# DETERMINANTS OF SUSTAINABILITY OF NEPALESE MICROFINANCE COMPANIES

A Dissertation submitted to the Office of the Dean, Faculty of Management in partial fulfillment of the requirements for the Master's Degree

by

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## CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled **"Determinants of Sustainability of Nepalese Microfinance Companies"**. The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor it has been proposed and presented as part of requirements for any other academic purposes.

The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation.

…….

Manish Bhandari

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## REPORT OF RESEARCH COMMITTEE

Mr. Manish Bhandari has defended research proposal entitled **"Determinants of Sustainability of Nepalese Microfinance Companies"** successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestions and guidance of supervisor Joginder Goet and submit the thesis for evaluation and viva voce examination.

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**Dissertation Viva Voce Date:**

**……**

## APPROVAL SHEET

We, the undersigned, have examined the dissertation entitled **"Determinants of Sustainability of Nepalese Microfinance Companies"** presented by Manish Bhandari, a candidate for the degree of Master of Business Studies (MBS Semester) and conducted the Viva voce examination of the candidate. We hereby certify that the dissertation is worthy of acceptance.

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This study entitled **"Determinants of Sustainability of Nepalese Microfinance Companies"** has been prepared in partial fulfillment for the Degree of Master of Business Studies (MBS) under the Faculty of Management, Tribhuvan University is based on research models involving the use of quantitative aspect of determinants of sustainability of Nepalese microfinance companies.

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Manish Bhandari
Date: ……

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## ABBREVIATIONS

| | | |
|---|---|---|
| CBBL | : | Chhimek Laghubitta Bikas Bank Limited |
| CR | : | Credit Risk |
| FSS | : | Financial Self-Sufficiency |
| GDP | : | Gross Domestic Product |
| INF | : | Inflation Rate |
| IT | : | Information Technology |
| JSLBB | : | Janutthan Samudayic Laghubitta Bikas Bank Limited |
| LEV | : | Leverage Ratio |
| LSIZE | : | Natural Logarithm of Total Assets |
| MFIs | : | Microfinance Institutions |
| NMBMF | : | NMB Laghubitta Bitiya Sanstha Limited |
| NRB | : | Nepal Rastra Bank |
| NUBL | : | Nirdhan Utthan Laghubitta Bitiya Sanstha Limited |
| OER | : | Operating Efficiency Ratio |
| OSS | : | Operating Self-Sufficiency Ratio |
| SD | : | Standard Deviation |
| SIZE | : | Size or Total Assets of Companies |
| TA | : | Total Assets |
| TU | : | Tribhuvan University |

## ABSTRACT

The main purpose of the study was to examine the determinants of sustainability of Nepalese microfinance companies. Secondary data is gathered from microfinance companies of Nepal for ten-year periods (2014/15-2023/24). This study used correlation and multiple regression for data analysis. This study shows that microfinance institutions in Nepal are able to operate without the need for outside help since their activities bring in enough revenue to pay for their costs means sound financial sustainability. The correlation analysis shows an insignificant negative relationship between the operating efficiency ratio and operational self-sufficiency ratio and leverage ratio has also insignificant negative relationship with the operational self-sufficiency ratio. However, credit risk exhibits a significant negative relationship with the operational self-sufficiency ratio. In contrast, the size of the companies shows a significant positive correlation with the operational self-sufficiency ratio. Further, inflation rate has insignificant negative relationship with operation self-sufficiency ratio. The regression analysis further reveals that the operating efficiency ratio and credit risk have significant negative impact on sustainability (or operational self-sufficiency ratio) of microfinance companies in Nepal. Similarly, leverage ratio has insignificant negative effect on the operational self-sufficiency ratio. On the other hand, the size of the companies has a positive and statistically significant effect on the operational self-sufficiency ratio. Moreover, inflation rate, however, has an insignificant negative effect on the operational self-sufficiency ratio. Overall, this study concluded that operating efficiency ratio, credit risk and size of companies are key factors influencing the sustainability of microfinance companies in Nepal.



**Keywords:** *Operating self-sufficiency ratio, operating efficiency ratio, leverage ratio, credit risk and size of the company.*

# CHAPTER-I
# INTRODUCTION

## 1.1 Background of the Study

In order to assist low-income and disadvantaged individuals in supporting their households and small businesses, the term "microfinance" encompasses a variety of financial services, including credit, savings, remittances, insurance, and payment facilities. Microfinance institutions (MFIs), which provide easily accessible, collateral-free financial solutions to underserved areas, are essential in lowering poverty and encouraging entrepreneurship (Khachatryan & Avetisyan, 2017). One revolutionary instrument for economic growth that can greatly empower marginalized groups and lessen poverty is microfinance. For microfinance programs to achieve sustainable economic growth, transparency, operational efficacy, and long-term viability must be prioritized.

Self-sustainability in the context of microfinance refers to MFIs' capacity to support underprivileged populations while remaining operationally and financially viable for an extended length of time without requiring outside grants or subsidies. Maintaining financial sustainability (FS) can help microfinance operations function efficiently and successfully. In order to assess MFIs' financial self-sufficiency (FS), two essential stages are operational self-sufficiency (OSS) and financial self-sufficiency (FSS) (Kinde, 2022). Operational revenue is used by OSS to evaluate an institution's ability to cover all loan losses and administrative expenses. Divided by the total of interest charges, loan loss provisions, and administrative expenses is the total operating revenue.

According to Subedi and Karki (2022), a microfinance institution is considered sustainable if it can pay for all of its expenses with interest and other revenue from its customers. In microfinance, sustainability can be evaluated at various institutional, collective, and individual levels and is associated with financial, managerial, and organizational factors. Even without subsidies and soft loans, MFIs that are financially viable may remain a permanent component of the financial system. The amount of money donated is far from enough to cover the world's microfinance needs. But once an MFI achieves sustainability, donor funding is no longer a factor. Adopting

commercial finance sources could allow it to reach the impoverished on a much larger scale.

Financial sustainability is crucial since it directly affects the long-term effectiveness and profitability of microfinance institutions. It demonstrates how well a microfinance institution can cover its costs, carry on without continual support from donors, and generate enough revenue to support its target clientele in a sustainable manner (Sadiq & Burki, 2018). Therefore, in addition to being a key indicator of overall institutional health, financial sustainability is a primary outcome that can be used to evaluate the efficacy of several internal and external determinants, such as governance, regulatory frameworks, operational efficiency, and loan portfolio quality. Since even socially meaningful microfinance programs are unlikely to persist without financial sustainability, it is imperative to understand what actually drives the sustainability of microfinance firms (Narwal & Yadav, 2016).

In addition to the financial viewpoint, sustainability in microfinance actually considers a variety of other factors, including institutional, market, legal, and regulatory issues as well as impact factors. Furthermore, MFI sustainability offers a workable path to better financial services accessibility; it encourages investment, boosts asset accumulation and regional economic activity, and aids in the lifting of the poor out of poverty. By empowering low-income and disadvantaged individuals to use financial services to seize opportunities, invest in their future, and safeguard their homes and businesses from economic shocks, desirable economic development can be accomplished (Malik et al., 2020). To stay open and continue serving a large population in an attempt to combat poverty, microfinance organizations must be sustainable. To offer long-term microfinance services and support the fight, microfinance institutions must also be sustainable.

Zheng et al. (2021) explained that sustainability is the long-term continuation of the microfinance program following the conclusion of project activity. For microfinance services to be continuously available and for clients to continue receiving regular benefits, the appropriate procedures and systems must be in place. This would also imply that the program would use resources either internally or externally developed by the participants to meet their needs.

Tehulu (2013) stated that the sustainability is the capacity of microfinance institutions (MFIs) to cover all of their costs from operating income alone, without the need for outside help (such as taxes). Microfinance institutions are said to have achieved sustainability when their operational revenue from loans covers all of their operating costs (Walde et al., 2022). By being sustainable, the microfinance provider can continue to operate and assist the poor with their financial requirements. According to some, MFIs can only effectively reach their target population over the long term without needing subsidies if they adopt sustainable practices. As a result, the microfinance sector has employed sustainability as the subject of several studies, the majority of which seek to comprehend and offer insights into its significance as well as how to attain it.

This study is significant because it focuses on identifying and evaluating the major factors that affect Nepalese microfinance organizations' sustainability. Given the socioeconomic situation in Nepal, where a sizable section of the populace depends on microfinance services to maintain their livelihoods, it is critical to comprehend the factors that contribute to long-term sustainability. This study offers insightful information about the regulatory environment, outreach tactics, financial performance, and managerial effectiveness that affect these institutions' operational stability. By emphasizing these factors, the study hopes to help stakeholders, practitioners, and policymakers fortify the microfinance industry and guarantee its long-term, sustainable capacity to assist low-income populations. This study therefore attempts to assess the factors that influence the sustainability of microfinance firms in Nepal.

### 1.2 Problem Statement

Services for microfinance targeted at the poor have grown significantly since their inception in the 1970s. According to Omunjalu and Fondo (2014), microfinance has emerged as one of the most popular strategies for reducing poverty globally. Even though the number of microfinance institutions (MFIs) has increased dramatically over the last three decades, there is still continuous discussion regarding their efficacy and sustainability. Financial viability and their goal of reducing poverty appear to be difficult for many MFIs to balance (Gashayie & Singh, 2015).

A number of studies have investigated the variables affecting MFI sustainability. According to Rahman and Mazlan (2014), an MFI's financial self-sufficiency and size were positively connected in Bangladesh. Administrative effectiveness and MFI sustainability were found to be positively correlated by Long and Marwa (2015). Hailu and Venkateswarlu (2015) found no significant relationship between operational self-sufficiency and an MFI's age, debt-to-equity ratios, or personnel productivity ratios in Ethiopia. The average loan balance per borrower and the size of the MFI had a major impact on the operational sustainability of Indian MFIs, according to Mahapatra and Dutta (2016). Mutua and Ali (2017) discovered that savings mobilization and sound governance significantly improved the financial sustainability of MFIs in Mombasa County, Kenya.

Dagnew and Seid (2019) found that leverage, credit risk, and inflation rate were not significant factors in determining the financial sustainability of microfinance institutions (MFIs) in Ethiopia. However, they observed that the size of the MFI had a significant positive impact on financial self-sufficiency (FSS). Lutf and Twaha (2019) noted that while capital structure, efficiency, and portfolio quality posed challenges, factors like outreach and profitability facilitated the sustainability of microfinance. Subedi and Karki (2022) identified a strong trade-off between sustainability and outreach, which could be mitigated by improving operational efficiency. They suggested that enhancing operational effectiveness could lead to both better outreach and increased sustainability for MFIs. Kinde (2022) found that the financial viability of MFIs in Ethiopia is influenced by factors such as the breadth, depth, and cost per borrower of their outreach. Lastly, Masanyiwa et al. (2022) concluded that microfinance institutions in their study spent more on administrative costs than on operations and finance, which could negatively affect their operational self-sufficiency and result in lower profits.

Tehulu (2022) found a positive correlation between the sustainability of microfinance institutions (MFIs) and both the size of their loan portfolios and loan intensity, with the economic impact of loan intensity being particularly strong. Hamid et al. (2023) showed that the financial sustainability of Bangladesh's microfinance sector was significantly negatively affected by factors such as organizational structure, liquidity, leverage, cost per borrower, and GDP. In contrast, Maeenuddin et al. (2024)

demonstrated that the financial sustainability of microfinance providers in Pakistan was notably improved by increases in loan size and leverage. However, the overall number of borrowers and the operational costs per borrower negatively impacted the financial viability of microfinance providers (MFPs) in Pakistan. Given the inconclusive results from previous studies, it remains unclear which factors and to what extent they influence the sustainability of microfinance institutions (MFIs). Therefore, this study aims to analyze the factors affecting the sustainability of microfinance companies in Nepal. According to the literature, only a limited number of studies have been conducted on this topic in the context of Nepal. Additionally, this study examines variables such as the operating efficiency ratio, leverage ratio, credit risk, company size and inflation factors that have not been analyzed together in a single study before. The goal of this research is to fill the gap in existing literature. The study has raised the following research questions:

i. What are the factors of operational self-sufficiency of microfinance companies in Nepal?
ii. Is there any relationship between specific factors (operating efficiency ratio, leverage ratio, credit risk, size of companies, inflation rate and operational self-sufficiency of microfinance companies in Nepal?
iii. Do the operating efficiency ratio, leverage ratio, credit risk, size of companies and inflation rate impact on operational self-sufficiency of microfinance companies in Nepal?

### 1.3 Objectives of the Study

The major objective of the study is to examine the determinants of sustainability of Nepalese microfinance companies. The specific objectives of this study are as follows:

i. To assess the factors of operational self-sufficiency of microfinance companies in Nepal.
ii. To examine the relationship between specific factors (operating efficiency ratio, leverage ratio, credit risk, size of companies and inflation rate) and operational self-sufficiency of microfinance companies in Nepal.
iii. To analyze the impact of operating efficiency ratio, leverage ratio, credit risk, size of companies and inflation rate on operational self-sufficiency of microfinance companies in Nepal.

### 1.4 Research Hypothesis

The following hypotheses were formulated based on the previously discussed research topics. Therefore, the goal of this study is to evaluate the following hypotheses concerning microfinance firms in Nepal:

1. $H_1$: Operating efficiency ratio has significant impact on sustainability of microfinance companies in Nepal.
2. $H_2$: Leverage ratio has significant impact on sustainability of microfinance companies in Nepal.
3. $H_3$: Credit risk ratio has significant impact on sustainability of microfinance companies in Nepal.
4. $H_4$: Size of companies has significant impact on sustainability of microfinance companies in Nepal.
5. $H_4$: Inflation rate has significant impact on sustainability of microfinance companies in Nepal.

### 1.5 Rationale of the Study

In order to meet their financial needs, households, micro-entrepreneurs, farmers, and other impoverished people depend heavily on microfinance institutions (MFIs). MFIs' financial assistance helps to increase the standard of living, educational attainment, health, and financial stability of underprivileged people while also lowering poverty. Consequently, microfinance plays a major role in the expansion of the economy as a whole. Financial sustainability is a prerequisite for MFIs to continuously carry out this function. In both general and specific terms, this study seeks to assist MFI decision-makers in identifying the elements that impact their financial sustainability and to draw attention to those elements that need improvement. Because they are struggling financially, a large number of people in Nepal depend on MFIs for basic financial services. By determining the essential traits that support MFI sustainability, this study will offer crucial data that will assist these organizations in managing.

Microfinance's long-term viability supports objectives like raising the living standards of the poor, pushing for widespread wealth creation mobilization, and motivating competent Nepalese citizens to actively engage in a range of economic activities. At the moment, the microfinance program in Nepal is primarily supported by foreign

donors and international organizations. Effective coverage and service delivery are anticipated to have a short-term impact that will increase external support, even though long-term financial sustainability must come from domestic resources. Important roles in this process must also be played by pertinent offices and government agencies.

The results of this study should give important information about the long-term sustainability of MFIs to a range of stakeholders, including creditors, investors, donors, consumers, and the government. Policymakers will be better informed about the possible factors influencing financial sustainability and the management of MFIs thanks to this information. It may also be advantageous for policymakers to support, encourage, and promote MFIs, especially through the Nepal Rastra Bank as a regulatory body. Future studies on related or comparable subjects may be built upon the findings of this study.

### 1.6 Limitations of the Study

This study has the following limitations;

i. The factors influencing the sustainability of microfinance firms in Nepal are the main focus of this study.
ii. Chhimek Laghubitta Bikas Bank Limited, Janutthan Samudayic Laghubitta Bikas Bank Limited, NMB Laghubitta Bitiya Sanstha Limited, and Nirdhan Utthan Laghubitta Bitiya Sanstha Limited are the only four microfinance firms in Nepal that are examined in this research out of 51.
iii. Data from the previous 10 years, from F/Y 2014/15 to F/Y 2023/24, are included in the research.
iv. Secondary data from websites, yearly reports, and other sources forms the basis of the study.
v. This study only used descriptive analysis, correlation analysis, and multiple regression analysis.

# CHAPTER-II
# LITERATURE REVIEW

The literature on these subjects is highlighted in this chapter, which also reviews the empirical data from earlier research and discusses the conceptual aspects of the subjects. Research articles, books, journals, unpublished theses, and other materials are among the many sources that are covered. While the second part of the chapter primarily reviews previous research, the first part of the chapter presents the theoretical review.

## 2.1 Theoretical Review

### 2.1.1 Theories of Sustainability

This study reviews the following theories: the theory of loan payback, the social capital theory, the adverse selection theory of financial markets, the village banking theory.

#### 2.1.1.1 Theory of Loan Repayment

To fully comprehend the elements affecting the sustainability of microfinance institutions (MFIs), one must have a solid understanding of the Theory of Loan Repayment. Stiglitz and Weiss (1981) argued that MFIs must maintain high repayment rates in order to remain financially stable. The borrower's economic circumstances, loan terms, social capital, and the strength of the lender-borrower relationship are some of the factors that influence a borrower's willingness and capacity to repay. By tackling these elements, MFIs can raise repayment rates, lower the risk of default, and guarantee their long-term viability and financial success. Consequently, the expansion and long-term viability of microfinance organizations depend on the integration of knowledge from the Theory of Loan Repayment into their operations (Besley & Coate, 1995).

Repayments from microfinance institutions are frequently required. With regular installments, borrowers usually start repaying their loans shortly after the money is disbursed. A common perception of this repayment plan is that it aids in the development of "fiscal discipline.". One of the reasons for this repayment schedule, according to Jain and Mansuri (2003), is the difficulty in keeping an eye on borrowers'

behavior. Regular repayments, which subtly mimic the methods of informal lenders, are one strategy that MFIs use to reduce the risk of moral hazard. This installment repayment plan, however, allows informal lenders to stay in business and may even raise interest rates and broaden the scope of informal lending. Using the idea of present-biased, quasi-hyperbolic preferences, Fischer and Ghatak (2009) provide an alternative explanation for this repayment strategy. Consistent repayments are seen by many microfinance professionals as essential to success.

#### 2.1.1.2 Adverse Selection Theory of Financial Markets

The theory of adverse selection has a substantial effect on microfinance institutions' (MFIs') ability to survive. Ineffective management of adverse selection could result in high default rates, higher expenses, and a diminished capacity to provide loans to responsible borrowers for MFIs. For MFIs, which are frequently vital for fostering economic development in underprivileged communities, lowering the risks related to adverse selection is essential to their long-term success. By reducing the effects of adverse selection, techniques like group lending, utilizing social collateral, and improving information systems can contribute to the sustainability of microfinance. The research of Stieglitz and Weiss (1981), who maintained that interest rates in credit institutions act as a means of screening prospective borrowers, resulting in adverse selection, is the foundation for this theory. Thus, interest rates have an impact on how financial markets behave. Formal lenders frequently deny credit to those who are less fortunate.

#### 2.1.1.3 The Social Capital Theory

Microfinance sustainability and the Social Capital Theory are closely related because social capital is essential to the functioning, development of trust, and financial stability of microfinance institutions (MFIs). Social capital highlights the value of relationships and the trust they foster by referring to the networks, customs, and connections that allow people to work together for the good of all. Social capital, according to Putnam (1993), is the sum of social networks, norms, and trust that enables people to collaborate successfully and accomplish shared objectives. In the initial phases, when members are chosen based on pre-existing trust, collective activities that enable informal financial groups (IFGs) can flourish. For IFGs, which

are frequently self-regulated, social factors are essential to their sustainability and performance. Social factors like peer pressure, social exclusion, and default penalties act as deterrents, putting IFGs' survival at risk when defaults happen.

Van de Brick and Chavas (1997) observed that people carefully weigh the transaction costs of guaranteeing loan repayment, even when there is significant social pressure. As per Roscas' function, members typically favor the advantages of belonging to the group over the benefits of defaulting. Trust and social dynamics are the main factors that determine the survival of rotating savings and credit associations (ROSCAs), a flexible form of IFG. The group uses enforced trust to provide loans without the need for physical collateral but with a social guarantee of repayment.

Social capital speeds up transactions, lowers the risk of default for lenders, and facilitates loan access for borrowers, according to Olomola (2002). In situations where the legal system is too expensive or unworkable, social capital provides ways to enforce repayment. Because it emphasizes how social capital can enhance loan recovery and lower default rates—two important factors affecting the long-term viability of businesses in the microfinance sector—this theory is essential to the study.

#### 2.1.1.4 Village Banking Theory

NGOs created village banks, which are locally run savings and lending institutions with the goal of assisting members in saving money and giving the underprivileged access to reasonably priced financial services. Usually, these banks have between 25 and 50 low-income customers. The members are in charge of managing the bank, choosing its executives, establishing its rules, making loan payments, and gathering money and services (Christen, 2001).

By agreeing to take responsibility for any defaults, village bank members essentially act as moral collateral for the bank's loans (Chen and Dunn, 2016). Furthermore, loan amounts are linked to each member's ability to save a specific percentage of their loan balance each cycle. These monies can be used to make new loans or to fund initiatives that generate revenue. According to the model, women's involvement in village banks

can raise their social standing and increase their negotiating power within the home, which is why many of them target them specifically.

### 2.1.2 Concept of Sustainability

The ability to make enough money to cover program expenses is known as sustainability. The program's viability is affected by several aspects. These include inflation, loan losses or portfolio quality, fund costs, administrative overheads, and product price. Every component has a unique significance and a variety of control options (Khabeer, 2006).

Beyond only financial sustainability, a broader perspective on sustainability is required. The sustainability of demand, the organization's goal, ownership and governance structure, and the legal and regulatory framework in which it works are some of the elements that affect an MFI's overall sustainability (Long & Marwa, 2015). Furthermore, the sustainability of an MFI may not be enough on its own until a full-fledged micro-finance sector (MFS) is established on sustainable lines.

The foundation of MFIs' efforts to fight global poverty is sustainability. The ability of microfinance institutions to pay for all of their expenses out of interest and other revenue received from clients is known as institutional sustainability. Many experts have varied definitions of sustainability. An MFI is considered sustainable by bankers when its total operational income surpasses its operating expenses. According to Rahman and Luo (2012), MFI sustainability is commonly defined as the organization's ability to pay for its financing, operating, and financial expenses out of its earnings.

If a sustainable MFI can continue to operate even in the event that donor agency grants or soft loans are no longer accessible, it is an essential component of the economy. The ability of MFIs to remain a continuing concern by providing financial services to underserved populations that traditional financial institutions ignore is the most straightforward definition of sustainability provided by Rao and Fitamo (2014). The sustainability of MFIs is determined by their capacity to run a program with their own resources and provide results that beneficiaries and other stakeholders find significant.

### 2.1.3 Different Dimensions of Sustainability

**Institutional sustainability**

Institutional sustainability looks at the parts of the organization that deal with the internal organizational environment (Brau & Woller, 2004). These are the traits that support the organization's viability, health, and vitality.

**Mission sustainability**

The sustainability of the organization's mission is what will keep it on the path it has chosen. The organization's operations must be regularly evaluated to see if they support their declared mission. A well-defined and inclusive approach would be used to execute any changes to the organization's mission (Brau & Woller, 2004).

**Programme sustainability**

A program can be deemed sustainable when its stakeholders, or clients, are willing to accept responsibility for the services they get and feel that they are significant and worthwhile enough. Since the program remains client-supported and no outside financing is sought, the MFI may then develop a phase-out strategy (Bret, 2006).

**Human Resource sustainability**

It demonstrated that the MFI is able to recruit, develop, onboard, and retain qualified staff members who can deliver the services as required. The staff may also monitor the company and steer it in the right direction while taking into account all other sustainability considerations (Brau & Woller, 2004).

**Financial sustainability**

Rahman and Mazlan (2014) defined financial sustainability as the MFI's ability to cover all of its ongoing costs as well as any expenses connected to growth that could result from growing its operations. It would show that the MFI can pay for its growth-related charges, inflation-adjusted financial expenditures, and operating costs. Financial sustainability is a quantifiable quality that can be measured and tracked over time using a set of indicators. Otero and Rhyne have identified four phases of financial sustainability. The first is when the MFI's operations are solely dependent on grants and subsidies, and the last is when client resources plus funds obtained from financial institutions at commercial interest rates provide all of the program's funding.

In conclusion, the secret to financial sustainability is setting an interest rate high enough to pay for operating expenses, loan losses, and interest and adjustment fees. To compensate for these costs, MFIs must, however, operate effectively enough to be able to offer competitive, reasonable, and equitable interest rates. Therefore, to be long-term sustainable, MFIs need to reduce operating costs, rotate their portfolios efficiently, prevent delinquency, maintain a low cost of capital (by mobilizing savings), and, most importantly, establish interest rates to cover all of these costs (Rutherford, 2000).

**Market sustainability**

This encompasses the full range of issues related to supply and demand in microfinance. It tackles issues with the diverse range of consumer types, their demands, and developing solutions to satisfy them. Meeting these expectations in the most customer-friendly manner will lead to the demand's sustainability. To sustain a consistent flow of resources, the MFI has to be financially independent, pay for all of its operational costs, and have access to funds acquired from clients and other sources at interest rates that are both commercially viable. Another facet of market sustainability is providing consumers with a multitude of choices. The effectiveness and efficiency of the MFIs' products, not any imagined shortcomings, are what sustain them (Christen et al., 2003).

**Legal and policy environment sustainability**

According to Onyuma and Shem (2005), market sustainability is contingent upon the presence of a strong legal and legislative framework that permits the growth of several companies providing microfinance services. It would include topics like interest rates, legal organization structures, mobilizing savings, and mobilizing resources from international financial markets and commercial sources, among other things.

**Impact sustainability**

One effective tactic for lowering poverty among disadvantaged populations is microfinance. Therefore, poverty must be positively impacted by the services offered by the different groups. Improvements in the impoverished family's life must be sustained over time in order for them to gradually leave poverty (Onyuma & Shem, 2005).

## 2.2 Empirical Review

Yasmin et al. (2024) analyzed the potential firm-specific factors that influence the economic stability of MFIs (microfinance institutions) in Bangladesh. Through performance analysis of the top 120 MFIs in Bangladesh, the study has gathered quantitative data on six predictor factors and one sustainability measure. To determine the factors influencing the financial sustainability of MFIs in Bangladesh, the study employed an OLS regression. The results showed that all of the stated predictors, with the exception of deposit mobilization, had statistically significant effects on the financial sustainability of Bangladesh's microfinance institutions. Size and loan intensity had a positive effect, while managerial inefficiency, leverage, and outreach scope had a negative impact.

Adhikari et al. (2024) investigated the factors influencing the financial sustainability of microfinance institutions in Nepal. The study used cross-sectional data from the full financial statements of 25 sampled microfinance organizations, drawn from a total of 57 D-class financial institutions regulated by Nepal Rastra Bank, covering the period from 2016 to 2023. Various analytical methods were applied, including descriptive statistics, correlation analysis, the Hausman test, variance inflation factor, panel data regression, and the two-stage system GMM. The findings revealed that the number of borrowers and savings had a positive and significant impact on the financial sustainability of microfinance institutions. On the other hand, member-per-staff ratio and non-performing loans negatively and significantly affected financial sustainability. Interestingly, loan portfolios were found to have no significant impact on the financial sustainability of microfinance institutions in Nepal.

Maeenuddin et al. (2024) evaluated the factors influencing the financial sustainability of the microfinance industry in Pakistan. A new financial sustainability index was developed for this purpose. The study analyzed panel data from 34 Pakistani microfinance providers (MFPs), with 344 MFI-years of observations spanning from 2006 to 2018, using the Generalized Method of Moments (GMM) technique. The findings revealed that the financial sustainability of MFPs in Pakistan improved significantly with increases in loan size, female borrowers, liquidity, and leverage. However, the financial viability of these institutions was negatively impacted by the total number of borrowers and the operational costs per borrower. The study

emphasized that MFIs need to achieve financial self-sufficiency, reducing their reliance on donor organizations or government support.

Hamid et al. (2023) evaluated the financial sustainability of microfinance providers (MFPs) in Bangladesh by developing a financial sustainability index (FSI) using Principal Component Analysis (PCA). The study analyzed data from the World Bank's MIX market from 2006 to 2018 using the two-step Generalized Method of Moments (GMM) technique. The findings revealed that FSI was positively influenced by factors such as loan size, borrower count, female borrower proportion, and inflation. However, the financial viability of Bangladesh's microfinance sector was negatively affected by organizational structure, liquidity, leverage, cost per borrower, and GDP. Further analysis indicated that national governance factors weakened the negative relationship between organizational structure, average loan balance per borrower, and FSI. Additionally, improved national governance reduced the adverse effects of borrower quantity and cost per borrower on the financial sustainability of MFPs in Bangladesh.

Subedi and Karki (2022) explored the relationship between outreach and sustainability in Nepalese microfinance institutions (MFIs). The study analyzed data from 44 MFIs in Nepal spanning from 1999 to 2019, using panel regression analysis to examine the connection between MFI sustainability and outreach depth. In addition to the primary variables of interest, the study also considered the impact of operational efficiency on these relationships. The results indicated a significant trade-off between sustainability and outreach, which could be mitigated by improving operational efficiency. The study suggested that enhancing operational efficiency could lead to better outreach and sustainability for MFIs. Based on these findings, the study recommended policies that encourage operational effectiveness to improve both sustainability and outreach for Nepalese MFIs.

Tehulu (2022) analyzed the relationship between loan growth and the financial stability of microfinance institutions (MFIs) in Sub-Saharan Africa (SSA). The study utilized a panel dataset of 136 MFIs from 2004 to 2018 across 31 SSA countries, employing the Arellano-Bover/Blundell-Bond two-step Generalized Method of Moments (GMM) with Windmeijer bias-corrected standard errors. The findings

revealed a positive correlation between MFI sustainability and both loan portfolio size and loan intensity, with the economic impact of loan intensity being stronger. However, the study found that "credit growth," a second proxy for credit expansion, did not predict the sustainability of MFIs. Additionally, the analysis showed that the interaction between lending intensity and portfolio at risk affects MFI sustainability. However, the research did not reveal any significant variation in the impact of credit expansion on financial sustainability based on loan interest rates.

Hemtanon and Gan (2022) examined the factors affecting the financial sustainability of microfinance institutions (MFIs) in Thailand, noting that only a small portion of the research in this area has focused on Thai MFIs. Using the random effect model, the study explored variables influencing the financial sustainability of these institutions. The findings revealed that the sustainability of Thai MFIs was influenced by the efficiency with which staff manage borrowers and the ability of the institutions to generate revenue from their short-term assets. Additionally, the study found that Thai MFIs do not benefit from economies of scale and are not effectively serving the poorest populations. The study recommended that MFIs balance their social and financial objectives appropriately and adopt a hybrid approach that leverages technology to reduce operational costs while adhering to profit maximization principles.

Masanyiwa et al. (2022) explored the factors that contribute to the sustainability of microfinance institutions (MFIs) in Zanzibar's North "A" region. The study collected primary data from 150 randomly selected members and 50 carefully chosen leaders of MFIs using questionnaires and checklists. Quantitative data were analyzed using descriptive statistics, one-way analysis of variance (ANOVA), and multiple linear regression techniques. The findings revealed that MFIs spent more on administration than on operations and finances, which could negatively affect their operational self-sufficiency and result in poor profitability. Additionally, the low capital base of these institutions in relation to their operational hours posed a threat to their viability. The study showed that the number of active borrowers and the loan portfolio had a significant influence on the operational self-sufficiency of MFIs in the region. While interest rates on loans were strongly correlated with the financial self-sufficiency of

MFIs, the loan portfolio was found to have a negative and significant impact on their financial self-sufficiency.

Kinde (2022) examined the factors influencing the financial sustainability of microfinance institutions (MFIs) in Ethiopia. The study utilized a balanced panel dataset of 126 observations from 14 MFIs spanning from 2002 to 2010, applying a quantitative approach. Both fixed effect (FE) and random effect (RE) models were tested, with the Hausman test indicating that the random effect model was more suitable for the analysis. The findings revealed that the financial viability of MFIs in Ethiopia was significantly influenced by the breadth, depth, and cost per borrower of microfinance outreach. However, the capital structure of the MFIs and employee productivity did not have a significant impact on their financial sustainability during the study period.

Zheng et al. (2021) investigated the components of green finance and their impact on the sustainability performance of financial institutions in developing countries, specifically focusing on Bangladesh. The study also explored the extent to which banks and non-bank financial institutions in Bangladesh adopted green financing from 2015 to 2020. To analyze the data, the researchers used structural equation modeling. The findings revealed that the components of green finance are closely connected to the economic, social, and environmental aspects of the Sustainable Development Goals (SDGs). The empirical results showed that the social, economic, and environmental dimensions of green financing significantly contributed to enhancing the sustainability performance of banks in Bangladesh.

Lutf and Twaha (2019) analyzed the performance of East African microfinance institutions (MFIs) in terms of financial sustainability from 2012 to 2017, using secondary data sourced from the Microfinance Information Exchange. The researchers employed multiple regression analysis to examine the data. The study revealed that several factors either supported or hindered the ability of these organizations to remain financially sustainable. Specifically, it found that while capital structure, efficiency, and portfolio quality acted as barriers to sustainability, outreach and profitability played key roles in facilitating it. The study identified several factors that either promoted or impeded financial sustainability. On the negative side, these included

debt-to-equity ratio, donations, personnel expenses to loan portfolio, loan loss rate, and portfolio at risk for more than 30 days. On the positive side, factors such as the number of active borrowers, deposit-to-GNP per capita ratio, profit margin, and real yield were found to encourage financial sustainability.

Dagnew and Seid (2019) investigated the factors influencing the financial viability of microfinance institutions (MFIs) in Ethiopia. The study used a balanced panel dataset of 208 observations from 26 MFIs between 2010 and 2017, applying a quantitative research methodology. Data analysis was conducted using STATA 13. The explanatory variables examined in the study included the operating expenditure to total asset ratio, MFI size, leverage, credit risk, lending intensity, deposit mobilization, outreach depth, yield on gross loan portfolio, deposit-to-loan ratio, and inflation rate. The researchers employed robust random effect regression for the analysis. The study found that factors such as leverage, credit risk, outreach depth, and inflation rate were not significant in determining the financial sustainability of MFIs in Ethiopia. However, MFI size, loan intensity, deposit mobilization, and yield on the gross loan portfolio had a significant positive impact on financial self-sufficiency (FSS). In contrast, the operating expense to total asset ratio and deposit-to-loan ratio had a significant negative effect. Based on these findings, the study recommended that Ethiopian MFIs focus on expanding their gross loan portfolios to improve financial sustainability.

Sadiq and Burki (2018) evaluated the factors affecting the financial sustainability (FS) of microfinance institutions (MFIs) operating in Pakistan. The study focused on variables such as financing costs, loan amounts, business age, the size of the microfinance institution, and the proportion of female borrowers. These factors were found to play a crucial role in ensuring the financial sustainability of MFIs in Pakistan. Data was collected from the annual reports of 25 microfinance institutions covering the period from 2008 to 2015. The researchers used the multiple regression technique to assess financial sustainability based on the identified criteria. The findings revealed that outreach, financing costs, and the proportion of female borrowers significantly contributed to the financial viability of MFIs. These factors were deemed essential for reducing poverty in Pakistan and ensuring the long-term survival and financial sustainability of MFIs.

Mutua and Ali (2017) examined the factors affecting the financial sustainability of microfinance institutions (MFIs) in Kenya, specifically focusing on Mombasa County. The study explored the impact of governance, donor financing, and savings mobilization on the ability of MFIs to maintain financial viability. The research involved five microfinance institutions based in Mombasa Town. The collected data was processed and analyzed using descriptive and inferential statistics, with the Social Package for Social Sciences (SPSS) software. The findings revealed a strong negative correlation between donor financing, savings mobilization, governance, and the financial viability of MFIs in Mombasa County. The study concluded that good governance, donor funding, and savings mobilization have a statistically significant impact on the financial sustainability of microfinance institutions in the region.

Narwal and Yadav (2016) analyzed the impact of various financial and outreach metrics on the long-term viability of microfinance organizations. The study used secondary data from 40 microfinance organizations, taking a quantitative approach. A panel data methodology was employed for model specification, and multiple regression analysis, the unit root test, the Variance Inflation Factor (VIF), and descriptive statistics were applied in the investigation. The findings revealed a connection between outreach and financial sustainability indicators. Specifically, outreach measures showed a positive relationship with the profitability of microfinance institutions. Additionally, while loan repayment amounts positively affected outreach, they had a negative impact on financial sustainability. To enhance sustainability, the study suggested that microfinance organizations should prioritize improving repayment rates.

Mahapatra and Dutta (2016) analyzed the factors influencing the operational self-sufficiency of the Indian microfinance industry. This quantitative study used the Probit Regression model to analyze data. It examined nine years' worth of secondary data from 65 selected microfinance institutions (MFIs) in India, sourced from the MIX Market database. The findings revealed that factors such as the average loan balance per borrower, the size of the MFI, cost per borrower, and return on the gross loan portfolio significantly impacted the operational viability of Indian MFIs. Based on these results, the study recommended that microfinance institutions focus on increasing their economies of scale to lower the cost per borrower.

Hailu and Venkateswarlu (2015) examined the key factors influencing the operational and financial viability of selected microfinance institutions (MFIs) in Ethiopia. The study was based on data quality and availability for the six-year period from 2009 to 2014, which was used to select the MFIs. Several regression models were employed to identify the main factors affecting the operational and financial sustainability of these institutions. The findings indicated that personnel productivity ratios, debt-to-equity ratios, and the age of the MFI did not statistically impact operational self-sufficiency. However, the number of active borrowers, cost per borrower, and yield on the total loan portfolio were found to be statistically significant predictors of financial self-sufficiency for MFIs in Ethiopia.

Long and Marwa (2015) explored the factors influencing the financial sustainability of microfinance institutions (MFIs) in Ghana. The study used a quantitative approach and analyzed secondary data from MIX Market, focusing on an unbalanced panel dataset from 25 Ghanaian MFIs over a six-year period from 2006 to 2011. Both fixed effect and random effect linear panel models were applied. The findings revealed that staff productivity had a negative relationship with the financial sustainability of MFIs, while the administrative efficiency ratio and gross portfolio yield were positively correlated with sustainability. The relationship between staff productivity and sustainability was unclear, and the study suggests that further research is needed to better understand why high staff productivity is linked to lower financial sustainability.

Rahman and Mazlan (2014) studied the performance of microfinance institutions (MFIs) in Bangladesh, focusing on their financial self-sustainability. To assess this, they used a multiple regression approach to analyze factors such as the yield on the total loan portfolio, cost per borrower, and average loan balance per borrower. The study found that factors like the size of the MFI, cost per borrower, personnel productivity ratio, and yield on the gross loan portfolio all positively contributed to the financial self-sufficiency of MFIs in Bangladesh. On the other hand, factors such as the average loan balance per borrower, the age of the MFI, debt-to-equity ratio, operating expense ratio, and the number of active borrowers had a negative impact on the financial self-sufficiency of MFIs in the country.

**Table 1**

*Summary of Empirical Review*

| S.N. | Authors | Variables | Methodology | Major Findings |
|---|---|---|---|---|
| 1 | Yasmin et al. (2024) | Independent = Loan portfolio, borrower, savings, non-performing loan and member per staff Dependent = Operational self-sufficiency | To determine the factors influencing the financial sustainability of MFIs in Bangladesh, the study employed an OLS regression | The results showed that all of the stated predictors, with the exception of deposit mobilization, had statistically significant effects on the financial sustainability of Bangladesh's microfinance institutions. Size and loan intensity had a positive effect, while managerial inefficiency, leverage, and outreach scope had a negative impact. |
| 2 | Adhikari et al. (2024) | Independent = Loan portfolio, borrower, savings, non-performing loan and member per staff Dependent = Operational self-sufficiency, return on equity and return on assets | Descriptive statistics, correlation analysis, the panel data regression, and the two-stage system GMM were among the analytical methods used in the study | This study found that the number of borrowers and savings had a positive and significant effect on the financial stability of microfinance. However, member-per-staff and non-performing loans had a negative and significant effect on financial sustainability. However, loan portfolios had no effect on the financial sustainability of microfinance in Nepal. |
| 3 | Maeenuddin et al. (2024) | Independent = Organizational structure, growth outreach, women empowerment, liquidity, leverage, cost efficiency and gross domestic product Dependent = Financial Sustainability | The panel data from 34 Pakistani MFPs was analyzed using the Generalized Method of Moments (GMM) technique. | The results showed that the financial sustainability of microfinance providers in Pakistan was much improved by increases in loan size, female borrowers, liquidity, and leverage. However, the financial viability of MFPs in Pakistan was adversely impacted by the overall number of borrowers as well as the operational costs per borrower. |
| 4 | Hamid et al. (2023) | Independent = Organizational structure, growth outreach, women empowerment, liquidity, leverage, | This study examined data collected from the World Bank's MIX market | The findings showed that FSI was positively impacted by loan size, borrower count, female borrower proportion, and inflation. The financial viability of Bangladesh's |

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| | | cost efficiency, national governance, gross domestic product and inflation rate<br>Dependent = Financial sustainability | between 2006 and 2018 using the two-step GMM technique. | microfinance industry was significantly impacted negatively by organizational structure, liquidity, leverage, cost per borrower, and GDP. |
| 5 | Tehulu (2022) | Independent = Credit expansion, depth of outreach, number of active borrowers, operating expense to asset ratio, portfolio yield, Portfolio at risk, capital to total asset ratio, liquidity of MFIs and financial expense to asset ratio<br>Dependent = Financial self-sufficiency ratio | The study used the Arellano-Bover/Blundell-Bond two-step Generalized Method of Moments (GMM) Windmeijer bias-corrected standard errors | This study found a positive correlation between MFI sustainability and both loan portfolio size and loan intensity, with the economic effect of loan intensity being stronger. However, the second proxy for credit expansion, "credit growth," did not forecast the sustainability of MFIs. |
| 6 | Hemtanon and Gan (2022) | Independent = Yield on gross loan portfolio, total assets, debt to equity ratio, average loan balance per borrower, operating expense ratio and number of borrowers per staff member<br>Dependent = Financial self-sufficiency ratio and return on assets | Using the random effect model, this study investigated the variables affecting Thai MFIs' financial sustainability | According to the findings, sustainability was influenced by the efficiency with which Thai MFI staff manage borrowers and the MFIs' ability to generate cash or revenue from their short-term assets. Additionally, Thai MFIs do not benefit from economies of scale and do not serve the poorest people |
| 7 | Masanyiwa et al. (2022) | Independent = Number of clients in MFI, number of active borrowers, loan portfolio, loan repayment rate and interest rate of on loan<br>Dependent = Operational self sufficiency ratio and | Quantitative data were subjected to descriptive statistics, one-way analysis of variance (ANOVA), and multiple linear regression | It was found that microfinance institutions spent more on administration than on operations and finances, which might have an impact on their operational self-sufficiency and result in poor profit. The viability of microfinance organizations was threatened by their low capital base relative to their operational hours. |

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| | | financial self sufficiency ratio | | |
| 8 | Kinde (2022) | Independent = Ratio of total revenue to adjusted expense, number of borrowers, average loan size, debt to equity, donated equity to total capital, cost per borrower and borrowers per staff member<br>Dependent = Financial self sufficiency ratio | Both fixed effect (FE) and random effect (RE) models were used, however the Hausman test indicated that Random Effect was more appropriate | The study revealed that the financial viability of microfinance institutions in Ethiopia is impacted by the breadth, depth, and cost per borrower of microfinance outreach. Nonetheless, during the research periods, the financial viability of MFIs in Ethiopia was not significantly impacted by the capital structure of microfinance or the productivity of their employees. |
| 9 | Subedi and Karki (2022) | Independent = Average loan size by GDP per capita and operating expenses ratio<br>Dependent = Operating self-sufficiency ratio | This study used panel regression analysis to investigate the relationship between MFI sustainability and depth in the Nepalese environment | The results showed a strong trade-off between sustainability and outreach, which was further mitigated by operational effectiveness. Improved operational efficiency might lead to improved outreach and sustainability for MFIs. |
| 10 | Zheng et al. (2021) | Independent = Economic dimension, social dimension and environment dimension<br>Dependent = Sustainability performance | Considering the dataset's properties, the structural equation modeling technique was employed to accomplish the study's objectives | This study found that the components of green funding are linked to the economic, social, and environmental aspects of the SDGs. Furthermore, empirical findings shown that green financing's social, economic, and environmental components greatly enhanced banks' sustainability performance. |
| 11 | Lutf and Twaha (2019) | Independent = Capital structure, profitability, efficiency ratio and portfolio quality<br>Dependent = Financial self-sufficiency ratio, return on assets and | Multiple regression analysis was utilized to examine the data | The study showed that a number of factors both help and hinder these organizations' capacity to be financially sustainable. It found that although capital structure, efficiency, and portfolio quality were barriers, outreach and profitability were facilitators |

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| | | return on equity | | |
| 12 | Dagnew and Seid (2019) | Independent = Operating expense to total assets ratio, size of MFIs, leverage ratio, credit risk, loan intensity, deposit mobilization, depth of outreach, yield on gross loan, deposit to loan ratio and annual inflation rate. Dependent = Financial self-sufficiency ratio | This study used robust random effect regression for data analysis | This study found that leverage, credit risk, outreach depth, and inflation rate were insignificant in determining the financial sustainability of MFIs in Ethiopia. However, MFI size, loan intensity, deposit mobilization, and yield on gross loan portfolio had a significant positive effect on FSS, while the operating expense to total asset ratio and the deposit to loan ratio had a significant negative effect. |
| 13 | Sadiq and Burki (2018) | Independent = Size of the organization, financing charges, loan size, the proportion of female borrowers and age Dependent = Operational self Ssufficiency and return on Assets | The multiple regression technique was used to assess financial sustainability utilizing the criteria that were presented | The results of this research revealed that outreach, financing fees, and the percentage of female borrowers all significantly contribute to MFIs' financial viability. These were important factors in reducing poverty in Pakistan and achieving MFI survivability and solid financial sustainability. |
| 14 | Mutua and Ali (2017) | Independent = Governance, donor financing and saving mobilization Dependent = Financial sustainability | The collected data was sorted, edited, processed, and then analyzed using descriptive and inferential statistics with the aid of the Social Package for Social Sciences | The study found a strong but negative correlation between the financial viability of microfinance institutions in Mombasa County, donor financing, saving mobilization, and governance. The study concluded that good governance, donor funding, and saving mobilization had a statistically significant impact on the financial viability of microfinance institutions in Mombasa County, Kenya. |
| 15 | Narwal and Yadav (2016) | Independent = Number of active borrowers, average loan size, capital assets ratio, debt to equity ratio, portfolio at risk, size and age | Multiple regressions, the unit root test, the Variance Inflation Factor (VIF), | This study found a relationship between outreach and financial sustainability indicators. Outreach measures showed a positive association with microfinance firms' profitability. Repayment |

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| | | Dependent = Operational self sufficiency ratio, ROA and ROE. | and descriptive statistics were all employed in this investigation | amounts for loans had a positive impact on outreach while having a negative impact on financial sustainability |
| 16 | Mahapatra and Dutta (2016) | Independent = Size of MFIs, age, debt to equity ratio, loan portfolio quality, breath of outreach, operating expense to total assets ratio, loan to assets and deposit to assets<br>Dependent = Operational sustainability | The Probit Regression model served as the primary data analysis method in this quantitative investigation | The study found that the average loan balance per borrower, the size of the MFI, the cost per borrower, and the return on the gross loan portfolio all had a significant influence on the operational viability of Indian MFIs. |
| 17 | Hailu and Venkates warlu (2015) | Independent = Yield on gross loan portfolio, size of MFIs, age, average loan balance per borrower, cost per borrower, debt to equity ratio, personal productivity ratio, liquidity ratio, breath of outreach and operating expense ratio.<br>Dependent = Operational self-sufficiency and financial sufficiency ratio | To determine the main elements impacting the operational and financial sustainability of MFIs in Ethiopia, several regression models have been employed | This study found that the operational self-sufficiency of MFIs in Ethiopia was not statistically determined by personnel productivity ratios, debt to equity ratios, or an MFI's age. The number of active borrowers, cost per borrower, and yield on total loan portfolio were all statistically significant predictors of Ethiopian microfinance organizations' financial self-sufficiency. |
| 18 | Long and Marwa (2015) | Independent = Gross portfolio yield, number of borrowers, loan size, debt to equity ratio, operating expense to loan portfolio, administrative efficiency and size of assets<br>Dependent = | Both fixed effect and random effect linear panel models were used | This study found that staff productivity had a negative link with the sustainability of microfinance institutions, but the administrative efficiency ratio and gross portfolio yield had a positive correlation. |

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| | | Financial sufficiency ratio | | |
| 19 | Rahman and Mazlan (2014) | Independent = Yeild, size of companies, cost per borrower, personnel productivity ratio, gross loan portfolio, loan balance per borrowers, age of MFIs, debt to equity ratio, operating expense ratio and number of active borrowers<br>Dependent = Return on assets, return on equity and operational self-sufficiency | Multiple regression approach was utilized to estimate yield on the total loan portfolio, cost per borrower, and average loan balance per borrower | This study found that MFIs' size, cost per borrower, personnel productivity ratio, and yield on gross loan portfolio all positively explains their financial self-sufficiency in Bangladesh. However, the average loan balance per borrower, the age of MFIs, the debt-to-equity ratio, the operating expense ratio, and the number of active borrowers all had a negative effect on the financial self-sufficiency of FSS of MFIs in Bangladesh. |

Source: Self Employed

### 2.3 Research Gap

Although some studies have been conducted in other developing countries, they are mostly descriptive and none have focused specifically on Nepal. Previous studies on institutional sustainability mainly focused on earlier periods, often analyzing banks from past decades. However, there is a need for more up-to-date research, especially covering recent years up to 2023/24, and focusing on the microfinance sector. This study is also different in explanatory variables such as operating efficiency ratio, leverage ratio, credit risk, size of companies and inflation rate which are not included in a single study.

Further, some previous studies have come up with conflicting findings. For instance, Mahapatra and Dutta (2016); Dagnew and Seid (2019); Hemtanon and Gan (2022) found that operational efficiency ratio had significant effect on operating self-efficiency ratio while Hailu and Venkateswarlu (2015) had no effect on operating self-efficiency ratio or financial sustainability. Hailu and Venkateswarlu (2015) showed that on their part, noted a weak effect of leverage ratio on operating self-efficiency ratio whereas, Dagnew and Seid (2019); Hemtanon and Gan (2022); Hamid et al.

(2023) indicated leverage ratio, negatively affects microfinance companies' operating self-efficiency ratio in a statistically significant way. Further, Mahapatra and Dutta (2016) and Dagnew and Seid (2019) observed that the size of the companies had a statistically significant positive effect on the OSS of microfinance companies. However, this result contrasts with the findings of Rahman and Mazlan (2014), Long and Marwa (2015), and Hemtanon and Gan (2022). The paragraph discusses conflicting findings from various studies on the factors influencing the sustainability of microfinance companies in Nepal. Therefore, this study tries to analyze these missing findings on factors affecting sustainability of microfinance companies in Nepal. These conflicting results make it unclear which factors most influence the sustainability of microfinance companies in Nepal. So, this study aims to address and fill that gap.

# CHAPTER–III
# RESEARCH METHODOLOGY

Research methodology refers to the organized approach employed to solve a problem, which includes the systematic process of collecting, recording, analyzing, interpreting, and presenting data related to various aspects of the phenomenon under investigation. In this study, the research methodology section details the methods and procedures used throughout the research process. This chapter includes the research design, population and sample, sampling technique, the nature and sources of data, the research framework, the definition of variables, and the analytical methods used.

## 3.1 Research Design

This study employs both descriptive research design and causal research design to examine the factors affecting the sustainability of microfinance companies in Nepal. The descriptive research design is used to assess the current sustainability status of the sample microfinance companies, analyzing their position through average values, standard deviation, and identifying the maximum and minimum values, which helps describe the data characteristics of the sample companies. On the other hand, the causal research design is applied to evaluate the impact of specific factors on the sustainability of these microfinance companies in Nepal.

## 3.2 Population and Sample, and Sampling Design

Nowadays a number of microfinance companies have been emerging rapidly. Some have already been established and others are in the process of establishment. There are all together 51 microfinance companies operating in Nepal (As of Mid- January, 2025). In this study, all the microfinance companies are population of the study. Among them Chhimek Laghubitta Bikas Bank Limited, Janutthan Samudayic Laghubitta Bikas Bank Limited, NMB Laghubitta Bitiya Sanstha Limited and Nirdhan Utthan Laghubitta Bitiya Sanstha Limited are selected as sample on the basis of purposive sampling method because these four companies are top four in profitability in the present context and availability of data.

### 3.3 Nature and Sources of Data, and the Instruments of Data Collection

The research is based on secondary data to accomplish its objectives. The primary source of secondary data for this study is the annual reports of the relevant microfinance institutions. In addition to these reports, various journals, articles, and conference papers have also been utilized to gather additional insights and information.

### 3.4 Method of Analysis

The secondary data analysis method used in this study is econometric modeling. Specifically, the study employed a regression model to assess the impact of independent factors on the operating self-sufficiency ratio. In addition to regression analysis, the study utilized descriptive statistics and correlation analysis to examine the data and draw meaningful conclusions.

#### Descriptive Statistic

Descriptive statistics is a branch of statistics that focuses on summarizing, organizing, and presenting data in a clear and efficient manner. It aims to describe the key features and characteristics of a dataset without making inferences or generalizations about a larger population (Yadav et al., 2010). In this study, descriptive statistics such as the mean, standard deviation, minimum, and maximum values are used to characterize the financial sustainability of microfinance institutions in Nepal. The mean is computed to determine the average values of variables such as the operating efficiency ratio, leverage ratio, credit risk, company size, inflation rate and operating self-sufficiency. The standard deviation is used to measure the variation or dispersion of these variables, helping to assess the consistency and variability within the dataset.

#### Correlation coefficient (r)

The correlation coefficient indicates the relationship between two variables, showing how changes in one variable are associated with changes in another. It is used to assess the degree and direction of the relationship between a dependent variable and an independent variable (Khadka et al., 2018). A significant correlation suggests that changes in the independent variable have a meaningful impact on the dependent variable, indicating a connected or dependent relationship between the two variables.

The strength and direction of this relationship are quantified by the correlation coefficient, with higher absolute values signifying stronger relationships.

**Multiple Regression Analysis**

Regression is a statistical technique used to assess the strength of the relationship between a dependent variable and one or more independent variables. It includes various methods for analyzing and modeling multiple variables to identify their interconnections (Yadav et al., 2010). This analysis involves using different statistical approaches to estimate the relationships between variables, particularly focusing on how a dependent variable (such as sustainability) is influenced by independent variables like operating efficiency ratio, leverage ratio, credit risk, company size and inflation rate. In regression analysis, the goal is to understand how the typical value of the dependent variable (referred to as the "criterion variable") changes when one independent variable is altered, while holding the other independent variables constant. Studies by Mahapatra and Dutta (2016), Dagnew and Seid (2019), and Hamid et al. (2023) have explored factors such as operating efficiency ratio, leverage ratio, credit risk, company size and inflation rate with operational self-sufficiency as the dependent variable. This research follows a similar approach to develop the model presented in this study.

$OSS_{it} = \beta_0 + \beta_1 OER_{it} + \beta_2 LEV_{it} + \beta_3 CR_{it} + \beta_4 SIZE_{it} + \beta_5 INF_{it} + e_{it}$ (1)

Where:

$OSS_{it}$ = Operational self-sufficiency of microfinance company $i^{th}$ for the time period t

$OER_i t$ = Operating efficiency ratio of microfinance company $i^{th}$ for time period t

$LEV_i t$ = Leverage ratio of microfinance company $i^{th}$ for time period t

CR = Credit risk of microfinance company $i^{th}$ for the time period t

$SIZE_{it}$ = Size of companies $i^{th}$ for the time period t

$INF_{it}$ = Inflation rate for the time period t

$\beta_0$ = The intercept (constant)

$\beta_1$, $\beta_2$, $\beta_3$, $\beta_4$ $\beta_5$ = Regression coefficient of independent variables.

e = error component.

**3.6 Research Framework and Definition of the Variables**

Based on the theoretical and empirical literature reviews, the researcher has developed the following research framework for the study.

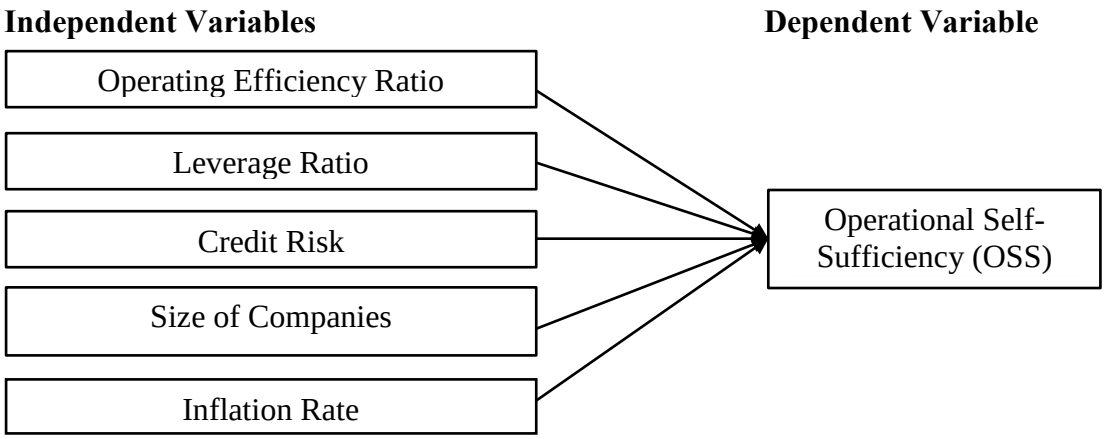


*Figure 1* Research Framework of the Study

Source: Mahapatra and Dutta (2016); Dagnew and Seid (2019) and Hamid et al. (2023)

**Dependent Variable**

**Operational Self Sufficiency**

Operational and financial self-sufficiency are the two stages by which financial sustainability may be evaluated, claim Dagnew and Seid (2019). The capacity of the MFI to pay its running expenses out of operating income, whether or not it receives subsidies, is known as operational self-sufficiency. However, MFIs are considered financially self-sufficient if they can pay for operations and financing expenses as well as other types of subsidies priced at market values out of their own revenue.

**Independent Variables**

**Operating Efficiency Ratio**

This ratio represents the total operating cost relative to the outstanding loan portfolio. A lower ratio, all else being equal, indicates greater efficiency. According to the econometric findings of Mahapatra and Dutta (2016), the operating expenses ratio has a significant impact on the sustainability of microfinance institutions. By reducing operating costs while maintaining a given level of the outstanding portfolio, MFIs can become more profitable, leading to enhanced financial sustainability. Dagnew and Seid (2019) also found that the operating efficiency ratio negatively and significantly affects financial sustainability, with a one percent significance level.

**Leverage Ratio**

The different sources of capital and their combination can impact the profitability and, consequently, the sustainability of microfinance institutions. The way these sources of capital are aligned within an MFI is referred to as its capital structure. Hamid et al. (2023) found that the sustainability of MFIs is linked to their capital structure. Similarly, Dagnew and Seid (2019) discovered a negative correlation between the Debt/Equity Ratio (capital structure) and the Operational Self-Sufficiency Ratio. This suggests that changes in the Debt/Equity Ratio negatively affect the operational self-sufficiency of the institution.

**Credit Risk**

Credit risk refers to the likelihood that a borrower will default on a loan. The ratio of non-performing loans to total loans is commonly used as an indicator of credit risk or the quality of loans. Credit risk is considered one of the most significant factors affecting the financial sustainability of microfinance institutions (MFIs). An increase in provisions for loan losses suggests higher costs associated with bad debt write-offs. MFIs facing greater credit risk are more likely to struggle with financial sustainability (Muhammad et al., 2016). Similarly, Dagnew and Seid (2019) found that credit risk had a negative and significant impact on the financial self-sufficiency (FSS) of MFIs.

**Size of Companies**

Another key factor influencing the Operational Self-Sufficiency (OSS) of an MFI is its size, which is typically measured by the value of its assets (Mersland & Storm, 2009). According to Cull et al. (2007), the size of an MFI is strongly and positively related to its financial performance. Mahapatra and Dutta (2016) found that the size of an MFI had a significant positive impact on profitability. Similarly, Dagnew and Seid (2019) discovered a positive relationship between the size of MFIs and their financial sustainability, indicating that larger MFIs tend to be more financially sustainable.

**Inflation Rate**

Inflation is the rate at which prices for goods and services are rising widely. Inflation and MFIs' financial self-sufficiency are closely related. Growing branch networks and business operations come at a high expense, but MFI revenue also increases. According to Dagnew and Seid (2019), this positive association indicates that MFI

revenue increases more quickly than their costs in reaction to inflation. Inflation affects the real value of revenue and costs, but its effect on profitability varies according on whether it is expected or not. Hamid et al. (2023) found that inflation rate had positive effect on financial sustainability of companies.

# CHAPTER - IV
# RESULTS AND DISCUSSION

This chapter provides a discussion and comparison of key facts and information related to the impact of specific factors on the sustainability of selected microfinance institutions in Nepal, with a focus on the research objectives. The first section of the chapter explores the sustainability characteristics of microfinance institutions. The second section analyzes the impact of certain factors on sustainability, utilizing the statistical methods discussed earlier, and examines the relationship between sustainability and other important variables. The third section presents a hypothetical analysis.

## 4.1 Results

In this section, the operational self-sufficiency of microfinance institutions is analyzed using statistical tools such as descriptive statistics, correlation analysis, and multiple regression analysis. These methods are applied to evaluate the key factors affecting the sustainability of the institutions and to explore the relationships between various variables.

### 4.1.1 Position of Sustainability and Study Variables

The sustainability of a microfinance company is determined by its ability to generate adequate income or, more efficiently, reduce operating expenses. Although several factors impact the sustainability of microfinance institutions, this study specifically focuses on the operating efficiency ratio, leverage ratio, credit risk, company size, and operational self-sufficiency ratio, among other variables.

#### 4.1.1.1 Operating Efficiency Ratio

Operating efficiency is a performance measure that evaluates how well microfinance institutions (MFIs) optimize their processes and manage input and output costs. Effective cost control is crucial for maximizing the use of MFIs' loanable resources, which can lead to increased profitability. A higher ratio of operational costs to the gross loan portfolio suggests inefficient management. Another important aspect of management quality is how efficiently operational expenses are managed. Managers often reflect their performance qualitatively through subjective assessments of

organizational discipline, control systems, personnel quality, management practices, and other factors.

**Table 2**

*Operating Efficiency Ratio*

(In percent)

| Year | NUBL | CBBL | JBBL | NMBMF |
|---|---|---|---|---|
| 2014/15 | 7.10 | 3.80 | 4.59 | 8.99 |
| 2015/16 | 6.66 | 3.27 | 6.00 | 8.69 |
| 2016/17 | 5.90 | 3.05 | 5.02 | 10.15 |
| 2017/18 | 4.52 | 10.98 | 5.97 | 16.29 |
| 2018/19 | 4.58 | 11.75 | 6.46 | 6.01 |
| 2019/20 | 4.18 | 11.84 | 5.30 | 11.86 |
| 2020/21 | 4.08 | 8.52 | 4.11 | 5.02 |
| 2021/22 | 3.66 | 9.31 | 4.90 | 5.38 |
| 2022/23 | 3.49 | 9.67 | 5.90 | 6.56 |
| 2023/24 | 3.73 | 9.58 | 5.50 | 7.23 |
| Mean | 4.79 | 8.18 | 5.38 | 8.62 |
| SD | 1.30 | 3.48 | 0.73 | 3.47 |
| CV | 27.09 | 42.59 | 13.57 | 40.24 |

Source: Appendix –I

Table 2 presents the operating efficiency ratios of sample microfinance companies in Nepal. The NMBMF ratio peaked at 16.29 percent in the fiscal year 2017/18, while the CBBL ratio was at its lowest, 3.05 percent, in the fiscal year 2016/17. On average, NMBMF had the highest operational efficiency ratio at 8.62 percent, whereas NUBL had the lowest average ratio at 4.79 percent. This suggests that NUBL is more efficient in utilizing MFIs' loanable resources, which could lead to higher income for the institutions. Additionally, the management at NUBL appears to be more efficient. JBBL demonstrated the lowest risk among the sample companies, as indicated by its lowest standard deviation. Moreover, SLBL's operating efficiency ratio exhibited the greatest consistency, as shown by its lowest coefficient of variation of 13.57 percent.

#### 4.1.1.2 Leverage Ratio

The leverage ratio is a financial metric used to assess the proportion of a company's capital that is financed through debt and to evaluate its ability to meet debt obligations. A commonly used measure of leverage is the debt-to-equity ratio, which compares the company's debt financing to its equity financing. Companies with high debt levels are required to make regular interest payments, and as their debt increases, so do these payments, reducing the earnings available to shareholders.

**Table 3**

*Leverage Ratio*

(In percent)

| Year | NUBL | CBBL | JBBL | NMBMF |
|---|---|---|---|---|
| 2014/15 | 9.74 | 10.66 | 7.66 | 10.87 |
| 2015/16 | 9.78 | 9.33 | 8.05 | 9.98 |
| 2016/17 | 9.38 | 9.24 | 10.37 | 8.90 |
| 2017/18 | 9.42 | 6.19 | 13.35 | 9.75 |
| 2018/19 | 8.01 | 5.66 | 10.96 | 10.17 |
| 2019/20 | 7.01 | 5.64 | 8.86 | 5.39 |
| 2020/21 | 5.89 | 5.76 | 9.70 | 5.07 |
| 2021/22 | 5.40 | 5.58 | 8.32 | 4.91 |
| 2022/23 | 4.95 | 5.33 | 7.93 | 4.42 |
| 2023/24 | 4.71 | 5.31 | 7.91 | 5.25 |
| Mean | 7.43 | 6.87 | 9.31 | 7.47 |
| SD | 2.09 | 2.03 | 1.82 | 2.65 |
| CV | 28.08 | 29.58 | 19.50 | 35.49 |

Source: Appendix –I

Table 3 presents the leverage ratios of microfinance companies in Nepal. In the fiscal year 2014/15, JBBL had the highest leverage ratio at 13.35 percent, while NMBMF recorded the lowest ratio of 4.42 percent in the fiscal year 2022/23. JBBL's highest average leverage ratio was 9.31 percent, whereas CBBL had the lowest average ratio at 6.87 percent. This suggests that JBBL relies significantly on debt financing, with a larger portion of its capital coming from creditors rather than its own equity. Given SLBL's high debt-to-equity ratio, its heavy reliance on debt could pose risks for

creditors. However, JBBL exhibited the lowest standard deviation, indicating it carries the least amount of risk. Furthermore, JBBL's leverage ratio showed the most consistency, as evidenced by its lowest CV, which stands at 19.50 percent.

#### 4.1.1.3 Credit Risk

This ratio measures the percentage of non-performing loans (NPLs) relative to total loans, including substandard, doubtful, and problematic loans. The higher the proportion of non-performing assets, the riskier the investments become. A larger share of non-performing loans also leads to increased loan loss provisions, which negatively affect profitability. This ratio evaluates the overall management and monitoring of loan performance by microfinance institutions.

**Table 4**

*Credit Risk*

(In percent)

| Year | NUBL | CBBL | JBBL | NMBMF |
|---|---|---|---|---|
| 2014/15 | 0.22 | 0.02 | 1.38 | 0.18 |
| 2015/16 | 0.40 | 0.10 | 2.26 | 1.17 |
| 2016/17 | 0.32 | 0.09 | 1.04 | 0.99 |
| 2017/18 | 0.93 | 0.11 | 1.69 | 2.66 |
| 2018/19 | 1.19 | 0.28 | 2.29 | 2.08 |
| 2019/20 | 1.83 | 0.46 | 3.73 | 2.40 |
| 2020/21 | 4.11 | 0.64 | 4.47 | 3.24 |
| 2021/22 | 5.30 | 0.83 | 3.80 | 3.71 |
| 2022/23 | 9.87 | 1.72 | 14.35 | 9.86 |
| 2023/24 | 10.60 | 3.00 | 7.21 | 6.35 |
| Mean | 3.48 | 0.72 | 4.22 | 3.27 |
| SD | 3.94 | 0.95 | 4.00 | 2.88 |
| CV | 113.38 | 131.02 | 94.84 | 88.32 |

Source: Appendix –I

Table 4 presents the credit risk ratios of microfinance companies in Nepal. The credit risk ratio ranges from 14.35 percent for JBBL in the fiscal year 2022/23 to 0.02 percent for CBBL in the fiscal year 2014/15. JBBL has the highest average ratio at

4.22 percent, while CBBL has the lowest average ratio at 0.72 percent. This suggests that CBBL carries the least credit risk, indicating that it is managing its non-performing loans (NPLs) more effectively than the other institutions. CBBL appears to closely monitor and track loan utilization. Furthermore, CBBL has the lowest risk among the sample companies, as indicated by its lowest standard deviation. Additionally, NMBMF has the lowest coefficient of variation (C.V.) at 88.32 percent, suggesting that its credit risk ratio is the most consistent among the sample companies.

#### 4.1.1.4 Size of Companies

The size of a company is represented by the natural logarithm of its total assets. In this study, company size is considered a specific internal independent variable due to its impact on performance. While managing a larger company may present greater challenges, larger businesses can also take advantage of economies of scale, which enable them to raise capital at a lower cost.

**Table 5**

*Size of Companies (Total Assets)*

(Rs. in thousand)

| Year | NUBL | CBBL | JBBL | NMBMF |
|---|---|---|---|---|
| 2014/15 | 8336037 | 9145280 | 263728 | 591115 |
| 2015/16 | 11837775 | 12524323 | 388703 | 1176946 |
| 2016/17 | 15340083 | 15509468 | 661385 | 2149054 |
| 2017/18 | 17967921 | 19549572 | 1072035 | 2674593 |
| 2018/19 | 22143425 | 24060301 | 1511056 | 3419402 |
| 2019/20 | 23615202 | 27259254 | 1752210 | 4525095 |
| 2020/21 | 26540523 | 34286755 | 2397833 | 5452710 |
| 2021/22 | 29621044 | 38255894 | 2401705 | 6197313 |
| 2022/23 | 27922236 | 42732042 | 2227849 | 5401742 |
| 2023/24 | 28309409 | 46326038 | 2277082 | 5852409 |
| Mean | 21163365.50 | 26964892.70 | 1495358.60 | 3744037.90 |
| SD | 7452031.15 | 13018614.92 | 847617.05 | 2029377.00 |
| CV | 35.21 | 48.28 | 56.68 | 54.20 |

Source: Appendix –I

Table 5 presents the sizes of microfinance companies in Nepal. CBBL has the largest average firm size, with an average of 26,964,892.70 thousand, while JBBL has the smallest average firm size at 1,495,358.60 thousand. This indicates that CBBL had the largest average size among the firms during the research period. Larger firms can benefit from economies of scale, reducing costs and potentially raising capital at a lower cost. JBBL exhibits the lowest standard deviation among the sample firms, indicating it is the least risky. Additionally, NUBL has the lowest CV at 35.21 percent, suggesting that the size of companies in NUBL is the most consistent.

#### 4.1.1.5 Operating Self- Sufficiency Ratio

The operational self-sufficiency (OSS) ratio is an important financial indicator used by microfinance institutions (MFIs) to evaluate their economic sustainability. It measures the institution's ability to cover its operating expenses using only operating income, excluding external funds or subsidies.

**Table 6**

*Operating Self-Sufficiency Ratio*

(In percent)

| Year | NUBL | CBBL | JBBL | NMBMF |
|---|---|---|---|---|
| 2014/15 | 192.01 | 238.15 | 238.26 | 163.24 |
| 2015/16 | 208.43 | 288.82 | 205.46 | 209.73 |
| 2016/17 | 226.73 | 301.39 | 187.51 | 185.14 |
| 2017/18 | 231.73 | 259.10 | 162.22 | 151.48 |
| 2018/19 | 257.86 | 248.56 | 168.29 | 153.33 |
| 2019/20 | 216.95 | 241.85 | 167.47 | 169.51 |
| 2020/21 | 264.43 | 281.00 | 209.83 | 240.10 |
| 2021/22 | 220.95 | 253.79 | 168.96 | 158.74 |
| 2022/23 | 215.49 | 260.96 | 91.71 | 106.55 |
| 2023/24 | 215.44 | 234.97 | 93.40 | 87.98 |
| Mean | 225.00 | 260.86 | 169.31 | 162.58 |
| SD | 21.88 | 22.56 | 46.99 | 44.37 |
| CV | 9.72 | 8.65 | 27.75 | 27.29 |

Source: Appendix –I

Table 6 displays the operating self-sufficiency ratios of microfinance companies in Nepal. CBBL has the highest average operating self-sufficiency ratio at 260.86 percent, while NMBMF has the lowest average ratio at 162.58 percent. This indicates that CBBL is financially self-sufficient, generating sufficient revenue from its operations to cover its expenses without needing external support. NUBL has the lowest standard deviation among all the sample companies, suggesting it is the least risky. Furthermore, CBBL's operating self-sufficiency ratio demonstrates the most consistency, as shown by its lowest coefficient of variation at 8.65 percent.

### 4.1.2 Descriptive Statistics

Table 7 presents the descriptive statistics for the variables used in the study. The results highlight the minimum and maximum values for performance measures related to sustainability, such as the operating self-sufficiency ratio, along with other independent variables for Nepalese microfinance companies. These variables include the operating efficiency ratio, leverage ratio, credit risk ratio, and company size.

**Table 7**

*Descriptive Statistics of Variables of Microfinance Companies*

| Variables | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| OER | 40 | 3.05 | 16.29 | 6.7400 | 2.99542 |
| LEV | 40 | 4.42 | 13.35 | 7.7702 | 2.28256 |
| CR | 40 | .02 | 14.35 | 2.9220 | 3.34486 |
| LSIZE | 40 | 5.42 | 7.67 | 6.8072 | .62035 |
| INF | 40 | 3.60 | 9.93 | 6.1110 | 1.93068 |
| OSS | 40 | 87.98 | 301.39 | 204.4380 | 53.68558 |

Source: Appendix –II

Table 7 presents the descriptive statistics for both the dependent and independent variables used in the study. The operating efficiency ratio (the first independent variable) ranges from 3.05 percent to 16.29 percent, with an average of 6.7400 percent and a standard deviation of 2.99542 percent. The leverage ratio ranges from 4.42 percent to 13.35 percent, with a mean of 7.7702 percent and a relatively small standard deviation of 2.28256 percent. The credit risk ratio has a mean of 2.9220 percent, with values ranging from 0.02 percent to 14.35 percent and a standard deviation of 3.34486

percent. The size of companies (SIZE), the fourth independent variable, ranges from 5.42 percent to 7.67 percent, with an average of 6.8072 percent and a standard deviation of 0.62035 percent. The inflation rate, the fifth independent variable, ranges from 3.60 percent to 9.93 percent, with a mean of 6.1110 percent and a standard deviation of 1.93068 percent. Finally, the operating self-sufficiency ratio (OSS) has a mean of 204.4380 percent, with a minimum of 87.98 percent and a maximum of 301.39 percent, and a relatively low standard deviation of 53.68558 percent.

### 4.1.3 Correlation Analysis

A correlation matrix is a table that displays the correlation coefficients between different variables, with each cell representing the correlation between two variables. This matrix serves as a useful tool for summarizing data, providing a quick overview of the relationships between variables and their varying degrees of significance. A correlation value of 0 indicates no linear relationship between the two variables, a correlation of +1 represents a perfect positive relationship, and a correlation of -1 represents a perfect negative relationship. The correlation matrix is shown in Table 8.

**Table 8**

*Pearson Correlation Coefficients of Study Variables*

| | OER | LEV | CR | LSIZE | INF | OSS |
|---|---|---|---|---|---|---|
| OER | 1 | | | | | |
| LEV | -.123 | 1 | | | | |
| CR | -.258 | -.390* | 1 | | | |
| LSIZE | .032 | -.554** | -.018 | 1 | | |
| INF | -.109 | -.045 | .101 | -.130 | 1 | |
| OSS | -.096 | -.130 | -.555** | .527** | -.081 | 1 |

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Source: Appendix-III

Table 8 presents the results of the correlation test between the dependent and independent variables, using a correlation coefficient matrix. The analysis reveals that the operating efficiency ratio (OER) has an insignificant negative correlation of -0.096 with the operating self-sufficiency ratio (OSS) at the 5 percent significance level. Similarly, there is an insignificant negative correlation of -0.286 between the leverage

ratio and the operating self-sufficiency ratio. On the other hand, the correlation coefficient between credit risk and the operating self-sufficiency ratio is -0.555, indicating a significant negative relationship between them. Further, the size of companies shows a significant positive correlation of 0.527 with the operating self-sufficiency ratio of the microfinance companies. Finally, the inflation rate has an insignificant, low negative correlation of -0.081 with the operating self-sufficiency ratio of the microfinance companies.

### 4.1.4 Results of Regression Analysis

With an emphasis on the relationship between the independent variables (operating efficiency ratio, leverage ratio, credit risk, company size and inflation rate) and the dependent variable (sustainability or operating self-sufficiency ratio), it includes a variety of modeling and analysis approaches. The main analytical method used in panel data analysis is Ordinary Least Squares (OLS) regression.

**Table 9**

*Model Summary*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .819a | .671 | .622 | 32.98523 |

a. Predictors: (Constant), INF, LEV, OER, CR, LSIZE

Source: Appendix-IV

A summary statistic used in multiple regression that shows how well the sample regression line fits the data is the coefficient of determination ($R^2$). The operating efficiency ratio, leverage ratio, credit risk, company size and inflation rate are the independent variables that account for 67.10 percent of the variance in the dependent variable, the operating self-sufficiency ratio (OSS), according to the model's R2 value of 0.671. The multiple correlation coefficient, which shows the strength of the relationship between the variables, is 0.819, indicating a high degree of association between the variables under study. This suggests that the independent variables have a significant impact on the operating self-sufficiency ratio (OSS). The regression analysis has a close relationship with the estimate's standard error.

**Table 10**

*Analysis of Variance (ANOVA)*

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 75410.651 | 5 | 15082.130 | 13.862 | .000b |
| | Residual | 36992.866 | 34 | 1088.025 | | |
| | Total | 112403.517 | 39 | | | |

a. Dependent Variable: OSS
b. Predictors: (Constant), INF, LEV, OER, CR, LSIZE

Source: Appendix-IV

The ANOVA (F-value) analysis shows that the greatest number of possible combinations of predictor variables can account for the dependent variables. The findings indicate that the overall model has meaning since the operating self-efficiency ratio (OSS) indicator is important. The OSS proxy variables, including INF, LEV, OER, CR and LSIZE, have an F-value of 13.862 ($p = 0.000 < 0.05$), which amply demonstrates the strong linear relationship between the independent variables and the dependent variable, operating self-efficiency ratio (OSS).

**Table 11**

*Regression Coefficient of Independent Variables with Operating Self-sufficiency Ratio*

| Variables | Coefficients | t-statistics | Sig. or P-value |
|---|---|---|---|
| (Constant) | 87.364 | .831 | .412 |
| OER | -5.810 | -3.018 | .005 |
| LEV | -5.458 | -1.631 | .112 |
| CR | -11.594 | -5.993 | .000 |
| LSIZE | 34.229 | 3.093 | .004 |
| INF | -.079 | -.028 | .978 |

Source: Appendix-IV

Table 11 presents the regression coefficient of independent variables operating efficiency ratio, leverage ratio, credit risk, company size and inflation rate on one of proxy of sustainability i.e. operating self-efficiency ratio.

The regression model results indicated a negative relationship between the operating self-efficiency ratio (OSS) and the operational efficiency ratio (OER), with a

coefficient estimate of -5.810. This suggests that a one percent increase in the OER leads to a -5.810 percent decrease in the OSS of microfinance companies, assuming all other independent variables remain constant. Additionally, the p-value for OER is 0.005, which is significant at the five percent level. It shows that operational efficiency ratio (OER) has significant negative effect on sustainability as operating self-efficiency ratio (OSS).

The regression analysis results show a negative relationship between the leverage ratio (LEV) and the operating self-efficiency ratio (OSS), with a coefficient estimate of -5.458. This suggests that a one percent increase in the leverage ratio (LEV), while holding other independent variables constant, results in a -5.458 percent decrease in the operating self-efficiency ratio (OSS) of microfinance companies. The p-value for LEV is 0.112, indicating that this relationship is statistically insignificant at the five percent significance level. So, there is insignificant negative effect of leverage ratio (LEV) on operating self-efficiency ratio (OSS).

The regression model results indicate a negative relationship between credit risk (CR) and the operating self-efficiency ratio (OSS), with a coefficient estimate of -11.594. This means that a one percent increase in credit risk (CR), while holding other independent variables constant, leads to an -11.594 percent decrease in the operating self-efficiency ratio (OSS) of microfinance companies. The p-value for CR is 0.000, indicating that this effect is statistically significant at the five percent significance level. So, credit risk (CR) has significant negative effect on operating self-efficiency ratio (OSS).

The regression results show a positive correlation between company size (SIZE) and the operating self-efficiency ratio (OSS), with a coefficient estimate of 34.229. This implies that, when other independent variables are held constant, a one percent increase in company size (SIZE) leads to a 34.229 percent increase in the operating self-efficiency ratio (OSS) of microfinance companies. The p-value for SIZE is 0.004, indicating that this effect is statistically significant at the five percent significance level. It indicates that size of companies (SIZE) has statistically significant positive on operating self-efficiency ratio (OSS) of microfinance companies.

The results indicate a negative correlation between the inflation rate (INF) and the operating self-efficiency ratio (OSS), with a coefficient estimate of -0.079. This means that a one percent increase in the inflation rate (INF) leads to a -0.079 percent decrease in the operating self-efficiency ratio (OSS) of microfinance companies, assuming other independent variables remain constant. However, the p-value for INF is 0.978, which suggests that this relationship is not statistically significant at the five percent significance level. Thus, inflation rate has insignificant negative effect on the operating self-efficiency ratio (OSS) of the microfinance companies.

### 4.2 Discussion

The primary objective of this study is to assess the determinants of sustainability of Nepalese microfinance companies. The study highlights that the operating efficiency ratio, leverage ratio, credit risk, size of companies and inflation rate directly affect sustainability, specifically the operating self-efficiency ratio (OSS), which is a key measure of microfinance companies' sustainability. The correlation analysis revealed that the operating efficiency ratio (OER) has an insignificant negative relationship with the operating self-efficiency ratio at the 5 percent significance level, consistent with the findings of Hailu and Venkateswarlu (2015). The analysis also shows there is insignificant negative correlation between the leverage ratio and the operating self-efficiency ratio, aligning with the results of Hamid et al. (2023), but differing from the findings of Hailu and Venkateswarlu (2015). Additionally, credit risk was found to have a significant negative relationship with the operating self-efficiency ratio, which agrees with the findings of Dagnew and Seid (2019). The size of the companies showed a significant positive correlation with the operating self-efficiency ratio, consistent with Hailu and Venkateswarlu's (2015) study. Further, the inflation rate exhibited an insignificant negative relationship with the operating self-efficiency ratio of microfinance companies, which aligns with the findings of Hamid et al. (2023).

The multiple regression result revealed that there is significant negative effect of operational efficiency ratio (OER) on operating self-efficiency ratio (OSS). This is consistent with the finding of Mahapatra and Dutta (2016) This is also consistent with the finding of Dagnew and Seid (2019); Hemtanon and Gan (2022) while Hailu and Venkateswarlu (2015). Then, the leverage ratio (LEV) has insignificantly negatively affects microfinance companies' operating self-efficiency ratio (OSS). This finding is

similar with the prior study of Mahapatra and Dutta (2016). This is also consistent with the finding of Rahman and Mazlan (2014); Dagnew and Seid (2019); Hemtanon and Gan (2022); Hamid et al. (2023) but opposite to the finding of Hailu and Venkateswarlu (2015). The analysis found a significant negative effect of credit risk (CR) on the operating self-efficiency ratio (OSS), which is consistent with the findings of Dagnew and Seid (2019). The size of the companies (SIZE) has a statistically significant positive effect on the OSS of microfinance companies, aligning with the findings of Mahapatra and Dutta (2016) and Dagnew and Seid (2019). However, this result contrasts with the findings of Rahman and Mazlan (2014), Long and Marwa (2015), and Hemtanon and Gan (2022). Moreover, the inflation rate (INF) shows an insignificant negative effect on the OSS of microfinance companies, consistent with the results of Dagnew and Seid (2019), but contradicting the findings of Hamid et al. (2023).

# CHAPTER - V
# SUMMARY AND CONCLUSION

## 5.1 Summary

Microfinance organizations contribute significantly to the fight against poverty by facilitating the connection between the poor and traditional financial institutions. Microfinance pioneers think that having access to capital could significantly reduce poverty. Another definition of sustainability is the ability to sustain wellbeing over an extended period of time, potentially forever. The environmental aspect of the three pillars of sustainability (social, economic, and environmental) is the main focus of this; however, the terms "environment performance" and "sustainability performance" are not synonymous. Financially disadvantaged people are usually given loans by MFIs so they can make enough money to pay for all of their essential living expenses and, moreover, to support future growth by making slightly more money than they spend. For MFIs operating in Nepal to effectively combat the threat, it is imperative that the pertinent factors affecting their financial viability be understood and evaluated.

The major objective of the study is to examine the effect of specific factors on sustainability of selected microfinance companies in Nepal. The specific objectives of this study are to assess the sustainability of selected microfinance companies in Nepal, to analyze the relationship between specific factors (operating efficiency ratio, leverage ratio, credit risk, size of companies, inflation rate and sustainability of microfinance companies in Nepal and to examine the effect of specific factors (operating efficiency ratio, leverage ratio, credit risk, size of companies and inflation rate) on sustainability of microfinance companies in Nepal. This study employs both descriptive research design and quantitative research design. The descriptive research design is used to analyze the sustainability status of the sample microfinance companies, while the quantitative research design is applied to examine the impact of specific factors on the sustainability of microfinance companies in Nepal. As of Mid-January, 2025, there are 51 microfinance companies operating in Nepal, which constitute the population of the study. Four microfinance companies— Chhimek Laghubitta Bikas Bank Limited, Janutthan Samudayic Laghubitta Bikas Bank Limited, NMB Laghubitta Bitiya Sanstha Limited and Nirdhan Utthan Laghubitta Bitiya

Sanstha Limited —are selected as the sample based on purposive sampling. These companies are among the top four in terms of profitability and are chosen due to the availability of data. Secondary data, primarily from the annual reports of the microfinance companies, covering a ten-year period (from the fiscal year 2014/15 to 2023/24), is used. The study employs descriptive analysis, correlation analysis, and multiple regression analysis for data analysis.

This study indicates that microfinance institutions in Nepal are able to operate without the need for outside help since their activities bring in enough revenue to pay for their costs means sound financial sustainability. The correlation analysis shows an insignificant negative relationship between the operating efficiency ratio and operational self-sufficiency ratio and leverage ratio has also insignificant negative relationship with the operational self-sufficiency ratio. However, credit risk exhibits a significant negative relationship with the operational self-sufficiency ratio. In contrast, the size of the companies shows a significant positive correlation with the operational self-sufficiency ratio. Further, inflation rate has insignificant negative relationship with operation self-sufficiency ratio. The regression analysis further reveals that the operating efficiency ratio and credit risk have significant negative impact on sustainability (or operational self-sufficiency ratio) of microfinance companies in Nepal. Similarly, leverage ratio has insignificant negative effect on the operational self-sufficiency ratio. On the other hand, the size of the companies has a positive and statistically significant effect on the operational self-sufficiency ratio. Moreover, inflation rate, however, has an insignificant negative effect on the operational self-sufficiency ratio. Overall, this study concluded that operating efficiency ratio, credit risk and size of companies are key factors influencing the sustainability of microfinance companies in Nepal.

### 5.2 Conclusion

This study concluded that sustainability or operating self-sufficiency ratios of micro finance companies are in fluctuating trend. Sample companies have good financial sustainability position. However, Chhimek Laghubitta Bikas Bank Limited is financially sustainable without external assistance, as it generates enough income from its operations to cover its expenses because this company has the highest operating self-sufficiency ratio among the sample companies.

The correlation analysis concluded that there is insignificant negative relationship between operating efficiency ratio (OER) and operating self-efficiency ratio. Similarly, there is insignificant negative correlation of leverage ratio with operating self-efficiency ratio. Then, credit risk has significant negative relationship with operating self-efficiency ratio. At the same time, size of companies has significant positive correlations with operating self-efficiency ratio. Finally, inflation rate has insignificant negative relationship with operating self-efficiency ratio of the microfinance companies.

The regression result concluded that operational efficiency ratio (OER) has a statistically significant negative effect on operating self-efficiency ratio (OSS) while leverage ratio (LEV) has insignificant negative effects on operating self-efficiency ratio (OSS) of microfinance companies. At the same time, this is significant negative effect of credit risk (CR) on operating self-efficiency ratio (OSS). However, the size of the companies (SIZE) has statistically significant positive effect on operating self-efficiency ratio (OSS) of microfinance companies. Finally, inflation rate has insignificant negative effect on the operating self-efficiency ratio (OSS) of the microfinance companies.

### 5.3 Implications

This study has the following implications;

- This study found that operating efficiency ratio credit risk and size of companies have significant effect on sustainability of microfinance companies in Nepal. This information is helpful to government policymakers in fostering an atmosphere that encourages small lending by lowering borrowing costs and speeding up loan processing, thereby increasing the reach and scope of outreach. In addition to making it easier for microfinance institutions (MFIs) to collect deposits from customers, the creation of suitable rules and regulations can also help MFIs function more sustainably and provide services to more borrowers.
- The study came to the conclusion that the main determinants of the viability of microfinance firms in Nepal are the operating efficiency ratio, leverage ratio, credit risk, and company size. Therefore, by putting good governance practices

into place and making use of all available funding sources, such as donor funding and savings mobilization, the management of microfinance institutions can increase their financial sustainability.

- The study concluded that managing the sustainability of microfinance firms well would benefit not only the firms but also people, companies, and the overall economy. This is due to the fact that different factors have varying effects on the sustainability of microfinance organizations. As a result, it benefits the community at large as well as the financial sector overall.
- Additionally, the study serves as a valuable reference for other academicians and researchers working in related fields, as well as an academic experience for the researcher.
- Future research may take into account variables like the microfinance institutions' (MFIs') ownership, age, growth stages, geographic location, and product delivery methods. Furthermore, the financial sustainability component was the only focus of this study. Thus, in the context of MFIs in Nepal, future studies could examine additional facets of sustainability, including mission, program, and human resource sustainability.

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