there is a certain classification of the identified 25 banks in Senegal which include the commercial banks, the development banks and the decentralized financial systems, BCEAO (2013).

3.5 Data Collection

The researchemployeddata from secondary sources. It is to be gathered from the yearly and financial reports of the 10 banks from where ROA will be deduced. The financial statements will include the after-tax profit, total asset and value of loans outstanding.

The researcher obtained the secondary data from the published financial statements from 2013 to 2017 of the selected 10 banks. Secondary data was used because it is factual and can be verified from the published reports.

3.6 Data Analysis

The data analysis was done throughmultiple regression analysis and descriptive statistics to ascertain the character and magnitude of the connection among the study variables. SPSSand Excelwereemployed to analyze information collected.

3.6.1 Analytical Model

A multiple regression model was adopted to ascertain the relationamongst the variables. The main dependent variable, financial performance indicator was ROA. The ROA indicates banks' efficiency in using its assets to create revenue flow. The research employed published financial yearly reports of the banks under section (Appendix II). ROA was used as a comparative measure of an entity's previous ROA or the ROA of similar financial institutions.

In this research, this model will be used:

$Yt = \alpha + \beta l\ X1it + \beta 2\ X2it + \beta 3\ X3it + \beta 4\ X4it + C0$

Where:

Y = Financial Performance of Bank i at time t as communicated by ROA

α = constant

X1it = Asset Quality of bank i at time t

X2it = Capital Adequacy of bank i at time t

X3it = Management Efficiency of Bank i at time t

X4it = Liquidity of Bank i at time t

βi = Regression coefficients

C0 = error term

The study variables were operationalized and measured as indicated in the table 3.1 below.

Table 3.1 Variables measurement and operationalization

Symbol of the variable	Name of the variable	Measurement Ratios	Banks identity & year	Number of Bank i	time t
Y	Financial Performance	Return on Assets = Net income / Total Assets	Bank i at time t	10	2013-2017
X_1it	Asset Quality	gross NPLs/ gross loans advanced	Bank i at time t	10	2013-2017
X_2it	Capital Adequacy ratio	Total Capital / Total Risk-Weighted assets	Bank i at time t	10	2013-2017
X_3it	Management Efficiency	Total Operating Expenses / Total Operating Income	Bank i at time t	10	2013-2017
X_4it	Liquidity	Total Loans / Total Deposits	Bank i at time t	10	2013-2017

3.6.2 Diagnostic Tests

The study assessed for multicolinearity test, normality test, heteroscedasticity, linearity and autocorrelation. To assess for multicolinearity, correlations between the study variables were calculated and the variance inflation factors (VIF) while normality was tested using kurtosis and skewness, and the Shapiro Wilk test whereas autocorrelations was assessed using Durbin Watson statistics.Linearity was assessed by plotting a scatter graph while heteroscedasticity was assessed using a standardized residual plot.

3.6.3 Tests of Significance

A test of the model'soverall significance will be done by use of the F-test as well as the T-test for significance for the coefficients at 0.05 significance level and 0.95 confidence level. Adjusted R-squared was applied to establish the variation in the variables that aredependent when the variables that areindependent change.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

The research sought to analyze the impacts of management of credit risk on commercial banks financial performance in Senegal. The independent variables, for which information was derived from the financial statements published through BCEAO data base and databases of the respective banks, was credit risk management. The financial performance for period 2013-2017 was the dependent variable.

4.2 Descriptive Statistics

The study sampled 10 commercial banks in Senegal; which had been in operation from 2013 to 2018 and managed to obtain complete data from all the 10 commercial banks hence a response rate of 100%. The descriptive results are show by table 4.1

Table 4.1 Descriptive Statistics

	N	**Minimum**	**Maximum**	**Mean**	**Std. Dev**	**Skewness**	**Kurtosis**
ROA (ratio)	50	.030	.240	.12880	.050976	-.034	-.524
Asset quality (ratio)	50	.050	.210	.10840	.037053	.242	-.396
Capital adequacy (ratio)	50	.020	.750	.21140	.219173	.996	-.519
Liquidity(ratio)	50	.560	1.210	.80780	.158504	.791	.015
Management efficiency(ratio)	50	.260	0.980	.76700	.178511	-1.347	1.367

Source: Research Findings

The descriptive findings on table 4.1 imply that ROA had an average value of 0.12880 and maximum and minimum values of 0.240 and 0.030 which indicates that the average ROA for the 10 commercial banks was 0.1288 and the maximum value of 0.030 indicates that no bank had made losses for the considered study period. The average value of assets quality was 0.10840 with maximum and minimum values of 0.210 and 0.050 which indicates that the average non-performing loans value of to total loans was 0.10840 respectively. The average value for capital adequacy was 0.21140 while the minimum and maximum values were 0.020 and 0.750 hence an indication that average capital adequacy for the banks over the considered research period was 21.14% respectively.

The mean value for liquidity ratio was 0.80780 with the minimum and maximum values being 0.560 and 1.210 hence an indication that the average value of liquidity for the banks was 0.80780 which indicates that the banks were highly liquid hence they can meet their obligations when they fall due. The mean value of management efficiency was 0.76700 with maximum and minimum values of 0.980 and 0.260 in that order hence an indication that the average value of expenses to interest income was 0.767 correspondingly. The skewness and kurtosis values show that all the value lie between -2 and +2 hence and indication that the data was normally distributed.

4.3 Diagnostic Tests

The study assessed for multicollinearity, homogeneity of variances, linearity, normality and autocorrelation whose results are shown under the model summary. The test results were as follows

4.3.1 Test for Multicollinearity

The study assessed for multicollinearity using the variance inflation factors as shown by table 4.2

Table 4.2: Test for Multicollinearity

	Tolerance	**VIF**
Asset quality	.814	1.228
Capital adequacy	.908	1.101
Liquidity	.880	1.136
Management efficiency	.790	1.267

Source: Research Findings

The multicollinearityresults on table 4.1 showa lack ofmulticollinearity among the research variables. This is shown by the VIF values which are less than 10 and the tolerance values which were more than 0.2. This shows that the study does not violate the assumption of multicollinearity.

4.3.2 Test for Homogeneity of Variances

A standardized residual plot was used to assess for the homogeneity of variances as shown by figure 4.1

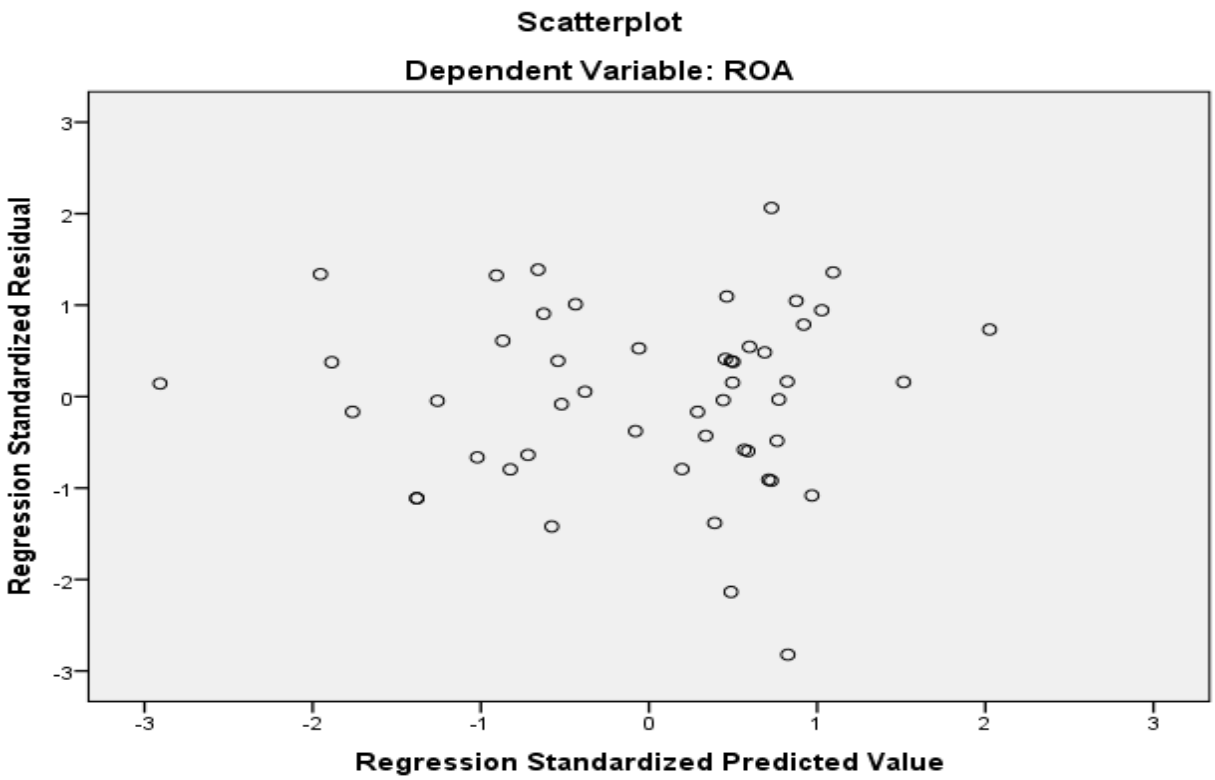

Figure 4.1: Standardized Residual Plot

Source: Research Findings

The homogeneity of variances findings on figure 4.1 indicates that the data was homoscedastic.This is shown by the plotted point on the residual plot which converge at a specific point and follows a defined pattern. Thus, in the study the assumption of homoscedasticity has not been violated.

4.3.3Linearity Test

Linearity was asses through a normal p-p plot as shown by figure 4.2

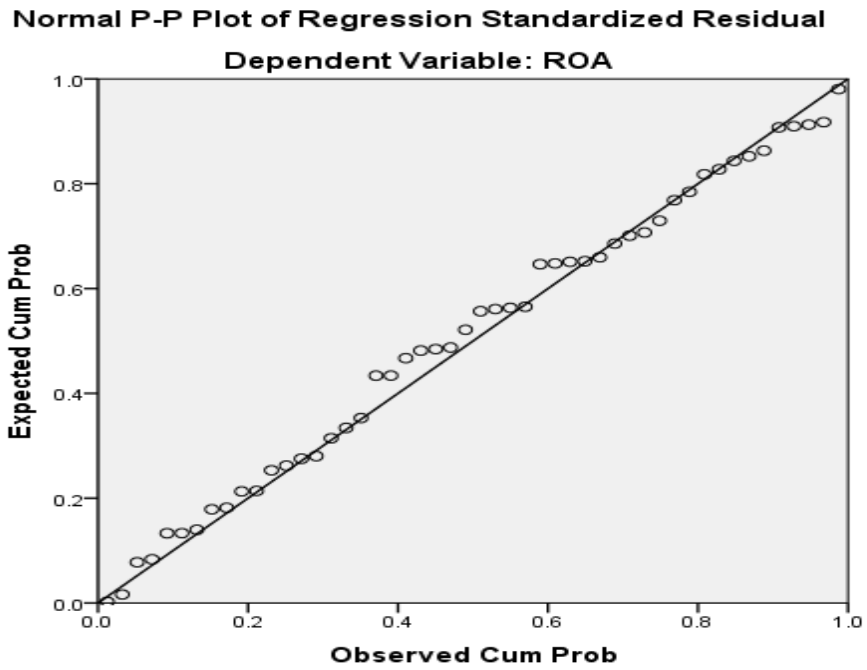

Figure 4.2: Normal P-P Plot

Source: Research Findings

The results on figure 4.2 indicate that the plotted data points fit on the line of the best fit. This indicates that the assumption of linearity has not violated in the research

4.3.4 Normality Test

The study assessed for normality using the Kolmogorov-Smirnov and the Shapiro-Wilk tests as shown in table 4.3

Table 4.3: Normality Test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
ROA	.081	50	.200*	.981	50	.579
Asset quality	.163	50	.072	.940	50	.113
Capital adequacy	.298	50	.053	.781	50	.070
Liquidity	.094	50	.200*	.936	50	.089
Management efficiency	.193	50	.341	.864	50	.063

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Source: Research Findings

The normality test findings on table 4.3 show that the variables are normally distributed. This indicated by the p values in both the Shapiro-Wilkand the Kolmogorov-Smirnov tests which are less than 0.05. In the study,thus the assumption of normality has not been violated.

4.4 Correlation Analysis

The study undertook correlation analysis to assess the nature and strength of the relationships among the variables of the research. Table 4.4 shows the results

Table 4.4: Correlation Analysis

	ROA	**Asset quality**	**Capital adequacy**	**Liquidity**	**Management efficiency**
ROA	1				
Asset quality	.381**	1			
Capital adequacy	-.462**	-.238	1		
Liquidity	.148	.072	-.197	1	
Management efficiency	-.009	.372**	-.093	.291*	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Research Findings

The correlation findings on table 4.4 indicates that the correlation between asset quality and ROA was weak and positive (r=0.381) while the correlation between capital adequacy and ROA was weak and negative (r=-0.462) respectively. The correlation between liquidity andROA was weak and positive (r=0.148) while the correlation between management efficiency and ROA was weak and negative (r=-0.009) respectively. The correlation values indicate that the all the correlations are less than 0.7 thus an indication that there was a no multicollinearity among the variables of the research.

4.5 Regression Analysis

The study employed regression analysis to establish the relations amongst the dependent and independent variables. The results of the regression model includethe coefficient's summary, variance analysis and the model summary.

4.5.1 Model Summary

Table 4.5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.574[a]	.329	.269	.043570	1.589

a. Predictors: (Constant), Management efficiency, Capital adequacy , Liquidity , Asset quality

b. Dependent Variable: ROA

Source: Research Findings

Thefindings of model summary on table 4.5 show that the r square value (coefficient of determination) was 0.329. This shows that 32.9% of the variation in ROA is described by the study variables that are independent (management efficiency, capital adequacy, liquidity, asset quality) while 67.1% is explained by other factors which the study did not consider. The Durbin statistics value of 1.589 lies between the recommended ranges of 1.5 and 2.5, which means autocorrelation between the variables,did not exist.

4.5.2 Analysis of Variance

Table 4.6: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.042	4	.010	5.518	.001[b]
	Residual	.085	45	.002		
	Total	.127	49			

a. Dependent Variable: ROA

b. Predictors: (Constant), Management efficiency, Capital adequacy , Liquidity , Asset quality

Source: Research Findings

The findings of ANOVA on table 4.6 show that the F statistics value was 5.518 which is statistically significant as shown by the p value of 0.001<0.05. This is an indication that the regression equation is of significance and a good predicator of the relations of the study variables.

4.5.3 Regression Coefficients

Table 4.7: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.111	.042		2.643	.011
	Asset quality	.499	.186	.363	2.683	.010
	Capital adequacy	-.087	.030	-.373	-2.900	.006
	Liquidity	.035	.042	.110	.833	.404
	Management efficiency	-.060	.039	-.211	-1.538	.132

a. Dependent Variable: ROA

Source: Research Findings

Table 4.7 indicatesthat the relation amongstROA and asset quality was positive (B=0.499) and of significance statistically (P value: 0.010<0.05) while the relation amongst capital adequacy and ROA was negative (-0.087) and of significance statistically (P value: 0.006<0.05) respectively. Then again, the relationship between liquidity and ROA was positive (B=0.035) and statistically insignificant (P value = 0.404>0.05) whereas the relationamongst management efficiency and ROA was negative (B=-0.060) and statistically insignificant (P value= 0.132>0.05) respectively.

4.6 Discussion of the Findings

The research results found existence of a positive and noteworthy relationship amongst assets quality and ROA of commercial banks in Senegal. These findings imply that credit risk management substantial affects commercial banks financial performance in Senegal. The results are in agreement with the findings in the study by Awoyemi (2014) who

evaluated the credit risk efficiency impacts on Nigerian commercial banks performance.Noumanath (2014) established that not only credit risk management empower the bank financial performance but also enable optimization of the economic resources and a better reputation of the bank in the industry. Brahim and Mansouri (2009) showed that the banks' profitability measured by resorting to the two complementary indicators ROE and ROA is significantly connected to credit risk management. Ousmane (2008) revealed that the major risk in the banking sector is credit risk and therefore many of the banks put an important emphasis on their credit risk practices.

The study results revealed a relationship that was both significant and negative amongst capital adequacy and ROA of commercial banks in Senegal. This is an indication that capital adequacy significantly influencescommercial banks financial performance in Senegal. A research by Bashir (2000) reported that CAR help in securing the various clients and guarantee the strength and capability of the financial system.Odongo (2012) found out that capital adequacy announcement leads to underperformance of stocks in the market as they had negative cumulative abnormal return values especially in the post announcement dates. Bashir (2000) posits that a determinant of a bank's financial health is capital adequacy. It demonstrates the capacity to bear with operational deficits. It characterizes the capacity to go into new businesses.

Additionally, the finding of the research established that the connectionamidstcommercial banks ROA and liquidity in Senegal was positive and not significant. This means that liquidity management doesn't significantly affectcommercial banks financial performance in Senegal. Mainta (2014) found that a critical and positive relation exists amidst sound liquidity risk management and profitability.A study by Ngumo, Kioko and

Shikumo (2017) revealed that liquidity management had insignificant positive affiliations with the performance of the listed Kenyan commercial banks while management of credit risk had an insignificant negative relationship.

Finally, the researchdiscovered that the commercial banks connectionamongst management efficiency and ROA in Senegal was negative and insignificant. The findings therefore showa lack of a significant associationamongstcommercial bank's management efficiency and financial performance in Senegal. Beck, Chen and Song (2012) posit that good management is the most vital foundation for the quality and development of any financial institution since indicators of Management quality are fundamentally particular to individual institutions. Management Efficiency is one of the key aspectsdeterminants of profitability. In addition, functional proficiency in dealing with the working costs is another measurement for administration efficiency.

CHAPTER FIVE

SUMMARY, CONCLUSION, RECOMMENDATIONS

5.1 Introduction

This section provides thestudy summary, conclusion and recommendations. The research focused on the effect of credit risk management on the financial performance of commercial banks in Senegal.

5.2 Summary

This research sought to determine the effect of credit risk management on commercial banks financial performance in Senegal. To achieve this objective, the study used a descriptive research design. The study sampled ten (10) selected from the twenty-five banks registered in Senegal. The criteria used was that the banks must have been registered for doing business in Senegal at least before 2013 and exclusively listed as commercial banks. The research employed the use of secondary data from 2013 to 2017 of the selected 10 banks. The analysis of data was throughmultiple regression analysis and descriptive statistics use to ascertain the character and magnitude of the connection amongst the study variables

The descriptive findings established that ROA had an average value of 0.12880 and maximum and minimum values of 0.240 and 0.030 and that the average value of assets quality was 0.10840 with maximum and minimum values of 0.210 and 0.050 in that order. The results revealed that the average value for capital adequacy was 0.21140 while the minimum and maximum values were 0.020 and 0.750 and that mean value for

liquidity ratio was 0.80780 with the maximum and minimum values being 1.210 and 0.56 in that order. The value of the mean of management efficiency was 0.76700 with maximum and minimum values of 0.980 and 0.260 in that order.

The correlation results revealed that the correlation between asset quality and ROA was weak and positive (r=0.381) while the correlation between capital adequacy and ROA was weak and negative (r=-0.462) respectively. The results also established that the correlation between liquidity and ROA was weak and positive (r=0.148) while the correlation between management efficiency and ROA was weak and negative (r=-0.009) respectively.

The regression results established that 32.9% of ROA variation wasdescribed by the study variables that were independent (management efficiency, capital adequacy, liquidity, asset quality). The result also found that the F statistics value was 5.518 which was statistically significant as shown by the p value of 0.001<0.05 hence an indication that the regression equation was notinsignificant and a good predicator of the relation of the variables of the study. The coefficient findings established that the linkamongst asset quality and ROA was of significance statistically and not negativewhile the relationship between capital adequacy and ROA was negative and statistically significant respectively. The research also found that the connectionamid liquidity and ROA was not negative and statistically insignificant whereas the relationship between management efficiency and ROA was negative and statistically insignificant respectively.

5.3 Conclusion

The first goal of the research was to establish the effect of management of credit risk and commercial banks performance financially. The finding revealed a noteworthyand a not negative association amongst assets quality and ROA of commercial banks in Senegal. The study based on the finding concluded that management of credit risk significantlyinfluencescommercial banks financial performance in Senegal.

The second goal assessed how capital adequacy affects commercial banks financial performance. The results revealed a significant and not positiveassociation between commercial bank's capital adequacy and ROA in Senegal. The study therefore concluded that capital adequacy significantly affects commercial banks financial performance in Senegal.

The third aim of thisresearch was to investigate how liquidity influences performance financially of commercial banks in Senegal. The finding showed that the associationamid ROA and liquidity of the commercial banks in Senegal was positive and not significant. The study based on the finding concluded that liquidity management does not significantly influence the commercial banks financial performance in Senegal

The final aim of the research was to assess the impacts onfinancial performance in Senegal as a result of management efficiency. The research found that commercial banks relationshipamid ROA and management efficiency in Senegal was negative and insignificant. The study thus came to a conclusionthere lacked a significant linkamid management efficiency and commercial banks financial performance in Senegal.

5.4 Recommendations

The findings on the relationship between financial performance and management of credit risk led to the conclusion that management of credit risk significantly affects the commercial banks financial performance in Senegal. The research therefore recommends that the management of commercial banks in Senegal should set up effective strategies on management of credit risk to mitigate the effects on performance of commercial banks as a result of credit risks. Setting up of operationalmanagement of credit risk by the organizationis anessential part of an extensive method to management ofrisk and it is fundamental for a sustainable system of banking that's efficient.

The results of how capital adequacy affects commercial banks financial performance revealed that capital adequacy significantly influencescommercial banks financial performance in Senegal. The research based on this finding recommends that the management of commercial banks in Senegal has to make sure capital levels that are adequate are present as capital adequacy helps in securing the various clients and guarantee the strength and capability of the financial system.

The findings on impact of liquidity on commercial banks financial performance led to the conclusion that management of liquidity does not have an influence that is significant incommercial banks financial performance in Senegal. The research however endorses that the commercial banks management in Senegal has to make sure liquidity that's enough is present in the banks. This is because liquidity that isadequate ensures a bank gets the ability to meet is current duties when they increase and optimal liquidity reduces liquidity risk.

Lastly, the findings on the effect of efficiency management on performance of a bank led to the conclusion that a significant relation amidcommercial banks management efficiency and performance financially in Senegal did not exist. The research however suggests that commercial banks management should properly managetheiroperating expenses as proper management of costs is the most vital foundation for the quality and development of any financial institution.

5.5 Limitations of the Study

The research was restrictedup to the banking sector in Senegal and focusing on the bigger banking institutions in the country and the challenges they were facing. The used data was picked from those banks whose available information was public via internet or their website.The study also took a sample of 10 commercial banks which had been operation for the considered research period of 5 years.

In BCEAO Annual Reports, consolidated financial statements were recorded to the nearest one billion CFA. This might have somewhat limited the accuracy of the data used in the study. Besides, current study objective and that of the BCEAO reports were different. The BCEAO reports therefore did not provide enough details on credit risk management.

Thirdly, this study covered only five years data from 2013 to 2017. To get consistent results series data collected for a longer period is required. The availability of the data was a difficult process as the BCEAO reports were reported in French. The translation process to English was tedious and time consuming.Additionally, the findings were limited to the considered research period

Thirdly, thestudy'spurpose used a model that was quite simplified and might not have captured every important aspect that relates to banks management ofcredit risk. The use of descriptive research design also has inherent limitations. The study also used secondary data which was historical in nature and secondary ignores qualitative aspects which affect firm performance.

5.6 Areas for Further Studies

The research found that the considered study variables (management efficiency, capital adequacy, liquidity, asset quality) affected only 32.9% of the variation in performance financially of commercial banks in Senegal. This shows other variables both qualitative and quantitative factors thus suggest an addition research of the qualitative and quantitative determinants of commercial banks financial performance in Senegal.

The study context was Senegal's commercial banks and the data was only obtained from 10 commercial banks which had complete data.The study therefore recommends a similar study using primary data to capture the views of the organization senior management on how credit risk affects financial performance. The study further recommends a similar study on Sub-Saharan Africa for contrasting and to allow rationalization of the results.The researchrecommends that more researches to be conducted in regardsto theimpact of management of credit risk through CAMEL indicators on the other financial institutions such asMFIs financial performance. This is to establishwhether the CAMEL method can be used as a management of credit risk proxy on the other Senegal'sfinancial organizations.

More research should be carried outon the practices of management of risk employed by Senegal'scommercial banks whereby the research aims to examinepractices of management of risk awareness inside the banking division. The research can include data composedby use of both secondary andprimary sources with aim toemploy primary source data being to find out the level to which commercial banks have carried out dissimilarpractices of management ofrisk by use of a questionnaire; while the goal to employ data that is from secondary sources will be to connect the Capital Adequacy Ratio (CAR) that is risk weighted to the dissimilarcommercial banks financial indicators employed to establish soundnessof the bank financially.

More research should be carried out to discover if credit reference bureau development in Senegal can go step by step in lowering the risk posed in credit by loaning and to examine the costs in insurance cut linked with these firms' profitability cutbacks and loans. Further studies can also be conducted in the impacts of management of credit risk on performance financially of other financial organizations in Senegal other than commercial banks. This is because; they operate using a different set of policies and rules in their operations.

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APPENDICES

Appendix I: Licensed Commercial Banks in Senegal

1. Bank of Africa Sénégal
2. Banque Atlantique Sénégal (BA-SA)
3. Banque de Dakar (BDK)
4. Banque Régionale de Solidarité
5. Banque de l'Habitat du Sénégal
6. Société Générale de Banques au Sénégal (SGBS)
7. Ecobank Sénégal
8. Banque Sénégalo-Tunisienne
9. BGFI Bank (BGFI)
10. Crédit Lyonnais Sénégal
11. Caisse Nationale de Crédit Agricole du Sénégal (CNCAS)
12. Crédit Mutuel du Sénégal (CMS)
13. Citibank Sénégal
14. Compagnie Bancaire de l'Afrique Occidentale (CBAO)
15. Banque Islamique du Sénégal (BIS)
16. Banque des Institutions Mutualistes d'Afrique de l'Ouest (BIMAO)
17. Banque Sahélo-Saharienne pour l'Investissement et le Commerce (BSIC)
18. Banque Internationale pour le Commerce et l'Industrie du Sénégal (BICIS)
19. United Bank for Africa (UBA)
20. Banque Régionale des Marchés (BRM)
21. First Nigerian Bank Senegal (FNB)
22. Credit International Sénégal (CI-SA)
23. Compagnie Ouest-Africaine de Crédit-Bail (Locafrique)
24. Orabank
25. Diamond Bank

Source: Banque Centrale des Etats de l’Afrique de l’ouest (BCEAO), 2017

Appendix II: Licensed Commercial Banks in Senegal before 2013

1. Banque Atlantique Sénégal (BAS)
2. Bank of Africa Sénégal (BOA)
3. Banque Régionale de Solidarité (BRS)
4. Banque de l'Habitat du Sénégal (BHS)
5. Société Générale de Banques au Sénégal (SGBS)
6. Banque Internationale pour le Commerce et l'Industrie du Sénégal (BICIS)
7. Ecobank Sénégal
8. Citibank Sénégal
9. Compagnie Bancaire de l'Afrique Occidentale (CBAO)
10. Caisse Nationale de Crédit Agricole du Sénégal (CNCAS)

Source: Banque Centrale des Etats de l'Afrique de l'ouest (BCEAO), 2013.

Appendix III: Asset Quality (2013 – 2017)

('000 000' FCFA)

	2013			2014			2015			2016			2017		
Banks	a	b	a/b	a	b	a/b	a	b	a/b	a	b	a/b	a	b	a/b
BAS	81,000	1,578,768	0.05	108,300	1,940,781	0.06	112,000	2,021,115	0.06	138,342	2,436,421	0.06	175,345	2,956,754	0.06
BHS	45,214	875,584	0.05	78,214	1,131,524	0.07	92,698	1,436,213	0.06	108,965	1,954,254	0.06	159,354	2,025,163	0.08
BICIS	56,125	789,366	0.07	78,010	845,789	0.09	83,278	1,002,564	0.08	99,365	1,345,002	0.07	107,965	1,552,945	0.07
BOA	114,136	875,322	0.13	152,354	966,311	0.16	201,214	1,421,211	0.14	302,235	1,712,254	0.18	404,258	1,925,631	0.21
BRS	32,154	421,369	0.08	48,254	512,695	0.09	57,213	756,357	0.08	69,564	856,754	0.08	75,652	1,012,235	0.07
CBAO	47,564	325,695	0.15	52,981	453,981	0.12	57,121	590,001	0.10	71,201	682,213	0.10	82,214	712,821	0.12
CITIBANK	62,134	412,671	0.15	69,210	499,023	0.14	74,945	584,134	0.13	80,237	652,113	0.12	89,213	782,112	0.11
CNCAS	44,231	356,145	0.12	52,341	390,100	0.13	59,021	459,332	0.13	67,782	512,113	0.13	76,965	645,934	0.12
ECOBANK	56,023	433,120	0.13	63,178	481,945	0.13	73,672	490,192	0.15	78,121	534,909	0.15	85,998	596,431	0.14
SGBS	72,034	512,321	0.14	75,321	576,154	0.13	80,143	632,123	0.13	86,178	692,167	0.12	89,012	754,295	0.12

a = gross non-performing loans (NPLs);

b = gross loans advanced;
Asset Quality = a/b = (gross NPLs/ gross loans advanced)

Source = BCEAO annual reports

Appendix IV: Capital Adequacy (2013 – 2017)

('000 000' FCFA)

	2013			2014			2015			2016			2017		
Banks	a	b	a/b	a	b	a/b	a	b	a/b	a	b	a/b	a	b	a/b
BAS	5000	11457	0.44	10000	13255	0.75	10000	20103	0.50	10000	21116	0.47	10000	22129	0.45
BHS	10000	114050	0.09	10000	129704	0.08	10000	145358	0.07	10000	161012	0.06	10000	176666	0.06
BICIS	10000	201799	0.05	10000	197953	0.05	10000	155511	0.06	10000	132367	0.08	10000	109875	0.09
BOA	12000	41660	0.29	12000	53568	0.22	12000	62319	0.19	12000	264443	0.05	12000	273194	0.04
BRS	5000	10727	0.47	5000	14037	0.36	5000	9376	0.53	5000	10798	0.46	5000	12220	0.41
CBAO	11450	323668	0.04	11450	348643	0.03	11450	353697	0.03	11450	358652	0.03	11450	363607	0.03
CITIBANK	17549	26933	0.65	17549	27032	0.65	17549	28740	0.61	17549	30875	0.57	17549	33010	0.53
CNCAS	10000	91774	0.11	10000	101015	0.10	10000	113107	0.09	10000	125694	0.08	10000	138281	0.07
ECOBANK	16777	120036	0.14	16777	167016	0.10	16777	180569	0.09	16777	194122	0.09	16777	207675	0.08
SGBS	10000	370991	0.03	10000	351448	0.03	10000	399547	0.03	10000	447646	0.02	10000	495745	0.02

a = Total Capital;

b = Total Risk weighted assets;

a/b = Total Capital / Total Risk weighted assets = CAR
Source = BCEAO annual reports

Appendix V: Liquidity Ratios (2013 – 2017)

('000 000' FCFA)

	2013			2014			2015			2016			2017		
Banks	a	b	a/b	a	b	a/b	a	b	a/b	a	b	a/b	a	b	a/b
BAS	11457	15169	0.75	13084	19302	0.67	20103	23452	0.85	21116	25775	0.81	22129	28098	0.79
BHS	108345	166242	0.65	114993	176583	0.65	124758	170227	0.73	129704	137894	0.94	134650	120856	1.11
BICIS	195377	257442	0.75	211100	267223	0.78	208294	302428	0.68	224354	343456	0.65	240414	380486	0.63
BOA	94677	121534	0.77	110323	124472	0.88	145564	167855	0.86	193153	206124	0.93	240742	244393	0.99
BRS	16932	20828	0.81	18432	19193	0.96	28484	34383	0.82	58343	59870	0.97	80202	85357	0.94
CBAO	320582	499813	0.64	402791	529021	0.76	446679	514214	0.86	496310	529021	0.93	545941	543828	1.00
ECOBANK	156773	254214	0.62	183812	283683	0.65	210851	313152	0.67	237654	342621	0.69	260201	371621	0.70
SGBS	549651	450713	1.21	537666	474082	1.13	402857	482275	0.83	549271	511485	1.07	640685	540695	1.18
CITIBANK	97421	160365	0.6075	15370	175201	0.6585	109646	170259	0.644	89814	123456	0.7275	66473	119235	0.5575
CNCAS	97305	123564	0.7875	100104	125365	0.7985	121746	159354	0.764	158037	186475	0.8475	159649	235645	0.6775

a = Total Loans;
b = Total Deposits;
Liquidity Ratios = a/b = (Total Loans / Total Deposits)
Source = BCEAO annual reports

Appendix VI: Management Efficiency (2013 – 2017)

('000 000' FCFA)

	2013			2014			2015			2016			2017		
Banks	a	b	a/b	a	b	a/b	a	b	a/b	a	b	a/b	a	b	a/b
BAS	3183	5382	0.59	6414	6944	0.92	11408	13809	0.83	15631	17204	0.91	19854	20599	0.96
BHS	4771	17897	0.27	4820	18405	0.26	6379	17928	0.36	7254	17428	0.42	8129	16928	0.48
BICIS	32454	35868	0.90	31569	36182	0.87	33312	38635	0.86	40731	47836	0.85	48150	57037	0.84
BOA	12450	14814	0.84	14595	17245	0.85	22043	25418	0.87	27944	30022	0.93	33845	34626	0.98
BRS	3787	4576	0.83	4858	6287	0.77	6208	8946	0.69	8637	12559	0.69	11066	16172	0.68
CBAO	54810	63935	0.86	65290	76111	0.86	70530	88287	0.80	73150	82196	0.89	75770	76105	1.00
CITIBANK	3744	4886	0.77	4099	5136	0.80	4064	6350	0.64	4089	7564	0.54	4114	8778	0.47
SGBS	76084	78241	0.97	77880	82143	0.95	78758	86001	0.92	79963	89945	0.89	81168	93889	0.86
ECOBANK	2813	4054	0.694	4389	6013	0.73	6011	8712	0.69	8759	12425	0.705	11044	15254	0.724
CNCAS	51271	62987	0.814	64707	76126	0.85	71403	88153	0.81	67679	82036	0.825	64300	76186	0.844

a = Total Operating Expenses;
b = Total Operating Income;
Management Efficiency =a/b = (Total Operating Expenses / Total Operating Income)
Source = BCEAO annual reports

Appendix VII: Return on Assets (ROA) (2013 – 2017)

('000 000' FCFA)

	2013			2014			2015			2016			2017		
Banks	a	b	a/b	a	b	a/b	a	b	a/b	a	b	a/b	a	b	a/b
BAS	1.2	26.83	0.04	1.56	31.89	0.05	2.21	32.45	0.07	3.25	34.22	0.09	4.65	36.12	0.13
BHS	2.2	21.79	0.10	2.89	24.82	0.12	3.12	25.65	0.12	4.23	27.54	0.15	5.25	28.35	0.19
BICIS	2.5	22.79	0.11	3.12	29.22	0.11	3.89	31.21	0.12	4.65	31.98	0.15	5.87	33.64	0.17
BOA	3.3	21.6	0.15	3.94	25.65	0.15	4.23	27.2	0.16	5.12	28.65	0.18	6.42	29.85	0.22
BRS	0.9	20.75	0.04	1.31	24.8	0.05	2.22	25.91	0.09	3.56	27.65	0.13	4.56	28.33	0.16
CBAO	0.7	21.71	0.03	1.22	25.56	0.05	2.15	25.99	0.08	3.56	27.56	0.13	4.68	29.21	0.16
CITIBANK	1.8	24.71	0.07	1.98	27.82	0.07	2.35	28.13	0.08	3.87	29.87	0.13	4.87	30.25	0.16
CNCAS	1.9	15.71	0.12	2.04	18.33	0.11	2.87	20.1	0.14	3.69	22.41	0.16	4.86	24.36	0.20
ECOBANK	2.2	13.88	0.16	3.1	18.23	0.17	3.85	19.22	0.20	4.85	21.56	0.22	5.66	23.56	0.24
SGBS	2.4	21.58	0.11	2.61	24.26	0.11	3.45	25.63	0.13	4.63	27.65	0.17	5.47	28.63	0.19

a = net income (in Billions);

b = total assets (in Billions);
ROA = a/b = (net income / total assets)
Source = BCEAO annual reports