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IMPACT OF CREDIT RISK ON PROFITABILITY OF MICROFINANCE INSTITUTIONS IN GHANA

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DECLARATION

Student's Declaration

I, Frank Okyere, declare that this dissertation, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

Signature: …….…….

Date: …….

Supervisor's Declaration

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines for supervision of dissertation as laid down by the University of Education, Winneba.

DR. RICHARD ODURO (Supervisor)

Signature :……

Date:……

DEDICATION

To my lovely father, Mr Ernest Okyere.

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LIST OF ABBREVIATIONS

BCBS	Basel Committee of Banking Supervision
CAR	Capital Adequacy Ratio
CDR	Credit to Deposit Ratio
CGAP	Consultative Groups to Assist the Poorest
CRM	Credit risk management
FE	Fixed-effects
GHAMFIN	Ghana Microfinance Institution Network
GMM	Generalized Method of Moments
IFC	International Finance Corporation
MFIs	Microfinance Institutions
MIX	Microfinance Information Exchange
MQR	Management Quality Ratio
MQR	Management Quality Ratio
NGOs	Non-Governmental Organizations
NPA	Non-performing asset
NPLR	Non-performing Loan Ratio
NPLs	Non-Performing Loans
RE	Random-effects
ROA	Return on Assets
ROE	Return on Equity
SACCO	Saving Credit Cooperative Union
SEM	Structural equation model
SPSS	Statistical Package for Social Science
SSA	Sub-Saharan Africa

ABSTRACT

The study sought to investigate the effect of credit risk on profitability of microfinances institutions (MFIs) in Ghana. using ROA as a measure of profitability, a panel data for a period from 2011 to 2020 on five MFIs operating in Ghana were selected. The 10-year panel data of the five MFIs were analysed using ordinary least square model (OLS). The study found that firm-specific factors which are firm size, ROA and interest rates in loans and macroeconomic factors thus GDP and inflation are statistically significant in determining credit risk. The study concludes that capital adequacy ratio (CAR), management quality and liquidity have negative effect on financial performance but non-performing loans (NPLs) has negative effect on profitability of the MFIs. It was recommended among others that MFIs in Ghana should develop reliable credit management strategy to reduce the rate of incidence of non-performing loans. The use of credit bureaus in this regard can be particularly useful in reducing information asymmetry during loan administration. To complement this, strict measures must be adopted to evaluate borrowers‟ ability to pay loans.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Microfinance institutions perform critical functions in the economic development of developing countries through their financial intermediation functions (Adjei, 2010). Microfinance as an economic development approach involves providing financial services, through institutions, to low income clients. Credit, savings and insurance services are some of the services provided by Microfinance Institutions (MFIs). Also provided are social intermediation services such as training and education, organizational support, health and skills in line with their development objectives. Further, these are organizations, engaged in disbursing micro credit and other financial services to poor and less privileged borrowers for activities that generate income and self-employ (Odoom et al., 2019). But, at the same time, the provision of credit poses concerns to MFIs due to the associated risk. This risk comes about due to the failure of borrowers to repay loans and advances granted. In this case, the MFIs needs to make provisions for loan losses which potentially constrain its profitability level.

Risk of nonpayment has largely been attributed to poor credit management. In an empirical study in Ghana for example, Addae-Korankye (2014) found the major causes of nonperforming loan to comprise poor appraisal, lack of monitoring, and improper client selection. This underscores the existence of a fundamental problem in the credit management practices of financial institutions especially banks and MFIs. Gill (1998) likewise contends that the incidence of nonperforming loans has been as a result of weak institutional standards of lending to clients and counterparties, and management of risk exposures.

A study undertaken by Hasan (2014) revealed that, higher level of credit risk was one of the major causes of bank failures and the global financial crisis in both developing and developed countries. Extant literature indicates that non-performing loan levels are quite high among Ghanaian banks and MFIs. Given the growing levels of non-performing loans it has become imperative for MFIs to embrace efficiency in their operations. Non-performing loans generate additional costs for banks and MFIs (Nitoi, 2015). Thus efficiency and cost optimization must characterise the operations of indigenous banks. Cost per loan asset ratio for instance is an indication of management efficiency in the administration of loans. In 2016, BoG conducted an Asset Quality Review (AQR) exercise, which revealed several challenges that had bedevilled the banking sector in Ghana. These challenges are insufficient capital, increasing levels of Non-Performing Loans (NPLs) owing to poor liquidity and credit risk management (BoG, 2017). Proceeding from this background, this study seeks to evaluate the effect of credit risk on the profitability of MFIs in Ghana.

1.2 Statement of the Problem

Microfinance institutions play vital role in every economy such as Ghana, hence their strengths as financial intermediaries are considered crucial for favourable economic growth and stability (Addai, 2017). The significant role of MFIs, by providing the needed level of supports in engendering economic growth and stability is coupled with attendant spill over effects, resulting from bank failure on an economy, demand critical investigation to unearth the causal factors to that effect. The recent failure of the Beige Bank, Unibank, UT Bank and Capital Bank leading to their collapse and causing huge financial losses to depositors‟ and creditors‟ funds raises crucial concern and provokes reasoning into the causes to the collapse. Many financial analysts and the media have quickly assigned reasons for the collapse of the banks without any empirical evidence

and appropriate knowledge on how to curtail the occurrence of such crisis in the future. The issue that must attract attention, such that one is motivated to examine empirically the collapse of the banks is that, bank failure has drastic consequential effects on the economy of Ghana as it leads to irretrievable loss of savings, working capital to customers especially depositors, curtail sources of livelihood and collapse of customers‟ businesses predisposing them to further indebtedness, impoverishments and cohort of poverty among the people. Apart from these, it reduces public confidence in the financial system which consequently worsens the precarious nature of savings culture among the populace (Addo, 2014)

Furthermore, in recent past failures of MFIs have taken swipe into complexity where a sheer observation and investigation cannot adequately reveal the causes and thereby provide the needed measure in curtailing the occurrence of bank failure (Boateng & Nortey, 2016). Additionally, there have been copious studies on bank failure but the research approach of most of the studies leaves a gap for further studies. In Ghana context, studies have focused largely on collapse of MFIs (Addo, 2014; Boateng & Boateng, 2016; Boateng & Nortey, 2016) this has been so because of the rampant collapse of MFIs institutions in Ghana. This has therefore warranted this study which sought to investigate the impact of credit risk on the profitability of MFIs in Ghana.

1.3 Purpose of the Study

The purpose of this study is to determine effects of credit risk on the profitability of microfinance institutions in Ghana.

1.4 Objectives of the Study

The study sought to achieve the following objectives

i. To examine the influence of firm-specific factors on credit risk of microfinance institutions in Ghana.
ii. To determine the effect of macroeconomic factors on credit risk of microfinance institutions in Ghana.
iii. To examine the effect of credit risk on profitability of microfinance institutions in Ghana.

1.5 Hypotheses

i. Ha: firm-specific factors are statistically significant in determining credit risk of MFIs.
ii. Ha: Macroeconomic factors are statistically significant in determining credit risk of MFIs.
iii. Ha: There is statistically significant negative effect of credit risk on profitability of MFIs.

1.6 Significance of the Study

It will be of great advantage to the Bank of Ghana and other regulators within the financial sector in bringing to their knowledge and attention some inherent issues pertaining to NPLs to aid in a more effective regulation of the activities of MFIs. For depositors, this study will enable them better understand the operations of MFIs to enhance their dealings with MFIs. Researchers will gain immense insight into the activities of MFIs for their studies and researches. Also, this will help MFIs in Ghana to appreciate credit risk management and come out with or develop various credit policies for their operation.

1.7 Scope of the Study

The study focused on determining the impact of credit risk on profitability of MFIs in Ghana The main areas of focus for the study are capital adequacy, non-performing loan, management quality ratio and credit deposit ratio to represent credit risk management and return on assets (ROA) to represent financial performance. The research covered five (5) MFIs, all of whom operate in Central Region of Ghana and covered a period of ten years thus from 2011 to 2020.

1.8 Limitation of the Study

It is envisaged that the findings emerging from this study may not be a fair representation of the all MFIs in Ghana considering the scope of the study. However, it will help provide some level of information on the impact of credit risk on profitability of MFIs in Ghana. Furthermore, the data collected were restricted to secondary and for this reason the study was based on quantitative research approach. In this regard, the study did not cover issues or factors that are of qualitative in nature which affect profitability of MFIs in Ghana.

1.9 Organisation of the Study

The research is structured in five main chapters of which the first chapter provides introduction to the background of the study. The problem forming the motivation of the study is also captured in chapter one. The objectives, hypothesis and significance of the study are also covered in chapter one. The scope and limitations of the study are outlined in the chapter. Chapter two of the study provides reviews of relevant theories, concepts and empirical studies on credit risk and profitability. Based on the literature reviewed in the chapter two, the study develops a conceptual framework to serve as an indicator for guiding the study. In chapter three, the study explains the methods

employed in undertaking the study. The data and sources of data are also explained in the chapter while the method of analyzing the data is also dealt with in the chapter. The data of the study are then analysed in chapter four after which the findings are discussed. Chapter five of the study covers summary of the findings, conclusion and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews past relevant literature from other researchers who have conducted research in the same field. It contained opinions, attributes, research outcomes and conclusions thereon from previous research work done by other people and organizations. It gave a background to the literature review, presented an explanation of some related issues and a review of some earlier related works.

2.1 Theoretical Review

2.1.1 Theory of Asymmetric Information

This study was guided by theory of Asymmetric information. The theory of asymmetric information proposes that an imbalance of information between buyers and sellers can lead to inefficient outcomes in certain markets. George Akerlof, Michael Spence and Joseph Stiglitz were influential in developing this theory in the 1970s (Barkley, 2003). The meaning of this theory is that it may be complex to distinguish between good and bad borrowers, which may result into adverse selection and moral hazards problems. in the market, the person that possesses more information on a particular item to be transacted (in this case the borrower) is in a position to negotiate optimal terms for the transaction than the other party; in this case, the lender (Auronen, 2003). The party that knows less about the same specific item to be transacted is therefore in a position of making either right or wrong decision concerning the transaction.

Loan defaults resulting in accumulation of nonperforming loans in banks thrive in the information asymmetry environment that prevails due to lack of a credit information sharing mechanism (Richard, 2011). This theory is relevant to this study with regard to credit risk management. Loans forms huge proportion of credit as they normally account for 10 – 15 times the equity of a Microfinance banks. In this way, the business of banking is potentially faced with difficulties where there is small deterioration in the quality of loans. Poor loan quality starts from the information processing mechanism and then increase further at the loan approval, monitoring and controlling stages (Kitwa, 1996). This problem is magnified especially, when credit risk management guidelines in terms of policy and strategies and procedure regarding credit processing do not exist or are weak or incomplete.

Akerlof (1970), opined that adverse selection implies existence of qualitatively different types of credit seekers. In contrast with high quality borrowers, low quality borrowers are not capable to use the borrowed money for valuable investment and they will have a relatively large chance to fail on payment of the loan. Banks consequently prefer to select high quality credit seekers and the major way of examining a potential borrower is by analyzing all available information. The selection challenge results from the behavior of low quality applicant that presumes to submit high quality project but do not forward all relevant negative information.

Moral hazard models on the other hand imply that information sharing should reduce default rates and interest rates and increase lending of money, either because credit reference bureaus nurture competition by reducing informational rents, (Padilla & Pagano, 2017) or because they punish borrowers (Padilla & Pagano, 2017). However, the impact of information sharing on aggregate lending in this model is vague. When

banks exchange credit information about borrowers, the increase in lending to good credit borrowers may fail to compensate for an eventual reduction in lending to risky types. The Adverse selection problem signals that when lenders cannot distinguish good from wicked borrowers, all borrowers are charged a normal interest rate that reflects their pooled experience. If this rate is higher than worthy borrowers deserve, it will push some good borrowers out of the borrowing market, forcing in turn to banks charging even higher rates to the remaining borrowers.

2.1.2 Transactions Costs Theory

First developed by Schwartz (1974), this theory conjectures that suppliers may have an advantage over traditional lenders in checking the real financial situation or the credit worthiness of their clients. Suppliers also have a better ability to monitor and force repayment of the credit. All these superiorities may give suppliers a cost advantage when compared with financial institutions. Three sources of cost advantage were classified by Petersen and Rajan (1997) as follows: information acquisition, controlling the buyer and salvaging value from existing assets. The first source of cost advantage can be explained by the fact that sellers can get information about buyers faster and at lower cost because it is obtained in the normal course of business. That is, the frequency and the amount of the buyer‟s orders give suppliers an idea of the client‟s situation; the buyer‟s rejection of discounts for early payment may serve to alert the supplier of a weakening in the credit-worthiness of the buyer, and sellers usually visit customers more often than financial institutions do.

2.2 The Concept of Credit Risk

Credit can be financial resources in forms of cash finance, running finance, term finance, personal loan, local purchase, order credit, direct credit facility, export credit,

import facility, equipment leasing, etc., which are made available for customers at interest rate by banks and other financial institutions to get profit (Kayode et al., 2015). Risk is defined as "the volatility of returns leading to unexpected losses, with higher volatility indicating higher risk" (Crouhy et al., 2006). There are many factors that directly or indirectly influence the volatility of returns, which are called risk factors.

According to Crouhy et al. (2006), risk factors have been broadly grouped into the following categories: credit risk, market risk, operational risk, liquidity risk, legal and regulatory risk, business risk, strategic risk, and reputation risk. A bank exists not only to accept deposits but also to grant credit facilities, therefore inevitably exposed to credit risk. Credit risk is by far the most significant risk faced by banks and other financial institutions especially micro finance institutions and the success of their business depends on accurate measurement and efficient management of this risk to a greater extent than any other risks (Greuning & Bratanovic, 2003). According to Gathigiamuriithi, Munyuawaweru and Muturi. (2016), credit risk is the degree of value fluctuations in debt instruments and derivatives due to changes in the underlying credit quality of borrowers and counterparties.

Coyle (2000) defines credit risk as losses from the refusal or inability of credit customers to pay what is owed in full and on time. Credit risk is also defined as "the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms" (Basel, 2009). Credit risk negatively affects the volatility of expected returns in banks and other financial institutions such as micro finance institutions. Thus, managing credit risk for efficient management of a financial institution has increasingly become the most decisive task. Besides that, effective credit risk management is an integral element of an inclusive approach to risk management

and essential to the long-term success of any banking organization (Oke et al., 2012).). Granting credit is one of the main sources of income for commercial banks and almost all financial institutions including micro finance institution (MFIs).

Credit risk is the exposure faced by banks when a borrower (customer) defaults in honouring debt obligations on due date or at maturity. This risk interchangeably called „œounterparty risk‟ is capable of putting the bank or the financial institution in distress if not adequately managed. Credit risk management maximizes bank‟s risk adjusted rate of return by maintaining credit risk exposure within acceptable limit in order to provide framework for understanding the impact of credit risk management on banks‟ profitability (Afriyie & Akotey).

Alshatti (2015) opined that credit risk management is in two-fold which includes, the realization that after losses have occurred, the losses become unbearable and the developments in the field of financing commercial paper, securitization, and other non-bank competition which pushed banks to find viable loan borrowers.

The main source of credit risk includes, limited institutional capacity, inappropriate credit policies, volatile interest rates, poor management, inappropriate laws, low capital and liquidity levels, direct lending, massive licensing of banks, poor loan underwriting, laxity in credit assessment, poor lending practices, government interference and inadequate supervision by the central bank (Kithinji, 2010). Credit to borrowers is the main business of bank and other financial institution but an increase in bank credit risk gradually leads to liquidity and solvency problems. Credit risk may increase if the bank lends to borrowers, it does not have adequate knowledge about. However, some say if credit risk is not effectively and efficiently managed, it would have an adverse impact on the banks‟ returns. In terms of importance, it is the first of all risks; consequently, a

default of a small number of important customers of commercial banks can generate large losses to the banks, which could possibly lead the banks to insolvency (Boahene, Dasah & Agye, 2012).

In addition, credit risk is one of the threats to commercial banks‟ reliability (Ishak et al., 2016). The marginal cost of debt and equity could be raised by an increase in credit risk, which will increase the cost of funds for banks and hence result in liquidity and solvency constraints. To minimize the aggregate credit risk in banks, good risk management of retail and corporate lending is obligatory (Heffernan, 2005). Lack of an appropriate monitoring process on credit records and instability of governance are providers of increased credit risk in banks (Munangi & Sibindi, 2020). Therefore, it is a crucial task of banks to regularly monitor their borrowers to ensure the repayment of debts in accordance with the agreements. Profitability is one of the main concerns of banks, as acquiring higher returns on their investments allow banks to renew their capitals, improve processes, expand and increase their value creation (Gilces et al., 2020). Since credit risk is considered, an important factor affecting the profitability of banks, banks should ensure sound risk and capital management, especially importance should be given to credit risk management through increasing the efficiency of credit analysis and debtor monitoring processes (Pervan et al., 2015).

Athanasoglou et al. (2006) and Bucevska and Misheva (2017) indicate that variations in bank profitability are largely dependent on variations in credit risk, and increased exposure to credit risk is usually linked with decreased bank profitability. Kithinji (2010) on the other hand is also of the view that profitability and hence financial performance of banks and other financial institutions are not affected by credit risk and

non-performing loans but rather other variables or factors other than credit risk and non-performing loans influences profit adversely.

Ahmed, Takeda and Shawn (2015) also hinted that loan loss provision has a significant positive influence on non-performing loans. Therefore, an increase in loan loss provision indicates an increase in credit risk and deterioration in the quality of loans consequently affecting bank performance adversely. Akter and Roy (2017) observed that NPL is one of the major factors of influencing banks‟ profitability and it has statistically significant negative impact on net profit margin of listed banks.

Azeem and Amara (2014) also found that NPL disturb the profitability of banks and other financial institutions that are involved in lending activity. Amoako (2016) discovered that NPL has an insignificant effect on banks‟ profitability. Amuakwa–Mensah and Boakye-Adjei (2015) found that NPL had adverse effect on interest incomes and operating profits. Arko (2012) found that NPL adversely affected the financial performance of the organization by way of reducing its profits, loanable funds and undermining liquidity positions, among others. Kirui (2014) showed that there is a negative effect of NPL ratio on return on asset confirming that NPL negatively affect profitability of commercial banks in Kenya. He also noted that NPL erodes banks‟ profitability in that banks could incur heavy disposal expenses.

2.3 Financial Performance Measures

Bessis (2015) defines financial performance as a management initiative to upgrade the accuracy and timeliness of financial information to meet required standards while supporting day to day operations. Kodithuwakku (2015) also defined it as the operational strength of a firm in relation to its revenue and expenditure as revealed by its financial statements. Financial performance is characterized by bad debt policy, sales

turnover, profitability level, client‟s dropout rate, growth, reduction in fixed assets, and physical visitation by commercial staff, debt age analysis, and public media. Generally, the financial performance of banks and other financial institutions has been measured using a combination of financial ratios analysis, benchmarking, measuring performance against budget or a mix of these methodologies (Kithinji, 2010). Simply stated much of the current bank performance literature describes the objective of financial organizations as that of earning acceptable returns and minimizing the risks taken to earn this return (Hempel etal., 1996).

Bessis (2015) showed in their study that most previous studies concerning company performance evaluation focus merely on operational efficiency and operational effectiveness, which might directly influence the survival of a company. By using an innovative two-stage data analysis model in their study, the empirical result of this study is that a company with better efficiency does not always means that it has better effectiveness.

Elizabeth and Eliot (2014) indicated that all financial performance measure such as interest margin, return on assets, and capital adequacy are positively correlated with customer service quality. Mazher (2013) discussed the development and performance of domestic and foreign banks in Arab gulf countries, and showed that local and foreign banks in these countries have performed well over the past several years. Moreover, he added that banks in these economies are well capitalized and the banking sector is well developed with intense competition among the banks. Generally, the concept of efficiency can be regarded as the relationship between outputs of a system and the corresponding inputs used in their production. Within the financial efficiency literature, efficiency is treated as a relative measure, which reflects the deviations from maximum

attainable output for a given level of input (Otieno Nyagol & Onditi 2016).). Some other useful measures of financial performance are wound into what is referred to as CAMEL. The acronym "CAMEL" refers to the five components that are accessed: Capital adequacy, Asset quality. Management, Earning and Liquidity. Ratings are assigned for each component in addition to overall rating of banks.

2.4 Determinants of Financial performance

The financial performance of banks is expressed in terms of profitability and the profitability has no meaning except in the sense of an increase of net asset. Profitability is a company‟s ability to earn a reasonable profit on the owner‟s investment (Warren E. Buffett, 2005). Most organizations exist is to earn profit and profitability ratios show a company‟s overall efficiency and performance. We can divide profitability ratios into parts: Profit margin and returns. Ratios that show margins represent the firm‟s ability to translate sakes dollars into profits at various stages of measurement. Ratios that show returns represent the firm‟s ability to measure the overall efficiency of the firm in generating returns for its shareholders (Bessis, 2015). The most popular profitability measurements are: Profit margin on sale, return investment ratios, and return on equity.

MFIs financial performance could be affected by a number of determining factors. In most literatures, MFIs profitability is usually expressed as a function of internal and external divided into internal determinants which are management controllable and the external determinants, beyond the control of management.

Empirical literatures in relations to determinants of MFIs financial performance are very limited. Previous studies carried out in the area highly depended upon theory of retail banking financial performance by assuming that MFIs also provide banking services to the poor. Following are elaborations of some theoretical studies in

connection with determinants of MFIs financial performance. Quality Portfolio indicates the total funds available for the MFI as loans to its clients. Portfolio quality is a measure of how well or how best the institution is able to protect such portfolio against all forms of risks. The loan portfolio is by far an MFI‟s largest asset (Nelson, 2011) and, in addition, the quality of that asset and therefore, the risk it poses the institution to can be quite difficult to measure. Portfolio quality is a critical area of performance analysis, since the largest source of risk for any financial institution resides in its loan portfolio. For microfinance institutions whose loans are typically not backed by bankable collateral, the quality of the portfolio is absolutely crucial. Portfolio quality is a vital area of analysis, since it is the largest source of risk for any financial institution. Therefore, as much as possible, MFI‟s must try to maintain the quality of their loan portfolios.

Profitability as a determinant of financial performance is a business‟s ability to produce a return on an investment based on its resources in comparison with an alternative investment (Horton, 2019). Profitability is the ability of banks to carry risk and/or raise the capital of banks. It implies the competitiveness of banks and measures the quality of management (Lee & Hsieh, (2013). Profitability determinants of MFIs can be grouped into two main categories, namely, those that are management controllable and those that beyond the control of management.

Management controllable factors are classified as internal determinants and basically reflect on the differences in microfinance institution‟s management policies and decisions in regards to sources and uses of funds management, capital and liquidity management, and expenses management. The external factors of MFIs‟ profitability are environment-related factors and firm specific factors (Guru et al., 2009). Maintaining

the stability of any financial institution in the economy is an essential issue, which highly depends on healthy and sustainable profitability. In case a microfinance institution has high solvency, poor profitability weakens the capacity of the MFI to absorb negative shocks, which will ultimately affect the solvency of the MFI (García-herrero et al., 2009). Higher profitability allows MFI to generate funds to grant more credit to the economy. Though, it is also absolutely necessary for MFI‟s supervisors because it guarantees more flexible capital ratios, even in the situation of a risker business environment. MFIs with higher profitability have proven to have lower non-performing loans because they can afford adequate credit management practices (Rachman et al., 2018). In accordance with the study by Waymond (2007), Profitability ratios are often used in a high esteem as the indicators of credit analysis in banks, since profitability is associated with the results of management performance.

ROA and ROE are the most commonly used ratios, and the quality level of ROE is between 15% and 30%, for ROA is at least 1%. Measuring profitability is the most important measure of the success of the business (Mishkin, 2002). A business that is not profitable cannot survive. Conversely, a business that is highly profitable has the ability to reward its owners with a large return on their investment. Increasing profitability is one of the most important tasks of the business managers; these ones look for the way to improve profitability.

A healthy and profitable microfinancing sector is an integral element of a stable financial system in a particular economy. It is better able to resist negative shocks and help to the stability of financial system in the economy (Athanasoglou et al., 2008). An efficient and profitable microfinancing system is an essential condition for economic growth because they supplement the activities of banks (Dietrich & Wanzenried, 2014).

Furthermore, the role of MFIs as intermediaries is considered as the accelerator of economic growth (Ekinci & Poyraz, 2019). Prior studies have examined the effects of credit risk on banks‟ profitability in different countries. Findings of prior studies both from developed and developing countries indicate mixed results.

2.5 Microfinancing

Conducting a study such as this demanded that the concept of micro financing be explained. For this reason, the lines that follows detailed some ideas shared by various persons on the concept. Microfinance, according to Otero (2010) is "the provision of financial services to low-income, poor and very poor self-employed people". These financial services according to Ledgerwood (2019) generally include savings and credit but can also include other financial services such as insurance and payment services. Schreiner and Colombet (2010) define microfinance as "the attempt to improve access to small deposits and small loans for poor households neglected by banks." Probably the most holistic definition for micro finance is the one by Eoin Wrenn (2015). According to Wrenn (2015), microfinance involves the provision of financial services such as savings, loans and insurance to poor people living in both urban and rural settings who are unable to obtain such services from the formal financial sector. Wrenn (2015) further noted that though the terms microfinance and microcredit are often used interchangeably, there exist a difference between them. Narayan et al (2000) state "microcredit refers to small loans, whereas microfinance is appropriate where NGOs and MFI supplement the loans with other financial services (savings, insurance, etc.)". Therefore, microcredit is a component of microfinance in that it involves providing credit to the poor, but microfinance also involves additional non-credit financial services such as savings, insurance, pensions and payment services. Different authors and organizations have considered microfinance institutions in different ways.

Whatever the case may be, the setting of microfinance radiates from financial service provision; primarily savings and credits to the poor and low-income households that do not have access to commercial bank services.

According to the Consultative Groups to Assist the Poorest (CGAP, 2012), "microfinance" are organs of provision of formal financial services to poor and low-income people, as well as others systematically not benefiting from the financial system. As noted, "Microfinance" does not only provide a range of credit products (for consumption, smoothing for business purposes, to fund social obligations, for emergencies, etc.), but also it provides savings, money transfers, and insurance services. Considered as a financial service provider for poor people, it helps to alleviate risks, build assets, create and improve incomes, and furthermore contribute to the development of the local communities (Cull et al., 2009). Microfinance Information Exchange (MIX) considers microfinance institutions as a variety of financial services that target low-income clients, particularly women. Since the clients of microfinance institutions have lower incomes (poor) and often have limited access to other financial services, microfinance products tend to be for smaller monetary amounts than traditional financial services. These services not only provide micro credit services for those having lower incomes but also include loans, savings, insurance, and remittances. Micro-loans are given for a variety of purposes, frequently for micro-enterprise development. The diversity of products and services offered shows in reality that the financial needs of individuals, households and enterprises can change significantly over time, especially for those who live in poverty.

Robinson (2011) considers microfinance as small-scale financial services primarily credits and savings-given to people who are involved in small enterprises or

microenterprises where goods are produced, recycled, repaired, or sold, who provide services, who work for wages or commissions; who gain income from renting out small amounts of land, vehicles, draft animals, or machinery and tools and to other individuals and groups at the local levels of developing countries. Ledgerwood (1999) emphasized that the main activity of cooperative financial institutions is savings. Since then, the focus has changed and has moved from the predominant welfarist idea, where only the provision of credit was considered to be important, to the need of becoming financially sustainable through the provision of a complete range of financial products and to reach more people.

2.6 Empirical Review

2.6.1 Determinants of Credit Risk

Banks during lending can face a large number of risks. Credit risk is the main and the most important risk among the risks faced by commercial banks. It is the main and perhaps most important type that has been present always in finance and international trade. Credit risk as an integral part of the banking business implies that the payment may be delayed or eventually fail and this can cause losses for banks and affect their liquidity (Thalassinos & Thalassinos, 2018).

Increased credit risk means the growth of non-performing loans in commercial banks which today have become an important part of the financial system. The presence of a high percentage of non-performing loans in commercial banks can cause a large number of problems for banks, in the balance sheet and in the income statement as a result of loan loss provisioning (Kumar & Tripathi, 2012). Due to the weight and importance of nonperforming loans in banks' profitability, it is necessary to study those loans and determinants that cause them. When these determinants are properly assessed, it is

possible to minimize the level of non-performing loans and credit losses, minimize bank failures and financial crises (Atakelt & Veni, 2015).

The most common credit risk measures in the existing literature are loan loss provisions and non-performing loans ratio. Due to the availability of data, most studies, including this study as well, use non-performing loans as credit risk representative. The recently available literature for determinants of credit risk indicates that there are at least two groups of important factors that determine the credit risk of banks (Ganic, 2014; Jędrzejowska-Schiffauer et al., 2019).

Alexandri and Santoso (2015), studied 26 Indonesian banks for the period 2009 - 2013. From 5 variables taken into this study (bank size, capital adequacy, Return on Assets, GDP and Inflation), Return on Assets (ROA) had a positive and significant impact on non-performing loans. Bank size and GDP had a negative and significant impact on non-performing loans, while capital adequacy and inflation had a non-significant positive impact. A study conducted in European countries (in 28 countries) is the study by Roman and Bolan (2015), which covers the period 2000 - 2015. According to these authors, macroeconomic conditions have a strong and decisive impact on credit quality. The ratio of non-performing loans increases when the level of economic growth declines and when unemployment increases.

The relationship of macroeconomic factors with NPL has also been studied by Beck et al. (2015), who studied these factors in 75 countries for the period 2000 - 2010. Using panel data for these countries, they came to the conclusion that GDP growth rates have a negative and significant relationship with the NPL, while interest rates on loans have a positive relationship. The general explanation is that high GDP growth usually translates into more income that improves the debt service capacity of borrowers.

Another study carried out in Europe is also the study of Skarica (2013), which was conducted in Central and Eastern European countries and involve the period 2007 - 2012. The findings of this study showed that the GDP growth rate and unemployment rate have a negative relationship with NPL. While the study conducted for some Eurozone countries by Makri et al. (2014) covers the period 2000-2008. According to them, the level of GDP growth, Return on Assets (ROA), and Return on Equity (ROE) had an negative impact on the NPL, while unemployment and the level of inflation had a significant positive impact.

Louzin, Valdia and Metaxas (2010) conducted a study for 9 largest Greek banks for the period 2003-2009 and concluded that real GDP growth rate, interest rate and unemployment rate have a significant impact on non-performing loans. According to them, increased unemployment and interest rates have a positive impact on nonperforming loans, while GDP growth is negatively related to non-performing loans, a finding which is consistent with most of the literature.

Similar results have also been given by the study of Massai and Jouini (2013), who used 85 banks as sample from three different countries (Italy, Greece and Spain) for the period 2003 - 2009. In terms of internal factors, the study conducted by Louzis et al. (2010), concluded that profitability indicators (ROA and ROE) are significant and negatively related with non-performing loans for mortgages and consumer loans, while they are not relevant to business loans. This study covered about 90% of the Greek banking sector. A significantly negative relationship between profitability indicators and NPLs supports the fact that one bank with high profits has less incentive to generate income and less liable to engage in risky activities, such as risky lending.

According to Idris and Naynan (2016), non-performing loans positions of banks and other institutions are influenced by external business environment factors. Overall, the fact that macroeconomic conditions will affect credit risk has also been confirmed by studies conducted in developed countries (Ekanayake and Azeez, 2015).

Based on the foregoing reviews, the study intends to conduct hypothesis testing to prove the following hypotheses:

i. *Ha: firm-specific factors are statistically significant in determining credit risk of MFIs.*
ii. *Ha: Macroeconomic factors are statistically significant in determining credit risk of MFIs.*

2.6.2 Effect of Credit Risk on Profitability

This section detailed the various findings obtained after the examination of a number of literatures on some selected areas of consideration relevant to the objectives of the study. Credit risk is the most important risk exposure for banks due to strong connection with bank profitability and economic growth. Various research work done on credit risk have also not been able state clearly whether indeed credit risk has a positive impact or not, while some are for positive, some are for no effect and other believe credit risk has an adverse impact on profitability hence financial performance.

Kithinji (2010) has found that the bulk of the profits of commercial banks is not influenced by the amount of credit and nonperforming loans suggesting that other variables other than credit and nonperforming loans impact on profits. Commercial banks that are keen on making high profits should concentrate on other factors other than focusing more on amount of credit and non-performing loans.

Kargi (2011) has evaluated the impact of credit risk on the profitability of Nigerian banks. The findings revealed that banks profitability is inversely influenced by the levels of loans and advances, nonperforming loans and deposits thereby exposing to great risk of illiquidity and financial distress. Furthermore, weak credit risk management decreases the profitability, affects the quality of its assets and increase loan losses and non-performing loan which may eventually lead to financial distress.

Oludhe (2011) has concluded that capital adequacy, asset quality, management efficiency and liquidity have weak relationship with financial performance of banks in Kenya. Earnings have a strong relationship with financial performance. This is because earnings as proxies by return on assets determine the ability of a bank to increase capital (through retained earnings), absorb loan losses, support the future growth of assets, and provide a return to investors.

Kolapo *et al.* (2012) have showed that the effect of credit risk on bank performance measured by return on assets of the banks is cross sectional invariant. A 100 percent increase in the non-performing loan decreases return on assets i.e. profitability by about 6.2 percent, a 100 increase in loan loss provision also decreases profitability by about 0.65 percent, whereas a 100 percent increase in total loan and advances increases profitability by about 9.6 percent.

Abdalla (2017) researched on the Impact of Financial Risks on the Firms‟ Performance of firms in Kenya, the objectives of the study were to find out how credit risk affect firms‟ performance, To find out how liquidity risk affect firm‟s performance, Determine the effects of market risk to firm‟s performance To analyze the how foreign exchange rate risk affect firm‟s performance. The findings were there was a significant relationship between the variables of risk and financial performance. The research

concluded that Financial Risks had greater impact on performance of Firms. Thus, the research found that Credit Risk affected lending and borrowing by Financial Firms, Foreign exchange risks makes firms realize unpredictable losses this affect performance.

Al-Ajmi (2012) reported empirical evidence about the risk management practices of conventional and Islamic banks in Bahrain. A questionnaire survey approach was adopted to collect primary data from the managers of selected banks to examine the risk management practices and their association with understanding risk, risk management, risk identification, risk assessment analysis, risk monitoring and managing credit risk. Both descriptive as well as inferential statistics analysis techniques were applied. Their study results showed that the bank managers in Bahrain were well-aware of the significance of effective risk management in reducing costs. Their study highlighted that the selected banks in Bahrain had a clear understanding of risk and risk management and the other explanatory variables of the study. The multiple regression analysis results of their study showed a significant positive relationship between the risk management practices and all the independent variables. They revealed that credit, liquidity and operational risk were found to be the most significant risks faced by both the conventional and Islamic banks. They also concluded that the Islamic banks were facing more risks than the conventional banks in Bahrain.

Claudine (2008) examined the association between the performance of banks and credit risk management. As part of their findings, they observed that return on equity and return on assets both measuring profitability were inversely related to the ratio of non-performing loan to total loan of financial institutions thereby leading to a decline in profitability.

Wood and Kellman (2013) conducted a study on the risk management practices of six Barbadian banks. They highlighted that the bank managers in Barbados considered the adoption of risk management as an important and critical force for their banks` overall performance. They identified credit risk, operational risk, country risk, interest rate risk and market risks as the main types of risks in the selected Barbadian banks. They concluded that the risk management practices of the selected banks were efficient according to the changing business environment.

Hosna (2009) in their study opined that credit risk has a significant positive effect on the profitability of commercial banks in Sweden. Correspondingly, Kithinji (2010) examined the effects of credit risk management on commercial banks profitability in Kenya. They observed that the level of credit was high in the early years of the implementation of Basle II but decreased significantly in 2007 and 2008, probably when the Basle II was implemented by commercial banks. The findings revealed that the bulk of the profits of commercial banks are not influenced by the amount of credit and non-performing loans suggesting that other variables other than credit and non-performing loans impact on profits.

Ogilo (2012) investigated the impact of credit risk management on financial performance of commercial banks in Kenya. The objective of the study were to analyze the impact of credit risk management on financial performance and to establish whether there is a relationship between the two variables, the credit risk management determinant was CAMEL indicators, the CAMEL indicator investigated included; capital adequacy, asset quality, earnings, liquidity were the determinant of credit risk management. Pearson correlation revealed that capital adequacy has a low correlation coefficient of -0.25 at p0.035 with financial performance. Using data set of five past

years. The researcher find out the correlation between asset quality and financial performance r=0.324 at p=0.041. Management quality also had correlation with financial performance given r=-0.512 at p=0.001. A correlation was also established between earning quality and ROE at 95% level of confidence with r=0.89 at p=0.001: the study concluded credit risk management has a weak relationship with financial performance of banks in Kenya. Earnings have a strong relationship with financial performance.

Adetayo (2013) examined how the commercial banks manage the risks that are posed by the foreign exchanges rate in selected commercial banks in Nigeria. The study sought to determine how the risk involve in foreign exchange can be effectively managed. The study exploited both the primary and secondary sources of data. The study determined that spot transactions techniques were effective in minimizing foreign exchange risk. The study however was not able to determine the relationship that exists between the two variables.

Addae (2015) examined the effect of exchange rate fluctuation on Ghanaian banks. The study investigated the sensitivity to exchange rate in the commercial banks found in the Ghana. The finding shows that the banks have varied risk management strategies. This thus showed that risk management was an integral part of these organizations. The study was mainly concentrated in Ghana and thus may not be applicable in the D.R. Congo. The study of (Paul, 2006) showed that when interest rate increases it actually effect to borrowers but it doesn‟t affect the bank‟s performance. The borrower will tolerate the impact of high interest rate while the performance of bank would not be affected by high interest rates. Because when interest rates go upward then the bank

charges more to borrower than the return it pays to depositors. Therefore, both the borrower and depositor will tolerate the cost.

According to the study of Khawaja (2007) Increase in the interest rate depresses the borrowers and depositors, like investment and saving. Banks by charging high interest rate gain high returns from borrowers and discouraging the depositors by giving low return to them which results in inclusive spreads. In Pakistan spreads are higher. Finally, interest rate increases when spreads are taken into account that results into high returns to banks on investments and lending. And beside this, depositors have no other option to save their money except on prevailing rates offered by the banks.

Funso (2012) investigated the quantitative effect of credit risk on the performance of commercial banks in Nigeria for the period 2000-2010. Findings from their study showed that the effect of credit risk on bank performance measured by the return on assets of banks is cross sectional in variant in Nigeria; Kargi (2011) examined the impact of credit risk on the profitability of Nigerian banks. Findings from the study revealed that credit risk management has a significant impact on the profitability of Nigerian banks. Hence, they opined that banks‟ profitability is inversely influenced by the levels of loans and advances, non-performing loans and deposits thereby exposing them to great risk of illiquidity and distress.

Prior studies suggest that good credit risk architecture, policies and structure of credit risk management, credit rating system, monitoring and control contributes to the success of credit risk management system (Bagchi, 2003) Similarly, (Nirmala, 2004) in a related study opined that the success of credit risk management requires maintenance of proper credit risk environment, credit strategy and policies. Thus, the ultimate aim should be to protect and improve the loan quality. In the same vein, findings from Salas

and Saurina (2002) revealed that growth in GDP, rapid credit expansion, bank size and capital ratio had a significant impact on the non-performing loans.

Sung (2008) have tried to analyze Korean banks‟ performance which was reflected on their financial statements and to provide some comments to improve their banking business. The study was carried out by comparing the eight Korean banks‟ past five years‟ performance results with other banks in the State of California and Asian banks other than Korean banks owned by such Asians (e.g., Chinese and Japanese) and American banks owned by other ethnic groups of Americans (e.g., “white” American). The comparative financial analysis indicated that Korean banks were relatively conservative in managing operations and lending and was more actively involved in their services for international business and sales activities. The analyses also indicated that the Korean banks‟ loan quality was relatively low and their loan market appears to have been saturated. They recommend on the basis of the analysis that the Korean banks should adopt a more active marketing strategy to expand and create their own market, consider tighter control for their operations with understanding banking regulations (e.g., Financial Institutions Reform, Recovery, and Enforcement Act) and adopt the loan policy in a way that they can make a loan decision with more reliable cash flow analysis.

Patient (2016) has examined empirically the credit risk management of commercial bank in D.R. Congo, his findings state that the risk of credit can be seen as a non-performance when the latter is not mastered by the banks because it constitutes more than 80% of the balance sheet. Then a credit risk management is all the more important than the other main activities of a bank such as the transformation of assets and the production of information. The management of credit risk as we have seen previously

corresponds to all the techniques aimed at improving the profitability-risk couple and allowing the bank to master its portfolio of credit, as well as to reduce the risk Bank bankruptcy. The bank must have an effective risk management system.

Li (2007) examined the determinants of bank‟s profitability and its implications on risk management practices in the United Kingdom. The study employed regression analysis on a time series data between 1999 and 2006. Six measures of determinants of bank‟s profitability were employed. Liquidity, credit and capital were proxied as internal determinants of bank‟s performance. GDP growth rate, interest rate and inflation rate were used as external determinants of banks profitability. The six variables were combined into one overall composite index of bank‟s profitability. Return on Asset (ROA) was used as an indicator of bank‟s performance. It was found that liquidity and credit risk have negative impact on bank‟s profitability. The current study uses the credit, liquidity and in addition operational risk management proxies as separate indices from moderator variables of GDP, Inflation and bank size as opposed to one overall composite index as used in this study. Further, Return on average assets (ROAA) and return on average equity (ROAE) which accounts for variation in bank assets and equity throughout the year as opposed to Return of assets (ROA) are used as performance measures in the current study.

Using data for banks from Egypt and Lebanon banks, Hakim and Neamie (2001) examined the relationship between credit risk and bank‟s performance over the period 1993-1999. The study estimated a fixed effects model of bank return with varying intercepts and coefficients. The findings showed that credit variable is positively related to profitability. The study also found a strong link between capital adequacy and commercial banks returns, with high capitalization being the hindrance to returns. The

study concluded that the capital is a sunk cost with large banks realizing high profits in absolute but not in percentage terms. As a policy implication, the study provided important input for the policymakers in the region to set better performance targets, and enable bank managers to allocate capital more efficiently across their business units. The study also contributed in terms of how commercial banks can better employ their current capital and evaluate their future performance. The current study uses random effects model as opposed to fixed effects used in this study.

Agyei and Dasah (2012) carried out a study on the relationship between credit risk and profitability of some selected banks in Ghana. A panel data from six purposively selected commercial banks covering a five-year period (2005-2009) was analyzed within the fixed effects framework. From the results, credit risk (measured by non-performing loan rate, net charge-off rate, and the pre-provision profit as a percentage of net total loans and advances) had a positive and significant relationship with bank profitability. The findings indicated that banks in Ghana enjoyed high profitability in spite of high credit risk; contrary to the normal view held in previous studies that credit risk indicators are negatively related to profitability. These results were attributed to the prohibitive lending/interest rates (which stood at about 35%), fees and commission (non- interest income) charged. Also, the study found support for previous empirical works which depicted that bank size, bank growth and bank debt capital influence bank profitability positively and significantly. The current study measures credit risk using Portfolio at risk (PAR) and loan loss provision coverage ratio (LLPCR) using a random effects framework.

Kolapo, Kolade and Ojo (2012), did an empirical investigation into the quantitative effect of credit risk on the performance of commercial banks in Nigeria over the period

of 11 years (2000-2010). Five commercial banking firms were selected on a cross sectional basis for eleven years. The traditional profit theory was employed to formulate profit, measured by Return on Asset (ROA), as a function of the ratio of Nonperforming loan to loan & Advances (NPL/LA), ratio of Total loan & Advances to Total deposit (LA/TD)

and the ratio of loan loss provision to classified loans (LLP/CL) as measures of credit risk. Panel model analysis was used to estimate the determinants of the profit function. The results showed that the effect of credit risk on bank performance measured by the Return on Assets of banks is cross-sectional invariant. That is the effect is similar across banks in Nigeria. A 100 percent increase in non-performing loan reduces profitability (ROA) by about 6.2 percent, a 100 percent increase in loan loss provision also reduces profitability by about 0.65percent while a100 percent increase in total loan and advances increase profitability by about 9.6 percent. Based on the findings, it was recommended that banks in Nigeria should enhance their capacity in credit analysis and loan administration while the regulatory authority should pay more attention to banks‟ compliance to relevant provisions of the Bank and other Financial Institutions Act (1999) and prudential guidelines. The current study utilizes Pearson correlation analysis to establish the strength and direction of association between the credit risk management parameters and bank performance.

Additionally, Return on average assets (ROAA) and return on average equity (ROAE) which accounts for variation in bank assets and equity throughout the year as opposed to Return of assets (ROA) are used as performance measures in the current study. Using a time series and cross sectional data from 2004-2009 obtained from selected banks annual reports and accounts in Nigeria, Ogboi and Unuafe (2013) examined the impact

of credit risk management and capital adequacy on banks financial performance in Nigeria. Panel data model based on pooled lest squares regression was used to estimate the relationship that exists among loan loss provisions (LLP), loans and advances (LA), non-performing loans (NPL), as measures of credit risk and return on asset (ROA) as a measure of financial performance. Results showed that sound credit risk management impacted positively on bank‟s financial performance with the exception of loans and advances which was found to have a negative impact on banks‟ profitability in the period under study. Based on the findings, the study recommended that Nigerian banks institute appropriate credit risk management strategies by conducting rigorous credit appraisal before loan disbursement and drawdown. The limitation of this study is in the measurement of credit risk. The mounts of non-performing loans, loans & advances and loan loss provisions used as proxies for credit risk management may not give a correct picture of risk management since there is lack of base of reference of the risk items. Thus the current study sought to fill this knowledge gap by using Portfolio at risk (PAR) determined as a ratio of non-performing loans over total loans and advances; and loan loss provision coverage ratio (LLPCR) determined by sum of net interest income and loan loss provisions over net charge –offs as proxies for credit risk management. Moreover, one step System of General methods of Moments(GMM) which proves to be a robust estimator for cross-sectional and time series data is utilized in the current study as opposed to pooled least squares regression model.

In investigating the quantitative effect of credit risk on the performance of commercial banks in Nigeria, Funso (2012) used panel data for the period 2000-2010. Profit was measured by Return on Asset, while ratio of non-performing loan to loan & advances, ratio of total loan & advances to total deposit and the ratio of loan loss provision to classified loans was used as a measures of credit risk. Panel model analysis was used to

estimate the determinants of the profit function. The results showed that the effect of credit risk on bank performance is cross sectional invariant. Limitations of these studies are that the size of the banks used in the analysis is larger than most Microfinance banks and due to the nature of the database used. The current study examined the extent to which credit risk management affect financial performance of Microfinance banks in Kenya which have unique features of the financing contracts characterized by unbankable collateral, liquidity infrastructure, nature of clientele and governance underlying the

Microfinance bank operations.

Kithinji (2010) analyzed the effect of credit risk management (measured by the ratio of loans and advances on total assets and the ratio of non-performing loans to total loans and advances) on financial performance (measured by return on total asset) of Kenyan Commercial banks between 2004 to 2008. The study found that the bulk of the profits of commercial banks were not influenced by the amount of credit and nonperforming loans. The implication being, that other variables apart from credit and non-performing loans impact on banks‟ profit. The current study explored other factors such as liquidity and operational risk factors that influence the bank‟s profits.

In analyzing the effect of financial risk management on the financial performance of commercial banks in Kenya, Wanjohi (2013), assessed the current risk management practices of the commercial banks and linked them with the banks‟ financial performance. Return on Assets (ROA) was averaged for five years (2008-2012) to proxy the banks‟ financial performance. To assess the financial risk management practices, a self-administered survey questionnaire was used across the banks. The study found out that majority of the Kenyan banks were practicing good financial risk

management and as a result the financial risk management practices mentioned herein have a positive correlation to the financial performance of commercial banks in Kenya. Although there was a general understanding about risk and its management among the banks, the study recommended that banks should devise modern risk measurement techniques such as value at risk, simulation techniques and Risk-Adjusted Return on Capital. The study also

recommended use of derivatives to mitigate financial risk as well as develop training courses tailored to the needs of banking personnel in risk management. This study used perceptual measures for credit risk management and panel data for performance of banks. In order to get a better insight to the effect and relationship, the current study opts for use of panel data for objective measures for both credit risk management and financial performance.

Anguka (2012), studied the influence of financial risk management on the financial performance of commercial banks in Kenya. The specific objectives were to determine the influence that the financial risk management practices have had on the financial performance of commercial banks in Kenya and to establish the relationship between Financial Risk Management and Bank performance. The study found that most commercial banks had highly adopted financial risk management practices to manage financial and credit risk and as a result the financial risk management practices had a positive correlation to the financial performance of commercial banks of Kenya. This study used perceptual measures in assessing risk management practices and financial performance. Therefore, the current study utilized panel data as objective measures of credit risk management and financial performance as empirical evidence.

Based on the above review on the effect of credit risk on financial performance, the current study seeks to test the following hypothesis.

Ha: There is statistically significant negative effect of credit risk on profitability of MFIs.

2.7 Conceptual Framework

The concept underpinning of this study is that profitability of MFIs can be due to controllable factors such as credit risk management. Therefore, the conceptual framework of the study consisted of independent variables; credit risk management (measured by portfolio at risk and Loan loss provision coverage ratio), while profitability (measured by Return on average assets and return on average equity) as the dependent variable. Firm size, inflation rate and GDP growth rate constituted control variables. The interplay among these study variables is depicted in figure 1. In effect, this used capital adequacy ratio, NPLs, management quality ratio, and credit to deposit ratio as proxies for credit risk management and ROA as a proxy for financial performance as illustrated in Figure 1.

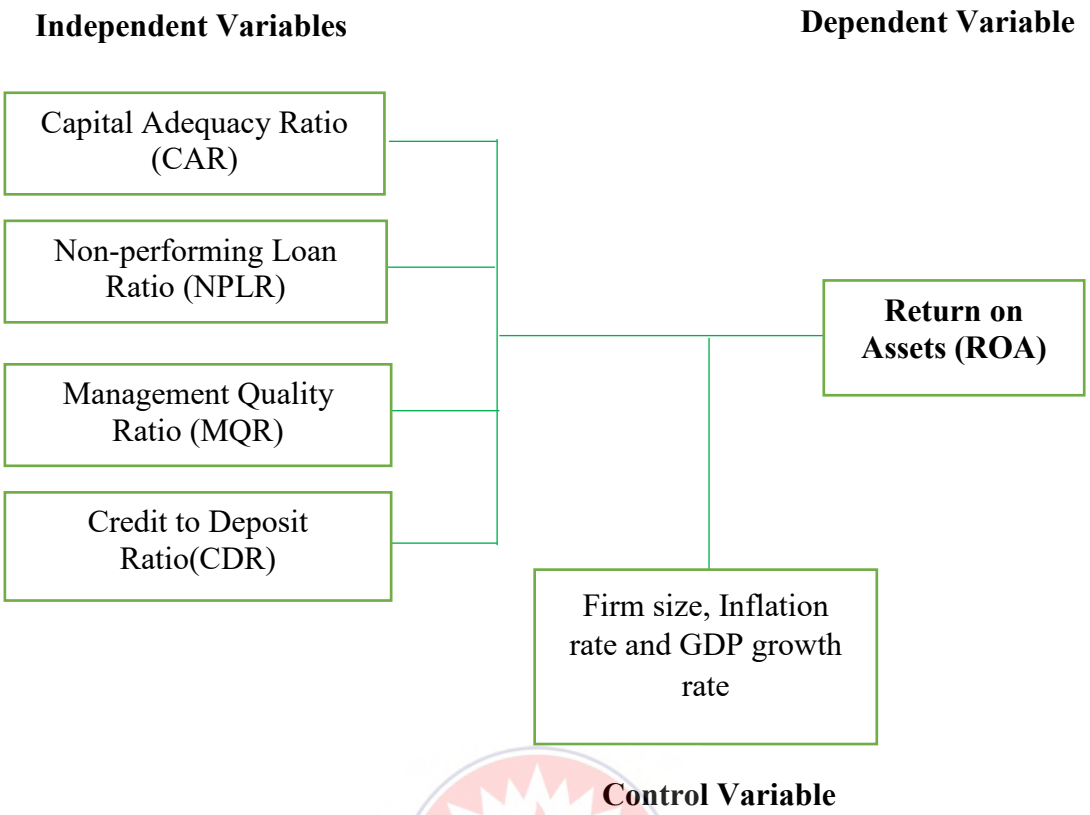

Figure 1: Conceptual Framework

(Source: Researcher"s Own Construct, 2021)

2.8 Conclusion

The literatures reviewed show that various researches have been done on the impact of credit risk on the financial performance of banks. But very few researches have done in Ghana. In addition, there are scanty research on credit risk and profitability of MFIs and in this regard, there are rooms for the further improvements.

In as much as a lot of researches have been done on the impact of credit risk and financial performance of banks, most of the studies have leaned heavily towards the various banks and not MFIs and also tools and techniques of credit risk management, practices and strategies used by various institutions (Wanjira,2010: Ochola,2009: Ngare,2018; Mwirigi, 2016: Simiyu,2018). The studies did not establish a clear

relationship between credit risk and profitability. In addition, and to the best knowledge of the researcher, no other research has used Capital Adequacy Ratio, Return on Asset and Return on Equity together as an independent variable. Thus, there exists a gap necessitating this study.

In conclusion, both the theoretical and empirical review of the literature indicated that credit risk is very important to every financial institution notably MFIs .Giving out credit and advances is the main source of income to most if not all MFIs, and this exposes them to greater credit risk so in order safeguard or to avoid any adverse impact of credit risk, proper management of credit risk must done thus proper credit policies and portfolios must be put in place to eliminate or reduce Non performing loans to the lowest bearable level.

CHAPTER THREE

RESEARCH METHOD

3.0 Introduction

This chapter discussed the research design, the study area, population and sample size, the techniques used for sampling and data collection, the various data collection instruments as well as the procedures used in measuring and analyzing the data. This chapter therefore talked about how the whole research was conducted.

3.1 Research Design

The researcher adopted an explanatory research design. According to Maigua and Mouni (2016), the main advantage of explanatory designs is, it allows connection of thoughts to apprehend reason and effect. The researcher was able to explain what was going on as it exists, and the researcher had no control over the variables. The researcher explored and explained the effects of credit risks on the profitability of companies in the microfinance institutions. Even though research can take on different designs such as being experimental or diagnostic, our study employed the survey design. Data collected through survey approach could be used to determine possible relationships between variables so as to be able to produce models out of these relationships (Creswell, 2009).

The explanatory research design was appropriate with the purpose of the study which was to determine the effects of credit risk on profitability in Ghana. Again, the survey design was adopted because of the nature of the research which was explanatory, thus to examine how profitability of MFIs is explained by credit risk management.

3.2 Population

The targeted population for the study comprised all the 5 MFIs in Kasoa. This figure was obtained from the Bank of Ghana (2021). The choice of Kasoa was due to the fact that very little study has been done in this geographical area and specifically Kasoa because 10 out of the 22 MFIs in Central Region are in operated in Kasoa (Bank of Ghana, 2021). Moreover, Kasoa is among the cities in the region where market activities and industrialisation are predominant, hence the highest number of MFIs in the area in the region. These MFIs are DAD Micro Finance, Sheddy Micro Finance, Profin Micro Finance, Talent microfinance and Kenstep microfinance all of which are in Kosoa.

3.3 Data Collection Procedure

Secondary data was used for the purpose of this study and this data was derived from the financial statements which included the statement of comprehensive income and statement of financial position of the MFIs. The variables used were return on assets (ROA) as a measure of profitability. The study adopted a similar model as used by Gizaw et al (2015) where ROA will be used as a measure of profitability the dependent variable, the independent variable credit risk will be measured by non-performing loan ratio, capital adequacy ratio, impaired loan reserve, and loan impairment charges, which were found to be suitable for the area of study and also data availability according to the reporting standards. The MFIs financial statement for the period 2011 to 2020 from their website was be used to obtain the data for the computation of return on assets for each MFI in the assessment of their performances over the period.

3.4 Data Analysis Method

The 10-year panel data of the five MFIs were analysed using ordinary least square model (OLS). Specialised Package for Social Science (SPSS) version 20 was used to generate inferential, descriptive statistics and regression analysis to estimate effects of credit on the financial performance of microfinance institutions in Ghana. The descriptive statistics include standard deviation and mean of the various variables and these were displayed in charts and tables to provide further understanding of the estimation of the parameters.

The significance of the credit risk management in financial management was analyzed using the regression analysis of SPSS output. Test of significance include coefficient of correlation (R), coefficient of determination (R-squared), t-test and ANOVA.

3.5 Model Specification

Based on the hypotheses two main econometric models were proposed to study the determinants of credit risk and the relationship between credit risk and profitability.

3.5.1 Model for Determinants of credit risk

The model defines the dependent variable and the explanatory variables that are included in the analysis. The study uses Non-performing loans (NPLs) as a measure of credit risk because they reflect the status of credit risk in a country (Donjeta, 2020). These loans in the study are presented as the dependent variable that depends from the independent variables taken into account or the explanatory factors (firm-specific and macroeconomic factors). The firm-specific factor are Bank size (BZ), profitability (measured by ROA), and interest rate on the loan (IR), while macroeconomic factors are economic growth (GDP) and inflation (INFL). Multiple regression deals with

constructing a model where Y (Non-performing Loans) is expressed as a function of the independent variables:

$Y = f(X_1, X_2, \ldots, X_n) + \varepsilon$……[1]

Where: ε follows normal distribution, credit risk = f (credit risk determinants) NPL = f(BS, ROA, IR, GDP, INFL)

In order to achieve the objectives of the study on determinants of credit risk and based on the variables obtained for this study, the following econometric model for non-performing loans was constructed:

$Y\ (NPL)t = \beta o + \beta_1(BS)t + \beta_2(ROA)t + \beta_3(INT)t + \beta_4\ (GDP)t + \beta_5(INFL)t + \varepsilon_i$ …….[2]

Where: Y = Non-performing loans (NPLs) in period t;

X_1 = Bank size (BS) in period t;

X_2 = Bank profitability (ROA) in period t;

X_3 = Interest rate on loans (INT) in period t;

X_4 = Economic Growth (GDP) in period t;

X_5 = Inflation (INFL) in period t;

β0 = represents a constant, or value of Y when all values of X are zero;

β_1 to β_5 = regression coefficients for the relevant variables;

ε_i = Error term, including the effect of variables not included in the model for t;

t = 2011 – 2020.

Non-performing loans (NPLs): The ratio of non-performing loans reflects the credit quality of the bank and is considered as an indicator of credit risk management. NPLs in particular show how banks manage their credit risk because it determines the percentage of the amount of credit losses in relation to the total amount of credit.

Bank size (BS): The log of total bank assets is used to determine the size of the bank. Regarding the relationship between the size of banks and non-performing loans, there are numerous and contradictory data. There are studies reporting a negative relationship between bank size and non-performing loans (Alexandri & Santoso, 2015). According to these studies, the opposite relationship implies that large banks have good credit risk management strategies against their smaller counterparts. There are also other studies that provide positive relationships (Abdullah *et al.*, 2012).

Bank profitability, measured by ROA: According to Tan and Floros (2012), Return on Assets (ROA) and Return on Equity (ROE) are financial ratios that measure the profitability of banks. ROA (Return on Assets), denotes the efficiency of using assets and indicates how much income the bank generates from its investment in assets. Regarding the relationship between ROA and non-performing loans, different researchers found different results. Ahmed and Bashir (2013), Alexandri and Santoso (2015) in their studies found a positive relationship between ROA and NPL. While other researchers such as Massai and Jouini (2013), in their studies found a negative relationship between ROA and NPL.

Interest rate on loans (IR): The interest rate on loans is considered as one of the main economic factors that cause bad loans (Farhan *et al.*, 2012). Interest rate means the cost of borrowed funds. It is the price that borrowers pay for using the money borrowed from the bank. An increase in the interest rate affects the performance assets of

commercial banks, as it increases the cost of loans to borrowers and reduces borrowers' capacity to pay (Ombaba, 2013). Thus the relationship between the interest rate on loans and non-performing loans is expected to be positive.

Economic Growth (GDP): GDP is one of the main indicators of the health of any country's economy and represents the market value of all goods and services produced in an economy within a given period of time. GDP growth is usually accompanied by a decrease in non-performing loans (Bedi *et al.,* 2013). This is because GDP growth translates into more income, thus increasing borrowers' ability to repay loans and thereby reducing non-performing loans. Based on previous studies, the relationship between GDP and NPLs is expected to be negative.

Inflation (INFR): Inflation refers to the overall rise in prices for goods and services within an economy. The relationship between inflation and non-performing loans is considered unclear. High inflation lowers the real value of loans by making debt burdens easier for borrowers and this may reflect in a negative relationship. On the other hand, rising inflation may weaken some borrowers' ability to repay debt by reducing their income when wages are volatile (Nkusu, 2011). Based on earlier studies we can say that the relationship between inflation and NPLs depends on the operation of the economy and as a result this relationship may be positive or negative.

3.5.2 Effect of credit on profitability

The regression model used in this study assumes that the relationship between each independent variable, Capital Adequacy Ratio (CAR); Non-Performing Loan Ratio (NPLR); Management Quality Ratio (MQR); Credit to Deposit Ratio(CDR); and control variables firm size, Inflation rate and GDP growth rate. Based on equation 3, the

MFI profitability was modeled as a function of credit risk management. The model used in this study is stated as follows:

$$ROA_{it} = \alpha_0 + \beta_1 CAR_{it} + \beta_2 NPLR_{it} + \beta_3 MQR_{it} + \beta_4 CDR_{it} + \beta_4 FSIZE_{it} + \beta_5 INFL_{it} + \beta_6 GDP_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots [3]$$

Where,

ROAit = Return on Assets of individual MFI on time t period

CARit = Capital Adequacy Ratio of individual MFI on time t period

NPLRit = Non-performing Loan Ratio of individual MFI on time t period

MQRit = Management Quality Ratio of individual MFI on time t period

CDRit = Credit Deposit Ratio of individual MFI on time t period

$FSIZE_{it}$ = Firm Size of individual MFI on time t period

$INFL_{it}$ = Inflation on time t period

GDP_{it} = Gross Domestic Product on time t period

α_0 = constant,

ε_{it} = error term,

β_1, β_2, β_3, β_4, β_5 are coefficients

The study employed ordinary least square model (OLS). The OLS was used for estimating the unknown parameters in a linear regression model. This method minimises the sum of squared vertical distances between the observed responses in the dataset and the responses predicted by the linear approximation. The properties of OLS estimators was used because it is the most widely used estimation technique (Pavelescu, 2004).

Expected sign is a statistical technique which shows the relationship between two variables. The positive expected sign means that one variable increase, the other

variable will also increase while negative expected sign means that when one variable increase, the other variable will be decrease.

Table 1: Measurement of Variables

Variables	Measurement	Expected Sign
ROA	Return on Assets (ROA) is the ratio between net profits to Total Assets of the MFI.	NA
CAR	Capital adequacy ratio (CAR) is the proportion of a MFI's own equity in relation to its risk exposures.	-
NPLR	Non-Performing Loan Ratio (NPLR) is the percentage of nonperforming loans to total loans and advances.	-
CDR	Liquidity: this is measured using Credit to Deposit Ratio. It is a ratio between total loans and total deposits. This ratio measures the ability of the management to use the assets in offering loans which ultimately creates high profitability.	+
MQR	Management Quality: this is measure by Total Operating Income to Total Assets as a measure of management quality.	-
INTR	The price that borrowers pay for using the money borrowed from the bank	+
FSIZE	Firm size is determined by log of total assets	+
INFL	Inflation: Annual inflation rate measures the overall percentage increase in Consumer Price Index (CPI) for all goods and services	+
GDP	Gross Domestic Product: The economic growth, expressed by the Gross Domestic Product (GDP) growth	-

Source: Author's construct, (2021)

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

The data collected from the bank are analysed in this chapter in order to find out the effects of credit on the profitability of microfinance institutions in Ghana. In addressing the objectives of the study, the chapter examined the influence of bank-specific and macroeconomic factors on credit risk of microfinance institutions in Ghana. It also examined the effect credit risk on profitability of MFIs. Before addressing the specific research objectives, the descriptive statistics of the dependent and independent variables are also presented in this chapter and further diagnostic tests are conducted to find out the normality of the independent variables.

4.2 Descriptive Statistics

The summary of the descriptive statistics for all variables used in the study is presented in Table 2. The table reports profitability indicators of the MFIs, thus return on assets (ROA), capital adequacy ratio (CAR), non-performing loan ratio (NPLR), management quality as measured by total operating income to total assets (MQR), and credit to deposit ratio (CDR). The result shows that the average value of the bank performance (ROA*)* is 6.0444 percent indicating that during the period 2011 to 2020, on average, the total assets of sample MFIs generate 6.0444 percent return. The standard deviation of the ROA is 4.22159 percent, which shows the substantial variation in returns of the banks. The minimum capital adequacy ratio is a compliance of sample banks regarding Bank of Ghana Directives and Basel III requirements.

Table 2 shows that the number of observations per each variable is equal. This may be explained by the balanced nature of the panel data used in the analysis. Table 2

additionally shows that on average the overall mean return on assets, capital adequacy ratio, non-performing loan, management quality and credit to deposit ratio. Therefore, over the period the MFIs were not positively profitable, adequately capitalized and experienced some relatively high levels of deterioration in asset quality during the study period. Also, the standard deviation as seen in Table 2 is a measure of dispersion which is a measure of the average space between an observation and the mean. It is shown that the standard deviation of return on assets, capital adequacy ratio, non-performing loan, management quality and credit to deposit ratio. On the part of skewness of the variables, the results in Table 2 indicate the highest negative skewness while a positive skewness is the highest. This means that the data is symmetrically closed to the mean with few gearing towards the left (low left tail skewness).

Table 2: Descriptive Statistics of the Variables

	Minimum	Maximum	Mean	Std. Deviation	Skewness
ROA	1.44	7.41	6.0444	4.22159	3.218
CAR	0.02	1.00	0.2516	0.27566	1.894
NPLs	0.07	8.00	0.9631	2.06337	2.411
CDR	2.00	5.00	4.0313	0.99950	-0.160
MQR	1.00	5.00	4.0625	1.10534	-0.568
FIRMZ	4.39	6.34	5.4550	0.53082	-0.016
INFL	10.60	25.79	18.6209	5.35401	-0.194
GDP	3.20	14.00	6.1047	2.79889	1.572

Source: Author‟s construct, (2021)

4.3 Multicollinearity Analysis

Having analysed the descriptive statistics of the variables, it also important to conduct multicollinearity test to help in identifying how the explanatory variables correlate so to ensure that dependent variable does not suffer double effects from the model. In testing

for multicollinearity problem, the study used correlation matrix and these are shown in Table 3. The results showed how strong the scores of the independent variables are associated with one another.

According to the results shown in Table 3, none of the independent variables had correlation coefficient greater than 0.7. Thus the correlation matrix showed that the highest correlation coefficients of all the independent variables are below the scholarly stipulated correlation coefficient of 0.7. This seeks to suggest that there were no multicollinearity problems. Multicollinearity arises if the independent variables correlation highly with one another. For instance, Kennedy (2008) stated that any correlation coefficient that greater than 0.7 could cause a problem of multicollinearity which could lead to inefficient measurement or estimation and thereby producing unreliable results. Multicollinearity makes more of the variables insignificant with increases in the p-value since that lowers the test statistics value (t-value). Consequently, the results as shown in Table 3 revealed that there is no multicollinearity problems among the independent variables and for that matter, the reliability of the regression model can be enhanced. This means that since there is no multicollinearity problems, the predictive powers of the independent variables are enhanced.

Table 3: Correlations Coefficient Matrix

	ROA	CAR	NPLS	CDR	MQR	FSIZE	INFL	GDP
ROA	1.000							
CAR	-0.114	1.000						
NPLS	-0.432	-0.072	1.000					
CDR	0.240	0.121	0.204	1.000				
MQR	0.231	0.328	-0.425	0.358	1.000			
FSIZE	0.321	.0031	-0.005	0.464	0.295	1.000		
INFL	-0.012	0.423	0.096	0.342	0.555	-0.653	1.000	
GDP	0.212	0.427	0.427	0.425	0.395	0.424	-0.208	1.000

Source: Author's construct, (2021)

4.4 Determinants of Credit Risk

This section sought estimate the determinants of credit risk of MFIs in Ghana. The empirical model (equation 2) addresses the first two research objectives of the study. Thus, to examine the influence of firm-specific factor on credit risk of microfinance institutions in Ghana and determine the effect macroeconomic factors on credit risk of microfinance institutions in Ghana.

Table 4 gives the linear regression model with the following statistics: R, R2, Adjusted R Square and standard error. These values indicate the importance of the independent variables at the level of non-performing loans. The R value concludes that the dependent variable has a strong correlation with the independent variables at the level of 0.855 and 85.5% respectively. The most important value of Table 4 is the value of R Square (R2). According to results this value is 0.731, i.e. 73.1% of the change in the dependent variable, in this case, Non-performing loans is explained by the independent

variables taken into consideration being, firm size, ROA, Interest rates in loans, GDP and Inflation. These factors account for 73.1% of the change in the level of non-performing loans, while the remaining 26.9% is explained from factors not included in the model (Ɛ).

Table 4: Summary of econometric model

Model Summary b				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.855a	0.731	0.670	1.19268

a. Predictors: (Constant), INFLR, GDP, BS, ROA, IR

b. Dependent Variable: NPL

Source: Author‟s construct, (2021)

Table 5 presents the coefficients of the independent variables from which we can determine the impact of certain factors on the level of Non-performing loans. The results presented in the coefficients‟ Table show the importance of each variable in non-performing loans. It can be seen the impact through the value of the coefficients and by the value of the signification which show that firm size (FSIZE), ROA, interest rate (INT), GDP and inflation (INF) are statistically significant in determining credit risk (NPL).

Table 5: Coefficients of the independent variables

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
1	**(Constant)**	-88.158	30.564	-2.884	0.009
FSIZE	3.595	1.312	0.521	2.741	0.012
ROA	1.597	0.881	0.594	1.813	0.083
INT	1.418	0.284	1.853	4.997	0.000
GDP	-0.059	.0374	-0.022	-0.157	0.008
INF	-.0570	0.280	-0.292	-2.035	0.050

a. Dependent Variable: NPL

4.5 Effects of credit risk on the financial performance of microfinance institutions

This section sought to investigate the effects of credit risk on the profitability of microfinance institutions in Ghana and establish whether there is significant relationship between these variables and profitability. The regression analysis results are displayed in Table 6, 7 and 8.

Table 6 indicates that the value of R-square was 0.658, which means that 65.8 percent of the total variation in the value of ROA was due to the effect of the independent variables. The adjusted R-square was 0.617 which shows that on an adjusted basis, the independent variables were collectively 67.1 percent related to the dependent variable ROA. It is generally accepted that the R-square should be closed to 1. Thus closeness of the R-square to 1 the better the dependent variable is explained by the independent variables. From this result the issue is whether the influence is significant or not. This is because the extent to which the independent variables influence the dependent variable (financial performance) will provide justification of the influence of independent variable over the dependent variable.

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.679a	0.658	0.617	1.40712

a. Predictors: (Constant) CAR, NPLs, CDR, MQR, FSIZE, INF, GDP

According to the results in Table 7, F-test showed statistical value of 22.998 at a significant level of 0.000. The significance level is less than test statistic of 0.05. This result implies that the significant relationship between credit risk and profitability of

MFIs in Ghana. In this regard, whether the relationship is positive or negative is another matter yet to be determined and the results on this are shown in Table 7.

Table 7: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	52.088	7	7.441	16.483	0.000a
	Residual	18.961	42	0.451		
	Total	71.049	49			

a. Predictors: (Constant), CAR, NPLs, CDR, MQR, FSIZE, INF, GDP

b. Dependent Variable: ROA

Table 8 displays the coefficients of independent and dependent variables including the control variables. The results indicate that capital adequacy ratio is and statistically significant. The sign of the coefficient is as unusual because theoretically capital adequacy ratio was expected to have a positive relationship with profitability of financial institutions. The finding of this study supports the hypothesis that capital adequacy ratio and liquidity (CDR) have significant positive effects on financial performance of MFIs in Ghana. The result is with the finding of Bhattarai (2016). However, NPLs has negative but significant effect on financial performance of MFIs while management quality (MQR) and firm size (FSIZE) have positive relationship with financial performance of MFIs.

Table 8: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.479	0.447		3.310	0.003
	CAR	-0.205	0.002	0.482	-5.872	0.004
	NPLs	-7.815	1.986	0.265	-3.936	0.000
	CDR	1.258	0.121	0.494	10.421	0.000
	MQR	4.680	.627	0.900	7.461	0.000
	FSIZE	0.255	0.080	0.490	3.164	0.004
	INFL	-0.013	0.009	0.253	-1.527	0.138
	GDP	0.008	0.015	0.100	0.573	0.572

a. Dependent Variable: ROA
Source: Author"s construct, (2021)

4.6 Discussions

4.6.1 Determinants of Credit Risk

With regards to determinants of credit risk, the study results have shown that firm-specific and macroeconomic factors are significant in determining credit risk of MFIs in Ghana. The first variable, Bank size has a positive impact on the growth of non-performing loans, a statistically significant influence based on statistical parameters (p = 0.012). This result supports part of the literature (Abdullah *et al.,* 2012) but is inconsistent with another part of the literature (Alexandri & Santoso, 2015). A positive and statistically significant impact (p = 0.000) on non-performing loans is also shown to have interest rates on loans. The increase in interest rates according to the study is the main factor driving the growth of non-performing loans. This is in full accordance with the theory, where the increase in interest rates implies an increase in debt to borrowers, thus affecting the non-payment of loans received. The interest rate parameter is 1.418, which means that a 1% increase in interest rates would increase non-performing loans by 1,418 units, and conversely a decrease in interest rates would decrease non-

performing loans. Positive impact on non-performing loans seen to have also the bank profitability (measured by ROA), however, this has insignificant impact according to the results of study (p = 0.083). While the negative impact on non-performing loans was seen to have GDP and Inflation, impact that was insignificant for GDP (0.877) and significant for inflation (p = 0.05). Accordingly, the increase in GDP and Inflation will affect the reduction of non-performing loans reciprocally.

4.6.2 Effect of Credit Risk on Profitability of MFIs

This section discusses the major findings in this study with specific reference to the objectives of the study. The profitability is represented by return on assets which is the ratio of net income and total assets of any institutions. It measures the efficiency of the MFIs management in generating profits out of its scarce resources. The more the amount of ROA the better the efficiency of the MFI management, (Gizaw, *et al*, 2015). Return on assets ratio is important profitability ratio because it measures the efficiency with which the company is managing its investment in asset and using them to generate profit (Hosna, 2009). A basic measure of MFIs profitability that corrects the size of the MFIs is the return on assets (*ROA*), which divides the net income of the MFIs by the amount of its assets. *ROA* is a useful measure of how well a MFI manager is doing on the job because it indicates how well a MFI‟s assets are being used to generate profits (Claudine, 2008). Furthermore, return on total assets measures the profitability of the total assets available to the business. It measures earnings in all investments provided by owners and creditors.

Furthermore, the study revealed that capital adequacy has significant negative effect on profitability of MFIs. Capital adequacy ratio has negative and significant effect on profitability of MFIs is sustained. This finding is inconsistent with Bhattarai (2016).

Capital adequacy is the capital expected to maintain balance with the risks exposure of the financial institution such as credit risk, market risk and operational risk, in order to absorb the potential losses and protect the financial institution's debt holder. Capital Adequacy Ratio (CAR) is also an independent variable and is chosen because it is the core measure of a bank‟s financial strength from a regulator‟s point of view.

Capital adequacy ratio consists of the types of financial capital considered as the most reliable and liquid, primarily shareholders‟ equity. MFIs with good Capital Adequacy Ratio have good profitability. With good capital requirement, commercial MFIs are able to absorb loans that have gone bad (Abiola & Olausi, 2014). In addition to these, a MFIs with a strong capital adequacy is also able to absorb possible loan losses and hence avoids bank run, insolvency and failure. Capital adequacy ratio is a measure of the amount of bank's capital expressed as a percentage of its risk weighted exposure. It consists of the types of financial capital considered the most reliable, primarily shareholders' equity. Theoretically, MFI with good capital adequacy ratio have a good profitability. A MFI with a strong capital adequacy is also able to absorb possible loan losses and thus avoids MFI run, insolvency and failure (Bhattarai, 2016).

It is revealed that NPL has negative and significant effect on financial performance of MFIs. The result is similar to the findings of Kargi (2011); Kodithuwakku (2015); and Bhattarai (2016) where they found negative association between non-performing loans and banks performance. The result is contrary to the findings of Li and Zou (2014) and Alshatti (2015) who found the positive effect of non-performing /gross loans ratio on the financial performance of banks. Frost (2004) has argued that the asset quality indicators highlight the use of non-performing loans ratios (NPLs) which are the proxy of asset quality, and the allowance or provision to loan losses reserve. As defined in

usual classification system, loans include five categories: standard, special mention, substandard, doubtful and loss. According to Grier (2007), "poor asset quality is the major cause of most bank failures. The greatest risk facing a bank is the risk of loan losses derived from the outstanding loans (Chowdhury, 2013). NPL to Total Loans Ratio shows the direct relationship between volume of NPL and Total Loans. It indicates the portion of NPL in loan portfolio. A relatively lower ratio indicates a better quality of the loan portfolio.

The study revealed that of Management Quality Ratio (MQR) has positive and significant effect on financial performance of MFIs. This finding confirms that of Bhattarai (2016) where he found that management efficiency ratio has positive and statistically significant relationship with financial performance. As indicated in Table 6, the sign of the coefficient is as usual because theoretically management efficiency ratio was expected to have a positive relationship with a performance of the MFIs. Finding of this study has supported the hypothesis that management efficiency ratio has a significant effect on financial performance of the MFIs. Management soundness is a qualitative variable that expresses the control of board of directors over the resources of the bank to protect shareholders interest. It is measured by the ratio of total operating income to total assets.

The finding of the study is that liquidity has positive and significant effect on financial performance of MFIs. The finding is consistent with Kargi (2011) and Kodithuwakku (2015) who found a positive impact of liquidity on the profitability of banks. The credit to deposit ratio (CDR) is a major tool to examine the liquidity of a bank and measures the ratio of fund that a MFI has utilized in credit out of the deposit total collected. Higher the CDR more the effectiveness of the MFI to utilize the fund it collected

(Kodithuwakku, 2015). This ratio measures the ability of the management to use the assets in offering loans which ultimately creates high profitability (Ibrahim, 2014). This ratio helps in showing the relationship between loans and advances which are granted and the total deposited collected by the MFI. A high ratio indicates better mobilization of collected deposit and vice-versa. It should be noted that too high ratio may not be better from liquidity point of view. This ratio is calculated dividing loan and advances by total deposits.

Firm size according to the results in Table 6 has positive effect on financial performance. Firm size is an important factor in curtailing bank failure. Large MFI size indicates holding of more assets and the ability in diversifying to reduce risks (Lanine & Vennet, 2006). Therefore, positive relationship is required between MFI size and financial performance (Kodithuwakku, 2015). Firm Size is measured by natural logarithm of bank total assets.

Annual inflation has negative effect on financial performance of the MFI. Inflation rate measures the overall percentage increase in Consumer Price Index (CPI) for all goods and services. Inflation affects the real value of costs and revenues. Perry (1992), states that the extent to which inflation affects bank performance depends on whether inflation expectations are fully anticipated or not. An inflation rate fully anticipated by MFI management implies that MFI can appropriately adjust interest rates in order to increase their revenues faster than their costs, thus, acquiring higher economic profits. Bourke (1989) has shown a positive relationship between inflation rate and profitability. However, Kirui (2014) conclude that banks in developing countries tend to be less profitable in inflationary environments, particularly when they have a high capital ratio.

Furthermore, the macroeconomic conditions influence the MFI profitability. The economic growth, expressed by the Gross Domestic Product (GDP) growth, has multiple consequences among which is the increase of MFI activity. Both the increase of customer deposits and loans granted and of the interest margins has a positive impact on bank profitability. When the economic activity decreases, the demand for loans and deposits decreases and negatively affects the profit margins (Sufian & Habibullah, 2009).

4.7 Summary

The data obtained from the selected MFIs have been analysed and discussed in this chapter. By-and-large, the results have shown that non-performing loans (credit risk) is explained by the independent variables taken into consideration being, firm-specific factors which are firm size, ROA and interest rates in loans and macroeconomic factor being GDP and Inflation. Furthermore, the results showed that credit risk has statistical significant effect on the profitability of microfinance institutions in Ghana.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter is the final part of the study and it presents the conclusions and recommendations for policy direction. Based on the analysis and discussions of the results, this chapter summarises the findings and draws conclusions on effect of credit risk on profitability of MFIs in Ghana. Recommendations are also provided and by way of extension of this study, suggestions were given for further research.

5.1 Summary of Findings

After conducting critical evaluation of the results, the study revealed very important findings pertaining to determinants of credit risk and effect of credit risk on financial performance of MFIs in Ghana. The study found that the determinants of credit risk are firm size, ROA, interest rates in loans GDP and Inflation. It was also found that capital adequacy has significant negative effect on profitability of MFIs and this is consistent with Bhattarai (2016). The revealed that NPL has negative and significant effect on profitability of MFIs. The finding is similar to the findings of Kargi (2011); Kodithuwakku (2015); and Bhattarai (2016). It was further revealed that of Management Quality Ratio (MQR) has positive and significant effect on profitability of MFIs. This finding confirms that of Bhattarai (2016) where he found that management efficiency ratio has positive and statistically significant relationship with profitability. The finding of the study is that liquidity has positive and significant effect on profitability of MFIs. The finding is consistent with Kargi (2011) and Kodithuwakku (2015) who found a positive impact of liquidity on the profitability if MFIs.

5.2 Conclusion

The main purpose of this study is to investigate the effect of credit risk on the profitability MFIs. The profitability in terms of return on assets selected as dependent variables. The capital adequacy ratio, non-performing loan asset, management efficiency and liquidity were taken as independent variables. The panel data of five MFIs in Ghana with 50 observations for the period of 2011 to 2020 have been used for the analysis. The regression results indicate the existence of the relationship between the credit risk and profitability hence has the ability to influence profitability of MFIs. The study showed that firm size, ROA and interest rates in loans and macroeconomic factors being GDP and inflation are statistically significant in determining credit risk. The study concludes that capital adequacy ratio (CAR), management quality and liquidity have negative effect on financial performance but non-performing loans (NPLs) has negative effect on profitability of the MFIs. The implication of these conclusions is that an increase in loans and advances is definitely a good thing, but these MFIs should have a very good credit control standards and risk monitoring system in place and quite careful towards maintenance of good asset portfolio. Else, these loans could easily get into problem and ultimately affect the MFIs in the form of increased non-performing loan.

5.3 Recommendations

On the basis of the results obtained and the conclusions arrived at, the study makes the following recommendations:

With capital adequacy having significant relationship with credit risk provides an indication that, the study recommends that MFIs should be well capitalised in terms of equity capital so as to be able to withstand the likely shocks that are associated with

credit default. Furthermore, the Bank of Ghana should strictly enforce the Capital Requirement Directive (CRD) under the Section 4 (d) of the Bank of Ghana Act 2002 (Act 612) and Section 92 (1) of the Banks and Specialised Deposit-Taking Institutions Act 2016 (Act 930) (Bank of Ghana, 2021. This would ensure that MFIs achieve the minimum capital requirements to make them strong and resilient in protecting them against exposures or losses.

Also, credit risk management should be at the center of MFIs operations in order to maintain financial stability. Credit risk management should include the system process and control which a company has in place to ensure the efficient collection of customer payment and the risk of no-payment. To achieve the goal of owners' wealth maximization, MFIs should manage their assets, liabilities and capital efficiently. In doing this, credit policy should set out the bank's lending philosophy, specific procedures and means of monitoring the lending activity.

The study further recommends that it is fundamental for MFIs in Ghana to practice effective credit risk management, improve their efficacy in credit analysis and loan management to secure as much as possible their assets, and minimize the high incidence of non-performing loans and their negative effect of NPLs on financial performance.

MFIs are urged to develop reliable credit management strategy to reduce the rate of incidence of non-performing loans. The use of credit bureaus in this regard can be particularly useful in reducing information asymmetry during loan administration. To complement this, strict measures must be adopted to evaluate borrowers‟ ability to pay loans.

5.4 Suggestions for Further Studies

The major limitations of this study are that the study used only five MFIs in Kasoa and a period of ten years (2011 to 2020). This in effect limits the scope of the study and generalisation of the findings. Therefore, for future research, this study can be extended to cover longer time periods. Other econometric techniques can be applied to verify the relationship. More macroeconomic factors such as real interest rates, exchange rate stock market turnover can be considered as moderating or control factors.

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APPENDIX 1

LIST OF MFIs

1. DAD Micro Finance (1995)
2. Sheddy Micro Finance (2002)
3. Profin Micro Finance (1992)
4. Talent microfinance (2007)
5. Kenstep microfinance (1996)