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Evaluating the Risk Exposure and Challenges of Credit Providers in Microfinance in Ghana (A Case Study: Accra Metropolis, Ghana)

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Abstract
In view of the clear deficiencies in the cited researchers' findings, there is the need to conduct new research to assess risk exposure of credit providers in micro financing in Ghana using Accra Metropolis, Ghana as a case study. The principal approach used for this analysis was a questionnaire-based survey. 120 workers and managements of Microfinance institutions responded to questionnaires made up of 9 questions. The analysis of the responses from the survey conducted was done using descriptive statistics. The results from the study shows that there is significant relationship between bank performance in terms of profitability and credit risk management in terms of loan servicing performance. The results verify the hypothesis that better credit risk management results in better bank performance. Accra Metropolis, Ghana is a city with challenges in the likes of the springing up of new micro finance and micro finance facilities. The study found that the microfinance institutions surveyed are aware of the types of risk inherent in their business line and use risk management approaches in different ways to reduce losses and increase profitability. Therefore, a more comprehensive assessment of risk exposure of credit providers in micro finance within the Accra Metropolis, which when not done will lead to a further fall in their performance standards as financial service providers.

Keywords: Risk Exposure, Credit Providers. Microfinance in Ghana

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1. Introduction

Robinson (2001) posits that the 1980s marked a turning point in the history of microfinance, since MFIs such as the Grameen Bank began to demonstrate that they could provide small loans and savings services on a large scale in a profitable manner and did not receive ongoing subsidies, were commercially funded and fully sustainable, and were able to reach broad customer reach. The 1990s saw a significant increase in the number of microfinance institutions created and a greater focus on reaching a wider number of economically vulnerable people, as well as the decade of microfinance. Despite its modest origins, microfinance has now become an industry with a significant role in economic growth and poverty alleviation (Robinson:2001, Dichter:1999)

Adequately managing credit risk in financial institutions (FIs) is critical for the survival and growth of the FIs. In the case of micro finance, the issue of credit risk is of even of greater concern because of the higher levels of perceived risks resulting from some of the characteristics of clients and business conditions that they find themselves in. Microfinance is in the business of safeguarding money and other valuables for their clients. They also provide loans, credit and payment services such as checking accounts, money orders and cashier's checks. Microfinance also may offer investment and insurance products and a wide whole range of other financial services. Credit creation is the main income generating activity for the micro finance. However, this activity involves huge risks to both the lender and the borrower. The risk of a trading partner not fulfilling his or her obligation as per the contract on due date or anytime thereafter can greatly jeopardize the smooth functioning of a micro finance's business. On the other hand, a micro finance with high credit risk has high micro bankruptcy risk that puts the depositors in jeopardy. Among the risk that face micro finance, credit risk is of great concern to most micro finance authorities and micro finance regulators. This is because credit risk is that risk that can easily and most likely prompts micro finance institutions failure.

Credit risk management is a structured approach to managing uncertainties through risk assessment, developing strategies to manage it, and mitigation of risk using managerial resources. The strategies include transferring to another party, avoiding the risk, reducing the negative effects of the risk, and accepting some or all of the consequences of a particular risk. Some traditional risk managements focused on risk stemming from physical or legal causes (such as natural disasters or fires, accidents, deaths and lawsuits). Financial risk management on the other hand focuses on risks that can be managed using traded financial instruments.

The objective of risk management is to reduce the effects of different kinds of risks related to a preselected domain to the level accepted by society. It may refer to numerous types of threats caused by environment, technology, humans, organizations and politics. On the other hand, it involves all means available for humans, or in particular, for a risk management entity (person, staff, and organization). This research takes a fast look on risk exposure, of credit providers in the micro finance sectors.

1.2 Statement of *Problem*

The dominance of informal sector economic activities in Ghana made a challenge for individual to have access to credit facility and this motivated the government to pass several laws to motivate the spring up of microfinance activities in the country. The advent of the Financial Services Modernization Act of 1999 was embraced with a lot of excitement by all in the micro financing sector. The present possibility for micro finance to diversify into broader range of services and products make life really cool for micro financing entrepreneurs and managers. But this diversification advantage is a once in a life time opportunity that should be consumed with some caution and prudence as this involves a great deal of risk. This is in direct line with the saying that the higher you go; the colder life becomes. The very nature of the micro financing business is so sensitive because more than 85% of their liability is deposits from depositors (Saunders, Cornett, 2005). Micro finance uses these deposits to generate credit for their borrowers, which in fact is a revenue generating activity for most micro finance. This credit creation process exposes the micro finance to high default risk which might lead to financial distress including micro finance bankruptcy. All the same, beside other services, micro finance must create credit for their clients to make some money, grow and survive stiff competition at the market place. The principal concern of this project is to ascertain the risk micro finance are exposed.

2.0 Literature Review

2.1 Definitions and the Concept of Microfinance

Microfinance includes the provision of small-loan amounts, micro-insurance, micro-savings and transfer services to the low-income clients (Egyir, 2010:6). Microfinance is described as small financial transactions involving low-income households and micro-enterprises using non-standard methodologies such as character-based lending, community guarantee, and repeated short-term loans (Steel and Andah,2002).

According to Nghiem, Coelli and Rao (2006:1) the term low-income that is used to define microfinance is a "relative concept"; it differs from country to country and/or from one area to another within a country. Microcredit or small amounts of loans form the critical part of microfinance (Egyir, 2010:6). According to Llanto (2001) Credit granting NGOs, credit cooperatives and, to some degree, a few rural banks have used microfinance as a competitive tool to provide basic financial services to small lenders, however, the wide network of microfinance institutions' low-income clients shows that there is a great demand for credit from the poor and that they can use these small loans successfully to earn income. Which means Microfinance as a programme that aims at assisting the poor to generate income through the provision of small loans. Microfinance providers have distinctive characteristics as compared to commercial micro finances (Jansson & Wenner, 1997:8). Commercial micro finances serve the role of financial intermediaries who accept deposits and grant loans to individuals, businesses and the government (Oosthuizen & Van Der Vyver, 2002:85-88). The difference between microfinance providers and commercial micro finances are classified into three categories, namely, lending methodology, composition of loan portfolio and business characteristics (Jansson & Wenner, 1997:8). According to Weiss & Montgomery (2005) Lack of access to credit can be understood in the absence of collateral for conventional financial institutions, coupled with the various difficulties and high costs involved in dealing with large numbers of small, often illiterate borrowers.

2.1.2 Products of Microfinance

Services/Products	Details
Micro savings	It's a way of saving money without any minimum balance. It enables people to keep money for future use or for unforeseen costs.
Micro insurance	It gives entrepreneurs the opportunity to focus more on their core business, thereby drastically reducing the risk that affects their property, health, or work opportunities. These are different types of insurance services, such as life insurance, property insurance, health and disability insurance
Micro leasing	They may then lease machines, farm machinery or vehicles for companies or small businesses that cannot afford to purchase at full cost. Often no minimum cost limitations for the leased object.
Money transfer	A service for the transfer of income, mainly to family or friends overseas. A variety of financial institutions carry out money transfers without opening current accounts via international money transfer schemes, such as Western Union

Source: Ghana Microfinance Institutions Network (GHAMFIN), 2016

2.1.3 Credit Risk Management

Risk management has emerged as one of the core challenges facing any microfinance entity, be it an NGO, credit union, finance firm or specialized bank (Bruet 2004). According to Powers(2005) Risks in microfinance must be handled systematically and the value of risk management will increase further as the industry matures further and the markets in microfinance become more competitive. The widespread awareness of losses and financial entities' failure has elevated the importance of risk management worldwide (Campion, 2000:1). Risk management involves taking an extensive assessment on identifying the risks that could cause an entity not to meet its objectives (Shenkir & Walker, 2007:1). Businesses of today operate in an ever-changing environment; therefore, risk management is an indispensable tool in managing a business (Hetamsaria, 2005). Large organisations mostly regard risk management as part of business planning; however, it is a new discipline within the microfinance industry (Goldberg & Palladini, 2010:3). Fernado (2008:37) points to the fact that a number of microfinance providers seek growth and do not appear to be paying attention to effective risk management, hence, the need to emphasize the importance of effective risk management within the industry.

2.1. 4 Risk Management Objectives and Importance

Andersen (2006) states that the objectives of risk management differ among business since businesses vary in size and level of complexity. Risk management aims to add value to all the business activities and increases the chances of business success Likhang (2009). However, in order for the objectives of risk management to be met, risk management has to be effectively implemented and embedded. Thus, according to the Likhang (2009) embedding risk management entails making risk management an integral part of running the business.

Like in any other business, microfinance providers that implement and embed effective risk management plans are likely to remain sustainable (Goldberg & Palladin, 2010:3. Regards to risk management as an integral part of financial intermediation and proper application of risk management practices may bring several benefits to the microfinance providers.

2.2-The Microfinance for International Settlement (BIS) and the Basel Accords:

2.2.1-The Microfinance for International Settlement (BIS):

The Microfinance for International Settlements (or BIS) is an international organization of central microfinance which exists to "foster cooperation among central microfinance and other agencies in pursuit of monetary and financial stability" (Wikipedia online, 2008). It carries out its work through subcommittees, the secretariats it hosts, and through its annual General Meeting of all members. The BIS also provides micro financing services, but only to central microfinance, or to international organizations like itself. Based in Basel, Switzerland, the BIS was established by the Hague agreements of 1930. As an organization of central microfinance, the BIS seeks to make monetary policy more predictable and transparent among its 55-member central microfinance. While monetary policy is determined by each sovereign nation, it is subject to central and private microfinancing scrutiny and potentially to speculation that affects foreign exchange rates and especially the fate of export economies. Two aspects of monetary policy have proven to be particularly sensitive, and the BIS therefore has two specific goals: to regulate capital adequacy and make reserve requirements transparent. Capital adequacy policy applies to equity and capital assets. These can be overvalued in many circumstances. Accordingly, the BIS requires microfinance capital/asset ratio to be above a prescribed minimum international standard, for the protection of all central microfinance involved. The BIS' main role is in setting capital adequacy requirements. From an international point of view, ensuring capital adequacy is the most important problem between central microfinance, as speculative lending based on inadequate underlying capital and widely varying liability rules causes economic crises as "bad money drives out good" (Gresham's Law).

2.3- Portfolio Theory and Traditional Method to Credit Risk Management

2.3.1- Portfolio Approach:

Since the 1980s, microfinance have successfully applied modern portfolio theory (MPT) to market risk. Many microfinances are now using earnings at risk (EAR) and value at risk (VAR) models to manage their interest rate and market risk exposures. Unfortunately, however, even though credit risk remains the largest risk facing most microfinance, the practical of MPT to credit risk has lagged (William Margrabe, 2007). Microfinance recognize how credit concentrations can adversely impact financial performance. As a result, a number of sophisticated institutions are actively pursuing quantitative approaches to credit risk measurement, while data problems remain an obstacle. This industry is also making significant progress toward developing tools that measure credit risk in a portfolio context. They are also using credit derivatives to transfer risk efficiently while preserving customer relationships. The combination of these two developments has precipitated vastly accelerated progress in managing credit risk in a portfolio context over the past several years.

2. 4 Credit Risk Models

Over the last decade, a number of the world's largest microfinances have developed sophisticated systems in an attempt to

model the credit risk arising from important aspects of their business lines. Such models are intended to aid microfinances in quantifying, aggregating and managing risk across geographical and product lines. The outputs of these models also play increasingly important roles in microfinances' risk management and performance measurement processes, including performance-based compensation, customer profitability analysis, risk-based pricing and, to a lesser (but growing) degree, active portfolio management and capital structure decisions. The Task Force recognizes that credit risk modeling may indeed prove to result in better internal risk management, and may have the potential to be used in the supervisory oversight of micro financing organizations.

However, before a portfolio modeling approach could be used in the formal process of setting regulatory capital requirements for credit risk, regulators would have to be confident not only that models are being used to actively manage risk, but also that they are conceptually sound, empirically validated, and produce capital requirements that are comparable across institutions. At this time, significant hurdles, principally concerning data availability and model validation, still need to be cleared before these objectives can be met, and the Committee sees difficulties in overcoming these hurdles in the timescale envisaged for amending the Capital Accord (Saunders and Cornett, 2007).

Credit scoring models use data on observed borrower characteristics either to calculate the probability of default or to borrowers into different default risk classes (Saunders and Cornett, 2007).

Prominent amongst the credit scoring models is the Altman's Z-Score. The Z-score formula for predicting Microfinance bankruptcy of Dr. Edward Altman (1968) is a multivariate formula for measurement of the financial health of a company and a powerful diagnostic tool that forecast the probability of a company entering microfinance bankruptcy within a two years period with a proven accuracy of 75-80%.

The Altman's credit scoring model takes the following form;

$$Z=1.2X1+ 1.4X2 + 3.3X3 + 0.6X4 +1.0X5 \quad (2)$$

Where, X1 = Working capital/ Total assets ratio

X2 = Retained earnings/ Total assets ratio

X3 = Earnings before interest and taxes/ Total assets ratio

X4 = Market value of equity/ Book value of long-term debt ratio

X5 = Sales/ Total assets ratio.

The higher the value of Z, the lower the borrower's default risk classification. According to Altman's credit scoring model, any firm with a Z-Score less than 1.81 should be considered a high default risk, between 1.81-2.99 an indeterminate default risk, and greater than 2.99 a low default risk.

Critics: Use of this model is criticized for discriminating only among three borrower behavior; high, indeterminate, and low default risk. Secondly, that there is no obvious economic reason to expect that the weights in the Z-Score model – or, more generally, the weights in any credit-scoring model- will be constant over any but very short periods.

Thirdly the problem is that these models ignore important, hard to quantify factors (such as macroeconomic factors) that may play a crucial role in the default or no-default decision.

Outstanding also is the KMV credit Monitor Model4. In recent years, following the pioneering work on options by Merton, Black, and Scholes, we now recognize that when a firm raises funds either by issuing bonds or by increasing micro finance loans, it holds a very valuable default or repayment option (Black and Scholes, 1973) and (Merton, 1974). The KMV Model is a credit monitor model that helps to solve the lending problems of micro finance and further look at the repayment incentive problem (Gilbert, 2004). To try resolving the problems, the KMV Model uses the structural relationship between the volatility of a firm's asset and the volatility of the firm's equity. The KMV Corporation (purchased by Moody's in 2002) has turned this relatively simple idea into a credit-monitoring model now used by most of the large US micro finances to determine the Expected Default Frequency (EDF) that is the probability of default of large corporations (KMV Corporation, 1994).

The expected default frequency that is calculated reflects the probability that the market value of the firm's assets will fall below the promised repayments on debt liabilities in one year. If the value of a firm's assets falls below its debt liabilities, it can be viewed as being economically insolvent. Simulations by the KMV have shown that this model outperforms both accounting-based models and S&P ratings (Saunders and Cornett, 2007). The relevant net worth of a firm is therefore the market value of the firm's assets minus the firm's default point.

Net worth= (Market Value of Assets) - (Default Point) ……..…….... (3)

A firm will default when its market net worth reaches zero.

$$\textbf{Distant to Default} = \frac{\textbf{Market Value of Assets) (Default Point)}}{\textbf{(Market Value of Assets) (Asset Volatility)}}$$

(Source: Moody's KMV; Modeling Default Risk, 18th December 2003.)

The KMV's empirical EDF is an overall statistic that can be calculated for every possible distance to default (DD) using data either aggregated or segmented by industry or region. To find the EDF for any particular firm at any point in time, one must look at the firm's EDF as implied by its calculated DD. As a firm's DD fluctuates, so do its EDF. For firm's that are actively traded, it would be possible in theory to update the EDF every few minutes (Gilbert, 2004).
CRITICS: The KMV EDF Model has been criticized on the basis that they are not true. Probabilities of default. This is reflected in the poor results obtained using KMV empirical EDFs in order to replicate risky bond prices (Kao, Eom et al, 2000). An increasingly popular model used to evaluate the return on a loan to a large customer is the Risk-Adjusted Return on Capital (RAROC) Model. This model, originally pioneered by Micro financers Trust (acquired by Deutsche Micro finance in 1998) is now adopted by virtually all the large micro finances in Europe and the US, although with some differences among them (Saunders and Cornett, 2007). The essential idea behind RAROC is that rather than evaluating the actual promised annual cash flow on a loan as a percentage of the amount lent or (ROA), the lenders balance the loan's expected income against the loan's expected risk.
The RAROC Model is basically represented by,

RAROC = (one-year net income on loan)/ (Risk adjusted assets). ………………… (5)

For denominator of RAROC, duration approach can be used to estimate worst case loss in value of the loan:

$$DLn = -DLn \times Ln\left(\frac{DR}{1+R}\right) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

Where, DR is an estimate of the worst change in credit risk premiums for the loan class over the past year.
Ln =Loan
DLn =Change in loan class
R = Interest Rate
According to James Christopher (1996), the immediate purpose of the RAROC risk measurement systems is to provide micro finance managements with a more reliable way to determine the amount of capital necessary to support each of their major activities and, thus, to determine the overall leverage for the micro finance as a whole. This paper also stipulates that the RAROC system provide a uniform measure of performance and that management can, in turn use this measure to evaluate performance for capital budgeting and as an input to the compensation system used for senior managers.

3.0 Methodology

3.1 Research Design

This research employed the descriptive research design, under which case study was considered for the study. The primary purpose of the case study was that it enables the researcher to conduct a systematic enquiry into an event or helped the researchers determine the factors and relationships of related events which aim to describe and explain the phenomenon of interest

3.2 Sample size determination

The estimated total population of this study for general workers and management add up to 150. According to the Robert V. Krejcie and Daryle W. Morgan (1970), when the population size is 150, the required sample size will be 14 at a margin of error of 0.05% with a confidence level of 95%. In determining the sample size where the population is known, the following formula can be use.

$$S = \frac{NP(1-P)}{(N-1)+(1-}$$

Where
S = required sample size
Table value of Chi-Square for 1 degree of freedom at the desired confidence level
N=population size
P=population proportion (assumed to be .05) since this would provide the maximum sample size
d= degree of accuracy expressed as a proportion (desired margin of error)
Using a 95% confidence level with an estimated population of 150 and a confidence interval of 0.05. Where twenty (20) of the sample population belongs to the management of microfinance institutions and 100 belongs to the employees of the various micro finance institutions all making a sample size of 120.

4.0 Data Analysis and Discussion

4.1 Data Analysis

4.2 Response Rate to the Questionnaires and their Interpretation

Table 4.1 Are microfinance institutions exposes to credit risk recently?

	Statements	1	2	3	4	5
A	1. Largely exposed					90
B	2.They are not exposed at all			10		
C	3. They are scarcely exposed		8			
D	4.They are on guard against credit risk	12				

From table 4.1, it was revealed that there is much risk that the financial institutions are exposed to. Majority of the respondent representing 90 responded yes to the statement "largely expose" whiles 12 of the responded to the statement "they are on guard against credit risk". Meaning that they are aware of the risk and putting some measures to reduce or prevent the exposure to the risk in the financial industry. Also 10 of the respondents said the financial institutions are not expose at all to any risk whiles 8 of them said scarcely are they expose. And these responses are minimal and will not have much effect on the sector. From the above responses, it was clearly indicated from the stakeholders in the in their responses that there is a risk and there is a need to assess it and put necessary measure sin place to avoid it effect and replications. Below is bar graph diagrammatically representing the responds in the table above.

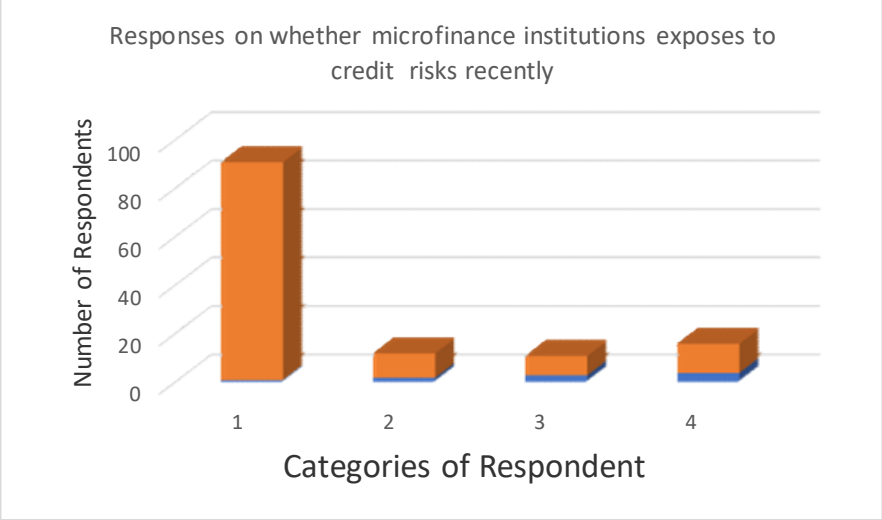

Fig. 1. Bar Graph showing the Responses of Risk Exposures.

Table 2: **What are the assessment tools credit providers use to mitigate risk against credit exposure?**

Kindly rate the usage of the following technique by your business to manage the stated risks. (Please insert an X in the appropriate box for each technique. Never =1, Seldom =2, Sometimes=3, Often =4, Nearly always =5)						
		Never	Seldom	Sometimes	Often	Nearly Always
5	Customer affordability calculation				60	
6	Collateralization			35		
7	Credit Bureau information		20			
8	Peer monitoring through group lending methodology	10				
9	Customer orientation (communicating loan terms to clients and catering for low levels of literacy among clients)					15

Table 2 solicits from the respondents; the assessment tools credit providers use to mitigate risk against credit exposure. In doing so, 60 of the respondents stated they use customer affordability calculations most often as assessment tool to mitigate the risk whiles 35 of them said they use the collateral as assessment tools sometimes. More so 20 of the respondents made use of credit Bureau information to mitigate the risk in their financial dealings to avoid the lost. Peer monitoring through

group lending methodology was said to be use d by 10 of the respondents whilst customer orientation was thus communicating loan terms to the client and catering for low level of literacy among clients was also used by 15 of the respondents. From the above data, there is an indication that one tool or the other is being used in the financial institutions to mitigate risk associated with their services. Below is the bar graph indicating the most used tool and least used one in the financial sector to protect them self against lost in their activities.

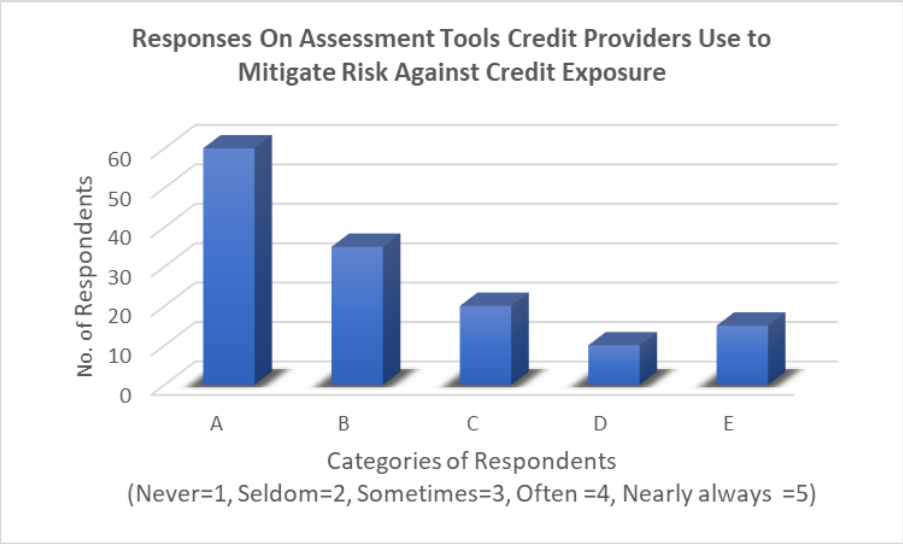

Fig. 2. Bar Graph showing the tools use to mitigate risk exposures.

5.0 Conclusions and Recommendations

5.1 Conclusions

The results verify the hypothesis that better credit risk management results in better bank performance. It is a fact that profitability is an endogenous variable which means that it can influence the magnitude of non-performing loans, since better profitability affords the FIs to write off more bad loans. The analysis of the study focuses on one sided relation of NPLs on profitability for our purposes. The findings of the study posit that there is a significant relationship between bank performance in terms of profitability and credit risk management in terms of loan servicing performance. Better credit risk management results in better performance, thus it is of crucial importance that banks practice prudent credit risk management and safeguarding the assets of the banks and protect the investors' interests. The study summarizes that banks used different credit risk management tools, techniques and assessment models to manage their credit risk, and that is the main objective for all, that is to reduce the amount of loan default which is a principal cause of bank failure.

The study also reveals that banks with good or sound credit risk management policies have lower loan defaults ratios (bad loans) and higher interest income (profitability

5.2 Recommendations

We would suggest that the banks could establish a credit risk management team that should be responsible for the actions that will help in minimizing credit risk. It is hoped that, the findings of the study will help credit providers to put measures in place to ensure effective credit disbursement in their respective institutions. It could be used as reference information for the HRM Department in their offices. It will also help micro finance and private micro finance institutions to structure their way of providing credit facilities to seekers.

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