Credit Portfolio Management in Nepalese Microfinance Institutions (MFIs): A Shifting Guide to Credit Risk Management

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Abstract

This paper attempts to provide a first step toward understanding the role of credit portfolio management in Nepalese microfinance institutions (MFIs) and overcome those problems associated with credit risk management.The credit portfolio management (CPM) has become most crucial functions of the Nepalese MFIs for sound loan portfolio quality. This study is based on descriptive research design.Several findings are made through the review of the literature that is parallel to achieving the objectives of the study. MFIs are financial intermediaries ("banks") that have a direct impact on economic and social transformation, such as job creation, income generation, social change, and poverty alleviation via financial and non-financial activities. The findings show that a credit appraisal system, scientific interest rate, credit monitoring, loan portfolio diversification system,capital optimization, risk framework development, regulatory management, credit control, credit advisory,and credit research, have reduced credit risk and ensured high-performing loans and financial sustainability. The study recommends that MFI's portfolio management strategies focus more on the internal causes of delinquency which they have more control over and seek practical and achievable solutions to reimbursement delinquency problems. The study's findings will be useful to BFIs, institutional lenders, microfinance experts, regulators, economists, policymakers, and institutional credit rating agencies.The result reveals that portfolio diversification has a significant impact on credit portfolio management in Nepalese MFIs.

Keywords: *Credit portfolio management, credit risk, financial intermediary, financial sustainability, loan portfolio quality, social transformation,*

Introduction

Nowadays, it is believed that the function of credit, particularly in developing nations where it lubricates the economy, is the key to economic growth. Since commercial banks make up a large portion of the banking system's overall assets and deposits in Nepal, extending credit is one of its primary functions (Timsina, 2017).

Microfinance Institutions (MFIs) offer financial services (credit, savings, and micro insurance) to the underprivileged in an effort to ease credit restriction and combat poverty (Dhakal, 2012).

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Thus, it is financial system and powerful instrument that aids the poor in escaping poverty is microfinance.

Several people and groups have defined microfinance in different ways. The provision of a range of financial services, such as deposits, loans, payment services, money transfers, and insurance, to low-income individuals and households as well as their microbusinesses is known as microfinance (Ledgerwood, 1999). Thus, microfinance is the provision of a wide range of financial services to low-income households and micro-enterprises, such as deposits, loans, payment services, money transfers, and insurance. Microfinance was started with the intention of giving official financial services to the underprivileged who were turned down by banks due to their low savings, low credit demand, and lack of loan collateral.

Microfinance stands out from other development initiatives in that it may deliver a wide range of social benefits on an ongoing, long-term, and widespread basis. The poor and excluded groups in society who do not have access to traditional banking can use microfinance to acquire assets, diversify their sources of income, raise their income, and lessen their susceptibility to economic stress.

Microfinance is described as financial services offered to underprivileged individuals and small business owners in the fields of saving, credit, remittance, rural insurance, etc. to help them establish their own businesses and other sources of income. Small loan sizes, group savings, small-scale enterprises, diverse utilization, and straightforward and flexible credit terms or conditions are the qualities that characterize its description. Little sums of money are given to clients with modest incomes through microfinance. Included are transfers, insurance, loans, savings, and other financial services. Examples of microfinance providers include non-governmental organizations (NGOs), self-help organizations, cooperatives, credit unions, commercial banks, insurance, credit card, and other points of sale.

Nepal has had almost three decades of microfinance experience. Only microfinance programs are viewed as pro-poor and headquartered in rural areas, despite the fact that several programs have been launched in Nepal to reduce poverty. As the first step in microfinance, cooperatives based on agriculture were established in Nepal in the 1950s. Small farmer agriculture cooperative limited (SFCL), which has been run by the farmers themselves, was created by the small farmers' development program.

Management, which is crucial to an organization's longevity, determines an institution's performance. To accomplish the goal of the MFIs, management and leadership are both effective ways. The development of an organizational structure requires management (Tapera, 2016). Good management helps MFIs innovate and grow because it creates a pleasant workplace where employees are highly committed, engaged, and responsible (Ledgerwood et al., 2006).

Most commercial banks' main line of business is lending. Usually, the largest asset and main source of income is the loan portfolio. As a result, it poses one of the biggest threats to the stability and safety of banks (Malla, 2017). Liabilities and assets are managed as part of the portfolio management process at any banking institution. The most important aspect of portfolio management for a bank is determining how best to estimate the requirement for deposits and loans(Afroz, 2013).

Credit portfolio management (CPM) is a crucial task for banks and other financial institutions (BFIs) with ample, complex credit portfolios, frequently containing illiquid loans. These institutions include insurers and institutional investors. In the past, it has been responsible for understanding the institution's overall credit risk, enhancing profits on those risks (often by selling loans on the secondary market and hedging), and identifying and managing risk concentrations. Traditional origination and credit risk management processes focus exclusively on specific deals or borrowers, whereas CPM examines the entire credit book (Nario et al. 2016).

The procedure of creating a collection of assets based on credit connections and controlling the risks associated with these investments is referred to as credit portfolio management. The interest from issued loans gives such a portfolio its value, but it is vulnerable to a credit default. Because of this, managing a portfolio of credit involves evaluating the risk associated with each potential loan as well as the overall risk the portfolio faces. Both banks that issue loans as a significant component of conducting business and private investors who deal in bonds depend on the procedure (Gauchan, 2020).

Any banking institution's portfolio management includes managing both liabilities and assets. The keystone of portfolio management in a bank is effectively estimating the requirement for deposits and loans. The recent implementation of financial sector reform measures has introduced an element of dynamism and prompted the necessity for credit variation in the portfolio management of banks in Bangladesh, taking into thought a number of variables (Afroz, 2013).

The study is organized as follows: the following section summarizes the credit portfolio management in Nepalese MFIs. Next, a literature review is presented, which is followed by the methodology. Results are discussed later followed by a conclusion.

Literature Review

This section includes a conceptual review of the subject of the study and adjacent fields along with a review of earlier investigations. Reviewing the literature refers to examining research papers or other pertinent arguments in the relevant field of study in order to identify any gaps in prior research, its results, and its perspective. It is crucial for all research to express what information and concepts have been formed on a subject in the past, together with its advantages and disadvantages.

Theoretical review

Portfolio theory and bank lending

Paul Bennett (1999), an experienced financial economist and senior vice president at the Federal Reserve Bank of New York, developed the portfolio theory. The portfolio theory focuses on avoiding credit risk concentration through strategic diversification of loan portfolios. Portfolio theory's primary focus is on how lenders can gain a reasonable return while becoming overly exposed to specific types of credit risk.Larger concentrations of credit portfolios, according to portfolio theory, may be exposed to higher risk. It is a key managerial function and responsibility of a portfolio manager to diversify their credit on different loan products. Portfolio management entails more than simply distributing loans among a large number of borrowers.

Portfolio management theory gives portfolio managers practical insight into how banks and financial institutions (BFIs) structure their loan portfolios and ensure their financial sustainability. This theory is based on making large profits while avoiding large losses and maximizing stakeholder value by emphasizing sound and high-quality institutions. Furthermore, loan portfolio management is critical for lenders, regulators, and depositors to understand how banks optimize capital and spread risk through loan portfolio diversification. Loan strategic classification, portfolio risk concentration measurement, loan portfolio concentration reduction, and portfolio risk management via a financial performance management system.

Essentially, portfolio theory focuses on the bank's management ensuring that it is not absorbing excessive portfolio risk without adequate compensation. Before appearing in worst-case scenarios on the portfolio, it is necessary to diversify a loan portfolio by measuring, analyzing, and managing a credit portfolio using scientific approaches.

Markowitz's" portfolio selection theory

This theory was first published in the *Journal of Finance in M*arch 1952. Markowitz was not the first to consider the value of diversification. This theory was also founded on the philosophy that it is preferable to divide goods that are exposed to some minor danger into several portions rather than risking them entirely (Bernoulli, 1954)."In his mathematical formalization of the idea of investment diversification: the financial version of "the whole is greater than the sum of its parts," Markowitz has emphasized that diversification would reduce risk but would not generally eliminate it. Risk can be reduced through diversification without changing the expected outcome.

He believes that an investor should aim to maximize expected portfolio return while minimizing portfolio variance. He demonstrates that the contribution of a security to the variance of his entire portfolio is more important to investors than the risk of the security itself. Markowitz's approaches are now widely used by institutional portfolio managers who structure their portfolios for financial performance using this model.

Empirical review

Malla, (2017) has studied credit portfolio management in Nepalese commercial banks by applying qualitative and quantitative research methods. According to the study's findings, managing credit risk is currently the main responsibility of risk management in banks, and loan portfolio management is crucial for improving credit risk management. A bank's credit operation dictates how it manages its credit portfolio. Also, he came to the conclusion that a variety of criteria, such as security, product, and sector-wise concentration, have an impact on loan portfolio management.

According to Afroz (2013), Bangladesh Krishi Bank focused its lending on basic agriculture to help the impoverished in rural areas. Subsequently, it expanded its operations to include secondary agriculture. Following diversification, the bank's financial situation is now more apparent, and improved results are shortly to be anticipated.

Nario et al. (2016) investigated the evolving role of credit portfolio management in maintaining high credit portfolio quality. They emphasized some credit portfolio-changing circumstances and advocated for greater collaboration on a variety of tasks such as capital optimization, risk framework development, credit advisory, regulatory management, credit research, credit control, and stress testing for credit portfolio management for banks and financial institutions. Furthermore, for high performance, banking institution senior managers must focus on asset management in order to shape their CPM functions.

Lamichhane (2022) conducted a review of the theoretical and empirical literature to investigate loan delinquency in microfinance institutions (MFIs). According to the study, governance in loan delivery processes, client identification, effective credit appraisal and review of client credit history, professional knowledge of clients, client literacy, and identification of clients' over-indebtedness, as well as loan utilization, can assist Nepalese MFIs in reducing loan delinquency and assisting portfolio management.

Shrestha (2020) investigated the effects of COVID-19 on microfinance institutions in Nepal. He came to the conclusion that the COVID-19 pandemic has a significant impact on the whole economic situation and Nepalese MFIs as well. Financial indices like savings, loans, profitability, member retention, and changes in the number of staff have an impact on it. Additionally, he emphasizes how Nepal Rastra Bank, the country's central bank, has been safeguarded by mechanisms related to policy and to some extent by resilience on the part of the regulator. He asserted that the pandemic has a detrimental effect on loan portfolio quality and that MFIs must use innovative and cooperative techniques to control their internal management system's credit portfolio.

Sector-wise portfolio management provides a good framework to maintain the sustainability of any Bank and microfinance institution. Therefore, loan product diversification has a positive impact on loan portfolio quality. Avoiding concentrations of credit risk through strategic diversification of portfolio. Even it is equally important for both commercial Banks and MFIs too.

Gauchan et al., (2019) have investigated credit portfolio management and profitability of joint venture commercial Banks in Nepal by analyzing the monthly financial progress report of commercial banks by comparing the loan portfolio management and return on assets (ROA). They concluded that there is a significant relationship between sector-wise portfolio management and the sustainability of banks.

Timsina (2017) has examined on determinants of Bank lending in Nepal. The goal of the study was to empirically analyze time series data using ordinary least square regression to evaluate and confirm the effectiveness of the determinants of commercial bank lending behavior in Nepal. Commercial banks should consider the broader macroeconomic environment, variables impacting the GDP in general, and their liquidity ratio in particular when making lending choices given the strong and positive association between GDP and private sector credit. According to the report, the biggest influences on banks' lending decisions are their GDP and liquidity ratio.

The MFIs' assets come in a variety of shapes, including cash on hand, bank balances, the balance of outstanding loans, receivables, and durable assets. Almost 90% of the assets in the majority of MFIs are still in the form of outstanding loans. The amount that customers own to the institution is the asset of the portfolio of microloans. The loans outstanding or current, active actual loans are other names for a loan portfolio. The loan portfolio is the MFI's main source of income. This is the primary output of the company and the impetus behind MFIs. So, maintaining very high portfolio quality is crucial for MFIs to have long-term financial viability (Dhakal, 2016).

Ugoani (2012) used a survey research design to investigate poor credit risk management and bank failures in Nigeria. He emphasizes credit risk management as one of the most important banking functions that involve the evaluation of requests for banking facilities. Because banks traditionally earn huge profits from interest on their risk exposures, this function is critical to bank survival or failure. Furthermore, he concluded that bank management made errors in judgment or market strategy, that sudden changes in market conditions (such as devaluation, natural disaster, or stock market crash), internal management disputes or labor problems, the in-experienced staff operating in new fields, violations of regulations, connected lending to shareholders, managers, or other bank staff, poor internal accounting records, and poor bank supervision, as well as involuntary external audit exercises.A good and detailed credit portfolio management must reflect market position and demand, business and risk strategy, credit extension capabilities, loan classification, and a lower rate of loan risk exposure (Markowitz, 1952, 1959; Ugoani, 2012).

Microfinance institutions (MFIs) offer financial services to the deprived in order to easiness credit controlling and fight poverty. These services include credit, savings, micro insurance, and more. Each MFI strives to maximize payback performance, whether it is profit-oriented or not. A MFI with high rates of timely repayment may be able to cut the interest rate it charges to the borrowers, lowering the cost of borrowing and allowing more borrowers to obtain loans. Enhancing the repayment rate may also assist sustainability. Furthermore, it is asserted that high repayment rates reflect how well MFI services meet client needs and reduce the credit risk. Repayment performance also serves as a crucially significant positive sign when the MFI needs to raise additional capital. Higher repayment rates are substantially correlated with advantages for both the MFI and the borrower due to all of the aforementioned factors (Dhakal, 2012).

Problems and Objectives

Effective and professional management successfully targets organizational goals by managing personnel, resources, and service quality. They also have a successful vision beyond the box. According to this perception, managing the credit portfolio is another crucial success factor for effective management.The major source of income for financial institutions is revenue income, the income received from lending. Portfolio quality indicates how effective an MFI is in debt recovery and its influences on sustainability. If the portfolio management practices are poor and definitely, affect the loan portfolio quality, it affects adversely the profit of the institutions due to high loan loss provision, increased recovery cost, and supervision costs. These scenarios arise poor financial performance and affect the financial sustainability of MFIs. The principle objective of this research is to investigate better ways to credit portfolio management in Nepalese MFIs for sustainability.

Research methods

The descriptive-analytical research methodology is used in this work. The method has been adopted information gathering related to credit portfolio management in BFIs. Review of related theories and literature was done as part of the technique. This study looks at published books, various published research works, newspapers, various officials from different governments, various reports, and academic journals.

Discussion and analysis

Credit portfolio

Nepal's microfinance sector is an important economic unit that contributes to poverty alleviation as well as overall economic and sustainable development. It is made up of public and private commercial banks, as well as Grameen bank and public microfinance institutions. The following figure shows the current glimpse of the Nepalese microfinance industry outlook.

Table 1

Outlook of Nepalese Microfinance Industry

S.N.	Indicators	2020 Mid -July	2021 Mid -July	2022 Mid -July
1	Districts coverage	77	77	77
2	Total No. of employees	19017	20872	23303
3	Total branches	3946	4621	5062
4	Total operating center	310,895	362,982	428,783
5	Total group	1,039,696	1,183,364	1,351,729
6	Total members	4,686,609	5,191,363	5,859,530
7	Total borrower	2,783,129	2,992,068	3,303,100
8	Total loan outstanding	262,732.25	365,554.02	391,746.60
9	Total NPL	3,076.80	4,870.20	5,211.60
10	Total saving	106,150.20	130,425.41	159,022.78
11	Total saving/loan ratio	40	36	41
12	% of NPL	1.17%	1.3323%	1.3303%

(Sources: Different report of NRB)

Table 1 shows the outlook for the Nepalese microfinance industry. According to the table above, Nepalese microfinance institutions have branches all over the country. They provided their services to the poor, particularly deprived women, in 77 districts. They are able to employ approximately 24,000 people. Furthermore, they provided financial access to approximately 5.8 million families, which is more than the mid-July 2021 target. Similarly, they gave poor people credit worth Rs. 391,746.60 million. For small and medium-sized businesses that are part of a solidarity group. Furthermore, Nepalese MFIs mobilize local resources in the productive sector by collecting small deposits.Furthermore, the loan delinquency percentage is higher than in mid-July 2021, which is why Nepalese MFIs are guided by mission drift. The loan portfolio is declined day by day due to unhealthy competition among the MFIs.

The government and concerned authorities are primarily concerned with the development of the country, and all of the achievements of developing countries demonstrate that the overall development of the country is only possible when a country has sound and strong economic growth. Following various explorations and studies, Nepalese authorities have primarily identified the hierarchy of sectors that require development, such as agriculture, hydropower, tourism, and various industrial production. In relation to these sectors, the NRB directs its affiliated banks and financial institutions (BFIs) through directives issued each fiscal year and amended through their circulars. Credit portfolio management (CDM) in Nepalese MFIs through directives to make provision for possible loss on loans based on their due date. With the exception of the pass and watch list categories, all classifications are considered non-performing loans. A non-performing loan (NPL) is a key indicator of a bank's asset quality.

Table 2

Criteria of loan classification for MFIs in Nepal (as of mid-July, 2022)

Classification	Criteria of classification of loan	losses provision
Pass loan	No dues and dues unto 3 months loan	1.3%
Watch List	Overdue up to 1 month or expired loan or client's loan has been categorized into NPL in other banks or restructured loan etc.	5%
Substandard	Overdue more than 3 months and up to 6 months	25%
Doubtful	Overdue more than 6 months and up to 12 months	50%
Loss	Overdue more than 12 months	100%

(Source: NRB unified directive for "D" Class financial institutions, 2021)

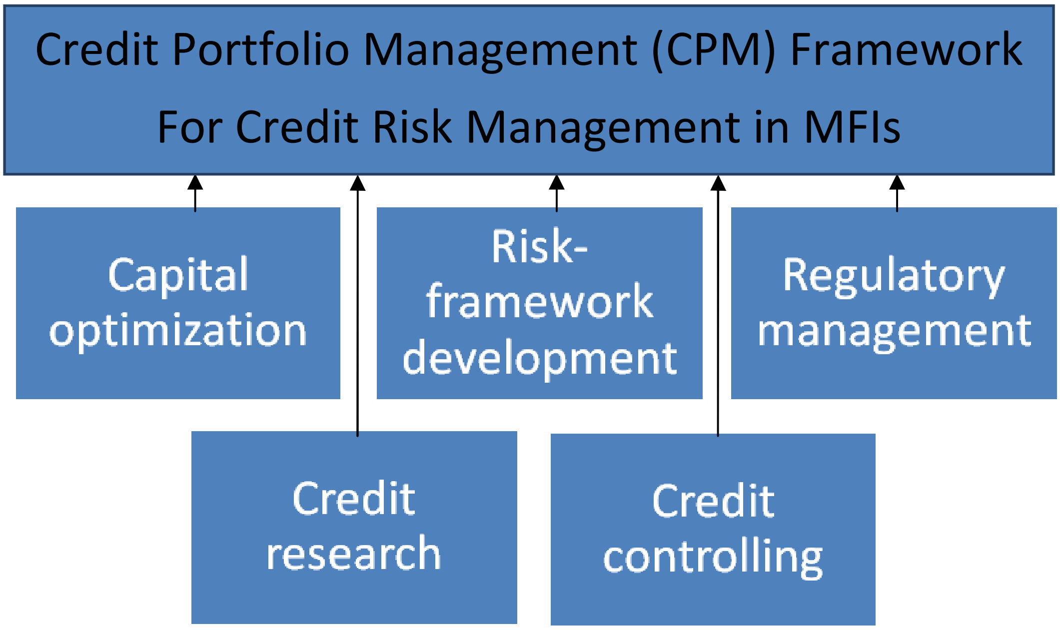
Table 1 shows the current loan classification criteria for Nepalese microfinance institutions regulated by Nepal Rastra Bank, Nepal's central bank. Similarly, the central bank focused primarily on the sector-specific investment to be disbursed by Nepalese BFIs in relation to its single obligor limit. Nepalese banks and financial institutions (BFIs) are required to report to the central bank on a regular basis about their investment portfolio. Based on the unified directive issued by NRB to MFIs, each MFI need to provision in relation to loan portfolio quality. According to directive 2021, Nepalese MFIs need to maintain 1.3 (percent) provision for not overdue (good loan) as well as overdue within the 1-month portfolio, 5% provision for watch list that is overdue between 1 month to 3 Months, 25 (percent) provision for substandard that isoverdue between 3 month to 6 months, 50 (percent) provision for doubtful that is overdue between 6 month to 1 year. Similarly, 100 (percent) provision for bad loans that is overdue above more than one year.

Practices of credit portfolio management in Nepalese MFIs: the past and present

Nepalese microfinance institutions provide microloans to poor people particularly deprived sections of society. In addition, they provide non-banking services to their members like financial literacy, education, health, entrepreneurship development, and business planning knowledge. They are specialized financial intermediary institutions that are regulated by the Nepal Rastra Bank, the Central of Nepal with a limited financial organization. They provide credit facilities in various income-generating activities like food production, vegetable, animal husbandry, poultry farming, dairy farming, beekeeping, small business (that is small tea and coffee shop, hotel, restaurant, stationary, vehicle repairing workshops, vehicle, and other business) and others income generating activities for poverty alleviation and employment creation programs. Generally, the loan is provided based on a solidarity group guarantee without physical collateral. This program has a government special program for rural employment and retention of labor forces in the birth country. Basically, they provide small loans to the clients but gradually they increased the size of loans based on the capacity and entrepreneurial skills of graduate clients. From having position it can be concluded that Nepalese MFIshave already started diversifying theiractivities rather than traditional banking activities. Nepalese MFIs wereoriginally, created as specialized financial institutions with the view of financial inclusion and fulfillingthe credit needs of low-income people to realizethe poor are bankable.

Results/Findings

The management information system (MIS) is crucial for managing delinquency. Lack of accurate information about credit management due to poor record keeping and information systems ultimately leads to an increase in loan delinquency. A low level of credit risk and higher financial performance for MFIs are guaranteed by effective credit portfolio management. The framework for managing the credit portfolios of MFIs has been established based on a survey of the literature and theory.



(Figure 2 Framework for Managing the Credit Portfolio Management)

Capital optimization

The process of managing a company's capital in a way that maximizes its efficacy and efficiency is referred to as capital optimization. It entails ensuring that the business has enough money to meet its operations and growth goals while keeping capital costs to a minimum. Analysis of a variety of parameters, including cash flow, debt levels, credit ratings, regulatory obligations, and shareholder expectations, is required for capital optimization. A company's financial performance, competitiveness, and shock resistance can all be improved with effective capital utilization. As a result, MFIs must concentrate their credit optimization approach on managing portfolio quality.

Risk framework development

The process of creating a set of guidelines, rules, instructions, and instruments to help an institution identify, evaluate, track, and manage the risks it faces is known as risk framework development. The process of creating a risk framework entails analyzing a number of variables, including the organization's goals, risk appetite, stakeholder expectations, legal requirements, and industry best practices, in order to create a risk management system that is tailored to the organization's particular requirements. An organization's ability to predict hazards, respond to them, lessen their likelihood and impact, and improve its overall risk management capabilities can all be facilitated by a strong risk framework. The quality of the loan portfolio is improved via the risk management framework.

Regulatory management

It describes the method of making sure that a facility conforms with the laws, rules, and specifications that apply to its operations. This entails locating and evaluating regulatory requirements, creating and putting into practice policies and procedures to comply with them, overseeing compliance, and reporting to regulatory authorities. To avoid fines and other consequences, uphold their good name, and cultivate stakeholder confidence, enterprises must practice regulatory management. As a result, MFIs must make sure that regulatory institutions are properly instructed and within a regulatory framework.

Credit research

Credit research is the process of assessing borrowers' creditworthiness to ascertain their default risk. To determine a borrower's ability and willingness to repay loans, credit research entails examining a variety of criteria, including the borrower's financial performance, industry trends, the competitive environment, and macroeconomic conditions. In order to inform pricing and decision-making on credit risk, credit rating agencies, banks, and other microfinance institutions commonly perform credit research. Nepalese MFIs must invest money in credit research in order to manage the quality of their portfolios.

Credit controlling and monitoring

The practice of managing and supervising a lender's credit portfolio in order to make sure that credit risks are effectively managed and controlled is known as credit controlling and monitoring. It involves examining credit data, spotting potential credit issues, and taking the necessary steps to reduce risk of MFIs. Activities including credit analysis, credit scoring, credit risk modelling, loan documentation inspection, and borrower performance tracking are all part of credit managing and monitoring. Losses are reduced, returns are maximized, and a healthy credit portfolio is maintained with the help of effective credit managing and monitoring.

Conclusionand discussion

According to Nepalese MFIs, financial institutions have been set up with the goal of providing financial services to the nation's rural residents by funding various income-generating ventures and enhancing their capacity to access credit and their saving behaviors. The size of the balance sheet and the financial sustainability of Nepalese MFIs are being directly hampered by liquidity issues. The attraction of international institutional credit at low interest rates is necessary to lessen liquidity issues and promote the diversification of credit portfolios. Similarly, MFIs must create a training program for entrepreneurs for their participants.

It is necessary to create training programs for entrepreneurs in addition to conducting training programs for bank employees. In order to effectively manage sound portfolio quality, a long-term training perspective plan must be designed and implemented. To achieve this goal, MFIs must diversify their credit portfolio and restructure their operational process, which includes enhancing credit appraisal methods, financial literacy, clients' ability for entrepreneurship, and the framework mechanism for credit risk management. The portfolio management tactics used by MFI provide a greater emphasis on the internal and external factors that contribute to delinquency, which are under their greater control, and they look for doable, workable solutions to the issues with compensation loan default.The performance of loan default among microfinance institutions in Nepal is substantially impacted by their portfolio.

Credit risk has been decreased, ensuring high-performing loans and the financial viability of Nepalese MFIs. Credit appraisal system, scientific interest rate, credit monitoring, loan portfolio diversification system, capital optimization, risk framework development, regulatory management, credit control, credit advisory, and credit research have all contributed to this. A planned loan portfolio, a broad loan portfolio, risk management, and a track business line are all guarantees of professional management expertise, which results in a high-quality loan portfolio. Superior portfolio management can be achieved when NPL problem is reduced by professionally skilled management. Additionally, an effective credit approval process, better administration, and adequate borrower screening contribute to an increase in the quality of the loan portfolio relative to CPM.The study's conclusions are pertinent to and applicable to BFIs, microfinance professionals, economists, regulators, and decision-makers.

Limitation and future directions for research

The study's findings are helpful, but it's crucial to carefully consider them due to the study's substantial limitations. The only type of research design used in this study is descriptive. The connections predicted in this study are also examined using cross-sectional data, whereas primary data increasing the size of observation and more variables can be used in future studies.

Reference

Afroz, N. N. (2013). Credit portfolio management of Bangladesh Krishi Bank. *Global Journal of Management and Business Research*, *13*(12), 69-255.

Bank and financial institutions regulation department (2021). Unified directives 2021 for “D”class financial institutions. Kathmandu: Nepal Rastra Bank.

Bennett, P. (1999). Portfolio theory and bank lending.

Bohn, J. R., & Stein, R. M. (2009). *Active credit portfolio management in practice*. John Wiley & Sons.

Dhakal, N. H. (2012). Portfolio and delinquency management in microfinance Institutions. *Lalitpur: Center for Empowerment*.

Gauchan, A., & Upadhyaya, T. P. (2020). Credit portfolio management and profitability of Joint venture commercial banks of Nepal. *SSRG International Journal of Economics and Management Studies (SSRG-IJEMS)*, *6*(3), 125-129.

Kattel, I. K. (2016). Evaluating the credit risk measurement practices of commercial banks in Nepal. IOSR *Journal of Business and Management*, *18*(3), 132-137.

Lamichhane, B. D. (2021). Client satisfaction: Key factors to the sustainability of microfinance institutions (MFIs). *Interdisciplinary Journal of Management and Social Sciences*, *2*(1), 32-42.

Lamichhane, B. D. (2022). Loan delinquency in microfinance institutions (MFIs): Ways to overcome the problem. *Nepalese Journal of Management Research*, *2*(1), 37-43.

Ledgerwood, D. M., & Petry, N. M. (2006). Does contingency management affect motivation to change substance use? *Drug and Alcohol Dependence*, *83*(1), 65-72.

Malla, B. K. (2017). Credit portfolio management in Nepalese commercial banks. *Journal of Nepalese Business Studies*, *10*(1), 101-109.

Markowitz, H. M. (1991). Foundations of portfolio theory. *The journal of finance*, *46*(2), 469-477.

Marling, H., & Emanuelsson, S. (2012). The Markowitz portfolio theory. *November*, *25*, 2012.

Nario, L., Pfister, T., Poppensieker, T., & Stegemann, U. (2016). The evolving role of credit portfolio management. *McKinsey and Company*, 1.

Nepal microfinance bankers' association (2020). Survey report on microfinance- Present Situation and Future Priorities. NMBA, Nepal. Retrieved from http://www.nmba.org.np/images/Microfinance_Survey_Report_May_2020_Final.pdf#toolbar=0&navpanes=0& scrollbar=0 on July 15, 2020.

Pandey, I. M. (2020). Cases in financial management.

Rubinstein, M. (2002). Markowitz's" portfolio selection": A fifty-year retrospective. *The Journal of finance*, *57*(3), 1041-1045.

Shrestha, P. K. (2020). Impact of Covid-19 on microfinance institutions of Nepal. *Research Gate*.

Smithson, C. (2003). *Credit portfolio management* (Vol. *227*). John Wiley & Sons.

Timsina, N. (2017). Determinants of bank lending in Nepal. *NRB Economic Review*, *20*(1), 22-42.

Ugoani, J. (2012). Poor credit risk management and bank failures in Nigeria. *Available at SSRN 2185013*.