

EFFECT OF SPECIFIC FACTORS ON SUSTAINABILITY OF SELECTED MICROFINANCE COMPANIES IN NEPAL

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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December, 2024

CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled **“Effect of Specific Factors on Sustainability of Selected Microfinance Companies in Nepal”**. 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.

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REPORT OF RESEARCH COMMITTEE

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APPROVAL SHEET

We, the undersigned, have examined the dissertation entitled “**Effect of Specific Factors on Sustainability of Selected Microfinance Companies in Nepal**” presented by Purnima Chidi 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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ACKNOWLEDGEMENTS

This study entitled **“Effect of Specific Factors on Sustainability of Selected Microfinance Companies in Nepal”** 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 effect of specific factors on sustainability of selected microfinance companies in Nepal.

I have great satisfaction and pleasure to express my appreciation and sincerity to my dissertation supervisor Keshar Singh Khatri of Shanker Dev Campus, TU for his excellent and effective guidance and supervision. I will remain thankful for his valuable direction useful suggestion and comments during the course of preparing this dissertation without his help this work would not have come in this form. I also would like to extend my debt of gratitude Asso. Prof. Dr. Sajeeb Kumar Shrestha, Head of Research Department of Shanker Dev Campus who provided me an opportunity to undertake this research work.

I highly appreciate to all the staffs of Shanker Dev Campus Library and TU Central Library for their valuable advices and support in collecting and presenting the necessary data. I would also like to express my thankfulness to my friends, my family members as well as all known people who supported as well as inspired me directly or indirectly to complete this dissertation. With help and support, I have been able to complete this work. I would like to take the responsibility of any possible mistakes that may have occurred in the report. I would be delighted to welcome readers for their suggestion and recommendation to improve the report.

Purnima Chidi

Date:

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ABBREVIATIONS

CBBL	:	Chhimek Laghubitta Bikas Bank Limited
CR	:	Credit Risk
INF	:	Inflation Rate
IT	:	Information Technology
JSLBB	:	Janutthan Samudayic Laghubitta Bikas Bank Limited
LEV	:	Leverage Ratio
LSIZE	:	Natural Logarithm of Total Assets
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
SWBBL	:	Swabalmban Laghubitta Bittiya Sanstha Limited
TA	:	Total Assets
TU	:	Tribhuvan University

ABSTRACT

This study investigates effect of specific factors on sustainability of selected microfinance companies in Nepal. Secondary data is gathered from microfinance companies of Nepal for ten year periods (2013/14-2022/23). This study used correlation and multiple regression for data analysis. This study reveals that the micro finance companies are financially sustainable without depending on outside assistance since it is making enough income from its operations to pay for its expenditures. The correlation analysis shows that operating efficiency ratio has insignificant positive relation with operating self-efficiency ratio while leverage ratio and credit risk have significant negative relationship with operating self-efficiency ratio. At the meantime, size of companies has significant positive correlations with operating self-efficiency ratio. Further, inflation rate has insignificant negative association with operating self-efficiency ratio of the microfinance companies. The regression results also show that operational efficiency ratio and leverage ratio have significant negative effect on sustainability or operating self-efficiency ratio of microfinance companies in Nepal. Similarly, credit risk has significant negative effect on operating self-efficiency ratio. However, the size of the companies has positive and statistically significant effect on operating self-efficiency ratio of microfinance companies. Moreover, inflation rate has insignificant negative effect on the operating self-efficiency ratio of the microfinance companies. Therefore, this study concluded that operating efficiency ratio, leverage ratio, credit risk, size of companies are the key factors of 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

Mobilizing resources, especially domestic savings, and directing them toward potential investors is one of the primary goals of financial organizations. Depending on the economic structure, financial institutions play a variety of roles in intermediation. In many regions of the world, microfinance has emerged as a crucial instrument for reducing poverty. By using creative strategies including group lending, progressive lending, regular repayment plans, and collateral replacements, microfinance institutions (MFIs) aim to assist the underprivileged (Kimando et al., 2012). Although poverty is caused by a variety of circumstances, inadequate household income is its most evident manifestation. Access to reasonably priced financial services has a significant impact on the size of income-generating possibilities as well as one's capacity to take advantage of them. As a result, efforts are being made globally to increase impoverished households' access to microfinance.

Subedi and Karki (2022) stated that sustainability is the capacity of a microfinance organization to pay for all of its expenses out of interest and other revenue received from its customers. In microfinance, sustainability can be related to organizational, managerial, and financial elements and can be viewed at various institutional, group, and individual levels. When subsidies and soft loans are no longer available, financially viable MFIs can remain open and function as a permanent component of the financial system. Donors do not have nearly enough money to cover the demand for microfinance throughout the world. However, an MFI is no longer reliant on donor money once it achieves sustainability. It may afford a significant increase of its outreach to the impoverished by using commercial financing sources.

Access to financial services and their ongoing availability over the long term are referred to as sustainability. It means that these services must continue to be regularly utilized by IFG members. Therefore, it is vital to adopt the appropriate systems and processes. Financial sustainability, according to Narwal and Yadav (2016), is the long-term continuance of microfinance services following group formation and operationalization. IFGs are supposed to continue operating after they are established

in order to guarantee that members always have access to financial services. Sadiq and Burki (2018) asserted that providing financial services to the underprivileged requires sustainability. As a result, several academics concur that financially viable IFGs ensure that its members will always have access to credit services.

In reality, sustainability in microfinance addresses a variety of factors, including institutional, market, legal, and regulatory issues as well as impact factors, in addition to the financial viewpoint. Furthermore, MFI sustainability offers a viable path toward better financial services accessibility; it encourages investment, boosts asset accumulation and grassroots economic activity, and aids in the poor's escape from poverty. Therefore, by empowering low-income and impoverished individuals to use financial services to seize opportunities, invest in their future, and safeguard their homes and businesses from economic shocks, desired economic growth may be realized (Malik et al., 2020). To maintain itself and reach a large scale of outreach towards poverty reduction, microfinance institutions must achieve sustainability. In order to offer sustainable microfinance services and aid in the fight against poverty, microfinance organizations must likewise be sustainable (Ngo, 2015).

Zheng et al. (2021) explained sustainability is the long-term continuance of the microfinance program following the cessation of project activity. In order to ensure that microfinance services are continuously available and that clients continue to routinely profit from them, it is necessary that the proper mechanisms and procedures have been established. This would also imply that the program would use resources that the participants generated on their own, either from outside sources or from inside themselves, to satisfy their requirements.

Sustainability is the capacity of microfinance institutions (MFIs) to cover all of their costs from their own operational income without depending on outside support (such as subsidies) (Tehulu, 2013). Microfinance organizations are deemed to have attained sustainability when their operational income from loans is sufficient to cover all of their running expenditures (Walde et al., 2022). The microfinance provider may continue to operate and provide financial services to the poor by being sustainable. According to some, MFIs can only affect their target audience in the long run without the need for subsidies if they practice sustainability. As a result, sustainability has been

the focus of several research in the microfinance sector, the majority of which are primarily intended to comprehend and provide insights into its significance as well as how to attain it.

Although sustainability is often thought of in terms of money or resources, it actually has many other aspects, of which financial sustainability is just one of the main ones (Hemtanon & Gan, 2022). The many aspects of sustainability include effect sustainability, legal policy environment sustainability, and institutional sustainability (mission, program, human resource, financial, and market sustainability).

Sustainability, as defined by Kimando et al. (2012), is the ability of an organization's ongoing financial and managerial practices to continue a certain activity into the future while utilizing its most likely existing resources. Therefore, in order to accomplish their primary objectives and make a substantial contribution to the battle against poverty, MFIs must put in a lot of effort to produce solid financial and operational outcomes. Therefore, the purpose of the study is to determine the real determinants influencing MFIs' ability to continue operating profitably in Nepal.

1.2 Problem Statement

Since its inception in the 1970s, microfinance services for the impoverished have expanded significantly. One of the most often used methods for decreasing poverty worldwide is microfinance (Omunjalu & Fondo, 2014). Even though the number of microfinance organizations has increased at an unparalleled rate over the last three decades, there is ongoing discussion over their viability and performance. MFIs throughout the world seem to be torn between being financially suitable and helping to combat poverty (Gashayie & Singh, 2015).

Rahman and Mazlan (2014) 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. Long and Marwa (2015) 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. Hailu and Venkateswarlu (2015) concluded 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.

Mahapatra and Dutta (2016) revealed 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. Narwal and Yadav (2016) concluded that a relationship between outreach and financial sustainability indicators. Outreach measures showed a positive association with microfinance firms' profitability. Repayment amounts for loans had a positive impact on outreach while having a negative impact on financial sustainability. Mutua and Ali (2017) 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.

Sadiq and Burki (2018) 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. Dagneu and Seid (2019) showed 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. Lutf and Twaha (2019) observed that although capital structure, efficiency, and portfolio quality were barriers, outreach and profitability were facilitators.

Zheng et al. (2021) concluded 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. Subedi and Karki (2022) 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. Kinde (2022) revealed that the financial viability of microfinance institutions in Ethiopia is impacted by the breadth,

depth, and cost per borrower of microfinance outreach. Masanyiwa, Chusi and Haji (2022) concluded 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. Hemtanon and Gan (2022) stated that 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.

Tehulu (2022) found a positive correlation between MFI sustainability and both loan portfolio size and loan intensity, with the economic effect of loan intensity being stronger. Hamid et al. (2023) showed that FSI was positively impacted by loan size, borrower count, female borrower proportion, and inflation. The financial viability of Bangladesh's microfinance industry was significantly impacted negatively by organizational structure, liquidity, leverage, cost per borrower, and GDP. Maeenuddin et al. (2024) 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. Despite the aforementioned empirical evidence in other nations, Nepal does not have any similar evidence based on more current data. In light of this, this study will attempt to address the factors influencing sustainability in Nepalese microfinance firms.

The following topics are covered in this study:

- What is the sustainability of selected microfinance companies in Nepal?
- Is there any relationship between specific factors (operating efficiency ratio, leverage ratio, credit risk, size of companies and inflation rate and sustainability of microfinance companies in Nepal?
- Do the specific factors (operating efficiency ratio, leverage ratio, credit risk, size of companies and inflation rate) impact on sustainability of microfinance companies in Nepal?

1.3 Objectives of the Study

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 as follows:

- 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 and inflation rate and sustainability of microfinance companies in Nepal.
- 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.

1.4 Research Hypothesis

The following hypotheses were derived from the previously listed research topics. Therefore, this study's goal was to assess the following hypotheses about Nepalese microfinance firms.

1. H₁: Operating efficiency ratio has significant impact on sustainability of microfinance companies in Nepal.
2. H₂: Leverage ratio has significant impact on sustainability of microfinance companies in Nepal.
3. H₃: Credit risk ratio has significant impact on sustainability of microfinance companies in Nepal.
4. H₄: Size of companies has significant impact on sustainability of microfinance companies in Nepal.
5. H₅: Inflation rate has significant impact on sustainability of microfinance companies in Nepal.

1.5 Rationale of the Study

Microfinance institutions are crucial in helping the impoverished, farmers, households, and micro entrepreneurs fulfill their financial needs. The financial resources that often come out of microfinance organizations assist to lower poverty and enhance the living standards, educational attainment, health, and financial situation of the underprivileged members of society. Therefore, microfinance plays a significant role in the economy's

overall growth. MFIs themselves must be financially viable in order to consistently fulfill this declared objective. As a result, this study would assist MFI decision makers in identifying the elements that determine their financial sustainability both generally and specifically, and in giving those aspects the attention they need. Due to their poverty, the majority of Nepalese rely on MFIs for general finance and capital. Since the study aims to identify the sustainability characteristics of MFIs, it will indirectly give them vital information that will ultimately assist them in managing the variables that have a major impact on their sustainability.

The long-term viability of microfinance aligns with the goals of raising the standard of living for the impoverished, encouraging mass mobilization for the country's wealth creation, and encouraging other competent Nepalese to take part in their respective roles in the various economic sectors. However, international organizations and foreign donor nations presently support the microfinance initiative. Therefore, while sustainable financial resources must be obtained domestically over the long term, it is anticipated that an effective coverage rate and service provision will result in greater support in the short term. In addition, relevant offices and the government have their own duties.

In light of the aforementioned factors, it is believed that the study's findings would give decision-makers whether they be donors, creditors, investors, consumers, or the government useful information about the long-term viability of MFIs. Inform the institution's management and other interested parties about the possible determinants of financial sustainability. Supporting, encouraging, and promoting MFIs particularly the Nepal Rastra Bank as a regulatory body may also be beneficial to those policymakers. It is also hoped that the study's findings would provide a foundation for future research on the same or related subjects.

1.6 Limitations of the Study

Only the impact of certain factors on the sustainability of particular microfinance firms in Nepal is examined in this study. Thus, the following are the study's limitations:

- This study is concentrated on factors affecting sustainability of microfinance companies in Nepal.

- Out of 55 microfinance companies, only four microfinance companies in Nepal namely; Chhimek Laghubitta Bikas Bank Limited, Janutthan Samudayic Laghubitta Bikas Bank Limited, Swabalmaban Laghubitta Bittiya Sanstha Limited and Nirdhan Utthan Laghubitta Bitiya Sanstha Limited is analyzed in this study.
- The study covers the past ten year's data from F/Y 2013/14 to F/Y 2022/23.
- The study is based on secondary data from annual reports of respective companies and websites etc.
- Only multiple regression analysis, correlation analysis, and descriptive analysis were employed in this study.

CHAPTER-II

REVIEW of LITERATURE

The literature that is accessible on these subjects is highlighted in this chapter. It contains literature on the topic's conceptual aspects as well as a review of the actual data from earlier research. Numerous books, periodicals, journals, research articles, unpublished thesis reports, and other materials are discussed in this chapter.

This chapter's first section explains the theoretical review, while its second section is limited to reviewing earlier research.

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 model, and the liquidity preference theory.

2.1.1.1 Adverse Selection Theory of Financial Markets

The research of Stieglitz and Weiss (1981) was the source of this hypothesis. According to Stieglitz and Weiss, a credit institution's interest rates serve the dual purpose of screening prospective borrowers, which results in adverse selection. As a result, interest rates have an impact on the type of financial market activities. The impoverished are excluded from the credit market by formal lenders because they lack collateral. Because of this, the majority of impoverished people in rural areas turn to unofficial finance, which simply needs social collateral. Since projected returns are heavily reliant on the likelihood of repayment, lenders insist on finding borrowers who are most likely to repay their loans (Stieglitz and Weiss, 1981). The IFGs' high levels of liquidity are indicated by their ability to repay. Because it explains why the poor are excluded from the formal financial sector, this hypothesis is significant to our study. It explains why small businesses, who are viewed as too hazardous and frequently have easier access to informal loan facilities than to official ones, have their credit demands not met by formal institutions. IFGs must thus work to maintain their viability in order to guarantee that the impoverished will continue to get financial services.

2.1.1.2 The Social Capital Theory

Putnam (1993) defined social capital is the combination of social networks, norms, and trust that allow people to work together more successfully and achieve common goals. If members are selected based on their pre-existing levels of confidence in one another, the collective activity that makes IFGs possible can exist in the early stages. Social variables have a crucial role in the performance and, hence, sustainability of IFGs since they are self-regulated. The survival of IFGs is thought to be directly threatened by outright default. Social factors include peer pressure, social ostracism, and punishments are costs of default.

Van de Brick and Chavas (1997) observed people do pay careful attention to the transaction costs associated with guaranteeing payment, even when societal pressure was clearly high. Members favor the advantages of membership over the benefits of defaulting, according to Roscas' function. Roscas are a relatively adaptable kind of IFG whose survival depends only on trust and social factors. Through communal permission and shared obligation, loans are given to the group without any physical collateral, but with the assurance that they will be repaid. Social capital comes from the enforced trust.

Olomola (2002) stated social capital makes it easier for borrowers to obtain loans. However, it results in approval, speeds up transactions, and protects lenders from default risk. In situations where using the legal system is either too expensive or not feasible, social capital may offer a variety of enforcement tools for default. This theory is significant to this study because it clarifies the role of social capital as a loan recovery intervention and a way to reduce loan defaults that have an impact on businesses' long-term viability.

2.1.1.3 Liquidity Preference Theory

Keynes developed the idea for the first time in 1936. According to Keynes, the demand for money is represented as a function of interest rates and income levels. Here, $MD = f(Y, r)$: MD = requested amount of money: Y is the income level, while r is the interest rate. According to this paradigm, the money stock's supply and demand interact to establish the interest rate. Interest rates are determined by the supply and demand of the financial system's money supply, according to the liquidity preference

theory. Money is sought primarily for transactional, precautionary, and speculative purposes, according to Keynes (1936). Keynes went on to say that short-term securities will always be preferred by investors over long-term ones.

Long-term securities should generate greater interest rates than short-term bonds in order to entice investors to hold them. As a result, the yield curve will constantly slope higher. It is predicated on the finding that, under normal circumstances, individuals would rather hold onto cash (liquidity) and will pay more to invest in non-liquid assets like stocks, bonds, and real estate. According to the hypothesis, the longer the period for receiving the cash back, the more the premium charged for parting with cash. The goal of the study is to determine how the liquidity preference theory explains the connection between the sustainability of the lender and the money supply, which is provided by MFI loans during periods of rising or declining lending rates. Borrowers will only make investments, nevertheless, if the returns on their investment profile outpace the interest rates.

2.1.1.4 Village Banking Model

NGOs created village banks, which were locally run loan and savings organizations. Their job was to assist members save money while giving the impoverished access to reasonably priced financial services. Between 25 and 50 members are regarded as low-income people. These members manage the bank, choose its own executives, create its own bylaws, disburse loans to others, and gather money and services (Christen, 2001).

Members of the organization pledge to be held responsible in the event of failure, serving as moral collateral for the loans made by village banks (Chen & Dunn, 2016). Additionally, members must save a certain percentage of the loan balance each cycle. Loan amounts are linked to these savings. They can be invested in projects that generate group profits or used to fund new loans. Women are the primary objective of many village banks. The model predicts that women's involvement in village banks will improve social standing and intra-household bargaining power (Central Bank of Kenya, Kenya National Bureau of Statistics & FSD Kenya, 2016).

2.1.1.5 Theory of Loan Repayment

High frequency repayments are frequently used by microfinance institutions. Usually, borrowers must start making loan repayments as soon as the loan is disbursed and must do so in regular installments. This part of the repayment plan is typically described as helping borrowers develop "fiscal discipline." Another justification for this loan repayment plan, according to Jain and Mansuri (2003), is the challenge of keeping an eye on borrowers' behavior. The possibility of ethical danger causes MFIs to employ creative strategies, such regularly scheduled repayments, which subtly appropriate the more knowledgeable informal lenders. On the other hand, informal lenders are able to continue operating thanks to this installment repayment plan. They also demonstrate that this connection has the potential to increase interest rates in the informal sector in addition to increasing the amount of informal loans. Since many microfinance practitioners believe that customers gain from the financial discipline demanded by a frequent payback schedule, Fischer and Ghatak (2009) provide an alternative explanation based on present-biased, quasi-hyperbolic preferences. The widespread belief among practitioners that regular payback is essential to reaching high repayment rates serves as the driving force behind their activity.

2.1.2 Concept of Sustainability

Sustainability is the ability to generate enough revenue to pay for the program's costs. Several factors impact the program's viability. These consist of product pricing, fund charges, administrative overheads, loan losses or portfolio quality, and inflation. Each element offers a range of control choices and a distinct importance (Khabeer, 2006).

It is necessary to view sustainability more broadly than merely financial sustainability. An MFI's overall sustainability is influenced by a number of factors, including the sustainability of demand, the organization's objective, ownership and governance structure, and the legal and regulatory environment in which it operates (Long & Marwa, 2015). Furthermore, until a full-fledged micro-finance sector (MFS) is formed on sustainable lines, an MFI's sustainability alone might not be sufficient.

Sustainability is the cornerstone of MFIs' initiatives to combat global poverty. Institutional sustainability is the capacity of microfinance organizations to cover all of their costs from interest and other income obtained from customers. Sustainability has

been defined differently by many specialists. When an MFI's overall operating income exceeds its operating expenditures, bankers say the organization is sustainable. MFI sustainability is generally understood to be the organization's capacity to cover its financial, operational, and financing costs from its revenue (Rahman & Luo, 2012).

A sustainable MFI is a vital part of the economy if it can carry on even in the event that donor agency grants or soft loans are no longer available. The simplest definition of sustainability offered by Rao and Fitamo (2014) was the capacity of MFIs to continue as a going concern by offering financial services to marginalized groups that are disregarded by traditional financial institutions. MFIs' sustainability is a measure of their ability to manage a program using their own funds and provide outcomes that are meaningful to beneficiaries and other stakeholders.

2.1.3 Different Dimensions of Sustainability

Institutional sustainability

The aspects of the organization that deal with the internal organizational environment are examined by institutional sustainability (Brau & Woller, 2004). These are the characteristics that contribute to the organization's health, vitality, and viability.

Mission sustainability

What will maintain the organization on its chosen course over time is the sustainability of its mission. Activities carried out by the organization must be continuously assessed to determine whether they align with its stated goal. Any modifications to the organization's mission would be implemented through a clearly defined and inclusive process (Brau & Woller, 2004).

Programme sustainability

When stakeholders (clients) believe the services they are getting are important and valuable enough, and are prepared to take ownership of them, a program may be considered sustainable. When this happens, the MFI can create a phase-out plan because the program continues to be client-supported and no outside funding is requested (Bret, 2006).

Human Resource sustainability

It indicated that the MFI can hire, train, onboard, and retain suitable employees who can provide the services as needed. Additionally, the personnel may keep an eye on the organization and keep it on course while considering all other sustainability factors (Brau & Woller, 2004).

Financial sustainability

According to Johnson et al. (2006), financial sustainability refers to the MFI's capacity to pay for all of its current expenses as well as any growth-related expenditures that may arise from expanding its business. It would indicate that the MFI can cover its operational expenses as well as its inflation-adjusted financial expenses and growth-related charges. A set of indicators may be used to quantify and continuously track financial sustainability, which is a measurable attribute. According to Otero and Rhyne, there are four stages of financial sustainability. The first is when the MFI is entirely reliant on grants and subsidies to operate, and the last is when the program is entirely funded by client resources and money raised from financial institutions at commercial interest rates.

In summary, charging an interest rate high enough to cover operational costs, loan losses, and interest and adjustment expenditures is the key to financial sustainability. MFIs must, however, function well enough to be able to charge competitive, affordable, and fair interest rates in order to offset these expenses. MFIs must thus control delinquency, maintain a low cost of capital (by mobilizing savings), rotate their portfolio effectively, minimize operational expenses, and above all set interest rates to cover all of these expenses in order to be long-term sustainable (Rutherford, 2000).

Market sustainability

This covers the entire spectrum of problems pertaining to microfinance supply and demand. It addresses concerns about the many customer kinds, their various wants, and creating solutions that meet those needs. The sustainability of the demand will result from meeting these demands in the most customer-friendly way possible. The MFI must be financially self-sufficient, cover all of its operating expenses, and have access to resources raised from customers and other sources at interest rates that are

both commercially feasible in order to maintain a steady flow of resources. Offering customers a wide range of options is another aspect of market sustainability. The MFIs are supported solely by the efficacy and efficiency of their offerings, not by fictitious flaws (Christen et al., 2003).

Legal and policy environment sustainability

Market sustainability, according to Onyuma and Shem (2005), depends on the existence of a sound legal and policy framework that will allow for the expansion of several businesses offering microfinance services. Among other things, it would include subjects like interest rates, legal organization structures, mobilizing savings, and mobilizing resources from global commercial sources and financial markets.

Impact sustainability

Microfinance has been a successful strategy for reducing poverty among underprivileged groups. Therefore, the services provided by the various organizations must have a beneficial effect on poverty. For the impoverished family to progressively escape poverty, the improvements that take place in their lives must be maintained over time (Onyuma & Shem, 2005).

2.2 Empirical Review

Rahman and Mazlan (2014) investigated determinants of financial sustainability of microfinance institutions in Bangladesh. The primary goal of the study was to analyze the situations of microfinance institutions in Bangladesh and examine how well they performed in terms of financial self-sustainability. In order to justify financial self-sustainability, the 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 explain 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.

Long and Marwa (2015) examined determinants of financial sustainability of microfinance institutions in Ghana. The main objective of the study was to identify the variables that affect the financial sustainability of microfinance institutions in Ghana. The study adopted a quantitative technique and employed secondary data from MIX Market. An unbalanced panel dataset from 25 Ghanaian microfinance institutions covering the six-year period 2006–2011 was used in the study. 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. The trend in staff productivity was confusing, and more research is necessary to identify the reason for the negative correlation between financial sustainability and high staff productivity.

Hailu and Venkateswarlu (2015) administered financial and operating sustainability of microfinance institutions, Ethiopia. The study's primary goal was to pinpoint the critical elements affecting the operational and financial viability of the chosen microfinance organizations in Ethiopia. The quality and availability of data for the six-year period (2009-2014) served as the basis for selecting the MFIs. 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.

Mahapatra and Dutta (2016) investigated determinants of sustainability of microfinance sector in India. The main objective of the research was to determine the variables influencing the Indian microfinance industry's operational self-sufficiency. The Probit Regression model served as the primary data analysis method in this quantitative investigation. The study used nine years' worth of secondary data for 65 chosen MFIs in India that were taken from the mix-market database. 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. This study recommended that microfinance institutions increase their economies of scale to reduce the cost per borrower.

Narwal and Yadav (2016) analyzed sustainability of microfinance institutions: the role of outreach and financial sustainability. The main objective of the research was to investigate the effects of several financial and outreach metrics on the long-term viability of Indian microfinance organizations. Using secondary data from 40 microfinance organizations that were readily chosen, it takes a quantitative approach. For model specification, a panel data approach is used. Multiple regressions, the unit root test, the Variance Inflation Factor (VIF), and descriptive statistics were all employed in this investigation. This study found a relationship between outreach and financial sustainability indicators. Outreach measures showed a positive association with microfinance firms' profitability. Repayment amounts for loans had a positive impact on outreach while having a negative impact on financial sustainability. To promote sustainability, a microfinance organization may give priority to the rate of payback.

Mutua and Ali (2017) analyzed factors influencing financial sustainability of microfinance institutions in Mombasa, Kenya. The primary goal of the research was to investigate the factors influencing MFIs' financial sustainability in Kenya, with a focus on Mombasa County. The study examined the effects of governance, donor financing, and savings mobilization on the ability of microfinance organizations to maintain their financial viability. The study's participants were five Mombasa Town-based microfinance firms. 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.

Sadiq and Burki (2018) assessed financial sustainability and microfinance institutions from an emerging market. The purpose of this study was to estimate the parameters impacting the Financial Sustainability (FS) of Micro Finance Institutions (MFIs) that

operate in Pakistan. Financing costs, loan amounts, business age, the size of the Microfinance Institute, and the proportion of female borrowers were the variables. These elements showed how important they are to Pakistani microfinance companies' good financial sustainability. Information was taken from 25 microfinance institutions' 2008–2015 annual reports. 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.

Dagneu and Seid (2019) analyzed determinants of financial sustainability of microfinance institutions in Ethiopia. The main objective of this study was to evaluate the variables that affect MFIs' financial viability. The study used a balanced panel data set of 208 observations from 26 MFIs between 2010 and 2017 and adopted a quantitative research methodology. The STATA 13 program was used by the researcher to conduct the analysis. 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 were the explanatory factors that were examined in this study. 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. Consequently, it was advised that Ethiopian MFIs expand their gross loan portfolio.

Lutf and Twaha (2019) examined an assessment of the financial sustainability of microfinance institutions. The main goal of the research was to analyze the performance of East African microfinance institutions from 2012 to 2017 from the standpoint of financial sustainability using secondary data sources from the Microfinance Information Exchange. 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. In particular, it identified the following factors as promoting and impeding financial sustainability: debt to equity, donations, personnel expenses to loan portfolio, loan loss rate, and portfolio at risk for more than 30 days on the one hand, and the number of active borrowers, deposit to GNP per capita, profit margin, and real yield on the other.

Zheng et al. (2021) examined factors affecting the sustainability performance of financial institutions in Bangladesh: the role of green finance. The primary goal of the research was to look at the elements of green finance and how they impact the sustainability performance of financial institutions in developing countries like Bangladesh. The research also shows the extent to which banks and non-bank financial entities in the country adopted green financing between 2015 and 2020. 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.

Subedi and Karki (2022) analyzed outreach, sustainability and efficiency of microfinance institutions in Nepal. The primary goal of the research was to investigate the relationship between outreach and sustainability in the context of Nepalese MFIs. Using data from 44 MFIs in Nepal between 1999 and 2019, this study used panel regression analysis to investigate the relationship between MFI sustainability and depth in the Nepalese environment. Along with the two variables of interest, this study also looks at the interaction influence of operational efficiency. 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. Thus, these results may offer a more effective policy recommendation that encourages operational effectiveness and, in turn, enhances MFIs' sustainability and outreach.

Kinde (2022) investigated financial sustainability of microfinance institutions (MFIs) in Ethiopia. The objective of this study was to determine the variables influencing the financial sustainability of MFIs in Ethiopia. A balanced panel data set including 126 observations from 14 MFIs between 2002 and 2010 was used in this quantitative investigation. 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.

Masanyiwa, Chusi and Haji (2022) administered determinants for sustainability of microfinance institutions in north “A” district in Zanzibar. The primary goal of the research was to investigate the elements that support the sustainability of microfinance organizations in Zanzibar's North "A" region. Primary data was collected from 150 randomly selected members and 50 carefully selected leaders of microfinance organizations using questionnaires and checklists. 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. The operational self-sufficiency of microfinance institutions in the research region was shown to be significantly influenced by the number of active borrowers and the loan portfolio. While interest rates on loans paid to borrowers were strongly correlated with microfinance organizations' financial self-sufficiency, loan portfolios had a negative, significant impact on financial self-sufficiency.

Hemtanon and Gan (2022) administered sustainability of microfinance institutions in Thailand. The main objective was to investigate the factors affecting MFI financial sustainability; only a small percentage of the research focused on MFIs in Thailand. 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. This study suggests that MFIs should ensure that their social and financial goals are appropriately balanced. It recommended that MFIs use a hybrid approach, utilizing technology to save operational costs while abiding by profit maximization standards.

Tehulu (2022) analyzed credit expansion and financial sustainability of microfinance institutions: a generalized method of moments panel data analysis. The primary goal of this research was to evaluate the connection between loan growth and the financial stability of microfinance institutions (MFIs) in Sub-Saharan Africa (SSA). The study evaluates a panel dataset of 136 MFIs from 2004 to 2018 in 31 SSA countries using 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. The results also demonstrated that interactions between lending intensity and portfolio at risk have an effect on MFI sustainability. However, the analysis did not demonstrate an uneven impact of credit expansion on financial sustainability based on loan interest rates.

Hamid et al. (2023) evaluated predictors of microfinance sustainability: empirical evidence from Bangladesh. The primary objective of the research was to investigate the financial sustainability of microfinance providers (MFPs) in Bangladesh. A financial sustainability index (FSI) was developed using Principal Component Analysis (PCA). This study examined data collected from the World Bank's MIX market between 2006 and 2018 using the two-step GMM technique. The findings showed that FSI was positively impacted by loan size, borrower count, female borrower proportion, and inflation. The financial viability of Bangladesh's microfinance industry was significantly impacted negatively by organizational structure, liquidity, leverage, cost per borrower, and GDP. Subsequent examination of the estimates showed that the link between organizational structure, average loan balance per borrower, and FSI was negatively impacted by national governance factors. The negative impact of the quantity of borrowers and the cost per borrower on

the financial statements of Bangladesh's MFPs was also lessened (erased) by improved national governance.

Maeenuddin et al. (2024) examined measuring the financial sustainability and its influential factors in microfinance sector of Pakistan. The main objective of the research was to assess the ways in which different factors impact the microfinance industry's financial sustainability in Pakistan. To gauge financial sustainability, a brand-new financial sustainability index has been created. The panel data from 34 Pakistani MFPs was analyzed using the Generalized Method of Moments (GMM) technique, producing 344 MFI-years of observations spanning 2006 to 2018. 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. MFIs must be financially self-sufficient, requiring little to no assistance from donor organizations or the government.

Table 1

Summary of Empirical Review

S.N.	Authors	Title	Objectives	Methodology	Major Findings
1	Rahman and Mazlan (2014)	Determinants of financial sustainability of microfinance institutions in Bangladesh	The primary goal of the study was to analyze the situations of microfinance institutions in Bangladesh and examine how well they performed in terms of financial self-sustainability	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 explain 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.
2	Long and Marwa (2015)	Determinants of financial sustainability of microfinance institutions in	The main objective of the study was to identify the variables that affect the	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

		Ghana.	financial sustainability of microfinance institutions in Ghana		had a positive correlation.
3	Hailu and Venkates warlu (2015)	Financial and operating sustainability of microfinance institutions, Ethiopia.	The study's primary goal was to pinpoint the critical elements affecting the operational and financial viability of the chosen microfinance organizations in Ethiopia	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.
4	Mahapatra and Dutta (2016)	Determinants of sustainability of microfinance sector in India	The main objective of the research was to determine the variables influencing the Indian microfinance industry's operational self-sufficiency	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.
5	Narwal and Yadav (2016)	Sustainability of microfinance institutions: the role of outreach and financial sustainability	The main objective of the research was to investigate the effects of several financial and outreach metrics on the long-term viability of Indian microfinance organizations	Multiple regressions, the unit root test, the Variance Inflation Factor (VIF), and descriptive statistics were all employed in this investigation	This study found a relationship between outreach and financial sustainability indicators. Outreach measures showed a positive association with microfinance firms' profitability. Repayment amounts for loans had a positive impact on outreach while having a negative impact on financial sustainability
6	Mutua and Ali (2017)	Factors influencing financial sustainability of microfinance institutions in Mombasa, Kenya	The primary goal of the research was to investigate the factors influencing MFIs' financial sustainability in Kenya	The collected data was sorted, edited, processed, and then analyzed using descriptive and inferential statistics with the aid of the Social	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

				Package for Social Sciences	statistically significant impact on the financial viability of microfinance institutions in Mombasa County, Kenya.
7	Sadiq and Burki (2018)	Financial sustainability and microfinance institutions from an emerging market	The purpose of this study was to estimate the parameters impacting the Financial Sustainability (FS) of Micro Finance Institutions (MFIs) that operate in Pakistan	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.
8	Dagnew and Seid (2019)	Determinants of financial sustainability of microfinance institutions in Ethiopia	The main objective of this study was to evaluate the variables that affect MFIs' financial viability	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.
9	Lutf and Twaha (2019)	An assessment of the financial sustainability of microfinance institutions	The main goal of the research was to analyze the performance of East African microfinance institutions from 2012 to 2017 from the standpoint of financial sustainability.	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
10	Zheng et al. (2021)	Factors affecting the sustainability performance of financial institutions in Bangladesh: The role of green finance	The primary goal of the research was to look at the elements of green finance and how they impact the sustainability performance of	Considering the dataset's properties, the structural equation modeling technique was employed to accomplish the study's	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

			financial institutions in developing countries like Bangladesh	objectives	banks' sustainability performance.
11	Subedi and Karki (2022)	Outreach, sustainability and efficiency of microfinance institutions in Nepal.	The primary goal of the research was to investigate the relationship between outreach and sustainability in the context of Nepalese MFIs.	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.
12	Kinde (2022)	Financial sustainability of microfinance institutions (MFIs) in Ethiopia.	The objective of this study was to determine the variables influencing the financial sustainability of MFIs in Ethiopia	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.
13	Masanyiw a, Chusi and Haji (2022)	Determinants for sustainability of microfinance institutions in north "A" district in Zanzibar	The primary goal of the research was to investigate the elements that support the sustainability of microfinance organizations in Zanzibar's North "A" region	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.
14	Hemtanon and Gan (2022)	Sustainability of microfinance institutions in Thailand	The main objective was to investigate the factors affecting MFI financial sustainability; only a small percentage of the research focused on MFIs in Thailand	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

15	Tehulu (2022)	Credit expansion and financial sustainability of microfinance institutions: A generalized method of moments panel data analysis	The primary goal of this research was to evaluate the connection between loan growth and the financial stability of microfinance institutions (MFIs) in Sub-Saharan Africa (SSA)	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.
16	Hamid et al. (2023)	Predictors of microfinance sustainability : Empirical evidence from Bangladesh.	The primary objective of the research was to investigate the financial sustainability of microfinance providers (MFPs) in Bangladesh	This study examined data collected from the World Bank's MIX market between 2006 and 2018 using the two-step GMM technique.	The findings showed that FSI was positively impacted by loan size, borrower count, female borrower proportion, and inflation. The financial viability of Bangladesh's microfinance industry was significantly impacted negatively by organizational structure, liquidity, leverage, cost per borrower, and GDP.
17	Maeenudd in et al. (2024)	Measuring the financial sustainability and its influential factors in microfinance sector of Pakistan.	The main objective of the research was to assess the ways in which different factors impact the microfinance industry's financial sustainability in Pakistan	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.

2.4 Research Gap

This research addresses the gaps in existing literature by building on previous studies. Earlier research primarily focused on sustainability analyses of various institutions conducted by students, experts, and researchers. However, these studies were limited due to insufficient data, extensive testing, and the need for adjustments to key variables. As a result, new research is required to fill these gaps and validate the findings. The objectives of this study differ from those of past research. 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 2022/23, and focusing on the microfinance sector. Additionally, past studies did not consider the sustainability of four specific microfinance companies. This study aims to fill that gap by evaluating the sustainability of these companies. Moreover, this research used descriptive, correlation, and multiple regression analyses, methods not applied in previous studies. Therefore, it offers a unique approach compared to earlier work.

CHAPTER–III

RESEARCH METHODOLOGY

Research methodology refers to the structured approach used to find solutions to a problem, which involves the systematic collection, recording, analysis, interpretation, and reporting of information related to different aspects of the phenomenon being studied. In this study, the research methodology outlines the methods and processes employed throughout the entire research. This chapter covers the research design, population and sample, sampling design, the nature and sources of data, the research framework, the definition of variables, and the method of analysis.

3.1 Research Design

This study employs both descriptive research design and causal-comparative 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-comparative 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 57 microfinance companies operating in Nepal (As of January, 2024). 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, Swabalmban Laghubitta Bittiya Sanstha Limited and Nirdhan Utthan Laghubitta Bitiya Sanstha Limited are selected as sample on the basis of purposive sampling method because these three companies are top five 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 relies on secondary data to achieve its objectives. Secondary data refers to information that has already been collected or used by another party and is publicly available through sources such as journals, newspapers, magazines, annual reports, and other publications. The main source of secondary data for this study is the annual reports of the relevant microfinance institutions. In addition to these reports, other sources of data, including newspapers, magazines, economic journals, reports from Nepal Rastra Bank, and research papers, have also been utilized.

3.4 Method of Analysis

The researcher uses the following categories of analytical tools to enhance the specificity and reliability of the study:

Arithmetic mean

The arithmetic mean of a set of observations is calculated by dividing the total sum of the observations by the number of observations. In this case, all components are considered equally important. For this study, the simple arithmetic mean is used based on the analytical requirements.

$$\text{Mean (} \bar{X} \text{)} = \frac{X_1 + X_2 + X_3 + \dots \dots \dots X_n}{n} = \frac{\sum X}{n}$$

Where,

$\sum X$ = sum of all values of the variable 'x'

n = number of observations

X = variables involved

Standard deviation

The standard deviation is a measure of the unpredictability of a random variable, calculated as the positive square root of the variance. It represents the average deviation of a set of data from its arithmetic mean. Considered the most important and useful measure of dispersion, the standard deviation has all the key characteristics of variance, with the added advantage of being expressed in the same units as the data.

$$\text{Standard Deviation (S.D.)} = \sqrt{\frac{\sum (X - \bar{X})^2}{n}}$$

Co-efficient of Variation (CV)

The coefficient of variation (CV), which is the ratio of the standard deviation to the mean, is a valuable statistic for assessing the degree of variation between two data sets, especially when their means differ significantly. However, the CV is not ideal for comparing two sets of variables directly, as it depends on how variable each set is. It is calculated as follows:

$$\text{Coefficient of Variation (CV)} = \frac{\text{S. D.}}{\bar{X}} \times 100$$

Correlation coefficient (r)

The correlation coefficient measures the relationship between a dependent variable and an independent variable. It is a method for assessing how these two variables are connected. When there is a significant correlation, meaning changes in the value of the independent variable influence the value of the dependent variable, a correlation coefficient is present.

$$\text{Correlation Coefficient (r)} = \frac{n\sum XY - \sum X \sum Y}{\sqrt{n\sum X^2 - (\sum X)^2} \sqrt{n\sum Y^2 - (\sum Y)^2}}$$

Where,

r = coefficient of correlation

$\sum XY$ = Sum of product of two series.

$\sum X^2$ = Sum of squared in X series

$\sum Y^2$ = Sum of squared in Y series

n = number of years

The value of the correlation coefficient can never exceed +1 or fall below -1, with +1 and -1 being the extreme limits. A value of $r = +1$ indicates a perfect positive correlation between the variables, while $r = -1$ indicates a perfect negative correlation. A value of $r = 0$ signifies no correlation between the variables.

Multiple Regression Analysis

Regression analysis is a set of statistical techniques used in modeling to estimate relationships between variables. It involves various methods for analyzing multiple variables, with a focus on understanding the relationship between a dependent variable (Sustainability) and independent variables, such as operating efficiency ratio, leverage ratio, credit risk, company size, and inflation rate. Specifically, regression analysis

helps to determine how the typical value of the dependent variable (also known as the 'criterion variable') changes when one independent variable is adjusted, while keeping the other independent variables constant. Thus, the following model has been used to examine the relationship and impact of the study variables.

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

Where:

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

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

LEV_{it} = 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

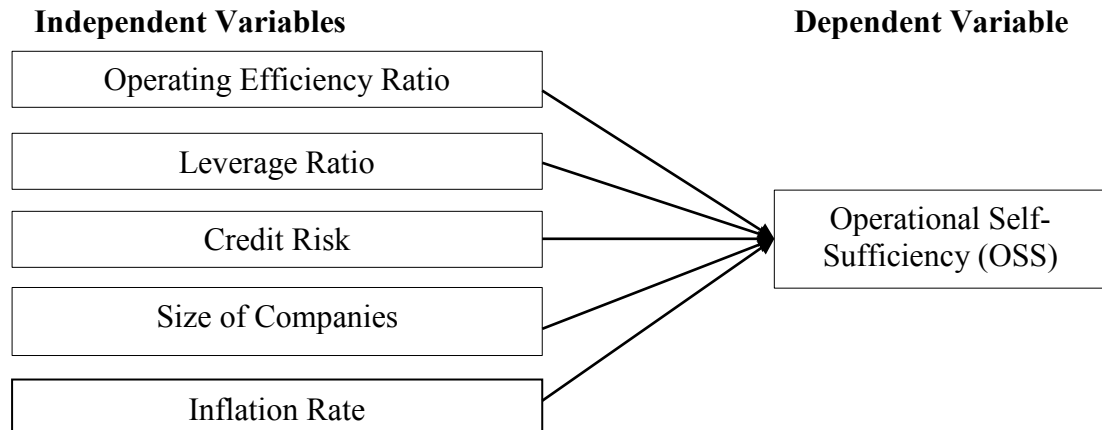
β_0 = The intercept (constant)

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

e = error component.

3.5 Research Framework and Definition of the Variables

From the theoretical and empirical literature reviews, the following research framework of the study is developed by the researcher.



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

Figure 1 Research Framework of the Study

Dependent Variable

Financial Sustainability

Operational and financial self-sufficiency are the two stages by which financial sustainability may be evaluated, claim Dagne 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. Dagne 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, Dagne 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 presents a discussion and comparison of relevant facts and information regarding the impact of specific factors on the sustainability of selected microfinance companies in Nepal, keeping the research objectives in focus. The first part of the chapter examines the sustainability characteristics of the microfinance institutions. In the second part, the influence of particular factors on sustainability is analyzed, using the statistical methods outlined earlier, along with the relationship between sustainability and other key variables. The third section includes a hypothetical analysis.

4.1 Results

In this section, the sustainability of microfinance companies is analyzed using statistical tools such as descriptive statistics, correlation analysis, and multiple regression analysis. These methods are employed to assess the key factors influencing the sustainability of the companies and to examine the relationships between various variables.

4.1.1 Position of Sustainability and It's Variables

A microfinance company's sustainability is determined by its ability to generate sufficient income or, with greater efficiency, reduce operating expenses. While there are various factors that influence the sustainability of microfinance companies, this study focuses specifically on the operating efficiency ratio, leverage ratio, credit risk, company size, and operating self-sufficiency ratio, among others.

4.1.1.1 Operating Efficiency Ratio

Operating efficiency is a performance metric that measures how effectively microfinance institutions (MFIs) optimize their processes and manage input and/or output costs. Effective cost control is essential for maximizing the use of MFIs' loanable resources, which can lead to higher profitability. A higher operational cost to gross loan portfolio ratio indicates inefficient management. Another key aspect of management quality is operational efficiency in managing operating expenses. Managers often convey their performance qualitatively through subjective assessments

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

Table 2

Operating Efficiency Ratio

	(In percent)			
Year	NUBL	CBBL	JBBL	SLBL
2013/14	6.73	4.29	9.35	10.33
2014/15	7.10	3.80	4.59	10.48
2015/16	6.66	3.27	6.00	9.23
2016/17	5.90	3.05	5.02	10.60
2017/18	4.52	10.98	5.97	11.17
2018/19	4.58	11.75	6.46	10.94
2019/20	4.18	11.84	5.30	14.08
2020/21	4.08	8.52	4.11	9.27
2021/22	3.66	9.31	4.90	13.00
2022/23	3.49	9.67	5.90	11.80
Mean	5.09	7.65	5.76	11.09
SD	1.37	3.64	1.46	1.53
CV	26.91	47.65	25.28	13.80

Source: Appendix –I

Table 2 shows the operating efficiency ratios of sample companies in Nepal. The SLBL ratio reached its highest at 14.08 percent in the fiscal year 2019/20. The CBBL ratio was the lowest at 3.05 percent for the fiscal year 2016/17. On average, SLBL had the highest operational efficiency ratio at 11.09 percent, while NUBL had the lowest average ratio at 5.09 percent. This indicates that NUBL uses the loanable resources of MFIs more effectively, potentially leading to higher income for MFIs. Furthermore, the organization's management appears to be more efficient. NUBL also has the lowest risk among the sample companies, reflected by its lowest standard deviation. Additionally, SLBL's operating efficiency ratio shows the most consistency, as evidenced by its lowest coefficient of variation (C.V.).

4.1.1.2 Leverage Ratio

The leverage ratio is a financial metric used to determine the proportion of a company's capital that is funded through debt and to assess its ability to fulfill debt obligations. A commonly used leverage measure is the debt-to-equity ratio, which compares the company's debt financing to its equity financing. Companies that rely heavily on debt must make regular interest payments, and as debt increases, so do

these payments. This reduces the earnings available to shareholders. Consequently, companies with lower debt levels are typically favored by investors because they are viewed as less risky and more likely to provide stable returns.

Table 3

Leverage Ratio

	(In percent)			
Year	NUBL	CBBL	JBBL	SLBL
2013/14	10.25	12.66	6.94	9.49
2014/15	9.74	10.66	7.66	8.24
2015/16	9.78	9.33	8.05	7.58
2016/17	9.38	9.24	10.37	8.26
2017/18	9.42	6.19	13.35	7.80
2018/19	8.01	5.66	10.96	7.78
2019/20	7.01	5.64	8.86	7.05
2020/21	5.89	5.76	9.70	6.02
2021/22	5.40	5.58	8.32	6.52
2022/23	4.95	5.33	7.93	5.46
Mean	7.98	7.61	9.22	7.42
SD	2.02	2.64	1.92	1.19
CV	25.29	34.75	20.85	16.01

Source: Appendix –I

Table 3 displays the leverage ratios of microfinance companies in Nepal. In the fiscal year 2014/15, JBBL had the highest leverage ratio at 13.35%, while NUBL had the lowest ratio of 4.95% in the fiscal year 2021/22. JBBL's highest average leverage ratio was 9.22%, while SLBL had the lowest average ratio at 7.42%. This indicates that JBBL depends heavily on debt financing, with a greater portion of its capital coming from creditors rather than its own equity. Given JBBL's high debt-to-equity ratio, its reliance on debt could present risks for creditors. Among the sample microfinance companies, SLBL had the lowest standard deviation, suggesting it carries the least amount of risk. Additionally, SLBL's leverage ratio is the most consistent, as shown by its lowest coefficient of variation (C.V.).

4.1.1.3 Credit Risk

This ratio measures the percentage of non-performing loans relative to total loans, which includes substandard, doubtful, and problematic loans. The higher the percentage of non-performing assets, the riskier the investments become. A high proportion of non-performing loans also leads to increased loan loss provisions, negatively impacting profitability. This ratio assesses the overall management and monitoring of loan performance by microfinance institutions. The Nepal Rastra Bank (NRB) requires all microfinance institutions to establish loan loss provisions to protect against bad or questionable loans. This ratio helps in controlling credit risk and reducing the volume of non-performing loans.

Table 4

Credit Risk

	(In percent)			
Year	NUBL	CBBL	JBBL	SLBL
2013/14	0.59	0.03	0.09	0.50
2014/15	0.22	0.02	1.38	1.73
2015/16	0.40	0.10	2.26	1.20
2016/17	0.32	0.09	1.04	0.73
2017/18	0.93	0.11	1.69	1.04
2018/19	1.19	0.28	2.29	0.80
2019/20	1.83	0.46	3.73	2.07
2020/21	4.11	0.64	4.47	4.56
2021/22	5.30	0.83	3.80	6.33
2022/23	9.87	1.72	14.35	8.66
Mean	2.48	0.43	3.51	2.76
SD	3.12	0.53	4.04	2.81
CV	125.86	124.16	115.27	101.58

Source: Appendix –I

Table 4 illustrates the credit risk ratios of microfinance companies in Nepal. The credit risk ratio ranges from 14.35% for JBBL in the fiscal year 2022/23 to 0.02% for CBBL in the fiscal year 2014/15. JBBL has the highest average ratio at 3.51%, while CBBL has the lowest average ratio at 0.43%. This suggests that CBBL carries the least credit risk, indicating that it is managing its non-performing loans (NPLs) more effectively than the others. It is evident that CBBL closely monitors and tracks loan utilization. Additionally, CBBL has the lowest risk among the sample companies, as reflected by

its lowest standard deviation. Here, C.V. for SLBL is lowest so credit risk ratio in SLBL is most consistent.

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, the size of the companies is considered a specific internal independent variable because it influences their performance. The relationship between company size and performance can be either positive or negative. Managing a larger company may be more challenging, but on the other hand, larger businesses can benefit from economies of scale, allowing them to raise capital at a lower cost. Therefore, company size is an important factor in determining profitability.

Table 5

Size of Companies (Total Assets)

(Rs. in thousand)				
Year	NUBL	CBBL	JBBL	SLBL
2013/14	6153801	6211358	111174	4830225
2014/15	8336037	9145280	263728	6152957
2015/16	11837775	12524323	388703	7628991
2016/17	15340083	15509468	661385	10018371
2017/18	17967921	19549572	1072035	11711599
2018/19	22143425	24060301	1511056	15931443
2019/20	23615202	27259254	1752210	16979345
2020/21	26540523	34286755	2397833	18963611
2021/22	29621044	38255894	2401705	21889722
2022/23	27922236	42732042	2227849	19847217
Mean	18947804.70	22953424.70	1278767.80	13395348.10
SD	8332859.37	12562269.39	900731.29	6122515.69
CV	43.98	54.73	70.44	45.71

Source: Appendix –I

Table 5 shows the sizes of microfinance companies in Nepal. The largest average firm size is found in CBBL, with an average of 22,953,424.70 thousand, while the smallest average firm size is in JBBL, at 1,278,767.80 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 has the lowest standard deviation of all the sample firms, indicating it is the least risky. Additionally, NUBL has the lowest coefficient of variation (C.V.), meaning 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 a crucial financial indicator used by microfinance institutions (MFIs) to assess their economic viability. It evaluates the institution's ability to cover operating expenses from operating income without accounting for outside funds or subsidies. This ratio is crucial for assessing the long-term viability and profitability of microfinance organizations, ensuring that they can operate independently of continuous external support.

Table 6

Operating Self-Sufficiency Ratio

(In percent)				
Year	NUBL	CBBL	JBBL	SLBL
2013/14	191.78	181.74	180.87	210.50
2014/15	192.01	238.15	238.26	212.76
2015/16	208.43	288.82	205.46	246.76
2016/17	226.73	301.39	187.51	184.78
2017/18	231.73	259.10	162.22	226.52
2018/19	257.86	248.56	168.29	211.37
2019/20	216.95	241.85	167.47	247.97
2020/21	264.43	281.00	209.83	271.77
2021/22	220.95	253.79	168.96	258.40
2022/23	215.49	260.96	91.71	179.24
Mean	222.64	255.54	178.06	225.01
SD	24.19	33.15	38.70	30.85
CV	10.86	12.97	21.73	13.71

Source: Appendix –I

Table 6 presents the operating self-sufficiency ratios of microfinance companies in Nepal. CBBL has the highest average operating self-sufficiency ratio at 255.54%, while JBBL has the lowest average ratio at 178.06%. This suggests that CBBL is financially self-sufficient, generating enough revenue from its operations to cover its expenses without relying on external support. NUBL has the lowest standard deviation among all the sample firms, indicating it is the least risky. Additionally, NUBL's operating self-sufficiency ratio is the most consistent, as reflected by its lowest coefficient of variation (C.V.).

4.1.2 Descriptive Statistics

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

Table 7

Descriptive Statistics of Variables of Microfinance Companies

Variables	N	Minimum	Maximum	Mean	Std. Deviation
OER	40	3.05	14.08	7.3970	3.17683
LEV	40	4.95	13.35	8.0555	2.05705
CR	40	.02	14.35	2.2940	3.03867
LSIZE	40	5.05	7.63	6.8849	.63302
INF	40	3.60	9.93	6.3350	2.06846
OSS	40	91.71	301.39	220.3093	41.67386

Source: Appendix –II

Table 7 presents the descriptive statistics for the dependent and independent variables used in the study. The operating efficiency ratio (the first independent variable) ranges from 3.05 percent to 14.08 percent, with an average of 7.3970 percent and a standard deviation of 3.17683. The leverage ratio ranges from 4.95 percent to 13.35 percent, with a mean of 8.0555 percent and a small standard deviation of 2.05705 percent. The credit risk ratio has a mean of 2.2940 percent, with a range from 0.02 percent to 14.35 percent and a standard deviation of 3.03867 percent. The size of companies (SIZE), the fourth independent variable, ranges from 5.05 percent to 7.63 percent, with an average of 6.8849 percent and a standard deviation of 0.63302 percent. The inflation rate, the fifth independent variable, ranges from 3.60 percent to 9.93 percent, with a mean of 6.3350 percent and a standard deviation of 2.06846 percent. Finally, the operating self-sufficiency ratio (OSS) has a mean of 220.3093 percent, with a minimum of 91.71 percent and a maximum of 301.39%, and a relatively low standard deviation of 41.67386 percent.

4.1.3 Correlation Analysis

A correlation matrix is a table that displays the correlation coefficients between different variables. Each cell in the table shows the correlation between two variables. This matrix is a useful tool for summarizing data, offering a quick overview of the

relationships between variables and their varying degrees of importance. A correlation value of 0 indicates no linear relationship between the two variables, while 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	-.409** (0.009)	1				
CR	-.078 (0.630)	-.319* (0.045)	1			
LSIZE	.223 (0.166)	-.457** (0.003)	.016 (0.921)	1		
INF	-.037 (0.819)	.090 (0.582)	.040 (0.806)	-.247 (0.124)	1	
OSS	.102 (0.530)	-.399* (0.011)	-.415** (0.008)	.554** (0.000)	-.209 (0.196)	1

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

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

Source: Appendix-V

Table 8 presents the results of the correlation test between the dependent and independent variables using a correlation coefficient matrix. The analysis shows that the operating efficiency ratio (OER) has an insignificant, low positive correlation of 0.102 with the operating self-sufficiency ratio (OSS) at the 5% significance level. There is a significant, low negative correlation of -0.399 between the leverage ratio and the operating self-sufficiency ratio. Similarly, the correlation coefficient is -0.415 between credit risk and operating self-sufficiency ratio which indicates significant negative relationship between them. On the other hand, the size of companies shows a significant, moderate positive correlation of 0.554 with the operating self-sufficiency ratio. Finally, the inflation rate has an insignificant, low negative correlation of -0.209 with the operating self-sufficiency ratio of the microfinance companies.

4.1.4 Results of Regression Analysis

It encompasses various techniques for modeling and analyzing multiple variables, with a focus on the relationship between the dependent variable, sustainability or operating self-sufficiency ratio (OSS), and the independent variables (operating efficiency ratio,

leverage ratio, credit risk, company size, and inflation rate). Ordinary Least Squares (OLS) regression of panel data analysis is employed as the primary analytical tool.

Table 9

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.804 ^a	.647	.595	26.51557

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

Source: Appendix-VI

The coefficient of determination (R^2) in multiple regression is a summary statistic that indicates how well the sample regression line fits the data. The R^2 value is 0.647, meaning that the model explains 64.70% of the variance in the dependent variable, the operating self-sufficiency ratio (OSS), through the independent variables (inflation rate, operating efficiency ratio, credit risk, company size, and leverage). The strength of the relationship between the variables, represented by the multiple correlation coefficient, is 0.804, suggesting a strong degree of association between the study variables. This indicates that the operating self-sufficiency ratio (OSS) is significantly influenced by the independent variables. The standard error of the estimate is closely related to the regression analysis.

Table 10

Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43827.168	5	8765.434	12.467	.000 ^b
	Residual	23904.559	34	703.075		
	Total	67731.726	39			

a. Dependent Variable: ROA, ($\alpha = 0.005$)

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

Source: Appendix-VI

An analysis conducted with ANOVA (F-value) indicates that the dependent variables can be explained by the largest number of possible combinations of predictor variables. The results show that the operating self-efficiency ratio (OSS) indicator plays a significant role, suggesting the overall model is meaningful. The F-value of 12.467 ($p = 0.000 < 0.05$) for the proxy variables of OSS—such as INF, OER, CR, LSIZE, and LEV—clearly indicate a 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)	187.907	2.569	.015
OER	-3.153	-2.088	.044
LEV	-10.475	-3.855	.000
CR	-8.269	-5.377	.000
LSIZE	24.156	3.085	.004
INF	-1.142	-.539	.594

Source: Appendix-VI, ($\alpha = 0.005$)

Table 11 presents the regression coefficient of independent variables operating efficiency ratio, leverage ratio, credit risk, size of companies and inflation rate on one of proxy of sustainability, 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 -3.153. This suggests that a one percent increase in the OER leads to a 3.153 percent decrease in the OSS of microfinance companies, assuming all other independent variables remain constant. Additionally, the p-value for OER is 0.044, which is significant at the five percent level. It shows that operational efficiency ratio (OER) has –ve significant effect on 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 -10.475. This suggests that a one percent increase in the leverage ratio (LEV), while holding other independent variables constant, results in a 10.475 percent decrease in the operating self-efficiency ratio (OSS) of microfinance companies. The p-value for LEV is 0.000, indicating that this relationship is statistically significant at the five percent significance level. So, there is –ve significant 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 -8.269.

This means that a one percent increase in credit risk (CR), while holding other independent variables constant, leads to an 8.269 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 –ve significant 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 24.156. This implies that, when other independent variables are held constant, a one percent increase in company size (SIZE) leads to a 24.156 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 +ve significant 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 -1.142. This means that a one percent increase in the inflation rate (INF) leads to a 1.142 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 0.594, which suggests that this relationship is not statistically significant at the five percent significance level. Thus, inflation rate has –ve insignificant 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 impact of various factors on the sustainability of selected microfinance companies in Nepal. The study highlights that the operating efficiency ratio, leverage ratio, credit risk, company size, and inflation rate directly affect sustainability, specifically the operating self-efficiency ratio (OSS), which is a key measure of microfinance companies' sustainability. The findings reveal that NUBL has the lowest average operational efficiency ratio, suggesting it is utilizing microfinance institutions' (MFIs') loanable resources more effectively, potentially increasing their income. JBBL has the highest debt-to-equity ratio,

indicating a heavy reliance on debt financing, with a larger share of its funding sourced from creditors rather than equity. On the other hand, CBBL has the lowest credit risk, demonstrating the best management of non-performing loans (NPLs) among the companies studied. CBBL also has the largest size among the sample companies during the study period and is financially sustainable without needing external support, as it generates sufficient income from operations to cover its expenses.

The correlation analysis revealed several key relationships. First, there is an insignificant, low-degree positive association between the operating efficiency ratio (OER) and the operating self-efficiency ratio (OSS). In contrast, the leverage ratio shows a significant, low-degree negative correlation with OSS. Similarly, credit risk exhibits a significant negative relationship with OSS. The size of the companies demonstrates a significant, moderate-degree positive correlation with OSS. Lastly, the inflation rate shows an insignificant, low-degree negative relationship with the operating self-efficiency ratio of the microfinance companies.

The multiple regression analysis revealed that the operational efficiency ratio has a statistically significant negative effect on the operating self-efficiency ratio. Similarly, the leverage ratio negatively impacts the operating self-efficiency ratio of microfinance companies in a statistically significant manner. Additionally, credit risk has a significant negative effect on the operating self-efficiency ratio. In contrast, the size of the companies has a statistically significant positive effect on the operating self-efficiency ratio. However, the inflation rate has an insignificant negative effect on the operating self-efficiency ratio of the microfinance companies.

The correlation analysis revealed that the operating efficiency ratio (OER) has an insignificant positive 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 showed a significant 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). Further, this is consistent with the adverse selection theory of financial markets which proved that deposit interest rate is supposed to the cost for companies.

So, high interest rates have an impact on the type of financial market activities as well as sustainability of companies. Additionally, credit risk was found to have a significant negative relationship with the operating self-efficiency ratio, which agrees with the findings of Dagneu and Seid (2019). This is also consistent with the social capital theory because social capital as a loan recovery intervention and a way to reduce loan defaults that have an impact on businesses' sustainability. The size of the companies showed a significant positive correlation with the operating self-efficiency ratio, consistent with Hailu and Venkateswarlu's (2015) study. Finally, 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 Dagneu and Seid (2019); Hemtanon and Gan (2022) while Hailu and Venkateswarlu (2015). The leverage ratio (LEV), negatively affects microfinance companies' operating self-efficiency ratio (OSS) in a statistically significant way. 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); Dagneu 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 Dagneu 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 Dagneu and Seid (2019). However, this result contrasts with the findings of Rahman and Mazlan (2014), Long and Marwa (2015), and Hemtanon and Gan (2022). The inflation rate (INF) shows an insignificant negative effect on the OSS of microfinance companies, consistent with the results of Dagneu and Seid (2019), but contradicting the findings of Hamid et al. (2023).

CHAPTER - V

SUMMARY AND CONCLUSION

5.1 Summary

Microfinance groups play an important role in the battle against poverty by creating a connection between traditional financial institutions and the poor. Microfinance pioneers believe that access to capital might significantly reduce poverty. The ability to sustain well-being over an extended, perhaps endless length of time is also known as "sustainability." This mostly addresses the environmental aspect of the three pillars of sustainability (social, economic, and environmental), even if the terms "environment performance" and "sustainability performance" are not synonymous. Financially disadvantaged people are usually given loans by MFIs to enable them make enough money to pay for all of their essential living needs and, additionally, to make a somewhat greater income than expenses to promote future growth. Understanding and evaluating the pertinent elements affecting the financial sustainability of MFIs functioning in Nepal is essential to effectively addressing the threat of poverty.

The primary objective of this study is to examine the impact of specific factors on the sustainability of selected manufacturing companies in Nepal. The other specific objectives 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, company size, and inflation rate) and the sustainability of microfinance companies in Nepal; and to examine the effect of these factors (operating efficiency ratio, leverage ratio, credit risk, company size, and inflation rate) on the sustainability of microfinance companies in Nepal. This study employs both descriptive research design and causal-comparative research design. The descriptive research design is used to analyze the sustainability status of the sample microfinance companies, while the causal-comparative design is applied to examine the impact of specific factors on the sustainability of microfinance companies in Nepal. As of January 2024, there are 57 microfinance companies operating in Nepal, which constitute the population of the study. Four microfinance companies—Chhimek Laghubitta Bikas Bank Limited (CBBL), Janutthan Samudayic Laghubitta Bikas Bank

Limited (JSLBB), Swabalamban Laghubitta Bittiya Sanstha Limited (SWBBL), and Nirdhan Utthan Laghubitta Bitiya Sanstha Limited (NUBL)—are selected as the sample based on purposive sampling. These companies are among the top five 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 2013/14 to 2022/23), is used. The study employs descriptive analysis, correlation analysis, and multiple regression analysis for data analysis.

This study indicates that microfinance companies in Nepal are financially sustainable without relying on external assistance, as they generate sufficient income from their operations to cover their expenses. The correlation analysis shows an insignificant positive relationship between the operating efficiency ratio and operational self-sufficiency ratio, while leverage ratio and credit risk exhibit 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. Additionally, the inflation rate has an insignificant negative association with the operational self-sufficiency ratio of microfinance companies. The regression analysis further reveals that the operating efficiency ratio and leverage ratio significantly negatively impact the sustainability (or operational self-sufficiency ratio) of microfinance companies in Nepal. Similarly, credit risk has a significant 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. Inflation rate, however, has an insignificant negative effect on the operational self-sufficiency ratio. Overall, this study concludes that operating efficiency ratio, leverage ratio, credit risk, and company size are key factors influencing the sustainability of microfinance companies in Nepal.

5.2 Conclusion

This study concluded that NUBL has the lowest average operational efficiency ratio, indicating that the company is utilizing its loanable resources more efficiently, which could potentially increase the income of the microfinance institution (MFI). JBBL, on the other hand, has the highest debt-to-equity ratio, suggesting that the company relies heavily on debt financing, with a larger portion of its funding coming from creditors

rather than its own equity. In contrast, CBBL has the lowest credit risk, demonstrating that it is managing its non-performing loans (NPLs) better than the other companies. Additionally, CBBL has the largest size among the sample companies during the study period. Furthermore, CBBL is financially sustainable without external assistance, as it generates enough income from its operations to cover its expenses.

The correlation analysis concluded that operating efficiency ratio (OER) has insignificant positive relation with operating self-efficiency ratio. Then, there is significant negative correlation of leverage ratio with operating self-efficiency ratio. Likewise, 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 multiple regression analysis concluded that operational efficiency ratio (OER) has a statistically significant negative effect on operating self-efficiency ratio (OSS). Likewise, the leverage ratio (LEV) has negatively affects microfinance companies' operating self-efficiency ratio (OSS) in a statistically significant way. 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, leverage ratio, credit risk and size of companies have significant effect on sustainability of microfinance companies in Nepal but inflation rate had no effect on sustainability of microfinance companies in Nepal. This finding is valuable for government policymakers in creating a supportive environment that promotes small lending by making borrowing more affordable and the loan processing faster, thus expanding the breadth and scope of outreach. The development of appropriate

rules and regulations can also help microfinance institutions (MFIs) more easily mobilize deposits from clients, further enhancing their ability to operate sustainably and serve a larger number of borrower.

- The study concluded that the operating efficiency ratio, leverage ratio, credit risk, and company size are key factors influencing the sustainability of microfinance companies in Nepal. Therefore, the management of microfinance institutions can improve their financial sustainability by implementing good governance practices and utilizing all available sources of financing, including donor funding and savings mobilization.
- According to the study, effective management of microfinance companies' sustainability would benefit not only the companies themselves but also individuals, businesses, and the broader economy. This is because various factors impact the sustainability of microfinance companies in different ways. As a result, it contributes to the overall welfare of the financial industry and the community as a whole.
- 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 studies may consider factors such as the geographical location, growth stages, ownership, age, and product delivery methodology of microfinance institutions (MFIs). Moreover, this study focused solely on the financial sustainability component. Therefore, future research could explore other dimensions of sustainability, such as mission sustainability, program sustainability, and human resource sustainability, within the context of MFIs in Nepal.

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ABSTRACT This study investigates effect of specific factors on sustainability of selected microfinance companies