Journal of Contemporary Issues in Business and Government Vol. 27, No. 1, 2021
P-ISSN: 2204-1990; E-ISSN: 1323-6903
https://cibg.org.au/

Economic Sustainability in the Absence or Near-Absence of Traditional Risk Mitigation Mechanisms: An Insight into Credit Risk and Economic Sustainability of Microfinance Institutions (MFIs) in Zimbabwe

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Abstract: ***The study confronted the notable decline in the number of microfinance institutions in Zimbabwe over the past two decades and the persistent poor financial performance trend charaterising the microfinance sub-sector, attributing the phenomenon to credit risk. Identifying how credit risk impacts financial performance of microfinance institutions and to examine the efficacy of strategies and tools microfinance institutions use when managing credit risk was the main aim of this study . Purposive and convenience sampling techniques were used to gather data from 12 microfinance institutions with relatively the biggest branch networks in Zimbabwe. The study established that credit risk, as measured through portfolio at risk (PAR) in microfinance institutions in Zimbabwe is mostly attributed to asymmetric information. The study also established that credit risk, which is managed through a combination of methods, mainly dynamic incentives, loss forecasting and group lending, negatively impacts financial performance and the subsequent economic sustainability of MFIs in Zimbabwe. The study recommends the implementation of credit scoring as a method of managing credit risk as it enables matching of products on offer with the specific individual client characteristics and risk profile. In light of the prevailing economic conditions, and the inherent absence of colleterals and guarantees to secure loans, the study informs current and potential industry player on the impact of credit risk management strategies being employed, and suggest***

credit scoring as a strategy that can potentially go a long way towards enhancing the most desired economic sustainability of MFIs in Zimbabwe.

Keywords: Credit risk, Microfinance, Financial inclusion, Economic sustainability

1. INTRODUCTION

The microfinance subsector has emerged to be one of the strongest forces behind promoting financial inclusion the world over, as it opens doors for the financially marginalised and the underpreviledged whose credit worthiness is always questioned by majority of financial services sector players, the likes of commercial banks and building societies (Yunus, 2017; Islam, Aminul Karim, & Ahmad, 2018). The common beneficiaries of MFI financing include rural women and rural small and medium enterprises (SMEs) whose livelihoods have evidently been positively impacted by the MFI financing systems in a number of developing countries, through in addition to affording capital, enhancement of financial literacy and the cultivation of a savings culture (Agbola, Acupan, & Mahmood, 2017; Ahmad & Senthil, 2019). Microfinance institutions help both individual consumers and upcoming entreprenuers to overcome liquidity challenges in times of financial distress (Oluyombo & Olabisi, 2008), particularly those in rural areas (Ksoll, Lilleor, & rasmussen, 2016). To survive in Zimbabwe's ever turbulent economic and social environment, microfinance institutions must learn to live with risks by intelligently and professionally managing them (Adewunmi, 2005). The dorminant risk facing MFIs is credit risk, emanating from non-performance by debtors (Oldfield & Santomew, 1997), as a result of inability or unwillingness to perform. As much as risks are inherent in any line of business (Oluyombo & Olabisi, 2008), microfinance institutions have a special exposure due to non-existance of loan securities and guarantees which is a unique defining characteristic of the subsector. As such, the current study recognises the importance and uniqueness of risk management in the context of MFIs. The study therefore sought to investigate risk management methodologies employed by MFIs in Zimbabwe in the light of absence of securities and guarantees and their endavour to become economically sustainable.

Microfinance institutions contribute significantly towards financial inclusion. At the most basic level, they provide access to cheap capital to entrepreneurs and potential entrepreneurs to finance business expansion and business start-ups. The geographical scope of this study is motivated by a handful of socio-economic factors characterising Zimbabwe as a developing nation. Zimbabwe is a signatory to the 2030 Sustainable Development Goals (SDGs), and financial inclusion has been identified as a key enabler to the attainment of most of the SDGs. She has a vision to become an upper-middle income economy by 2030, a vision that places microfinance institutions at a strategic position, as key contributors towards poverty alleviation and economic growth. More so, according to the Transitional Stabilisation Programme (TSP) 2018-2020, aspirants of vision 2030 are set to be realised through five strategic clusters, and inclusive growth is one of the clusters among governance, macro-economic stability and re-engagement, infrastructure and utilities and social development. More so, Zimbabwe launched its National Financial Inclusion Strategy (NFIS) (2016-2020)

on 11 March 2016, which is anchored on 4 pillars, of which microfinance is one of the strategic pillars among financial literacy, innovation and financial customer protection.

According to a customer survey conducted by the Reserve Bank of Zimbabwe (RBZ) in 2014, 23% of Zimbabweans were reported to be financially excluded; a minimum of 30% adult Zimbabweans had access to and utilised formal banking services; and only 20% of the adult population were using formal savings channels. An earlier related survey conducted in 2012 focusing on Micro, Small and Medium Enterprises (MSMEs) established that 14% of MSME owners were banked and only 18% of them had formal savings products. Notwithstanding the critical role played by MFIs in banking the unbanked, coupled by government efforts to promote financial inclusion through the use of MFIs as a conduit, a number of MFIs have fallen victims of credit risk, which negatively affect their financial performance, leading to stunted and negative growth, if not their ultimate collapse. In light of the seasoned socio-economic instability characterising the Zimbabwean economy and the poor performance of the country's financial services sector, it is unquestionable that loan performance is closely associated with the state of the nation's economy (Adewunmi, 2005; Gestel & Baesens, 2008), however, this study hypothesises that microfinance institutions can hedge against and at least minimise their predicament being spillovers of poor economic climate by effectively and intelligently managing credit risk.

As a result of the prevailing poor economic climate, all microfinance institutions in Zimbabwe, regardless of size, are faced with credit risk and find it difficult to manage and minimize the risks and predict the outcome of their credit transactions. The microfinance subsector continue to register a deterioration in the loan portfolio quality as reflected by the portfolio-at-risk (PAR) ratio of 9.90% as at 30 June 2019, compared to 8.02% as at 31 March 2019, against an international benchmark of 5%. A handful of statistical data attest to the declining performance and threatened sustainability of the microfinance sub-sector in Zimbabwe. During the second quarter of 2019, the microfinance subsector recorded a marginal decline in the number of active clients and level of deposits. According to the Reserve Bank of Zimabwe (RBZ), the subsector recorded a 1.36% decline in branch network over the first half of 2019, due to closure of branches by some microfinance institutions as part of cost rationalisation strategies. The sector registered a 1.47% decline in the number of active clients over the quarter from 402 295 as at 31 March 2019 to 396 388 as at 30 June 2019. Total deposits among the Deposit Taking Microfinance Institutions (DTMFI) subsector declined by 40.39% from 25.65 million as at 31 March 2019 to 15.29 million as at 30 June 2019. This decline in deposits being attributed to the prevailing inflationary environment that is discouraging savings (RBZ, 2019).

Sustainability of credit-only microfinance institutions has remained subdued due to a handful of reasons, including lack of working capital and poor credit risk management strategies. As at 30 June 2019, nine credit only microfinance institutions were undercapitalised, compared to twelve as at 31 March 2019. Portfolio quality for the credit-only microfinance sub-sector continue to deteriorate as reflected by the PaR (>30 days) ratio of 9.46% as at 30 June 2019,

up from 7.97% as at 31 March 2019 (RBZ, 2019). Credit risk has been heightened by viability challenges currently obtaining in the operating environment. According to the RBZ, this can be rectified by implementation of robust risk management systems. A total of 34 MFIs including three DTMFIs reported an aggregate loss of $12.34 million for the half year to 30 June 2019, compared to 52 institutions which recorded an aggregate loss of $8.69 million for the corresponding period in 2018. These losses were largely driven by high operational costs on the backdrop of lack of critical mass in terms of loan portfolio to earn viable incomes. Credit only MFIs recorded a total profit of $9.75 million for the period ended 30 June 2019, which represents a 3.66% decline in profit from $10.12 million recorded in the period ended 30 June 2018. A total of 31 credit-only MFIs recorded losses for the period ended 30 June 2019 compared to 23 instititions as at 30 June 2018 (RBZ, 2019). The DTMFIs sub-sector also registered a deterioration in operational sustainability as reflected by the decrease in the average operating self-sufficiency (OSS) ratio from 122.06% for period ended 30 June 2018 to 115.51% for the period ended 31 June 2019. This trend is clear evidence that MFIs in Zimbabwe are struggling with credit risk.

As asserted by the Basel Committee on Banking Supervision (2000), the establishment of a sound credit granding, administration and monitoring system is critical for the sustainability of the financial services sector. Players within the financial industry should facilitate the establishment of policy strategies to ensure efficient and effective portfolio credit management. Credit risk management is an organized method to handling uncertainties through risk assessment and strategy development. Credit risk is an unavoidable risk facing almost every financial institution in Zimbabwe for a considerable time now. In relative terms, it is the dorminant risk, accounting for the greatest losses recorded within the financial services sector. The year 2004 saw a dark cloud of financial crisis hitting the Zimbabwean economy, with ten banks facing closure and two having placed under liquidation by year-end. Numerous studies have been conducted to demystify the fundamental causes behind this national crisis. Poor management of and unconsciousness to credit risk administration and mitigation strategies, coupled with poor corporate governance emerged as some of the critical factors behind the phenomenom.

The persistant negative economic climate obtaining in Zimbabwe and the associated poor performance of players within the financial services sector has motivated the need to closely look into risk management strategies being employed by MFIs in Zimbabwe. This will inform industry players pointing to the general outcomes and results of various credit risk management methodologies they employ, and suggest possible credit risk management strategies which will assist in the enhancement of economic sustaionability. This study is aimed at assessing how risk management strategies employed by MFIs in Zimbabwe impacts economic sustainability of respective institutions, in light of the prevailing economic conditions, and the inherent non-existance of traditional risk mitigation strategies characterising the microfonance sub-sector.

1.1 Statement of the problem

MFIs are inherently susceptible to credit risk by virtue of their line of trade. This makes the management of credit risk in MFIs a cause for concern. Robust ways to manage credit risks should be established and consistently observed in order to restore and assure financial sanity within the sub-sector. Poor credit risk administration system is a major factor to blame for the failure of financial institutions globally. Pronounced economic meltdown obtaining in the Zimbabwean economy since 2003 resulted in informalisation becoming the spine of the economy. Therefore, the demand for loans by the informal sector has been growing over the years whose main source of capital is the MFIs, yet the economic sustainability of MFIs is threatened by credit risk. This makes it of paramount importance that microfinance institutions are informed of the efficacy of their risk management philosophies and their implication on financial performance, in a bid to establish effective ways and tools to contain and manage credit risk.

1.2 Conceptual framework

The conceptual framework was developed considering the central role played by credit risk management towards influencing financial performance of the financial services sector players. In the backdrop of the inherent nature of the microfinance industry that is characterised by absence or near absence of traditional risk mitigation mechanisms such as collaterals and guarantees, it is incontestable fact that credit risk management largely contributes towards determining the economic sustainability of microfinance institutions in Zimbabwe. The study employed credit risk as measured by portfolio-at-risk (PAR) as the independent variable and economic sustainability as measured by Return on Assets and Return on Equity as response variables. This study's conceptualised model is represented in figure 1 below:

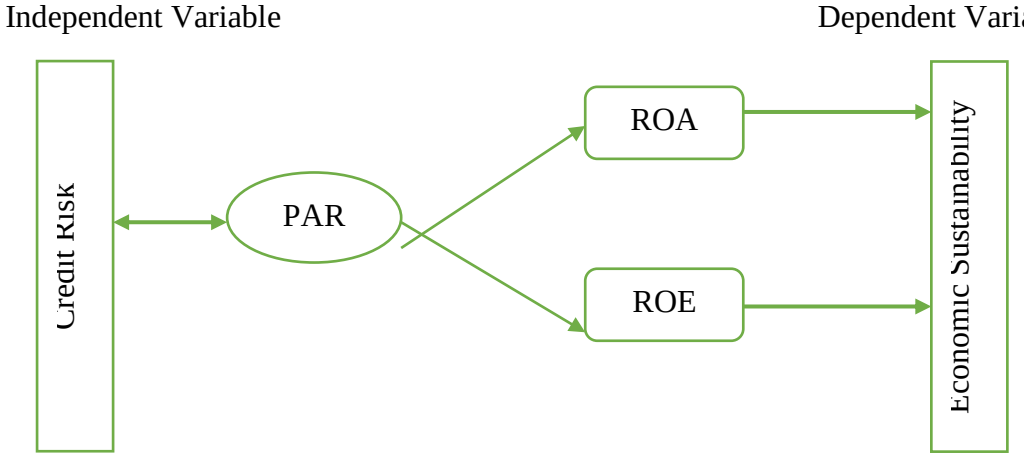

Figure 1: Study conceptual framework

Source: Researchers conceptualisation, 2021

1.3 Literature Review

1.3.1 Credit risk and financial performance of financial services providers.

The Small and Medium Enterprises (SME) subsector in Zimbabwe has for so many years now hinged on the MFI financing for their capital needs. The MFI subsector has also contributed significantly to betterment of households, as individual consumers throng MFIs

seeking financial rescue, this is necessitated by the ease of access to a range of products on offer by MFIs, a common example being school fees payment financing. Notwithstanding this notable and well appreciated role and contribution of MFIs towards socio-economic development, the survival and growth of MFIs continue to be threatened by credit risk, a result of customers having defiant attitudes towards settlement of or who are unintentionally failing to settle their dues, increasing the proportion of non-performing loans within the market (Nyarko-Baasi, 2018). The financial services sectors in almost every economy the world over are confronted by the menace of poor-and non-performing loans. As such, it is prudent for players within the financial services sector to ensure they put in place mechanisms to combart and dehorn the effects of non-performing loans through enhancing customer monitoring and administration. Therefore, an equiry into how credit risk impact financial services sector players is warranted.

Non performing loans significantly hinder the economic sustainability of the financial services industry, this can be blamed on the negative implications non-peeforming loans have on the liquidity position of MFIs, crippling them to the extend of betraying other potentially reliable customers. This situation is referred to as capital locking (Nyarko-Baasi, 2018). A handful of prior studies focusing on financial services sectors has recorded credit risk as the greatest threat to the sector's viability. This study sought to look into credit risk and its implication on Financial viability of MFIs in Zimbabwe.

1.3.2 Empirical review on credit risk and financial performance of financial service providers.

Wangai et al., (2014) conducted a study in Nakuru Town of Kenya, investigating the implication of bad loans on survival of MFIs. Making use of questionnaire date to infer conclusions, the study concluded that credit risk is chiefly responsible for poor performance of MFIs in Nakuru (Wangai, Bosire, & Gathogo, 2014). In the preceeding year, Ali (2015), conducted a related study, however, in a different context and geographical scope, focusing on Jodanian commercial banks. The study applied Return on Assets (ROA) and Return on Equity (ROE) as measures representing profitability, and made use of secondary data. Ali (2015) study findings were similar to those established by Wangai, at al (2014), However, the study went on to recommend the need for policy frameworks to reinforce credit risk administration (Ali, 2015)

A closely related study was also carried out in Ghana by Nkegbe and Yazidu (2015), applying the same measures of profitability through a closely reated methodology and study variables. The study results were similar, with a strong recommendation on the need to afford training opportunities to SMEs to enhance their financial literacy, with the hope that it will significantly influence their attitude towards adherence to loan covenants (Nkegbe & Yazidu, 2015). Chebe and Bichang (2017) carried out a related study focusing on commercial banks in Kenya. Their empirical study which applied ROA to proxy financial performance established that bad loans significantly affect financial performance. The study recommended

the need for further enquiry making use of the same variables, but focusing on credit and deposit taking MFIs in Kenya (Chege & Bichanga, 2017).

In the preceeding year, Chalangat and Tibbs (2018), in line with recommendations by Chege and Bichanga (2017), conducted their study focusing on tea manufacturing SMEs in Kenya. Their study, recommended the need for companies to engage financial experts to assist with management of risk. Also in 2018, Nyarko-Baasi conducted a study in Ghana focusing on listed Ghanaian banks, proxying profitability with ROE. The study established related findings, pointing to the negative effects of non-performing loans, and recommended that the banking sector actively focus on credit risk in their bid to enhance profitability. Another related study was conducted by Kimutai et al (2019) focusing on depost taking corporative societies. The study underpinned on information asymmetry, established that the rise in bad loans has a significantly negative effect on efficiency. The study, like other closely related studies discussed, recommended the need to institute credit control mechanisms to mitigate risks threatening sustainability of corporative societies in Kenya (Kimutai, Jagango, & Omagwa, 2019). This review of prior related studies informs the current study and the need to establish how MFIs in Zimbabwe are being impacted by credit risk and to enquire in to the efficacy of strategies they are employing to manage credit risk, in their endavour to enhance economic sustainability.

1.3.3 Theoretical review

1.3.3.1 The Modern Portfolio Theory (MPT)

The MPT is extensively applied within the financial services sectors around the globe. Majority of microfinance institutions make use of the value at risk along with portfolio at risk to handle exposure brought about by interest rates and market dynamics. This theory allows investors to assess the expected risk and return in their investment portfolios (Markowitz, 1952). The modern portfolio theory is a refined investment approach that has turned out to be the concept from which financial institutions and investors build their asset portfolios. Markowitz quantified exposure and demonstrated quantitatively the reduction of risk by portfolio diversification thus increasing return on investment for investors (Markowitz, 1952).

MPT allows investors to statistically predict their exposure to risks and their expected portfolio returns. Markowitz (1952) illustrates how assets can be merged in building an efficiently diversified portfolio. The theory establishes the challenge faced by majority of investors in an attempt to appropriately account for the lofty correlation between security incomes. It then suggested the possibility of abridging a portfolio's exposure and amplify projected returns by pooling together securities with divergent value actions. The theory therefore denotes that if securities with inversely shifting prices are pooled together, there will be a reduction in exposure, as a result of such a diversification.

1.3.3.2 Value at Risk Theory (VAR)

The VAR theory is applied when estimating the probability of portfolio losses, through arithmetically investigating past price drifts and unpredictability. The financial service sector values VAR when it comes to trading and hedging decisions, because of its ability to quantify risk as it occurs (Kaplanski & Levy, 2013). This theory is relevant to the current study as it aids in the identification of risk factors impacting various portfolios, and quantification of credit risk associated with non-performing loans and portfolios at risk in relation to the financial stability of individual microfinance institutions.

1.3.3.3 Liquidity Risk Theory

Liquidity risk is a major exposure that precedes any relentless market calamity. Literature asserts that liquidity risk is the definitive indicator that leads to the explosion of credit and market risk, and it is the means through which remote loss dealings are modified into widespread collapse of microfinance institutions. It is therefore prudent that every finance institution be able to classify and categorise its exposure to liquidity risk (Carlo & Scandolo, 2007). In the context of microfinance institutions, liquidity requirements and sources therefrom are extensively dependent on the institution's dealings, product portfolio, cashflow and financial information reporting. As such, these institutions can conserve their earnings and capital through an attentive evaluation of their liquidity position. This theory is important for the purpose of this study as it informs the quantification of liquidity risk from non-performing loans and portfolios at risk that subsequently impact financial stability of respective microfinance institutions.

1.3.3.4 Microfinance institutions credit risk and the Theory of information asymmetry

The theory of information asymmetry asserts that it may be practically impossible to distinguish between good and bad borrowers, due to prevalence of adverse selection and moral hazard (Auronen, 2003). Both moral hazard and adverse selection have been blamed for the substantial accumulation of non-performing loans in microfinance institutions, a phenomenon most prevalent in developing countries, being blamed on poor loan underwriting (Brownbridge, 1998). Credit management challenges are rampant in financial institutions, due to lack of resources, disintegrated systems and inconsistent risk rating approaches, data management and rigorous regulatory requirements.

This theoretical foundation informs the role played by credit risk management in microfinance institutions, denoting that efficient credit risk management has a greater chance of improving loan quality. However, some scholars argue that microfinance institutions are vulnerable to various internal and external factors hence this affects their credit portfolio regardless of their efforts to comply with the credit risk management strategies.

1.4 Methodology

Purposive sampling was used in selecting the twelve microfinance institutions used as cases in this study. The choice was influenced by the size of the institutions in terms of their branch network. Data was collected through questionnaires that were later descriptively analysed.

Regression analysis was applied to determine the nature of the association among. Economic sustainability of MFIs was assessed using profitability measures, while credit risk was measured through portfolio at risk (PaR). The study model can be expressed as:

$ROA = \alpha + \beta PAR + E1$

$ROE = \alpha + \beta PAR + E1$

Where the regression function determines the relation of X (PAR) to Y (ROA)/(ROE)

α is the constant term, β is the regression coefficient of the function and it is the value for the regression equation to predict the variances in dependent variable from the independent variables.

The linear regression is appropriate because it implements a statistical model which asserts that when relationships between the independent variables and the dependent variable are almost linear, the results can be interpreted as optimal. To add, its straight forwardness simplifies the establishment of the relationship (Freedman, 2009) between credit risk and economic sustainability. The Return on Assets and Return on Equity measures were used as indicators of how economically sustainable MFIs were, relative to their total assets and equity. ROA gave an idea as to how efficient management is at using its assets to generate earnings.

1.5 Findings

1.5.1 Factors perceived as amplifying credit risk in microfinance institutions

Study findings establish that microfinance organisations in Zimbabwe perceive asymmetric information and local economic climate as the leading drivers of credit risk in their businesses. There are other causes however, which were identified as contributing to credit risk, such as defiant attitudes towards complying with loan covenants, high interest rates and poor business practices. These other causes are not affecting the whole microfinance sub-sector but some particular MFIs. A small number of MFIs blame insider lending as a contributory cause of credit risk, notwithstanding the practice being discouraged in most MFIs in Zimbabwe. These findings concur with prior studies which establish the negative role of poor economic climate on credit risk. Louzis et al (2012) conducted a study focusing on factors influenceing performance of loans advanced to households and firms in Greece (Louzis, Vouldis, & Metaxas, 2012). Their findings show that the prevailing macro-economic conditions largely explain the loan defaults. Common amongst this study and current study findings is the notion that a negative economic climate largely contributes to high credit risk. A study by Gatimu and Frederick (2014) established three main factors, credit policy, evaluation processes contacted during the loan application process and loan recovery procedures is the key factors influencing the defaulting rates on loans advanced by the microfinance industry, thereby affecting negatively the economic sustainability of respective institutions (Gatimu & Frederick, 2014). Messah and Wangai (2011) in their study discovered that credit risk was client related and this included lack of willingness to pay loans and wilful negligence (Messah & Wangai, 2011). More so, Addae-Korankye (2014) further confirmed that poor business practices can be blamed for increased credit risk, which influences clients' failure to timeously settle their dues (Addae-Korankye, 2014). All these studies concur and confirms results from this current study. It can therefore be ascertained that credit risk is to

blame for poor performance and an impediment to economic sustainability of MFIs in Zimbabwe. Figure 2 below denotes a diagrammatic representation of factors augmenting credit risk among MFIs in Zimbabwe.

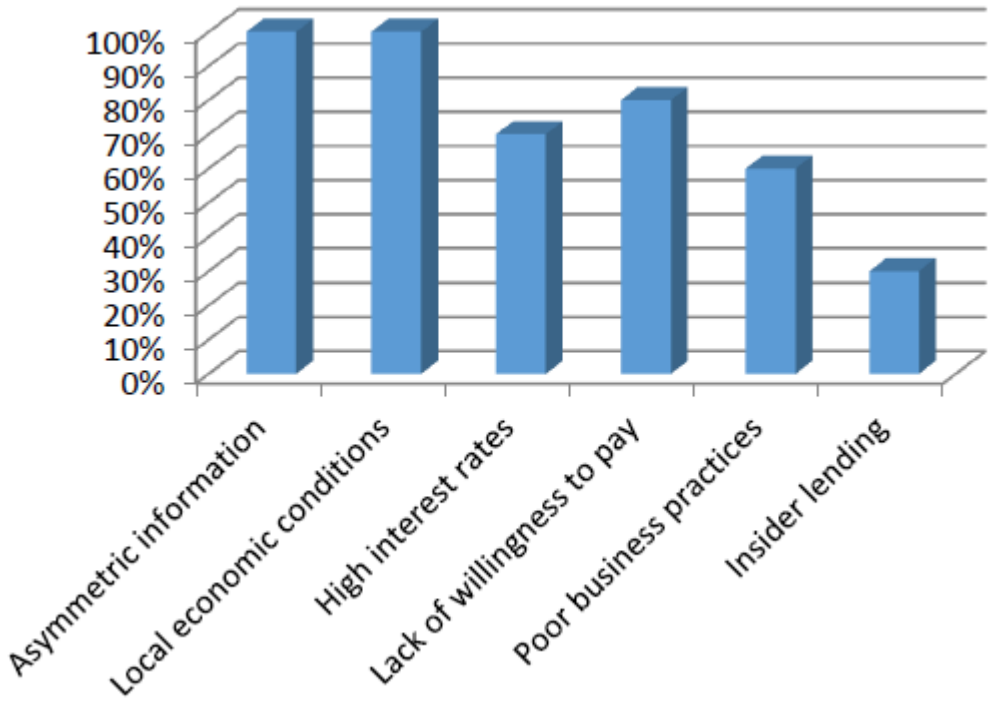

Figure 2: Factors amplifying credit risk in Microfinance Institutions
Source: Researchers, 2021

1.5.2 Methods used to manage credit risk by MFIs in Zimbabwe

MFIs in Zimbabwe apply varying methodologies in managing their credit risk. The study established that credit decision making and the 5Cs of lending are widely used and accepted by the MFIs in Zimbabwe. Loss forecasting is also widely accepted as 90% of the respondents are using it to manage credit risk which shows a high level of acceptance. However, portfolio management and credit scoring are not widely accepted and used as yet in Zimbabwean MFIs, as reflected by only 40% of total respondents who indicated that they have embraced portfolio management and an even smaller proportion, 20% who uses credit scoring. These findings, as presented in Figure 3 below provide clear evidence that microfinance institutions in Zimbabwe do not rely on a single, but rather a combination of methods to manage credit risk.

Study findings as depicted in Figure 3 concur with results from previous studies on the same phenomenon. The model of credit scoring as postulated by Sullivan (1981) was established to be an effective model applied within financial services sectors (Sullivan, 1981; Thomas, Edelman, & Crook, 2002; Bluhm, Overbeck, & Wagner, 2002; Siddiqi, 2006; Anderson, Haller, Cox, & Duling, 2010; Shameran, 2015). This notion locally holds true for the 20% of

the current study respondents that have adopted the credit scoring method. Only 20% of respondents adopted the credit scoring method, despite the advantages that it has in expanding loan books. In an attempt to establish why the uptake of credit scoring was low, it was established that according to Sullivan (1981), this model presents complexities for the users, as it involves statistical challenges. It was noted that the data applied during model derivation usually violates statistical assumptions, therefore complicating its use. The study further establish that loss forecasting has been adapted by 90% of the respondents and this reflects the effectiveness of this method (Crouhy, Galai, & Mark, 2001). Figure 3, below denotes graphical presentation of risk management strategies applied by MFIs in Zimbabwe

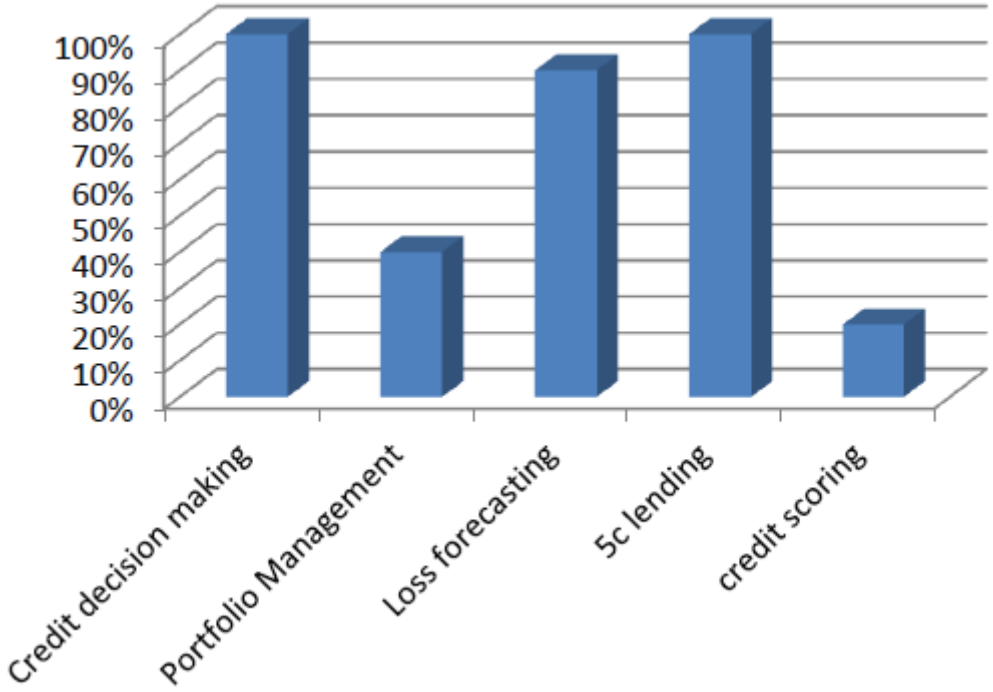

Figure 3: Methods used to manage credit risk by MFIs in Zimbabwe
Source: Researchers, 2021

1.5.3 Effects of Portfolio at risk (PAR) on Profitability

Regression analysis was applied to assess the relationship between credit risk and economic sustainability as represented by profitability and measured through ROA and ROE. This relationship was assessed at 95% confidence level.

1.5.3.1 Relationship between PAR and ROA

To be able to assess the relationship between portfolio at risk and return on assets, the study hypothesis was stated as:

H_0: Credit risk measured through PAR is associated with Profitability as measured by ROA.

H_1: Credit risk measured through PAR is not associated with Profitability measured by ROA.

Basing on regression results obtained (Table 1) below, we fail to reject the null hypothesis and thus conclude that Profitability as measured by ROA is significantly affected by Credit risk as measured through PAR, since the probability value of 0.01246 is lower than 5% level of significance (1.25% < 5%). The significance of this relationship is further supported by the F-statistic of 0.0147 which is also less than 0.05. The stated hypothesis of an F-test is that there is no difference between all coefficients (equal to zero) representing lack of model predictive capability. The, a high F-value means that the data does not perfectly support the null hypothesis (Archdeacon, 1994).

1.5.3.2 Regression equation: PAR and ROA

Model: $ROA = \alpha + \beta PAR + E1$

Where the regression function determines the relation of *X (PAR)* to *Y (ROA)*. α is the constant term, β is the coefficient of the function; it is value for the regression equation to predict the variances in dependent variable from the independent variables. The coefficient of the independent variable is shown in Table 1 below. The model as shown by the PAR coefficient of 0.01245622 on Table 2 therefore becomes:

ROA= 0.026-0.1142PAR.

The 26.31 shows that at zero value of PAR for MFIs, ROA takes the value 26.25. β1 of (-11.42), shows that one-unit change in PAR results in 11.42 units fall in ROA.

Table 1: Regression coefficients for Portfolio at Risk (PAR) and Return on Assets (ROA)

	Coefficients	P-Values	Regression
Intercept	0.026312927	0.001570211	-
PAR	-0.11420588	0.01245622	-
F statistic	-	-	0.014677873

Source: Researchers, 2021

Table 2 below shows the coefficient of determination (the degree of change in profitability that is explained by a change in credit risk). Adjusted R-squre of 0.535854 means; credit risk expressed in terms of PAR explains only 53.59 percent of profitability as expressed through ROA for MFIs in Zimbabwe.

Table 2: Regression model summary for Portfolio at Risk (POA) and Return on Assets (ROA)

Multiple R	R Square	Adjusted R Square	Standard Error	Observations
0.755285	0.631045554	0.535854375	0.0143569	9

Source: Researchers, 2021

1.5.3.3 Relationship between PAR and ROE

To be able to assess the relationship between portfolio at risk and return on equity, the study hypothesis can be stated as:

H_0: Credit risk measured through PAR is associated with Profitability as measured by ROE

H_1: Credit risk measured through PAR is not associated with Profitability measured by ROE

Conditions of the test are similar to those provided on the previous test. Table 3 below present results of the test specifically showing the coefficients making up the regression equation. It also shows the P values and F significance as extracted from the analysis of variance table which established the significance of the regression model in providing reliable results. Basing on results presented on Table 3 below, we reject the null hypothesis and conclude that there is a statistically insignificant relationship between Portfolio at risk and ROE, because the P value of 0.0532098 is greater than 5% significance (5.32>5%).The F-Statistic used to test for joint significance of all coefficients prove that the relationship is insignificant with 0.0506 which is slightly above the significance level of 0.05.

1.5.3.4 Regression Equation: PAR and ROE

Model: $ROE = \alpha + BPAR + E2$

Where the regression function determines the relation of *X (PAR)* to *Y (ROE)*. The independent variable coefficient is shown on Table 3 below. As shown by the PAR coefficient 0.48568, the regression model therefore becomes:

$ROE = 0.078 - 0.4856PAR.$

α = 7.83 which shows that at zero value of Portfolio at Risk, Return on Equity takes a similar same. $\beta 1$ of (-48.57) indicates that a single unit change in PAR will push for 48.57 units reduction in Return on Equity.

Table 3: Regression coefficients for Portfolio at Risk (PAR) and Return on Equity (ROE)

	Coefficients	P-Values	Regression
Intercept	0.0782706393	0.5467834	-
PAR	0.485679527	0.0532098	-
F-Statistic	-	-	0.05048213

Source: Researchers, 2021

Table 4 below illustrates the usefulness of the model in determining the relationship between credit rsk and profitability. With Adjusted Rsquare equals to 0.426489, this means, PAR explains 42.65 percent of ROE for MFIs leaving 57.35 percent unexplained. The model cannot be used to make future predictions about ROE since it insufficiently explains the relationship.

Table 4: Regression model summary for Portfolio at Risk (PAR) and Return on Equity (ROE)

Multiple R	R Square	Adjusted R Square	Standard Error	Observations

0.6463134	0.4793622	0.426489	0.070301	9

Source: Researchers, 2021

From the analysis (above), aimed at establishing the nature of the association between credit risk and economic sustainability, it can be concluded that the relationship between PAR and ROA is negative as well as that of PAR and ROE. From the results, a negative relationship between PAR and ROA implies that the higher the PAR the lower the ROA. It is therefore bad to have a high PAR as it means that our financial performance is decreasing due to a high default rate. A high PAR rate shows the negative impact credit risk has on financial performance of an MFI. These results agree with those found by Githaiga (2013) in a study conducted in Kenya. Also, similar findings were found by Akter & Roy (2016) who conducted their study in Bangladesh. Though the studies were conducted in different settings, results were similar due to its economic logic which reveals that as an asset quality declines the returns decline too. Furthermore, a negative relationship was found between PAR and ROE, suggesting that the higher the credit risk in MFIs, the lower the asset quality which results in a lower return on equity. A study conducted in Nepal by Bhattarai (2016) also showed that there is a negative relationship between PAR and ROE. This concludes that there is a relationship between credit risk as measured by PAR and profitability as measured by ROA and ROE.

The study results show how impactful credit risk is on economic economic viability of MFIs in Zimbabwe, hence the need to implement robust credit risk management tools so as to reduce the default risk in MFIs. The risk department of these organizations should make it a priority to reduce default risk as failure to do so results in negative impact as shown by the results of the study and eventually will lead to the failure of respective institutions.

1.5.4 Challenges faced when managing credit risk

It was established that information asymmetry affects all MFIs, being a situation where by an MFI does not have enough information on borrowers and cannot differentiate between risky and safe borrowers and end up lending to the risky borrowers. A large number of MFIs totalling to 70% of respondents lack resources in managing credit risk such as the adequate number of loans officers and the funds to support the initiative because credit risk management increases monitoring costs. The regulatory environment and the size of MFIs have also been established as barriers to successful credit risk management. Prior studies on credit risk support the findings of this current study. Auronen, (2003), during his study established that in line with theory of information asymmetry it is sometimes practically impossible to clearly separate the differences between and identify a good borrower from a bad borrower, resulting in adverse selection and moral hazard problems (Auronen, Asymetric information: Theory and applications, 2003). However, Brownbridge, 1998 in his study prior to Auronen's, established that such problems are more pronounced in third world countries where the root cause is often as a result of poor loan underwriting (Brownbridge, 1998).

Theoretical arguments suggest a negative correlation between credit portfolio performance and size and this assertion would mean that larger MFIs capable of reducing their exposure through diversification. From this current study, respondents who noted size of the firm as the challenge were relatively small firms with relatively small branch networks. Godlewski (2006) examines how MFIs' credit risk practices are influenced by regulatory and institutional environment in developing economies such as Zimbabwe. In his study (Godlewski, 2006), Godlewski (2006) pointed that sometimes risk management incentives are reduced and efforts to eliminate credit exposure are made impractical by the existence of the rule of law which is the regulatory environment in general (Godlewski, 2006). A regulation such as not allowing MFIs to recover loans from guarantors of the borrowers makes it difficult to manage credit risk, as it would make it easier for the MFI to claim it from them. However, these regulations are put in place by the government as a way of protecting borrowers. This explains the challenges faced by 40% of the respondent firms who confessed their experiencing challenges in managing credit risk. If the management has mismatches on interest between themselves it makes it difficult to implement an appropriate strategy. Figure 4 below indicate the range of challenges faced by MFIs in Zimbabwe in their endavor to contain credit risk.

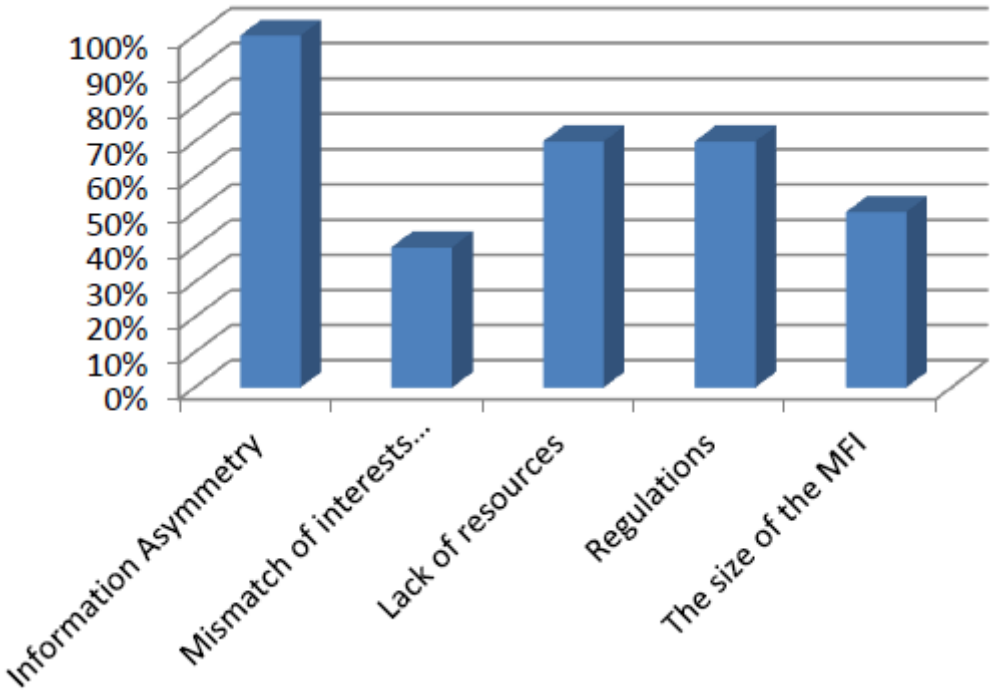

Figure 4: Challenges faced by MFIs when managing credit risk
Source: Researchers, 2021

1.6 Conclusions and recommendations

This study was aimed at establishing the effects of credit risk on economic sustainability of MFIs in Zimbabwe and establishing how MFIs in Zimbabwe are managing credit risk, given the non-existance of traditional mitigation mechanisms like selling of secured loans, that characterise the subsector. The study established that credit risk has a negative effect on

financial performance, hence economic sustainability. As credit risk increases, the financial performance of MFIs decreases. The second objective was to examine the strategies and tool used by MFIs when managing credit risk. The study established that the most dorminant tool used by MFIs include dynamic incentives, however for better results, all the tools including group lending, provision of non-financial services and collateral substitutes should be used together to give a better result and minimize credit risk.

The study recommends extensive adoption and use of credit scoring, as it enables matching each client's profile with the appropriate product on offer. This can be an effective tool to manage and predict potential defautlts. However, most of the MFIs do not use this method. Therefore, MFIs in Zimbabwe should try and adopt the credit scoring method as it helps reduce credit risk despite being a complex method. Microfinance institutions management should construct employee teams and provide training to improve the business knowledge among their personnel. They should train them and attract personnel with compound abilities to enhance the capability to prevent and mitigate credit risk. MFIs in Zimbabwe should invest more in smaller and short-term loans. Smaller loan amounts over shorter periods have the potential to minimise exposures. Lastly, MFIs in Zimbabwe must constantly pay attention to the credit risk, as it is the most dorminant risk affecting their performance. As an example, MFIs can come up with a ceiling on its nonperforming loans beyond which it should shift its major focus towards thoroughly investigating and recovering the non-performing loans.

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