Commercialisation of Microfinance Institutions (MFIs) and Financial Performance & Outreach.
A Cross-Country Analysis and Case Study of Nepal.

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Abstract

Microfinance institutions (MFIs) are designed to improve the socio-economic status of low-income households and reduce poverty in developing countries. Initially, MFIs were developed as non-commercial institutions (not-for-profit). However, in recent decades, a growing number of commercial MFIs (for-profit) have begun to emerge which means an increasing percentage of MFIs are now interested in their own financial gain. These MFIs have received criticism for neglecting their purported social objective. In spite of this institutional shift and the resultant criticism, very few studies have investigated the impact of the commercialisation of MFIs on their performance—and even among the few studies that do exist, there is little consensus on the matter. Therefore, this thesis investigates the effect of the growing commercialisation of MFIs on their financial performance and outreach, utilising data from the MIX Market from 2002 to 2016—data which cover 2,102 MFIs from 114 developing countries. The generalised method of moments (GMM) has been applied to analyse the data, and the findings show that the commercialisation of MFIs has no significant effect on their financial performance but has a significant positive effect on the breadth and a significant negative effect on the depth of the outreach of MFIs.

Furthermore, using multiple MFI cases from Nepal, this study investigates the effect of the commercialisation of MFIs at a micro-level and also investigates how the commercialisation of MFIs affects their financial performance and outreach due to the lack of study. The mixed method has been applied and found that commercial MFIs are less profitable and operationally self-sufficient than non-commercial MFIs in Nepal. The result also shows that the profitability of commercial MFIs decreases in the short run but increases in the long run. Moreover, the results presented that commercial MFIs have higher number of borrowers than non-commercial MFIs in Nepal. Similarly, the findings show that commercial MFIs are providing smaller loans compared to non-commercial MFIs but also reveal that the loan size is increasing. In addition, the qualitative analysis shows that the commercialisation of MFIs mainly affects three endogenous factors, i.e., *profit intention, size*, and *management and staff efficiency* which affects their financial performance and outreach.

Finally, this thesis also examines whether the profitability of MFIs affects their decisions to offer loans to business start-ups as some argue that higher bank profitability dissuades a bank's risk taking; thus, it is associated with larger capital reserves because profitable banks stand to lose more shareholder value if downside risks are realised. On the other hand, more profitable banks can borrow more and engage in risky activities on a larger scale under the presence of leverage

constraints. A review of the current literature shows that no studies have been done on this subject in the context of MFIs. Therefore, this study uses data from 566 MFIs in 93 countries from the period of 2008 to 2018 and performs an analysis using a random intercept multilevel model. The results show that the profitability of MFIs has a negative relationship with the provision of financial capital to business start-ups.

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List of Abbreviation

3SLS-3 Stage least square estimation
ADBN- Agriculture Development Bank of Nepal
ANOVA- Analysis of Variance
BLUE- Best linear unbiased estimation
BRI -Bank Rakyat Indonesia
CBB-Chhemak Bikas Bank (CBB)
CGAP-Consultative Group to Assist the Poor
CMF- Centre for Microfinance
CSD- Canter for Self- Help Development (CSD)
DDB-DEPROSC microfinance development bank
DEA-Data envelopment analysis
EU-European Union
FE-Fixed effect
FINCA- Foundation for International Community Assistance
FINGOs- Financial intermediary non-government organisations
FMB-First Microfinance Bank
FSP- Financial service provider
FSS-Financial self-sufficiency
GDP- Gross domestic product
GEE-Generalised Estimating Equations
GLM- Generalised Linear Model
GMM- Generalised Method of Moment
GNI-Gross national income
HT- Hausman- Taylor's test

IMFIs- informal microfinance institutions
IV-Instrument variable
Log- logarithm
MBB- Micro banking Bulletin
MFI- Microfinance Institution
MFIs- Microfinance Institutions
MIFAN-Microfinance Association of Nepal
MIX-Microfinance information exchange
MSB- Market shares of borrowers
MSBA-Market share of borrowers adjusted by market share of assets
MSLBSL-Mahuli Samudayik Laghubitta Bittiya Sanstha Limited
MSMEs-micro, small, and medium-sized enterprises
NAB- Number of active borrowers
NEFSCUN- Nepal federation of saving and credit cooperatives unions
NGBBL-Nepal Grameen Bikas Bank Ltd
NGOs- Non-government organisations
NRB- Nepal Rastra Bank-Central Bank of Nepal
NRs= Nepalese Rupee
NUB- Nirdhan Uthaan Bank
Obs-Observation
OLS-Ordinary Least Square
OSS-operational self-sufficiency
PHBK- Programme Hubungan Bank Danksm
PSM-Propensity Score Matching
RE-Random effect
RMBSL-Reliable Microfinance Bittiya Sanstha Limited
RMDC- Rural microfinance development Centre Ltd
ROA-Return on assets
ROE-Return on equity
RRDB- Regional Rural Development Banks
RSRF-Rural Self Reliance Fund
RUFIN-Rural Finance Nepal
SAARC- South Asian Association of Regional Cooperation
SACCO- Saving and Credit Cooperatives
SBB-Swabalaman Bikas Bank
SFA- Stochastic frontier analysis
SFCLs- small farmer cooperatives ltd
SKBBL-Sana Kisan Bikas Bank Ltd
SMEs-small and medium enterprises
USAID-U.S. Agency for International Development
VIF- variance inflation factor
WGI-world governance indicators

Chapter 1: General Introduction

This chapter introduces the concept of microfinance, discuss the role of microfinance and evaluates the emerging practices in the microfinance sector. It then presents the research gap and research questions that have been developed from the critical evaluation of previous literature. The contribution of the thesis is also presented in this chapter, followed by the structure of the thesis.

1.1 Microfinance and Microfinance Institutions

Microfinance is not a new phenomenon. It has been defined differently by different people, agencies and institutions (Singh & Gashayie, 2014). Previously, microfinance was known as 'microcredit' which means small loan provided especially to women to start micro businesses that help to improve their living standard (Yunus, 2003). However, 'microfinance' has changed over the years to align with customers' needs and demands. In recent years, the concept of microfinance has expanded from being limited to microcredit and female borrowers and has been defined as the provision of financial and non-financial services from microfinance institutions to low-income households and small businesses in rural and urban areas (Robinson, 2001) while the institutions that provide these microfinance services are referred to as microfinance institutions (Ledgerwood, 1998). Microfinance has evolved from microcredit to products and services such as micro loans, savings, remittance, insurance, training and development.

1.2 Role of Microfinance

One of the major issues many developing countries face is poverty alleviation. In 2001, the world bank estimated more than 1.1 billion people were poor and depending on less than $1 a day and another 2.7 billion lived on less than $2 a day (Sengupta & Aubuchon, 2008). The literature shows that there is no single definition of poverty or way of measuring poverty. The Consultative Group to Assist the Poorest (CGAP) broadly defines poverty as the situation where the individuals are living below the poverty line. The current quantitative measurement of poverty is 'a dollar a day' (Tache & Sjaastad, 2010). About 75% of people in developing countries live in extreme poverty in rural areas, mostly dependent on agriculture for their livelihood (World Bank, 2007). A considerable number of governments and international communities have applied various strategies to reduce poverty. Despite these efforts, there has been little impact on poverty,

mainly because traditional banks are reluctant to provide credit to poor people in developing countries due to high risks and costs (Sohn & Ume, 2019).

As a solution to insufficient financial access for impoverished people, Professor Muhammad Yunus established the Grameen Bank, a microfinance bank which provided microcredit, in the late 1970s. Over the years, this idea developed into a strategy to improve broader financial services in low-income communities and eventually reduce poverty (Aninze et al., 2018; Armendariz & Morduch, 2010). In addition to supporting low-income households, MFIs offered financial credit alongside non-financial services such as training and development programmes to micro-entrepreneurs in order to stimulate the growth of microbusinesses in low-income areas. Thus, microfinance's role is to reduce poverty by providing financial and non-financial services to low-income people.

Studies have emerged that demonstrate microfinance helps to alleviate poverty. Khandker (2005) examines the effect of microfinance on poverty reduction in Bangladesh and shows that access to microfinance contributes to poverty reduction, especially for female participants. Similarly, Ghalib et al. (2015) also investigate the relationship between microfinance and poverty reduction and find that microfinance plays an important role in poverty reduction. Further, Imai et al. (2010) examine whether household access to microfinance reduces poverty in India and find that MFIs are crucial in the fight against poverty. Kaboski and Townsend (2012) analyse the effect of large-scale government microfinancing on Thai villages and state that microfinance has a positive impact. The results of Kasali et al.'s (2015) research also illustrate microfinance's effectiveness in poverty reduction in Southwest Nigeria. The poverty-reducing effect of MFIs has been documented in various other studies (e.g., Ngoasong & Kimbu, 2016; Uddin & Hossain, 2020; Miled & Rejeb, 2015).

As stated above, the main role of microfinance is to reduce poverty; however, it also plays important role in socio-economic development, cultivation of entrepreneurship and women's empowerment. Thus, MFIs were originally, primarily non-commercial institutions. But in the last few decades, a growing number of non-commercial MFIs have transformed into profit-seeking commercial institutions with the dual objectives of poverty reduction and profit maximisation. Today, there are both commercial and non-commercial MFIs operating.

1.3 The Purpose and Emerging Practices of Microfinance Institutions

The formal MFI, Grameen Bank, started in Bangladesh in the late 1970s, with the initial purpose of social welfare. Its main goal was to provide microcredit to low-income households who did not have access to financial services from traditional banks due to lack of credit history and collateral. The institution was non-commercial, meaning it operated not for financial profit, but for the social good of providing credit facilities for those who normally had no access to finance. Thus, this enabled low-income individuals to start micro businesses or to boost their income by other means and ultimately improve their living standards.

In the 1990s, several MFIs were established by replicating the Grameen Bank model (See section 2.4) and were granted the status of non-government organisation (NGO) which means their objective was to only provide microfinance services for social welfare without expecting an additional return (profit). These institutions were supported by donations, government subsidies, socially oriented investors, and savings from members. However, this model was unsustainable: it was not feasible for MFIs to continuously provide services by solely depending on donations and subsidies because at some point the funding bodies would stop providing support. As a result, some practitioners and policy makers began to advocate for a transformation from non-commercial MFIs to commercial MFIs.

Due to support from practitioners and policy makers, MFIs underwent structural changes. They transformed their models from non-commercial to commercial. One of the most notable MFIs to transition from non-commercial/non-government organisation (NGO) to commercial MFI was PRODEM NGO. PRODEM-NGO became Banco Sol, a commercial MFI in Bolivia, in 1992 (Bateman, 2010). Based on the successful cases from Latin America, coupled with the belief that performance would be superior to those of non-commercial MFIs, numerous non-commercial MFIs have morphed into commercial MFIs. Among the largest are Compartamos Banco in Mexico, Banco Sol in Bolivia, and Bhandhan and SKS in India. The commercialisation process has undergone considerable growth in many developing countries (Lensink, 2011).

The U.S. Agency for International Development (USAID) was one of the early supporters of the commercialisation of MFIs (Bateman, 2010). The World Bank also supported commercialisation and played a vital role in promoting the new model by forming the Consultative Group to Assist the Poor (CGAP), which was established to improve standards, find solutions, and offer advice to microfinance stakeholders (CGAP, 2013). Moreover, commercial MFIs are becoming commonplace in developing countries, where the majority of the MFIs are located (Chakravarty

& Shahriar, 2015; Khavul, 2010; Armendariz & Morduch, 2010). In fact, MFIs are expected to become the world's largest banks in terms of the number of borrowers (Mersland, 2013b).

Over the last two decades, a substantial number of commercial MFIs have started to emerge with the intention of profit maximisation, which demonstrates that the purpose and practice of MFIs have dramatically changed. MFIs' main purpose as non-profit organisations was to support low-income households by providing microfinance services; however, they increasingly started to adopt a commercial approach by systematically reducing the dependency on subsidies and financial aid. They began to focus on self-sustainability and targeting relatively fewer poor borrowers to cover the cost. Profits are viewed as not only acceptable but essential because they are expected to attract investors (Ghalib et al., 2015).

1.4 Research Gap

Despite the emergence in recent years of a large number of commercial MFIs across numerous countries, the literature review shows (see Section 2.8.1) that very few studies exist that have investigated the impact of the commercialisation of MFIs on their financial performance and outreach—and the studies that do exist are inconclusive. Some studies support commercialisation and state that the commercialisation of MFIs has a positive impact (Johnson, 2017; Hossain, 2013; Dacheva, 2009; Berger et al., 2006), whereas other studies identify negative impacts (D'Espallier et al., 2017; Abrar & Javaid, 2014; Wagennar, 2012; Cull. et al., 2009). Some even find no relationship (Mersland & Strom, 2009; Cull et al., 2007). These mixed findings create confusion over the impact of the commercialisation of MFIs. Hence, further study is required. In addition, there is a methodological gap to be filled; whilst previous studies have applied various methods to analyse the available data, none have applied dynamic panel analysis, which is the quantitative method that addresses endogeneity issues (see Section 4.7.1). Therefore, this study investigates the impact of MFIs' commercialisation on their financial performance and outreach using dynamic panel analysis. This study has also applied new indicators of outreach developed by Bibi et al. (2018) to determine whether they are more effective than existing indicators.

Likewise, previous studies (see Section 2.8.1) such as those by Bensalem & Ellouze (2019), Johnson (2017), D'Espallier et al. (2017), Abrar and Javaid (2014) and many more, only focused on the impact analysis. Bensalem and Ellouze (2019) investigate the effect of the current wave of the commercialisation of microfinance institutions (MFIs) on their financial and social efficiency. Similarly, Johnson (2017) investigates the impact of commercialisation on microfinance outreach in Mozambique. D'Espallier et al. (2017) also investigate the effect of

transformation from NGOs to shareholder-owned MFIs and Abrar and Javaid (2014) examine whether the commercialisation of the microfinance market leads to mission drift. However, the current study's researcher has not found any studies that investigated how the commercialisation of MFIs affects their financial performance and outreach. Thus, there remains a significant knowledge gap. To fill this gap, this study also investigates how the commercialisation of MFIs affects their financial performance and outreach using multiple MFI cases from Nepal in Chapter 5. Nepal has been selected as a case because there is no study available based in Nepal, yet MFIs in Nepal were among the first to apply a commercial approach. The first commercial MFI appeared in 1998 in Nepal and the commercialisation of MFIs has become increasingly prevalent since then.

Finally, this study also investigates whether the profitability of MFIs affects the decision to provide loans to business start-ups. This hypothesis is put to the test as some believe that higher bank profitability dissuades a bank's risk taking, and thus it is associated with larger capital reserves because profitable banks stand to lose more shareholder value if downside risks are realised (Keeley 1990; Kripfganz and Sarafidis, 2021: 672). On the other hand, more profitable banks can borrow more and engage in risky activities on a larger scale under the presence of leverage constraints (Martynova, Ratnovski, and Vlahu 2020) which suggests that an increase in profitability of MFIs leads to an increase in number of loans to risky business such as start-ups. Despite the relevance of this debate, the literature review shows (see Section 2.8.3), no studies have been conducted in the context of MFIs. Therefore, this study investigates whether the profitability of an MFI affects its decisions to provide loan to business start-ups in Chapter 6.

1.5 Research Questions

Based on the critical literature review (see chapter 2, section 2.8) and the gap presented (see section 1.4), this study investigates the relationship between the commercialisation of MFIs and their financial performance and outreach. Therefore, the research questions answered in this thesis are.

Q1: What effect does the commercialisation of MFIs have on their financial performance and outreach in developing countries?

Q2: What effect does the commercialisation of MFIs have on their financial performance and outreach in Nepal?

Q3: How does the commercialisation of MFIs affect their financial performance and outreach?

Q4: What effect does the profitability of MFIs have on the decision to provide loans to business start-ups?

1.6 Contribution of the Thesis

Firstly, this thesis uses new indicators of outreach introduced by Bibi et al. (2018) in combination with traditional indicators while using dynamic panel data analysis to investigate the impact of the commercialisation of MFIs on their financial performance and outreach in developing countries. Thus, the research contributes to the existing literature on the relationship between the commercialisation of MFIs and financial performance and outreach as well as examining whether new indicators are fit for purpose. Furthermore, this study is the first to use a dynamic panel data analysis method while investigating the effect of the commercialisation of MFIs. Therefore, it fills a methodological gap.

Secondly, this study investigates how the commercialisation of MFIs affects their financial performance and outreach using multiple cases from Nepal for the first time. This helps to fill a significant knowledge gap as no studies have been found by the researcher yet that answer the question. Further, very few studies have been done on MFIs in Nepal even though MFIs have been operating in Nepal since the 1990s and the commercialisation of MFIs began there as early as the late 1990s. This study allows MFIs, government, and other related agencies to determine

whether commercialisation has a positive, negative, or neutral effect on the financial performance and outreach of MFIs in Nepal – which is information that could help to create policies in the future.

Finally, this thesis also analyses whether the increase in profitability of MFIs affects their decision to provide financial capital to business start-ups. This analysis contributes to the microfinance and entrepreneurship literature as this question has not been addressed before. The study also allows MFIs and stakeholders to understand whether an increase in profitability affects the decision to provide loans to start-ups or not.

1.7 Structure of the Thesis

The remainder of this thesis is organised as explained below.

Chapter 2 presents the literature review. The chapter starts with an introduction to microfinance, the history of microfinance, and the commercialisation of MFIs. Then, it presents various lending models that have been adopted by MFIs and the commercialisation process/model that MFIs have applied to become commercial MFIs. Furthermore, the researcher discusses two different approaches to the provision of microfinance (the welfarist and institutionalist approaches) before reviewing previous empirical studies related to the topic of this study, which includes: the review of literature related to the commercialisation of MFIs and their financial performance and outreach, previous studies on microfinance in Nepal and studies on profitability of MFIs and business start-ups.

Chapter 3 outlines the research methodology where the research philosophy, research approach and research methods have been discussed and also provides the justification for applying the particular research method in this thesis.

Chapter 4 presents a cross-country empirical investigation of the impact of the commercialisation of MFIs on their financial performance and outreach. This chapter is divided into various sub-sections. Section 1 presents the introduction of this chapter and Sections 4.2, 4.3, 4.4, and 4.5 look at the source of the data and describe the dependent, independent, and control variables respectively in detail. Moreover, this chapter briefly describes all the variables used for this study in Section 4.6, while Section 4.7 includes the empirical results and discussion (i.e., descriptive statistics, correlation table, and generalised method of moments estimation).

Finally, Section 8 offers a summary and conclusion to the chapter. This chapter answers the research question Q1.

Chapter 5 presents the empirical investigation of the impact of MFIs' commercialisation on their financial performance and outreach in Nepal and also explores how the commercialisation of MFIs affects their financial performance and outreach. In this chapter, Section 5.1 offers background information, a detailed explanation of why the MFIs of Nepal have been chosen as a cast study and a general overview of Nepal. This section then presents an exploration of the development of financial institutions and MFIs in Nepal, other institutions related to microfinance and the current state of MFIs in Nepal. Sections 5.2 and 5.3 outline research design and the research method that has been applied to this part of the research. Section 5.4 explores the mixed method research design, incorporating both quantitative and qualitative methods. Section 5.4 also provides the quantitative and qualitative findings of this part of the research. Finally, Section 5.5 presents the conclusion of this part of the research. Thus, this chapter answers the research questions Q2 and Q3.

Chapter 6 investigates whether the profitability of MFIs influences the decision to provide financial capital to business start-ups. This chapter is divided into 4 different sections. Section 6.1 offers background information and a brief overview of start-ups/ entrepreneurship. Section 6.1 further discusses the financial options available to business start-ups and outlines the importance of microfinance for business start-ups. Section 6.2 presents the research methodology applied for this part of the study which includes the research method, data collection process and description of the dependent, independent, and control variables used for this part of the study. Section 6.3 presents the empirical results, including the descriptive statistics, correlations, and results from the multilevel estimation technique. Finally, Section 6.4 concludes the chapter. Thus, this chapter answer the research question Q4.

Chapter 7 includes a summary and conclusion of the overall thesis. This chapter highlights the main findings of the thesis and its contribution to the research field. Recommendations on various policies related to the industry are then made. Finally, the limitations of this thesis are addressed and suggestions are made for further research.

Chapter 2: Literature Review

2.1 Introduction

This chapter includes 8 sections. Firstly, it presents an introduction of the chapter then shows the history and development of microfinance in Section 2.2. In the third section, it shows the definition of the commercialisation of MFIs. Section 2.4 presents various lending models that MFIs apply. Similarly, Section 2.5 shows the processes of the commercialisation of MFIs. Then, it discusses the welfarist and institutionalist approaches of MFIs in Sections 2.6 and 2.7 respectively. Finally, Section 2.8.1 presents the critical review of the previous literature on the commercialisation of MFIs and their financial performance and outreach in a global context. Section 2.8.2 reviews the previous studies done in the Nepalese context and finally, Section 2.8.3 reviews the previous literature on the relationship between the profitability of MFIs and provision of loans to business start-ups.

2.2 History and Development of Microfinance and MFIs

Microfinance has existed for centuries in different forms. One of the main reasons for the existence of microfinance institutions was the lack of access to credit facilities from traditional banks for poor households due to the fact that poor households are not able to provide collateral and credit history. In Europe, the earliest example of microfinance can be dated back to the 15th century when the Catholic Church founded the pawn shop as an alternative to the usurious money lender. These pawn shops spread throughout Europe, with one of the earliest examples being the Irish loan fund started in the early 1700s by Jonathan Swift. By the 1840s, this system had become widely popular and had produced over 300 funds across Ireland (Helms, 2006).

In the 1800s, Friedrich Wilhelm Raiffeisen also started an MFI using the cooperatives model (see section 2.4) to help low-income people and improve their welfare (Seibel, 2004). Later, it became successful and spread to Latin America, Asia and Africa. One of the early examples was the Indonesian People's Credit Bank. In the 1900s, the adoption of a cooperatives model started to appear more frequently in Latin America with the aim to modernise the agricultural sector, mobilise idle savings, increase investment through credit, and reduce oppressive feudal relations that were enforced through indebtedness.

From the 1950s to 1970s, governments and donors in developing countries started to focus on providing credit services to farmers to improve their productivity and income through state-

owned financial institutions and agricultural cooperatives. They started to offer loans to customers at below-market interest rates but, unfortunately, such schemes were not very successful because financial institutions were unable to cover their cost as the borrowers had poor repayment discipline and considered the loan a government gift.

Meanwhile, in the late 1970s, Professor Muhammad Yunus introduced microcredit in Bangladesh and established Grameen Bank to provide small credit services without collateral and credit history, especially to women to help them to start an income-generating small business and eventually improve their living standard (Yunus, 2003). The Grameen model (described below in Section 2.4) quickly became popular and was replicated by many MFIs in other developing countries (Remenyi, 1997), such as ACCION International in Latin America and the Self-Employed Women's Association Bank in India. In the 1980s, microcredit received substantial amounts of attention as it was becoming successful worldwide. In the early 1990s, the term microcredit became microfinance and included not only credit, but also training and development services. At the same time, international development agencies also started to promote microfinance as a strategy to alleviate poverty because it was regarded as one of the most effective tools for fighting poverty (Armendariz & Morduch, 2010) and has continued to expand rapidly for the last 10 to 15 years. The United Nations (UN) declared 2005 an international year of microcredit with the goal to provide credit services to 100 million low-income households by the end of the year—a goal that was ultimately met (Cull et al., 2009). The number of clients then rose to 137.5 million by the end of 2010 (Maes & Reed, 2012) and in the 2014 microcredit summit reported that in 2011 there were 203 million microfinance borrowers operating in developing countries (Rajbanshi et al., 2015).

In addition to tremendous growth of MFIs in recent years, a large number of MFIs are also going through structural change. Literature shows that a considerable number of non-commercial MFIs are transforming into commercial MFIs by adopting a commercial approach. Existing traditional banks have also started to open their own microfinance branches. MFIs have started to merge to become commercial MFIs and some even established themselves as a commercial MFIs from the beginning. In summary, a sizeable number of commercial MFIs have appeared with the intention to make profit. Although, numerous commercial MFIs have applied the commercial business model, several non-commercial MFIs still exist and serve clients (D'Espallier et al.,2017). The next section explains more about the commercialisation of MFIs.

2.3 Definition of Commercialisation of MFIs

The word 'commercialisation' is defined differently in different contexts but, in general, commercialisation means to move towards privatisation in order to increase profitability or to apply a market-based approach. In the literature, the commercialisation of MFIs is described as the process by which MFIs operate without subsidies and donations or as the process of applying market-based principles (Armendariz & Morduch, 2010). According to Poyo and Young (1999), commercialisation of MFI refers to 'the expansion of profit-driven financial institutions. Similarly, Hattel and Halpern, (2002) also describe the commercialisation of MFI as the application of commercial principles to the deployment of financial services. The concept of commercialisation in MFI is not very old. The evolution of commercialisation began when there was a growing realisation in the international market that commercialisation offers MFIs a better opportunity to reach their social goal of poverty alleviation. It was clear that commercialisation was essential for further development of the microfinance sector and to expand services to reach more poor people who needed microfinance services (Asian Development Bank, 2001). The development of commercialisation in microfinance is designed to move MFIs from non-profit operations that are heavily subsidised by donors to for-profit and commercially funded institutions that do not depend on subsidies at all (Dunford, 2000). Most of the MFIs that have adopted commercial approach have done so with the intention of growing rapidly (Christen & Drake, 2001). Therefore, in this thesis, the commercialisation of MFIs has been defined as the transformation of an NGO/non-commercial MFI into a commercial MFI.

As stated above, the process of the commercialisation of MFIs is becoming common in many countries and has been growing rapidly in the last decade (Lensink, 2011). Despite the rapid increase in the commercialisation of MFIs, little attention has been given to examining the effect of the commercialisation of MFIs on their financial performance and outreach. Most studies related to microfinance have investigated MFIs' effects on poverty reduction and only a small number of studies exist that have investigated the relationship between the commercialisation of MFIs and their performance, such as Hartarska and Nadolnyak (2009), Cull et al. (2009), Mersland and Roy (2009), Cull et al. (2011), Cull et al. (2013) and D'Espallier et al. (2017).

Furthermore, the findings from the few existing studies are vague and unclear, as different studies provide different results – all of which have been discussed below in the literature review section. Thus, the impact of the commercialisation of MFIs remains ambiguous. This has led to confusion among microfinance researchers and practitioners and to requests for further research (D'Espallier et al., 2017). Similarly, Banerjee et al. (2015) have stated that a few recent studies

are available related to modern MFIs and have made suggestions for further study. This demonstrates that there is still a gap in the literature, especially with regard to the commercialisation of MFIs. Moreover, limited studies have been conducted on the commercialisation of MFIs using a rigorous method such as dynamic panel data analysis (dynamic panel method has been described in detail in section 4.7.2), which takes account of potential endogeneity issues within the model. It also shows that there is a methodological gap in the literature. Therefore, the aim of this chapter is to investigate the effect of the commercialisation of MFIs on their financial performance and outreach using dynamic panel analysis method. The following section presents the review of previous literature. This section presents various models related to microfinance, reviews the previous literature, and identifies a gap in the literature.

Microfinance began in the form of informal lending, such as loans being provided by local traders, family members, landlords, pawnbrokers, and moneylenders. Informal credit markets work efficiently, satisfy demand, and help the poor (Robinson, 2001) but the informal credit lending markets were restricted to a small scale, mostly situated in rural areas of the country and were not suitable to reach a larger population and contribute to socio-economic development. As a result, the first formal MFI, Grameen Bank, was established in Bangladesh by following the Grameen model, which currently has the widest replication in many developing countries such as Malaysia, Philippines, Indonesia, India, Vietnam, Bhutan, Guinea, Kenya, Malawi, Zambia, Mali, Burkina Faso, Bolivia, Peru, Nigeria, Nepal, Pakistan, and many more. It has also been adopted in Canada, France, and the U.S., where it is being used to help people become income generators (Christabell, 2009). Some of the other major models of microfinance are village model, cooperatives and credit union model, cooperative model and self-help group. According to Ledgerwood (1998), there are six major methods that are followed by MFIs for lending credit to poor people (i.e., individual credit, credit solidarity, the village banks, the self-managed village banks, the Grameen Bank model, mutual models). Some of the most popular models used in the microfinance industry are explained below.

2.4 Microfinance Lending Models

Grameen Model

In the Grameen model, five unrelated, self-selected prospective borrowers are required to make saving deposits and payment on a loan at a given period of time. The institution does not evaluate as individual loans but as a group loan and also leave members to do most of the management activities. First, two members of the group receive the loan. The group members determine the rotation of access to credit and, after the timely repayment, an additional two members receive loans. If any member in a group fails to make an instalment payment on time, then the borrower or group is cut off from the future borrowing. However, if the borrower/the group make a payment on time, then bigger loans are granted in the future (Morduch, 1999). The Grameen model provides credit to very poor populations in rural areas without requiring any collateral, has low transaction costs, and focuses on women.

Individual Lending

Individual lending is popular in urban areas of the country. This method is straightforward. It does not require forming a group but rather microcredits are provided to the individual borrower after analysing past repayment performance, reference, and credit history. This type of lending method is used when the clients have assets which can be used as collateral or regular income or when a person can also act as a guarantor of the borrowers. To ensure repayment, the loan officer cultivates a close relationship with the borrower. Individual lending models were first adopted by Bank Rakyat Indonesia MFI and the Self-Employed Women's Association MFI in India (Bangoura, 2012).

Self-help Group model

In the self-help group model, approximately 10–20 people come together as a group for the business of saving and credit. They make regular savings and provide loans to members with interest charges. Even though these types of groups are linked with financial institutions for sourcing additional funds and depositing savings, the group will control all the savings, loans, and repayments rather than a financial institution. The self-help group model has been adopted by many institutions. For example, self-help group bank Linkage in India, Chikola groups of K-REP in Kenya, and the Programme Hubungan Bank Danksm (PHBK) project in Indonesia (Satish, 2005). These types of informal savings and credit groups can be transformed into a formal group as credit cooperatives.

Village Banking Model

The village banking model was first created by John Hatch in Bolivia in 1980 (Fotabong, 2011) and the Foundation for International Community Assistance (FINCA) implemented a village banking model in its effort to create financially sustainable solidarity groups. It is community-based saving and credit association with approximately 30–50 members who are interested in a common goal of improving their living standards. The village bank was initially funded by lending institutions usually US$50 for a short period of time. The repayments are collected by the village bank in weekly instalments and repaid to the lending institution. If the villager repays the full loan on time, then they are eligible for the second loan but if they are not able to repay the loan amount then the lending organisation can stop providing loans until full repayment.

The village bank has two blocks called the 'external account and internal account'. 'External account' refers to the fund received by an external source and 'internal account' refers to the fund received by saving and an interest charge that can be lent to members. The external account comprised solely of funds lent to the village bank by the lending institution and the internal account consists of funds belonging to the village bank. Although the initial investment comes from an external source, the village bank is expected to become self-sustainable over a certain period of time. The village bank is run by members who make their own rules and regulations. The village banking model is popular in Latin America and in African countries (Conroy, 2003).

Co-operatives Model

A cooperative model is a self-governing method that is run by a group of members from the same profession or local community. Cooperatives banks are developed based on a cooperative model. The credit cooperative was first started circa 1850 in Germany by F.W. Raiffeisen to improve the living standard of low-income people (Armendariz & Morduch, 2010). The institution raises funds through the shares and savings from the members who come together to fulfil their common goal of economic, social, and cultural needs. Members takes all major decisions related to operations and loans. The members are the owners of the institution. They elect the officers from amongst themselves to run the institution. The cooperatives are more focused on social welfare than making a profit, and they are managed by local professionals (Jha, 2011).

Credit Unions Model

A credit union model is also a member-driven model. It is the particular group (e.g., same church, society, union etc.) of people who share the same goal of saving money and providing loans to each other at a reasonable interest rate. Kim et al. (2004) stated that the perspective credit unions are more savings-driven while many other MFIs are credit-driven. This institution can also

provide training to support their members and is able to provide insurance against idiosyncratic risks (Chua et al., 2000), such as household-related risk. The credit union model is more successful in Asian countries compared to other parts of the world (Conroy, 2003).

2.5 Commercialisation of MFIs Process

MFIs were initially established as non-commercial organisations using the various models outlined in above in section 2.4 to serve poor households and were financed by savings, government subsidies and donations. However, in recent years, MFIs have realised that they need to be sustainable in order to provide continued services and meet the massive global demand for small loans and saving services (Johnson, 2012). As a solution, many MFIs started to apply the commercial approach which enabled them to provide continued services and cover costs without financial support from others (Hishigsuren, 2006). Therefore, non-commercial MFIs migrated towards commercialisation (Abrar & Javaid, 2014) and began to establish commercial MFIs. The paradigm started to shift from donor- or subsidy-based MFIs to commercial MFIs with the primary intention to obtain commercial funds from investors to ensure large-scale outreach and sustainability (Charitonenko et al., 2004).

Many commercial MFIs have emerged in the last decade worldwide (Lensink, 2011). The process of the commercialisation of MFIs is supported by the UN and World Bank, who argued that it is indeed for the development of an integrated financial market, which is needed for the provision of a sustainable microfinance system (Bangoura, 2012). The word 'commercialisation' can be used interchangeably with the word 'transformation', as transformation is the method of commercialisation. The commercialisation of MFI process first started in Latin America when PRODEM-NGO became Banco Sol in Bolivia in 1992. After that, it spread around Latin America and Asia and, by the end of 2004, a total number of 16 transformed MFIs were reported in India, Nepal, Pakistan, Philippines, Mongolia, and Cambodia (Rukaria, 2015). Slowly, the commercialisation of MFIs gain popularity all over the world due to the expected benefits of collecting private capital, financial sustainability, and maximum outreach (Hishigsuren, 2006). MFIs can undergo the commercialisation process by following four different routes i.e., upgrading, downscaling, Greenfields, and merger (see Figure 2.1).

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Figure 2. 1: Commercialisation model of microfinance industry

Commercialisation Model of Microfinance Institutions

Downscaling	Traditional bank		
Greenfield	New commercial MFI from scratch		Commercial microfinance institution (MFI)
Merger	Two or more institutions merge to establish commercial MFI		
Upscaling	NGOs upgrade to	Commercial MFI	
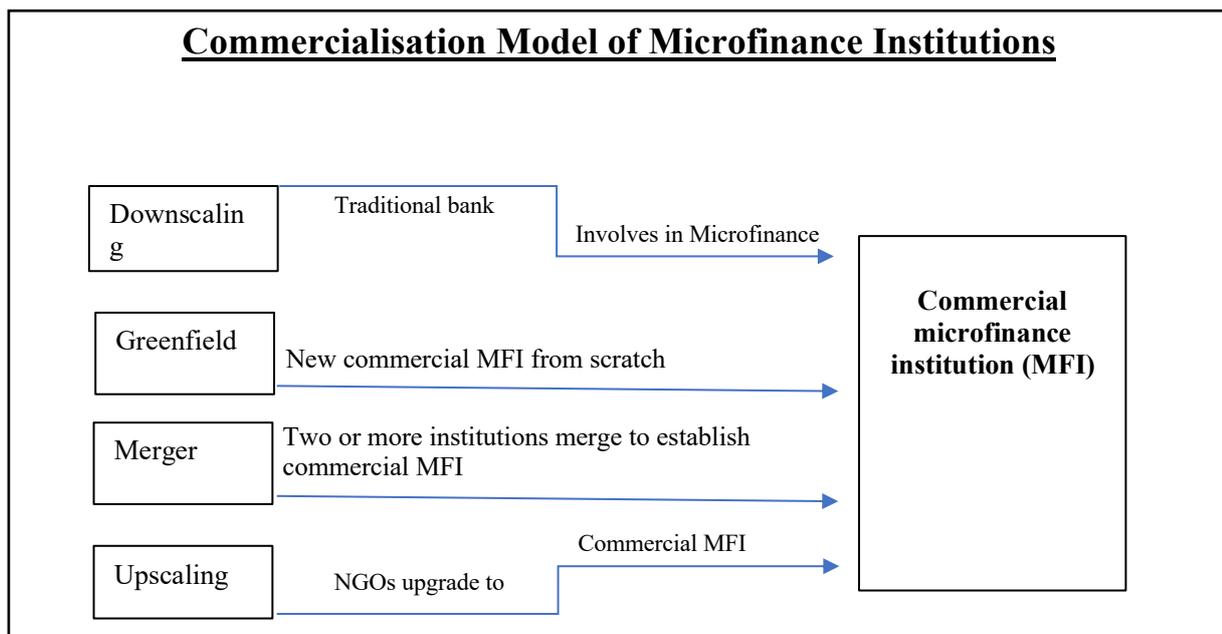
(Source: Author)

Upscaling

The first model is 'upscaling', which can be described as the process of an NGO transforming into a fully-fledged MFI (Dacheva, 2009) or as the process of an NGO transforming into a commercial and profit-seeking MFI (Campion, 2001). Others describe this process as NGO-commercialisation, NGO-transformation, or NGO-formalisation. The purpose of transformation is to enable the NGO to become independent from donations by gaining access to the capital market and taking deposits from the public. Furthermore, it allows the former NGO to undertake various other banking activities such as saving and insurance and allows them to increase their market penetration by broadening their list of products and services. The commercialisation of NGOs also helps them to strive for professionalism, which in turn helps to improve the efficiency of an institution (Campion, 2001). Some examples of successful upgrading are BRAC in Bangladesh, CARD Bank in the Philippines, Mibanco in Peru, Finsol in Honduras, and Compartamos in Mexico (Hishigsuren, 2006).

Downscaling

The second model of commercialisation of MFIs is **'**downscaling'. This is the opposite of upgrading. It means that traditional commercial banks downscale their operations to serve microfinance clients. Downscaling can be carried out through various processes. Banks and financial institutions can either open their microfinance division and provide microfinance services, or they can open subsidiaries and provide microfinance services. The purpose of

downscaling from traditional banks to microfinance is to penetrate the microfinance market and make a profit (Hishigsuren, 2006). However, downscaling is not just beneficial to banks; it also increases the number of MFIs that provide services to clients, which means clients are granted more options (D'Espallier et al., 2017). Some examples of successful downscaling are Sogebank in Haiti, Banco in Ecuador, and BRI in Indonesia.

Greenfields

The third model is known as 'Greenfields'. This model is new to the industry. It refers to creating a new commercial MFI from scratch often with the help of international networks mostly by social impact investors. In other words, the Greenfield approach is the process of establishing an MFI on a green field where there are no pre-existing employees, clients, or infrastructure. For example, Bangente in Venezuela created a commercial MFI out of nothing (Hishigsuren, 2006; Rukaria, 2015). The investor involved in this type of MFI seeks both financial and social return.

Merger

The final model of commercialisation is 'merger', which is where a traditional bank or financial institution and MFI merge together in order to establish a new commercial MFI or more than 2 non-commercial MFIs merge together to establish a new commercial MFI. For example, XacBank was created by merging XAC and Gobi Ehlel, both of which were formerly independent microfinance NGOs in Mongolia (Hishigsuren, 2006; Rukaria, 2015).

Ledgerwood and White (2006) have stated that MFIs can also become commercialised through various other methods such as transforming an existing non-profit MFI into a regulated financial institution that can mobilise savings from the public or create a commercial MFI from scratch. Another notable path to commercialisation in microfinance is for commercial banks to become involved in microfinance activities. Banks involved in this process have stated that the main purpose of transformation is to offer additional products and services to their customers and to expand their outreach to the poor. It also enhances governance and ownership structure, leading to more efficient and sustainable institutions. Similarly, Frank et al. (2008) also noted that non-commercial MFIs are transforming into commercial MFIs with three main motives: access to commercial fund, organisation sustainability, and product expansion. Transformed MFIs can open up to investors which allows them to expand their loan portfolio and thus reach a wider client base and take advantage of economy of scale. Likewise, transforming into commercial MFIs leads to a better corporate governance system, improved management structures, and a revamp of operational procedures to enable greater organisational stability in the long term.

Transforming into a commercial MFI also allows an institution to provide saving services and mobilise those saving which normally allowed to regulated financial institutions (D'Espallier et al, 2017).

Even though the commercialisation is adopted and supported by many MFIs and organisations, a counter-concern has arisen. Indeed, there are two different schools of thought regarding the provision of microfinance. Campion (2002) refers to these as 'welfarist' and 'institutionalist'. Morduch (2000) described this as the 'microfinance schism'. At the centre of the schism is the view of welfarists that MFIs should be non-commercial and for social welfare, while institutionalists believe they need to be more commercial in form, with both sides saying they provide the best solution for poverty alleviation. Both of these approaches have been described below in detail.

2.6 Welfarist Approach

The welfarist school of thought believes that poverty reduction should be prioritised, meaning that microfinance should be perceived as an integrated programme of fighting poverty and improving the wellbeing of the poor people. This line of thinking argues in favour of providing non-financial services in addition to financial services. Social welfarists also argue that social investors who provide funding to MFIs should be primarily motivated by an intrinsic desire to help the poor, rather than by financial profit. For instance, most of the MFIs in Western Europe are motivated to accomplish a social return as these institutions are predominantly the foundations of banks or large corporations (Bangoura, 2012). The welfarist approach argues that commercial MFIs are knocking the purported mission of MFIs off course. Commercialisation degrades an organisation's commitment to the poor (Christen & Drake, 2001). Woller, et al. (1999), meanwhile, have observed that if profitability were emphasised more than poverty alleviation, then the profit motive would take priority over the social service motive. Welfarists argue that many of the poor people who take part in microfinance programmes will not be able to bear the burden of commercial loans as their interest rate is relatively high.

Therefore, the main concern of welfarists is that adopting commercialisation will hurt vital clients. Those who are in favour of the welfarist approach have stated that there should be more MFIs that prioritise the needs of poor people over profit (Daley-Harris, 2009). Welfarists believe that the performance of MFIs can be measured by focusing on living standards, income, number of loans, savings, productivity, and social services such as education and health (Congo, 2002).

Those who are against the welfarist approach see it as a step towards the distortion of the microfinance industry's main goal, which should be to provide social welfare to poor people. However, many believe that the commercialisation of MFIs is the solution to reducing poverty. They see it as a solution to the supply-and-demand gap, and they believe its rise is unstoppable.

2.7 Institutionalist Approach

In contrast to the welfarist approach, the institutionalist approach argues that MFIs should be self-sustainable and should facilitate poverty alleviation. Institutionalists believe that MFIs should not just cover their financial and operational costs but should also make a profit for sustainability purposes. Those who are in favour of commercialisation of MFI argue that MFI needs to be profitable as subsidised lending is not sustainable and an absence of market discipline means increased costs, which leads to the failure of microcredit programmes. As donor support is decreasing, many NGOs and MFIs are looking for alternative funding (Carlos & Carlos, 2001) and Christen and Drake (2001) suggest commercialisation as an option for accessing commercial sources of funds. Furthermore, institutionalists believe that commercialisation offers a win-win situation in increasing outreach and sustainability while providing social benefits to society.

The CGAP (2004a) has also stated that microfinance will only realise its potential if it is integrated into a country's mainstream financial system. Institutionalists want to see MFIs as financially independent by meeting the cost from self-generated funds. According to Brau and Woller, (2004) institutions' financial viability and sustainability are key to the successful inclusive financial provision to the poor. It has been prominence to the institutionalist to create a sustainable MFIs that can adequately serve the lower-income people which has been the approach of current commercial MFIs (Singh & Gashayie, 2014). As a result, the commercialisation of MFIs has become popular in Latin America, Sri Lanka, Ghana, Indonesia, Uganda, India, Nepal and Morocco (Charitonenko et al., 2004). They also stated that commercialisation has a positive impact on outreach in Indonesia and the Philippines. Similarly, Copestake et al. (2005) supported the institutionalist approach by stating that profitability is the means to the sustainability of a microfinance programme, and that it is an important prerequisite for sustainable poverty reduction.

Due to the debate between welfarists and institutionalists, studies started to appear which investigated the impact of the commercialisation of MFIs on their financial performance and outreach. However, because this is a relatively new debate, there remains an insufficient number

of studies to allow us to form a consensus on the issue. The following section presents a review of the existing literature related to the commercialisation of MFIs and their financial performance and outreach.

2.8 Review of Previous Empirical Studies

This section critically reviews the previous studies. It is divided into three sub-sections. Firstly, it reviews the previous empirical studies on commercialisation of MFIs and their financial performance and outreach. Secondly, it reviews the previous empirical studies done on MFIs of Nepal and finally, presents the critical review of previous empirical studies done on microfinance and start-up businesses.

2.8.1 Review of Previous Studies on Commercialisation of MFIs and their Financial Performance and Outreach- Cross Country Studies

In response to concerns over the negative impact of commercialisation on MFIs, a number of studies have looked into the issue. For instance, the commercialisation of MFIs in India has led to massive market penetration, which in turn has led to market saturation, over-lending, and over-indebting of clients in some instances in 2010, with the popular case of Andhra Pradesh being among the worst examples of this (Maes & Reed, 2012). This also occurred in other developing nations, such as Bosnia, Morocco, Pakistan, Bolivia, and Nicaragua – although it was accompanied by different dimensions and experiences (Hossain, 2013). In addition, Yunus (2011) stated that commercial funding causes microfinance providers to act as a new 'breed of loan sharks.

Andhra Pradesh Case: India is one of the counties where microfinance has increased rapidly, with Andhra Pradesh (an Indian state) being a recent example of market saturation and over-indebting of clients of MFIs. In July 2010, one of India's largest MFIs, SKS Microfinance Ltd, which had more than 7 million clients, issued initial public offering (IPO) and managed to raise over $155 million and valued the company at $1.5 billion. However, while some praised the success of the IPO, others blamed MFIs for abusive collection practice and for over-indebting microfinance clients who simply could not afford to repay the multiple loans they had taken on. The shock came when microfinance clients allegedly committed suicide in Andhra Pradesh. This led to political debate and encouraged clients not to pay back their loans. Consequently, MFIs could not operate and almost disappeared from Andhra Pradesh (Maes & Reed, 2012).

Before the Andhra Pradesh Case, not many studies were available on the commercialisation of MFIs but after the incident studies started to emerge gradually. Those studies found both positive and negative impact of commercialisation of microfinance industry and some even found no impact. Following are some of the studies on commercialisation of microfinance clustered based on their findings.

Negative Impact

Likewise, Olivares-Polanco (2005) conducted a study on the commercialisation of microfinance and deepening outreach by using data from the period of 1999 to 2001 from 28 Latin American MFIs. The data was analysed using multiple regression and it was found that regardless of whether MFIs are regulated or not, there is no effect on loan size. Secondly, the researcher also found that the age of the institutions predicted loan size. Thirdly, it was found that more competition leads to larger loan sizes and less depth of outreach, leading to the conclusion that there are trade-offs between depth and sustainability in microfinance. However, the dataset used for this study only covered 3 years and applied a less rigorous method to analyse data which means this study did not address the endogeneity issue (see section 4.7.1 for detail explanation) while estimating the effect. Further, the study did not control for external institutional environment, economic variables, economic freedom of the country and time effect while investigating the relationship. Furthermore, this study only focuses on Latin America.

Similarly, Frank et al. (2008) examined the impact of the transformation process by comparing 25 transformed MFIs (formal regulated MFIs) with 25 untransformed MFIs/NGOs covering the period of 2002 to 2006. They applied propensity score matching method (PSM) and presented the results year-over-year. The findings showed that transformed MFIs serve a lower proportion of female clients and offer larger loan size compared to non-transformed MFIs. This suggests that transformed MFIs' depth of outreach is negatively affected. Again, the data set used for this study is small and also did not control the effect of external environmental and economic freedom. This study used PSM, but this technique mainly addresses the selection bias issue which means the effect size of this study is not efficient as this study did not address the endogeneity issue (see section 4.7.1) arise from other sources. Likewise, Louis and Baesens (2013) investigated the benefits of the commercialisation of MFIs, covering longitudinal data of 456 MFIs from 70 countries covering the period from 1995 to 2010. They applied a generalised estimating equation (GEE) to analyse the data and found that for-profit MFIs are not able to operate more efficiently and have less depth of outreach and less outreach to women. However, Louis and Baesens (2013) also did not addressed endogeneity issue and also did not control the

effect of external environmental and economic freedom of the country while investigating the association. They also did not control for time specific fixed effect despite the financial crises' year is covered in the data set. As a result, their estimation could be bias.

Similarly, Chahine and Tannir (2010) examined the effect of transformation on financial and social performance by using the data of 68 transformed MFIs from five different regions, covering the period of 1994 to 2006. They analysed the data using OLS method and found that transformed MFIs have a greater number of borrowers than their non-transformed counterparts but also a higher average loan size, which suggests that transformed MFIs are failing to adequately serve poor households. The drawbacks of this study are that it only covered small data set and also did not address the endogeneity issue. Cull et al. (2009), meanwhile, studied commercialisation and MFIs to answer eight questions about the microfinance industry from 2002–2004 using data from the Mix Market covering 346 MFIs. They analysed the data using ordinary least square (OLS) method and instrument variable (IV) regression method and concluded that for-profit MFIs are more likely to provide a loan to an individual, provide credit to fewer women, provide larger loans, and have a higher cost per borrower. However, they also noted that although commercialisation is increasing in the microfinance industry, it was nevertheless the case that NGOs are still serving the largest number of poor clients. This indicated that mission drift takes place when microfinance moves towards commercialisation. This study has addressed the endogeneity issue using IV regress, but they have not used the more rigorous method such as GMM which better address endogeneity issue. Further, the data set that have been used in this study is relatively small compared to other studies which means that the results of this study may lack statistical soundness.

Nawaz (2010) also examined the mission drift phenomenon in his study using data envelopment analysis (DEA) and tobit regression analysis methods. The data were taken from 179 MFIs operating in 54 countries for the period of 2005–2006 collected from the MIX Market. Nawaz stated that due to the commercialisation of microfinance, investors are increasingly directing their funds to those MFIs that serve the relatively less poor or well-off clients who can afford to pay back larger loans. Likewise, Wagennar (2012) also concluded that transformed MFIs undergo mission drift as their objectives of reducing poverty are neglected in favour of profit making. She investigated the mission drift among MFIs that transform from non-profit to for-profit MFIs using data on 1,558 MFIs spanning 15 years (1996–2010) and analysed the data using random effect panel method. She found that for-profit MFIs have significantly higher average loan size and a lower percentage of female borrowers than non-profit NGOs/MFIs. The

limitations of these two studies are Nawza (2010) only included a small dataset that only covers a period of two years. Further, both studies do not take into account the endogeneity issue. Furthermore, both studies do not control the effect of external environment, macroeconomic and economic freedom whereas Wagennar (2012) did not also control for time specific effect.

A further study by Abrar and Javaid (2014) examined the movement towards the commercialisation of microfinance by using average loan size as a proxy of mission drift, operational self-sufficiency as a profit measure, productivity as a cost measure, and repayment risk as an independent variable. They utilise the data from 382 MFIs from 72 countries for the years 2003 to 2009. They analysed the data using random effect panel model and found that the institutions which are operating as NGO are providing loans to poor borrowers and concluded that the commercialisation of microfinance is associated with mission drift through a de-emphasis of social goals and a corresponding greater emphasis on financial objectives. D'Espallier et al. (2017) also investigated the effect of transformation from NGOs to shareholder-owned MFIs using event study and multiple regression method covering 66 transformed MFIs from the period of 1993 to 2011. They analysed the data using multiple regression and found that the transformed MFIs have a positive relationship with loan size, which means commercial MFIs have a larger loan size compared to NGOs. They also found a negative association with profitability, which means that transforming into a commercial MFI reduces the profit for an institution in the short term but not necessarily over a longer period. However, Abrar and Javaid (2014) did not control for institutional environment, macroeconomic and economic freedom and time specific effect whereas D'Espallier et al. (2017) did not control for institutional environment and economic freedom of the country. Both studies did not address endogeneity issue.

Similarly, Mumi et al. (2020) also investigated the influence of organisational structure and variations in legal systems on the dual performance goal of MFIs using the data of 1518 MFIs from 105 countries. They applied Hausman and Taylor method to analyse the data and found that NGOs are achieving better depth of outreach, suggesting that it is due to their informal networks which support their social goals. They also found NGOs have a better financial performance than commercial MFIs. However, this study also failed to control for external institutional environment, macroeconomic and economic freedom of the country and time specific effect.

Positive Impact

Although various studies found that the commercialisation of MFIs has a negative impact, evidence also shows that the commercialisation of MFIs has various positive impacts, with many academics and practitioners offering their support for commercialisation. According to Berger et al. (2006) commercialisation is the key to MFIs achieving sustainability, forcing microlenders to cover their costs, allowing them to obtain financial and technical expertise needed for expansion and keeping them focused on providing efficient services to their clients. They stated that commercialisation allows MFIs to maintain high profitability that helps to grow the institution and increase outreach. For example, Compartamos in Mexico (in 2004 and 2005) shows very high returns. Compartamos' high returns allowed it to attract 400,000 active clients by September 2005. They also stated that commercialisation improves the efficiency of MFIs due to the incentives provided by competition.

Likewise, Dacheva (2009) concluded that profitability and sustainability in microfinance in Latin America were improved through commercialisation. He found that commercialisation impacted the region in a very positive way and influenced the industry significantly. Lensink (2011) also observed that the commercialisation of MFIs is necessary to increase MFIs' funding. Many developing nations are still without access to financial services. For example, in India, there are approximately 120 million families that have no access to financial services. To provide those services and meet the high level of demand, the microfinance sector needs to develop more, which can arguably only be achieved through commercialisation. He also stated that moving into commercialisation can help to provide credit to the poor without being dependent on donation and subsidies. He further supports the commercialisation of microfinance and stated that traditional commercial banks have diversified portfolios and are able to use profits from lending to wealthy clients to finance poor people, which will help to increase the availability of funds and help to improve outreach.

Moreover, Tchakoute-Tchuigoua (2010) conducted a study to determine the relationship between the performance of MFIs and their legal status by using the data from 202 MFIs covering the period between 2001 to 2006 which were available in the MIX Market database. Three forms of ownership were chosen: cooperatives, private MFIs, and NGOs. The researcher conducted the comparative analysis using uni-variate and ANOVA method and the result shows that private microfinance companies are more sustainable than NGOs. The risk in the credit portfolio for private companies is lower than with NGOs and, finally, private MFIs have better financial performance than NGOs and better portfolio quality than cooperatives and NGOs. Likewise,

Chahine and Tanhir (2010) examined the impact of the transformation of NGOs to MFIs on social and financial performance using the data of 68 transformed MFIs from 1994 to 2006. They also found that transformation has a positive impact on financial performance as measured by ROA and ROE. However, both the studies only covered small data set and did not apply rigorous data analysis technique that controls for an endogeneity issue. They also failed to control for external institutional environment, macroeconomic and economic freedom of the countries.

Hossain (2013) also supports the commercialisation of MFIs based on theoretical analysis. His work purported to show that the commercialisation of MFIs leads to progress towards financial and operational self-sufficiency by increasing cost recovery and cost efficiency, as well as expanding outreach. He also noted that commercialisation is unavoidable as donor and subsidy support may not exist in the long term and investors will not provide funds without financial return. Furthermore, he stated that commercialisation is not directly responsible for over-indebtedness. In addition, Darko (2016) research the effects of commercialisation on efficiency Sub-Saharan Africa while conducting the empirical analysis on Microfinance Institutions in developing countries. The researcher included the data of 273 MFIs from 2005–2011. The researcher analysed the data using Data Envelopment Analysis (DEA) method and found that commercialisation has a strong positive effect on the efficiency of MFIs. The drawbacks of Darko (2016) are that this study only focuses on Sub-Saharan Africa and the data set not large.

No Impact
Alongside these studies, some studies also show no relationship between the commercialisation of MFIs and their performance. For example, Mersland and Strom (2009) examined the relationship between performance and governance in MFIs by including 278 MFIs from 60 countries covering the period from 2000–2007 and analysing the data using random effect panel data 3 stage least square estimation (3SLS). They found no difference between non-profit MFIs and shareholder owned MFIs in financial performance and outreach. Similarly, Cull et al. (2007) analysed the financial performance and outreach of leading microbanks using OLS from 124 institutions in 49 countries covering the period from 1999 to 2002. They found that being profit-oriented had no significant effect on return on assets (ROA), return on equity (ROE), or operational self-sufficiency (OSS). Likewise, Leite et al. (2019) assessed the financial sustainability outcome of for-profit MFIs and not-for profit MFIs using the data of 202 MFIs from 52 countries. They collected the data from the MIX Market database covering the years 2010 to 2014. They applied multilevel method to analyse the data and found that being for-profit MFI does not have a significant impact on ROA or OSS. These studies have mainly three

limitations. Firstly, all three studies have only used small data set. Mersland and Strom (2009) only covered 278 MFIs for 8 years whereas Cull et al. (2007) and Leite et al. (2019) only used 124 MFIs for 4 years and 202 MFIs for 5 years respectively. Secondly, Cull et al. (2007) and Leite et al. (2019) did not addressed the endogeneity issue. Finally, all these studies did not control the effect of external institutional environment, economic freedom and macroeconomic of the country.

Furthermore, Hartarska and Nadolnyak (2007) studied the impact of regulation on performance using the data from 114 MFIs from 62 countries and applied GLS technique to analyse the data. The results show that moving from non-regulated to regulated is not significantly associated with both operational self-sufficiency and number of active borrowers. Similarly, Kuchler (2011) found no significant relationship between regulated MFIs and their operational self-sufficiency. Both studies did not control for an endogeneity issue and applied less rigorous method to analyse the data.

Moreover, Nurmakhanova et al. (2015) conducted a study to investigate whether trade-off exists between the financial sustainability and outreach of microfinance institutions using a dataset of 450 MFIs from 71 countries over period 2006–2008. The data was collected from MIX Market and Micro banking Bulletin (MBB) and analysed using maximum likelihood procedure. They also found that the profit-orientation of MFIs has no significant relationship with average loan size and number of borrowers, which suggests that being commercial has no effect on MFIs' outreach level. In addition, Lensink et al. (2018), meanwhile, found that there was no significant relationship between NGOs and profitability or breadth of outreach while examining a global dataset of 77 countries. They collected data from 478 MFIs for the period of 1998–2012 and analysed the data using random effect panel model. The issues with these studies are Nurmakhanova et al. (2015) used small data set. Further, both studies did not control for external institutional environment and economic freedom although both studies included macroeconomic variables. Furthermore, both studies also did not address endogeneity issue. The following table 2.1 shows the overall short summary of literatures disused above.

Table 2. 1: Summary of the of previous empirical literature on commercialisation of MFIs and financial performance and outreach- Cross Country Studies

Study	Sample	Period	Method	Findings & Conclusion
Negative Impact				
Olivares-Polanco (2005)	28 MFIs	1999-2001	OLS	The result shows no significant impact on loan size
Frank	50 MFIs	2002-2006	PSM	They found that transformed MFIs are providing larger loans and have less percentage of women borrowers compare to non-transformed MFIs.
Cull et al, (2009)	346 MFIs	2002-2004	OLS & IV regress	They concluded that for-profit MFIs are more likely to provide a loan to an individual, provide credit to fewer women, provide larger loans, and have a higher cost per borrower. Further, they also stated that the commercialisation of microfinance can lead to mission drift.
Chahine and Tannir (2010)	136 MFIs	1994-2006	OLS	They found transformed MFIs are providing larger loans and suggested that transformed MFIs are failing to serve poor people.
Nawaz (2010)	179 MFIs	2005-2006	Envelopment analysis (DEA) and Tobit regression analysis methods	They concluded that MFIs are providing loans to less poor or richer clients
Hoque et al. (2011)	24 MFIs	2003-2008	OLS, FE, RE, Tobit and 2 SLS	They concluded that commercialisation would lead to lower outreach and also lead to mission drift.
Wagennar (2012)	1,558 MFIs	1996–2010	Random effect panel method	The researcher found that for-profit MFIs have significantly higher average loan size and a lower percentage of female borrowers than non-profit NGOs/MFIs
Louis and Baesens (2013)	456 MFIs	1995-2010	GEE	They found no significant relationship between being for-profit MFIs and financial performance but found a significant negative impact on depth of outreach.
Abrar and Javaid (2014)	382 MFIs	2003- 2009	Random effect panel method	They found that the commercialisation of microfinance is associated with mission drift through a de-emphasis of social goals and a corresponding greater emphasis on financial objectives.
D'Espallier et al. (2017)	66 MFIs	1993-2011	Multiple Regression	They analysed the data using multiple regression and found that the transformed MFIs have a larger loan size compared to NGOs. They also found a negative association with profitability, which means that transforming into a commercial MFI reduces the profit for an institution in the short term but not necessarily over a longer period.
Mumi et al. (2020)	1,518 MFIs	1996-2012	Hausman & Taylor Method	They found that the NGOs are achieving better depth of outreach and also have better financial performance than commercial MFIs.

Positive Impact

Tchakoute-Tchuigoua (2010)	202 MFIs	2001-2006	ANOVA	The result shows that private microfinance companies are more sustainable and have better financial performance than NGOs
Chahine and Tanhir (2010)	136 MFIs	1994-2006	OLS	They also found that transformation has a positive impact on financial performance
Hossain (2013)			Theoretical analysis	The researcher concluded that commercialisation of MFIs leads to progress towards financial and operational self-sufficiency by increasing cost recovery and cost efficiency, as well as expanding outreach. He stated that commercialisation is not directly responsible for over-indebtedness.
Darko (2013)	273 MFIs	2005-2011	Data Envelopment Analysis	The researcher found a strong positive effect of commercialisation on the drivers of the efficiency of MFIs.

No Impact

Cull et al. (2007)	124 MFIs	1992-2002	OLS	They found that being profit-oriented had no significant effect on ROA, ROE and OSS.
Hartarska and Nadolnyak (2007)	114 MFIs	N/A	GLS	The results show that moving from non-regulated to regulated is not significantly associated with both operational self-sufficiency and the number of active borrowers.
Mersland and Strom (2009)	278 MFIs	2000-2007	RE & 3SLS	They found no difference between non-profit MFIs and shareholder owned MFIs in financial performance and outreach.
Kuchler (2011)	680 MFIs	2004-2008	OLS, random and fixed effects, and quantile regression method	The result shows no significant relationship between regulated MFIs and their operational self-sufficiency.
Nurmakhanova et al. (2015)	450 MFIs	2006-2008	maximum likelihood procedure	They also found that the profit-orientation of MFIs has no significant relationship with average loan size and number of borrowers, which suggests that being commercial has no effect on MFIs' outreach level.
Lensink et al. (2018)	478 MFIs	1998-2012	RE panel analysis	They found that there was no significant relationship between NGOs and profitability or breadth of outreach.
Leite et al. (2019)	202 MFIs	2010-2014	Multilevel method	They found that being for-profit MFI does not have a significant impact on ROA or OSS.

The above literature shows mixed results. Some studies identified negative effects of commercialisation, some found positive, and others presented no relationship between the commercialisation of MFIs and their financial performance and outreach. As a result, confusion has arisen regarding the impact of the commercialisation of MFIs on their financial performance and outreach. This indicates that further research is required on this topic. Similarly, Lensink (2011), Catherine et al. (2015), and D'Espallier et al. (2017) have suggested further research.

Moreover, the literature collated above shows that studies on the commercialisation of MFIs have predominantly been conducted covering the up to 2010, which means that very few have been completed in recent years. Furthermore, most of the previous studies have only controlled for institutions' characteristics but failed to control the institutional environment, macroeconomics and economic freedom of the country while investigating the impact of the commercialisation of MFIs and their performance despite studies showing that the institutional environment has a significant association with the performance of MFIs (Ahlin et al., 2011; Kuchler, 2011; Barry & Tacneng, 2014; Chikalipah, 2017; Hermes & Hundon, 2018). Hermes and Hundon (2018) have even indicated that the financial and social performance of MFIs are linked to country-level contextual variables, such as macroeconomic conditions, and have suggested that future research looks into this association. Moreover, the majority of previous studies are conducted using a small dataset and have not applied rigorous analysis methods, such as dynamic panel analysis method that takes account of an endogeneity issue, which shows that there is also a methodological gap in the literature.

Therefore, this study is conducted to fill the above-mentioned gap by using a larger dataset of 2,102 MFIs from 114 developing countries for the period of 2002 to 2016 using dynamic panel analysis method-GMM Method. This study will also control for the institutional environment as well as the macroeconomic and economic freedom context of the countries. To fill these gaps, the research question 1 has been established above in section 1.5.

2.8.2 Review of Previous Studies on Microfinance Institutions of Nepal

This section presents the critical review of previous studies on MFIs of Nepal. It shows few studies have been done on the microfinance of Nepal. Among those few studies, some found that microfinance has a positive impact while some identified a negative effect in Nepal. Therefore, studies have been clustered into the theme of *positive impact* and *negative impact*. Following are some of the studies conducted concerning MFIs of Nepal.

Positive Impact

Shrestha (2009) investigated the status of progress achieved in poverty alleviation through microfinance programmes in Nepal as part of the project of microfinance in SAARC countries. Their research showed that MFIs in Nepal are helping poor people to establish or expand small businesses. As a result, they have managed to earn extra income for their families, which has led to better standards of education and healthcare. However, this study has collected the data from previous literature and analysed the data using descriptive statistics and graphs. Further, this study is only focused on outreach not in financial performance of MFIs. Likewise, Adhikari and Shrestha (2013) studied the economic impact of microfinance in Nepal using a case study of Manamaiju Village Development Committee in Kathmandu. They used both primary and secondary data and analysed the data using quantitative and qualitative methods. They found that the positive economic impact of microfinance loans as 98% of the borrowers are earning profits from business after utilising the loan. On average, each of the borrowers has earned NRs. 98,941 as a profit. However, 79.33% of the borrowers have earned profits up to NRs. 1, 50,000. This revealed that microfinance loans have become highly effective for borrowers. This study also did not focus on the financial performance of MFIs but only on outreach. Further, this study collected small data from one of the villages of Nepal and analysed using t-statistics which does not control for various other factors that may have impact on borrowers.

Similarly, Dhakal and Nepal (2016) also examined the impact of microfinance on the socio-economic development of the rural community using a case study of the Syangha district, Nepal. The data was collected from 8 MFIs using a structured questionnaire. They concluded that microfinance has a positive impact on socio-economic status as they found that 25% agreed and 75% strongly agreed that microfinance uplifts the income of beneficiaries. Again, this study only focused only on the small village of Nepal and also analysed the data using descriptive summary.

Further, Oli (2018) investigated the impact of microfinance institutions on the economic growth of Nepal using secondary data from 24 MFIs from 2012 to 2017. The researcher analysed the data using the multiple regression method and found that an increase in MFIs' assets and loans leads to an increase in GDP and per capita income of Nepal.

Meanwhile, Chapagain and Aryal (2018) analysed the intervention of microfinance on livelihood status using the case of Gramin Bikash Bank Limited. The study applied a randomised control trial approach and data was collected using a questionnaire, which included the samples of 60 respondents of microfinance intervened and 60 non-intervened populations of Grameen Bikash Bank situated in a remote area of Pokhara, Leknath Metropolitan City. They found higher income, consumption expenditure, capital expenditure, and monthly saving of the microfinance intervention respondents compared to the non-intervention respondents. As a result, they concluded that microfinance intervention has a positive impact on the livelihood status of people from poor backgrounds. Dahal (2013) studied the sustainability of Grameen Bikas Banks (GBBs) in Nepal using both primary and secondary data. Primary data was collected through questionnaires, interviews, and observation, whilst secondary data was extracted from various sources such as NRB reports, publications, and reports from different banks in Nepal. The data was analysed using both quantitative-descriptive statistics and qualitative methods, and it was found that most of the GBBs in Nepal are operationally viable and financially self-sustainable with the exception of Sudur Paschimanchal Grameen Bikas Bank.

Negative Impact

In contrast, the Centre for Policy Studies and Rural Development (2004) studied the impact, outreach and effectiveness of microfinance programmes implemented by MFIs in Nepal using the before-and-after comparison method. They collected both primary and secondary data. Primary data was collected through a structured questionnaire from beneficiaries in selected Village Development Committees/ Municipalities, focus group discussions with the clients, and in-depth interviews with the chiefs of MFIs, whereas secondary data was collected from the records of various MFIs. They found that MFIs in Nepal are not highly effective in achieving their expected objectives as only a quarter of the participants felt there had been improvement in their socio-economic conditions. They stated that microfinance only helped to reduce dependency on agriculture by enabling women to start non-farm activities, but these sorts of activities have not generated non-family employment. In addition, the microcredit programmes have made only a minimal impact on the earning and employment generation of the rural poor. Overall, they concluded that microfinance programmes have low outreach in the hill areas and a

lack of focus on the ultra-poor people, with their focus being instead on sustainability. Further, Bashyal (2005) investigated the impact of a microcredit programme on poverty alleviation in Nepal. In a case study of Rupandehi District in Nepal, the research employed both primary and secondary data that was then analysed using qualitative and quantitative methods. It was found that MFIs in Nepal have not reached the poorest people who are most in need of microcredit.

Stephens et al. (2006) analysed the performance of MFIs in Nepal as part of a project that investigated the performance and transparency of microfinance in South Asia for the International Year of Microcredit 2005 funded by the World Bank and Consultative Group to Assist the Poor (CGAP). The Centre for Microfinance (CMF) collected data from eight MFIs in Nepal for 2003 and 2004 and the results show that the eight MFIs used in the sample cover a substantial share of the current microfinance market as the number of overall clients reached by the sector is 700,000 and the institutions in the sample served 190,000 clients which represents one-third of total outreach in Nepal. This suggests that only a few MFIs occupy a better position.

Sharma (2007) conducted a comparative study of microfinance in Nepal and Bangladesh. He mainly compared the microfinance Grameen bank model practices in Nepal and Bangladesh and concluded that the overall productivity of Nepalese MFIs was poor compared to Bangladesh. Likewise, Sharma (2008) also analysed the financial sustainability of MFIs in Nepal using both quantitative and qualitative data. Quantitative data was collected using a questionnaire survey and qualitative data was collected through focused group discussions with a group of borrowers of MFIs and in-depth interviews with the chiefs of MFIs. Sharma found that Nepalese MFIs are not strong from a sustainability perspective, but that privately initiated MFIs are in a better position than government-initiated MFIs. Furthermore, Sigdel (2009) examined the impact of microfinance on poverty alleviation and stated that despite MFIs existing in Nepal for decades, their outreach has clustered around the most accessible regions and areas of the country. Most of the poor people who need loans are not reached by various MFIs in Nepal as they live in rural areas of the country; thus, outreach remains insufficient. Similarly, Shah (2005) also stated that MFIs in Nepal are more focused on densely populated areas. The clients register more than one MFI has been very common practice in many areas of Nepal. More new MFIs are coming into the market and looking for a rapid expansion of their lending activities without proper screening of clients.

Moreover, Paudel (2013) investigated the effects of microfinance on the living standards of Nepalese households by examining the level of changes in households' income, saving and

expenditure pattern, assets acquired by MFIs clients, child education, and client welfare. The data was collected using open-ended and closed-ended questionnaires in three districts including Kaski, Banke, and Surkhet in the year 2010; the data was then analysed using descriptive statistics and multiple regression method. Paudel found that despite the fact that the microfinance clients loan portfolio was outstanding, and savings are increasing, the level of poverty has remained the same in rural households of Nepal.

The literature review shows that no study has yet been done on the commercialisation of MFIs using Nepalese MFIs despite the increasing trend of commercialisation of MFIs in Nepal over the last decade. In addition, the section 2.8.1 of the literature review shows that the previous research on the commercialisation of MFIs focused on its impact on the performance but failed to investigate how the commercialisation of MFIs affects their financial performance and outreach. Therefore, this research investigates how the commercialisation of MFIs affects their financial performance and outreach using multiple cases from Nepal, and, in the process, filling both of the knowledge gaps outlined above. Firstly, this study investigates the impact of the commercialisation of MFIs in Nepal. Then, the researcher investigates how the commercialisation of MFIs affects their financial performance and outreach in chapter 5.

2.8.3 Review of Previous Studies on Microfinance and Entrepreneurship/Start-ups business

Microfinance emerged with the intention to contribute to the provision of credit to poor households that wanted to start a business to improve their living standards (Yunus, 1998). Microfinance is often required for entrepreneurs to purchase equipment or general expenses related to setting up the business. The availability of credit to entrepreneurs provides an opportunity to venture into a rewarding business or to invest in an existing business. Imai and Azam (2012) stated that microfinance has a positive effect when access to finance is defined as taking a loan for productive purposes rather than in the case of simply having access to the loan. Microlending is the most common tool cited as a means to encourage entrepreneurship among the poor (Bruton et al., 2011). Microfinance can also help to meet temporary cash-flow shortages.

Thus, MFIs were established to provide loan services to entrepreneurs that would remove the barriers faced by entrepreneurs, but little empirical evidence is available that shows that microfinance leads to successful ventures and, with the increase in the popularity of microfinance, a debate is starting about the impact of microfinance on entrepreneurship (Newman et al., 2014; Banerjee et al., 2015: Shahriar et al., 2016) which has yet not been

resolved. Below are some of the studies conducted previously on microfinance and entrepreneurship. These studies have been sorted into two categories or two themes: positive and negative relationship. If a study found a positive relationship between microfinance and entrepreneurship, then it is presented under 'positive relationship' and if a negative association was found then it has been presented under 'negative relationship'.

Positive Relationship

Sultakeev et al. (2018) studied the impact of microfinance on entrepreneurship in Kyrgzstan by surveying a sample of 5,000 households in 2013. They found that microcredit loans have a significant positive impact on entrepreneurship, which means that those who received microloans increased their probability of becoming an entrepreneur. Likewise, Bernard et al. (2017) examined the influence of microfinance services on women's entrepreneurial success in Sri Lanka. They carried out the investigation with 464 women clients who received microfinance services and analysed the data using regression and ANOVA test. They discovered that microcredit has a positive relationship with the entrepreneurial success of women. Furthermore, Nukpezah and Blankson (2017) investigated the effect of microfinance intervention on poverty reduction in Ghana by surveying 100 rural women farmer-entrepreneurs using the exploratory method. They collected the data from 150 eligible respondents from 10 villages using questionnaire surveys and face-to-face interviews and analysed applying before and after t-test. The study found that microfinance interventions improve business performance and contribute to increasing the living standard of female entrepreneurs and their families.

Ngoasong and Kimbu (2016) examined whether informal microfinance institutions (IMFIs) – namely hometown associations, rotating savings and credits associations, and accumulating savings and credits associations – support development-led tourism entrepreneurship in Cameroon. They collected the data from 12 IMFIs in June and July 2013. They found that IMFIs enable entrepreneurial members to create small tourism firms through collective action and social capital. Furthermore, Chowdhury et al. (2016) studied the impact of access to microcredit on women's entrepreneurship in Bangladesh, utilising the data from the Household Income and Expenditure Survey from 2010. They applied multivariate techniques to achieve the objective of the study and applied instrumental variables technique (IV method) to address the endogeneity issue and, after adjustment for the endogeneity, they found there to be a positive impact on both women's and men's entrepreneurship but they also found that marginal effects of access to microcredit are stronger on men's entrepreneurship than on women's entrepreneurship.

Ferdousi (2015) studied the impact of microfinance on sustainable entrepreneurship development in Bangladesh by looking at 160 microentrepreneurs who had microcredit loans from different MFIs. They were interviewed using a semi-structured questionnaire from June to December 2012 and the data was analysed using a regression method. The results showed that providing microcredit has a significant positive impact on entrepreneurship development in Bangladesh. Similarly, Attanasio et al. (2015) investigated the impact of joint liability microcredit programmes on poverty in Mongolia using a randomised field experiment method. The experiment took place in 40 villages across five provinces in Northern Mongolia between March 2008 and June 2011, and it was discovered that there was a positive impact of access to group loans on female entrepreneurship. Also, Augsburg et al. (2015) analysed the impact of microcredit on poverty alleviation in Bosnia and Herzegovina using randomised controlled trials and they also found a positive effect on self-employment. Moreover, Chliova et al. (2015) studied the impact of microcredit on entrepreneurship from 90 studies and analysed the data using meta-analysis method. The results show that microcredit has a positive impact on development outcomes including venture growth, venture profitability, financial well-being, health and nutrition, empowerment of women, and education.

Mahmood et al. (2014) investigated the impact of microfinance loans on poverty reduction amongst women entrepreneurs in Pakistan. They collected the data from 123 semi structured interviews as well as in-depth, semi structured interviews with a sub sample of 10 women entrepreneurs who had microfinance loans and analysed using both quantitative and qualitative method. They found that microfinance helps to reduce the poverty amongst women entrepreneurs. They also found that the microfinance helped to increase the income and children's education of women entrepreneurs. Likewise, Mahmood (2011) examined the impact of microfinance on women's entrepreneurs in Pakistan by collecting the data from 37 semi-structured questionnaires from women borrowers who obtained microfinance loan from two MFIs of Pakistan. The researcher found that 62% of the women borrowers established their own business from microfinance loan.

Oyeniyi (2014) investigated the influence of microfinance banks on the performance of small-scale businesses at the community level using Michika Microfinance Bank Limited as a case study. The researcher collected primary data using structured questionnaires administered from 360 customers of the bank and analysed the data using multiple regression method. The findings show that microfinance has a positive impact on the performance of small-scale businesses. Similarly, Akingunola et al. (2013) investigated the impact of microfinance on entrepreneurship

development in Nigeria with a special reference to Ogun State. They collected the data using questionnaires and analysed the data using OLS method. They found a positive relationship between microfinance and entrepreneurship development in Nigeria. Wanambisi and Bwisa (2013) also investigated the effects of MFI lending on micro and small enterprises' (MSEs) performance in Kenya using multivariate regression and found a significant positive impact on the performance of MSEs.

Negative Relationship

On the other hand, studies also suggest a negative relationship. Belwal et al. (2012) investigated the contribution of microfinance to the economic improvement of female small-scale entrepreneurs in Addis Ababa. The data was collected from 86 women from the Kirkos sub-city. They found that the credit and savings facilities of MFIs have contributed partially towards the incomes and savings of women entrepreneurs but that they have not contributed much to business growth as women who received loans could not create jobs for others except some family members. Based on these findings, they concluded that apart from minor improvements, the credit and savings services to women entrepreneurs from MFIs in Ethiopia have no significant impact on entrepreneurship development.

Lahimer et al. (2013) studied the impact of microfinance on entrepreneurship through innovation using unbalanced panel data from 45 countries extracting from the MIX Market, Global Entrepreneurship Monitor (GEM), and the World Bank. They analysed the data using OLS and random-effects model and found that the gross loan portfolio of MFIs has a negative impact on necessity-driven entrepreneurship. Furthermore, the researcher stated that access to microfinance increases the savings rate of the poor compared to those without access and enhanced their living standards but not their entrepreneurial activity (Dupas & Robinson, 2013; Karlan & Ratan, 2014). Additionally, Newman et al. (2017) and Khavul (2010) stated that despite billions being lent by MFIs worldwide, the impact of microfinance services is not always positive.

Banerjee et al. (2015) studied the impact of microfinance programmes on poverty reduction in Hyderabad, India. They used a randomised evaluation method to analyse the data collected through the survey method between 2005 and 2010. They found little evidence that microfinance programmes encourage households to become entrepreneurs in Hyderabad, India. Likewise, Karlan and Zinman (2011) conducted a field experiment in the Manila region of the Philippines by randomly assigning microloans to 1601 individuals and, after 11 to 22 months, they found that the increase in net borrowing led to 0.1 fewer business (7% less than the control group mean)

and 0.27 (31%) fewer paid employees in the treated group compared to the control group, which suggests a negative impact on business growth.

Ganle et al. (2015) explored the impact of microcredit on the socio-economic empowerment of women in rural Ghana. They collected longitudinal data from 230 participants using surveys and in-depth interviews which took place over three phases between December 2006 and January 2011; they then analysed the data using thematic network qualitative data analysis. They found some women are empowered as a result of their access to credit; some have little control over the use of loans and are not better off; and some are worse off due to their inability to repay loans on time. Likewise, Bruton et al. (2011) stated that not all borrowers achieve significant business performance improvement.

2.8.3.1 Microfinance and Entrepreneurship/Start-ups business: Cross-country studies

The majority of studies on microfinance and entrepreneurship presented above are case studies. As a result, different researchers have found different results. These inconsistencies also show that the relationship between microfinance and entrepreneurship depends on the context of the country. However, in recent years, cross-country data has started to emerge, and studies have started to appear on microfinance and entrepreneurship covering cross-country data such as Churchill and Mishra (2018) and Shahriar et al. (2016). Churchill and Mishra (2018) investigated the role of ethnic diversity on MFIs' lending to business start-ups using the data from 322 MFIs across 45 countries. Of these 322 MFIs, 54 are from Africa, 89 are from South Asia, 57 are from Eastern Europe and Central Asia, 28 are from East Asia and the Pacific, 5 are from the Middle East and North Africa, and 89 are from Latin America and the Caribbean. They analysed data using OLS and also applied the two-stage least square (2 SLS) method to ensure endogeneity for robustness purposes. They found that ethnic diversity negatively affects the provision of financial capital for business start-ups.

Similarly, Shahriar et al. (2016) examined the effect of the profit-orientation of MFIs on the provision of financial loans to business start-ups by collecting data from the MIX Market covering the period from 2009 to 2011, which included 198 MFIs in 65 countries. They applied the generalised linear model (GLM) regression and tobit regression as a robustness check and propensity score matching estimation to address the endogeneity issue. They found that profit-oriented MFIs have a significant negative relationship with extending loans to business start-ups, which means that profit-oriented MFIs are providing loans to a smaller number of business start-ups compared to non-profit-oriented MFIs.

2.8.3.2 Development of Microfinance Studies

Since MFIs started growing rapidly in the late '90s, studies also began to emerge. MFIs were established to provide microloans to micro entrepreneurs to help them to engage in income-generating activities in developing countries and thus reduce national poverty. Therefore, most of the earlier studies were focused on microfinance and poverty reduction (Navajas et al., 2000; Mosley, 2001; Morduch & Haley, 2002; Khandker, 2005; Weiss & Montgomery, 2005; Swain et al., 2008).

In the last decade, MFIs realised that they have to be profitable to survive in the industry despite the objective of MFIs being to provide social welfare. Consequently, MFIs started to move in a commercial direction and started to focus on the dual mission of profitability and social welfare, which led practitioners and academics to focus their investigation on both the financial and social performance of MFIs (Cull et al., 2007; Mersland & Strom, 2009; Tchakoute-Tchuigoua, 2010; Hermes, et al., 2011).

In recent years, with the development of the microfinance industry, researchers have started to examine the relationship between the financial performance and outreach of MFIs as concerns started to be raised that MFIs are prioritising their financial goals at the expense of their social goals. Therefore, researchers started to examine the relationship between the financial and social performance of MFIs. Few studies suggest a positive relationship. Quayes (2012) examined the association between financial sustainability and depth of outreach of MFIs and they found a positive relationship, stating that financial sustainability and depth of outreach complement each other.

Similarly, Vanroose and D'Espallier (2009) reported positive correlation profitability (ROA, ROE, and OSS) and outreach indicators. On the other side, Cull et al. (2007) examined the relationship between profitability and outreach of leading microbanks using the data from 124 MFIs in 49 countries and they found a significant negative relationship between profitability and serving to the poorest. Similarly, Churchill (2018) studied the relationship between sustainability and depth of outreach whereby they measured sustainability according to ROA, OSS, and profit margin and measured depth and breadth of outreach according to average loan size and percentage of female borrowers. They found a significant negative relationship.

In contrast, other studies found no significant impact of profitability on the outreach of MFIs. Bassem (2012) investigated the relationship between the financial and social performance of microfinance institutions from the 64 MFIs of the MENA region where financial performance is measured using ROA, ROE, OSS and social performance is measured by the percentage of female borrowers (PFB) and the social outreach range index (SRI). They found no significant relationship between ROA and social performance indicators. Similarly, Nurmakhanova et al. (2015) examined the relationship between financial sustainability and the outreach of microfinance institutions using the data from 450 MFIs covering the period from 2006 to 2008. Financial sustainability is measured by operationally self-sustainability (OSS) and outreach is measured through depth and breadth of outreach with the number of female borrowers and the number of credit clients being used to measure MFIs' breadth of outreach and average loan size being used to measure depth of outreach. The results showed that financial sustainability has a significant positive relationship with the percentage of female borrowers and the number of active borrowers. However, they found no significant relationship with the average loan size.

Piot-Lepetit and Nzongang (2014) also examined the relationship between financial sustainability and outreach in Cameroon using a multi-data envelopment analysis. They found a negative relationship with 15% of MFIs but they found no trade-off between financial sustainability and social components in 46% of the MFIs, while the remaining 39% were inconclusive. Based on the result, they concluded that financial sustainability and outreach complement each other, and that the MFIs included in the study did not face a trade-off between sustainability and outreach to the poor.

Lebovics et al. (2016) also analysed whether financial and social efficiency are related by applying a DEA approach to a sample of 28 Vietnamese MFIs. They also carried out a multivariate regression analysis to assess the extent to which financial and social efficiency are associated. They found no significant association between financial and social efficiency of MFIs in Vietnam. Similarly, Gutierrez-Goiria and Lezama (2011) analysed the relationship between the size, profitability, and social performance of MFIs using principal component analysis (PCA) method from 791 MFIs for the year of 2007. They measured profitability using ROA, ROE, and OSS and measured social performance using the percentage of female borrowers and average loan size. The results showed no relationship between size, profitability, and social performance of MFIs.

Im and Sun (2014) examined the relationship between MFIs' profitability and their outreach to the poor. The dataset contained 1,129 MFIs across 98 countries from 2003 to 2009. They measured profitability through ROE while breadth of outreach was measured by the number of clients and outreach to the poor was measured using the average loan size. They found a U-shaped relationship between MFIs' profitability and outreach to the poor. In other words, they found that providing services to poorer borrowers increases as profitability improves, but the service to poorer borrowers declines after their profitability crosses a threshold.

Despite a few studies existing on the relationship between microfinance and entrepreneurship (see section 2.8.3 & 2.8.3.1), no studies have been found yet that investigated the relationship between the profitability of MFIs and the provision of financial capital to business start-ups. In addition, most of the previous studies investigated the impact of MFIs' loans on entrepreneurship and are mostly based on case studies, but no study has determined whether the profitability of MFIs affects the decision to provide financial capital to business start-ups. This shows that there is still a knowledge gap and suggests that the relationship between microfinance and entrepreneurship is not well understood. Therefore, this study has investigated the relationship between the profitability of MFIs and the provision of loans to business start-ups, thus filling a research gap and contributing to the literature.

Moreover, whilst microfinance researchers have started to investigate the relationship between profitability and outreach of MFIs in recent years, the relationship between MFIs' profitability and outreach to business start-ups has not been investigated yet. This provides another reason to investigate the relationship between the profitability of MFIs and the provision of loans to business start-ups.

Chapter 3: Research Methodology

The research methodology forms the overall plan of how one goes about answering the research questions (Saunders et al., 2016), while the research design refers to the planning of the methods to be adopted for collecting and analysing data, keeping in view the objective of the research and the availability of time and money (Kothari, 2004). Methodology plays a vital role in research, so a researcher must consider various elements in order to justify their choice of particular methodology and methods. More specifically, the researcher must consider three key elements: research philosophy, research approach, and research method (Saunders et al., 2016). Therefore, this chapter focuses on the research philosophy, approaches and methods, as well as providing justification for the particular methods adopted.

3.1 Research Philosophy

The term 'research philosophy' pertains to the reality (ontology) and development of human knowledge (epistemology). Ontology and epistemology are discussed largely in conjunction with one another in order to shape the methodology and methods for the research. Ontology is concerned with the question of 'what is reality?'. There are two assumptions about reality that can be classed as 'single reality' and 'multiple realities. Single reality means that reality exists, and that it is out there waiting to be discovered (objective), whereas multiple realities means that reality is different depending on every individual's perspective (subjective) (Saunders et al., 2009). Single reality dovetails with quantitative methods while multiple realities are in line with qualitative methods.

Epistemology is related to our assumptions about knowledge; that is, what constitutes acceptable, valid, and legitimate knowledge, and how we can communicate that knowledge to others (Burrell & Morgan, 1979). In simple terms, epistemology is about *what and how can I know the reality/knowledge* (Crotty, 1998) or how *we know what we know about the reality.* According to Saunders et al. (2016), there are a range of philosophical stances in epistemology which provide a wide range of choices of methods in social science such as positivism, interpretivism and pragmatism. However, it is important to understand the implications of different epistemological assumptions in relation to one's choice of method(s) and the strengths and limitations of the chosen stance. As a result, each of these paradigms have been discussed below, followed by a justification for the particular paradigm used in this study.

Interpretivist research attempts to understand phenomena by accessing how people interpret and interact within their social environment. It focuses on people's experience. It places a greater emphasis on subjectivity and sees reality as being defined by the individual situation and experiences; the truth, it says, is socially constructed and so an objectivist view should be rejected (Collins, 2010). Thus, interpretivism is often associated with an inductive approach and qualitative methods, whereas the **positivist** research paradigm is related to gaining realistic knowledge through observation. In positivist research philosophy, the role of the researcher is confined to data collection, making interpretation of the research findings easily quantifiable and observable. According to Crowther and Lancaster (2008), positivist research is often associated with a deductive approach and quantitative method.

Another research paradigm is **pragmatism,** which advises that the research paradigm be relevant to solving the problem. It rejects the concept of truth and reality to instead focus on practical methods that can be applied towards understanding the specific research problem (Creswell, 2014). It emphasises using both an interpretivist and positivist philosophy. Pragmatists agree that reality and knowledge depend on beliefs and habits that are socially constructed but also allows for the fact that some versions of those social constructions match individuals' experiences more than others (Yefimov, 2004; Morgan, 2014a; Kaushik & Walsh, 2019). Moreover, pragmatism is about searching for the most relevant and results-focused method for the research. It suggests that the researcher should be able to combine various approaches and methods in order to achieve the best results. Therefore, this paradigm is often associated with a mixed method approach (Creswell & Clark, 2018), which includes both quantitative and qualitative research methods.

The researcher believes in being pragmatic. Therefore, the researcher has chosen different research methods to answer the different research questions. The research method has been chosen based on the types of data, availability of data, research question and research objective. Having weighed up the pros and cons of the various philosophical approaches at one's disposal, data availability, types of data, the researcher has decided to apply the positivist research paradigm to answer the research question 1, 2 and 4 in chapter 4, 5 and 6 respectively. The researcher has adopted positivism mainly because the purpose of these chapters is to test the hypothesis and the available data for the study is quantitive data. However, the researcher has also applied the interpretivist paradigm in this thesis to answer research question 3 as it helps to understand the phenomenon through the people's experience. In summary, this thesis has applied pragmatism research paradigm (both positivism and interpretivism) depending on the research

questions. The next section discusses the research approach related to these research philosophies.

3.2 Research Approach

The research approach is an important part of any scientific study regardless of the research area. The research approach can be divided into 3 different categories: inductive, deductive, and abductive approaches.

The main aim of an **inductive approach** is to explore new phenomena or to look at previously researched phenomena from a new perspective. The inductive approach observes patterns and trends and usually narrows down the scope of the study. This approach is generally used to arrive at conclusions or to develop theories and is associated with interpretivist research philosophy and qualitative research methods. Alternatively, a **deductive approach** typically starts with an existing hypothesis or theory before the researcher collects and analyses data to determine whether to reject or accept the hypothesis or theory (Bryman, 2012). This approach is also called a top-down approach and is related to positivist research philosophy and quantitative research methods. Finally, an **abductive approach** is the combination of both an inductive and deductive approach. This approach is designed to address the weaknesses related to both inductive and deductive approaches. According to Saunders et al. (2016), this approach involves both hypothesis testing and theory building as it includes both quantitative and qualitative research methods. An abductive approach is also related to pragmatic research philosophy and mixed method research.

The researcher has selected an abductive approach for this study because it combines effectively with a pragmatism philosophy. More importantly, the objectives of this thesis are to test a hypothesis, as well as understand the new trend or phenomena of commercialisation of MFIs. The abductive approach permits to use both deductive and inductive approaches. In this thesis, the deductive approach is applied to test the hypothesis as it allows one to collect data and analyse it to test the existing theory and the inductive approach is adopted to understand the phenomena from participants experience. The next section discusses the research methods associated with these approaches and also provides justification for choosing the selected method.

3.3 Research Method: Qualitative, Quantitative, and Mixed Method

There are currently three major methods of conducting research: **qualitative research, quantitative research, and mixed method research.** Qualitative research is about interpreting the experience of the participants and is used to formulate theories. It is concerned with investigating the reasons for human behaviour (Kothari, 2004) and is predominantly based on interpretivist philosophy, which states that there are multiple realities that are different in different context and situations and that reality can be constructed. Qualitative method is in line with an inductive approach as the process starts from data collection and provides non-numerical results (Saunders et al., 2016). Qualitative data can be obtained from observation, in-depth interviews, meeting minutes, historical records, memos, and documentary films, before being subjectively interpreted by the researcher.

On the other hand, **quantitative research** is about testing a theory or hypothesis and involves statistical methods. Quantitative research refers to the systematic empirical investigation of phenomena. Quantitative research is based on the measurement of quantity or amount. It applies to phenomena that can be expressed numerically (Kothari, 2004), and employs traditional methods such as numerical data collection, research design, and statistical procedures to analyse data. Furthermore, the quantitative method is used to test the hypothesis and allows the generalisation of research findings using large data. Quantitative research can be divided into two types of method: experimental and nonexperimental. Experimental methods are applied primarily in psychology, whereas nonexperimental methods are applied primarily in social-science-related research. Quantitative research is associated with the positivist philosophy and it applies a deductive approach in that quantitative methods start with a hypothesis and then data collection and analysis are used to test the hypothesis. Within this method, various techniques are available such as correlation, linear regression, multiple regression method, cross-section, and panel data method.

Mixed method is the combination of both quantitative and qualitative research methods. It is the research design in which the researcher collects and analyses both quantitative and qualitative data in a single study concurrently or sequentially (Creswell, 2014). Different authors have defined mixed method differently, with Campbell and Fiske (1959) defining it as 'triangulation'. Thomas (2003) describing it as blended research, and several others categorising it as integrative research (Johnson & Onwuegbuzie, 2004) or mixed research (Johnson & Christensen 2006).

Although many mixed methods exist, there are three primary models found in social science and business research: convergent parallel, explanatory sequential, and exploratory sequential mixed methods (Creswell, 2014). In convergent parallel mixed method, the researcher collects both quantitative and qualitative data at approximately the same time and merges them to provide a comprehensive analysis of the research problem. In explanatory sequential mixed method, the researcher conducts quantitative research in the first phase and then in the second phase conducts qualitative research to explore further, whereas in exploratory sequential mixed method, the researcher conducts qualitative research in the first phase to explore a research problem and then conducts quantitative research in the second phase to test the model for generalisation purposes (Morgan, 2007; Creswell & Clark, 2018).

There is no best method to conduct research. The most effective method depends on the specific research problems, objectives, and questions (Gill & Johnson, 2010). The researcher has applied a mixed method in this thesis to achieve the objectives as it allows to apply both the quantitative and qualitative methods. The quantitative method has been used to answer research questions 1,2,4 and the qualitative method has been used to answer research question 3. Further, it is not possible to adopt only one method to answer all the research questions available in section 1.4 above. Furthermore, based on the research philosophy and research approach adopted above, the researcher has adopted a mixed method (both quantitive and qualitative) because the method is guided by the research philosophy and approaches.

The data collection and analysis methods are different for different chapters. In other words, a different source of data, collection methods and different analysis techniques have been used in this thesis and including all the information in this chapter can creates confusion. Therefore, for the simplicity purpose, the data collection method and analysis techniques have been discussed in respective chapter.

Chapter 4: Commercialisation of MFIs and their financial performance and outreach: Cross-Country Analysis

4.1 Introduction

The literature review in Chapter 2, Section 2.8.1 shows that the commercialisation of MFIs in developing countries is taking place rapidly but few studies have examined the impact and even among those existing studies, there is no consensus. Some found a positive impact of commercialisation and support the commercialisation of MFIs (Johnson, 2017; Hossain, 2013), whereas others claim there is a negative impact (D'Espallier et al., 2017; Abrar & Javaid, 2014; Wagennar, 2012; Cull. et al., 2009). Some even find no impact of the commercialisation on MFIs (Mersland & Strom, 2009). This clearly shows further research is necessary to analyse the impact of commercialisation on MFIs. Furthermore, the literature also shows that previous studies have not applied rigorous methods like dynamic panel analysis–GMM method to address endogeneity issues (see Section 4.7.1 below), which illustrates that there is also a methodological gap. Therefore, this chapter investigates the impact of the commercialisation of MFIs on financial performance and outreach using dynamic panel analysis–GMM method.

This chapter is organised in different sections. Section 4.2 shows the sources of data used for this part of the study. The dependent, independent and control variables used for this part the study have been presented in section 4.3, 4.4 and 4.5 respectively. Then, section 4.6 shows the brief description of all the variables in one table. In section 4.7, the researcher has presented the results obtained from two-step GMM method and finally, the conclusion is presented in section 4.8.

4.2 Data Collection

The data related to MFIs is collected from the MIX Market platform (www.themix.org). The MIX Market database is widely used for research on the microfinance sector (Abrar & Javaid, 2014; Cull et al., 2009; Kar, 2016; Vanroose & D'Espallier, 2013). The MIX Market is an NGO based in United States with the objective of promoting the exchange of information related to the microfinance sector across the globe. The MIX market is the optimal platform for data about individual MFIs from around the world, although the data is self-reported. It ranks the available data based on the quantity and quality using a 5-diamond system (5 meaning data that is audited and available for at least 3 years, and 1 being the least complete data available) (MIX Market). This research will only use the institution's data that has 3 or more diamonds for the data quality with 3 dimonds representing MFIs that have been reporting for two or more consecutive years

with respect to general information, outreach, and financial data (Assefa et al., 2013). The quantitative data available in Mix market is nominal value adjusted by US dollar parity for all years (Leite et al 2019). In other words, all the monetary data available in the Mix Market are converted into US dollar at contemporaneous exchange rates. (Galema and Lensink, 2011).

As stated above in the literature review section, a variable that most of the previous studies have failed to look into is the institutional environment effect on their studies. To fill that gap, this research includes world governance indicators (WGI)/institutional environment indicators as control variables. The data related to WGI is created by Kaufmann et al. (2010) and the macroeconomics are collected from the World Bank website (www.worldbank.org). Data related to institutional quality and economic freedom is collected from the Heritage Foundation website (www.heritage.org). This study has covered the data period from 2002 to 2016 using 2,102 MFIs from 114 developing countries. The year 2002 has been chosen as a base year only because most of the data related to MFIs and institutional environment are available after 2000. The year 2016, meanwhile, has been chosen as the final year because the researcher started the data collection process in 2018 and at that time there was only data available up to 2016. The next section will outline the dependent and independent variables used for this part of the study.

4.3 Dependent Variables

Dependent variables are the factors that are changed by the effect of independent variables. For this part of the study, the dependent variables are the financial performance and outreach of MFIs. Financial performance is measured by the profitability and sustainability of MFIs, which are measured by ROA and OSS respectively (Tchakoute-Tchuigoua, 2010; Mersland & Strom, 2009), whereas the outreach of MFIs is measured by breadth and depth of outreach. The breadth of outreach is measured by the *number of active borrowers (NAB)* and the depth of outreach is measured by average loan size calculated using the formula of *average loan balance per borrowers/gross national income per capita (*D'Espallier et al., 2017; 2013; Tchakoute-Tchuigoua, 2010; Cull et al., 2007; Hartarska & Nadolnyak, 2007)*. The following sub-sections 4.3.1 and 4.3.2 discuss these variables in detail.

4.3.1 Financial Performance Indicators

Financial performance refers to the profitability and financial viability of an institution (Tchakoute-Tchuigoua, 2014). Previously, studies used different indicators to measure the financial performance of MFIs. Nurmakhanova et al. (2015) measured using operational self-sufficiency (OSS) while investigating the trade-off between the financial sustainability and outreach of MFIs. Cull et al. (2014) used financial self-sufficiency (FSS) index and ROA to measure the profitability of MFIs. Mersland and Strom (2009) used OSS and ROA while examining the relationship between firm performance and corporate governance in MFIs, whereas Shettima and Dzolkarnaini (2018) measured financial performance using ROA and ROE. Similarly, Chikalipah (2018) used ROA to measure financial performance when investigating the relation between micro-saving and the financial performance of MFIs in Sub-Saharan Africa (SSA).

Furthermore, Strom et al. (2014) applied ROA and ROE together with OSS and FSS while investigating the relationship between female leadership and firm performance. However, among these indicators, ROA and OSS are the most common and widely accepted indicators in microfinance studies (Assefa et al., 2013; Tchakoute-Tchuigoua, 2010; Mersland & Strom, 2009; Cull et al., 2007). In addition, financial performance of MFIs represents their profitability and sustainability. Profitability can be measured by ROA and sustainability using OSS and including many indicators may create complications. Therefore, it would be appropriate to adopt common financial performance indicators that may have the same interpretation and to also provide a comparison. Consequently, this part of the study uses ROA and OSS to measure financial performance in order to measure the profitability and viability of microfinance institutions.

Return on assets (ROA): ROA is net operating income compared to average assets. It measures how an institution is managing its assets to optimise its profitability. It is calculated as net operating income less taxes divided by average assets (MIX Market). This ratio excludes donations and non-operating items.

Operational self-sufficiency (OSS): OSS is an institution's ability to cover its costs through operating incomes. It measures whether an institution is able to cover its financial and operational cost through financial revenue. It is calculated as financial revenue divided by financial expense + net impairment loss on gross loan portfolio + operating expense (MIX Market).

4.3.2 Outreach Indicators

Previous studies have measured the outreach of MFIs' using its breadth and depth (Chahine & Tannir, 2010; Gutierrez-Goiria & Lezama, 2011; Bassem, 2012; Bibi et al., 2018; Abrar, 2018; Hermes & Hudon, 2018). A frequently used indicator to measure the breadth of outreach is the number of active borrowers. D'Espallier et al. (2017) used the number of active borrowers to measure the breadth of outreach while analysing the effect of transformation from NGOs to shareholder-owned MFIs. Similarly, Tchakoute-Tchuigoua (2010) also used the number of borrowers while examining the relationship between the performance of microfinance institutions and their legal status. Various other studies also used the number of active borrowers as a measure of breadth outreach (Mersland & Strøm, 2009; Cull et al., 2009).

The depth of outreach, on the other hand, is measured by average loan size, which is calculated using the formula average loan balance per borrower divided by gross national income per capita (GNI per capita) of the particular country and the percentage of female borrowers. D'Espallier et al. (2013) used average loan size to measure the depth of outreach of MFIs while examining how unsubsidised MFIs cope with their social mission. Many other studies also used average loan size to measure the depth of outreach (Bibi et al., 2018; Tchakoute-Tchuigoua, 2010; Mersland & Strøm, 2009; Cull et al., 2007).

Despite these indicators being widely used to measure the outreach of MFIs, they have not been without criticism. Quayes (2012) posited the income level of borrowers needed to be known if one is to know the depth of outreach. Also, Copestake (2007) criticised a number of active clients by stating that the data does not show how active the clients are. As a result, Bibi et al. (2018) introduced new indicators to measure the breadth and depth of outreach of MFIs i.e. *Market share of borrowers (MSB)* and *Market share of number of borrowers adjusted by market share of assets (MSBA)*. MSB measures the breadth and MSBA measures the depth of outreach (these new indicators have been discussed below in section 4.3.1.1 in detail). On the basis that these indicators are superior to previous indicators as claimed by Bibi et al. (2018), this study has used the new indicators in addition to the previous outreach indicators while investigating the effect of the commercialisation of MFIs. By utilising and comparing both sets of indicators, it also helps to determine further whether the new indicators are indeed superior.

The outreach of MFIs is measured through the breadth and depth. Various indicators have been used to measure the breadth and depth of outreach of MFIs. As stated above, frequently used variables are the *number of active borrowers* (D'Espallier et al., 2017; Tchakoute-Tchuigoua,

2010) for breadth of outreach and *average loan balance per borrower divided by GNI per capital* (D'Espallier et al., 2013; Tchakoute-Tchuigoua, 2010) and percentage of female borrowers (Cull et al., 2007) for depth of outreach.

This study has applied *NAB* to measure breadth of outreach and *average loan size* to measure depth of outreach. The percentage of female borrowers has been excluded due to lack of data. In addition, this study has also added 2 new indicators i.e., *MSB and MSBA* to test whether these are superior indicators compared to previous indicators as claimed by Bibi et al. (2018). These indicators have been described in detail below.

Number of active borrowers (NAB): This indicator represents the number of individuals or entities that currently have an outstanding loan balance with the MFIs or are primarily responsible for repaying any portion of the gross loan portfolio (MIX Market).

Average loan balance per borrowers/gross national income per capita (ALBPB/GNI per capita): This indicator shows the average outstanding loan balance compared to local GNI per capita to estimate the outreach of loans relative to the low-income population in the country (MIX Market). The poor clients are expected to borrow smaller loans (relative to their income); MFIs may also not be willing to lend larger loans to poor clients because of the potential risk of non-repayment (Hermes & Hudon, 2018). A small value shows that MFIs are providing small loans and a larger value indicates that MFIs are providing larger loans to wealthier clients (Hartarska, 2005). This indicator is referred to as average loan size in this study in order to understand and interpret it more easily. Hartarska (2005), Mersland and Strom (2009), and other studies have also referred to it as average loan size.

4.3.2.1 New Indicators to Measure Outreach of MFIs

As stated above, this study has also included new measures of breadth and depth of outreach i.e., MSB and MSBA introduced by Bibi et al. (2018). The new indicators have been used for the first time while investigating the relationship between the commercialisation of MFIs and their financial performance and outreach to examine whether the new variables are fit for purpose as claimed by Bibi et al. (2018).

Market share of borrowers (MSB): This measures the breadth of outreach. The proportion of borrowers served by each institution is indicated on a range between 0 and 1, with a larger number indicating broader outreach. It is calculated as the number of active borrowers of individual MFIs

in the country divided by the total number of active borrowers of MFIs in that country. The formula used to calculate the variable is the following:

$$\text{MSB}ij = \frac{NABij}{TABj}$$

Where,

MSBij = Market share of borrowers of MFI i in country j

NABij = Number of active borrowers of MFI i in country j.

TABj = Total number of active borrowers of MFIs in country j.

Market share of number of borrowers adjusted by market share of assets (MSBA): This measures the depth of outreach of MFIs and is calculated as the market share of borrowers divided by the market share of assets. A value less than 1 indicates relatively larger loans and less outreach, while a value greater than one indicates relatively smaller loans and greater outreach (Bibi et al., 2018).

$$\text{MSBA}ij = \frac{NABij \,/\, TABj}{Aij \,/\, TAj}$$

NABij = Number of active borrowers of MFI i in country j

TABj = Total number of active borrowers of MFIs in country j

Aij = Total assets of MFI i in country j

TAj = Total assets of MFIs in country j.

4.4 Independent Variables

The main independent variable for this study is the commercialisation of MFIs, which has been measured by creating a dummy variable i.e., Commercial vs Non-commercial MFI.

Commercial vs non-commercial MFI: The MIX Market provide information about the MFI's profit status, which shows whether the MFI is profit-oriented or non-profit oriented. Profit-oriented MFIs are categorised as commercial while non-profit-oriented MFIs are categorised as non-commercial in this study. If an MFI is commercial, a value of 1 is given to it, and if an MFI is non-commercial, a value of 0 is given to it – this helps to run regression as the software does not recognise the string variable (Ault, 2016).

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Profit orientation is used as a proxy of commercialisation because it shows whether the MFI is motivated by profit or not. It shows the actual intention of the MFI and show the better measures intuitively. It is also a better measure because it determines the goals that an MFI pursues and the clients that they target (McIntosh & Wydick, 2005). Non-commercial MFIs prefer to maintain their dependence on subsidies and donations to boost their social objectives (Cull et al., 2009), whereas commercial MFIs focus on maintaining and improving profitability, and reducing their subsidy dependency (Copestake, 2007). Furthermore, commercial MFIs tend to be dominated by investors who have commercial interests, while non-commercial MFIs are dominated by social-oriented stakeholders, especially donors who are interested in social performance (Bensalem & Ellouze, 2019).

4.5 Control Variables

It is common to include control variables in empirical research. Control variables are included while estimating the causal effect of a treatment on an outcome. They help to obtain unbiased causal effect estimates by removing their effect (Hunermund & Louw, 2020). This study has included various indicators as control variables to eliminate their impact on the estimation. Those control variables have been categorised into 'firm level' and 'national level'. All these indicators have been described below in detail.

Firm Level

Firm-level control variables refer to the characteristics of MFIs. Size and age of MFIs have been used as firm-level control variables as these two indicators are likely to make an impact on performance (Hartarska & Nadolnyak, 2007; Bibi et al., 2018). MFIs may provide small loans initially, and then provide larger loans as clients demonstrate responsible borrowing over the years which means larger and older MFIs are likely to have better performance (Mersland & Strom, 2009).

Assets (Log) = Assets refer to the total value of resources controlled by MFIs. They are used as a proxy for the size of MFI as they are the most common indicator to measure the size of a financial institution (Hartarska & Nadolnyak, 2007; Mersland & Strom, 2009; Golesorkhi et al., 2019). A larger value of assets represents a larger institution and a smaller value represents a smaller institution. The assets data has been transferred to logarithm for normality purpose (Bibi et al., 2018; Ault, 2016).

*Mature MFI***:** Mature MFI variable refers to whether the MFIs are mature or not. Based on the information available in the MIX Market dataset, if an MFI is operating for more than 8 years then it is considered a mature MFI. This study has included mature MFI dummy to control its effect as it is more likely to make an impact on the dependent variable, which is the performance of MFIs (Mersland & Strom, 2009). The binary variable has been created by providing 1 if an MFI is mature, and 0 otherwise (Bassem, 2012; Bibi et al., 2018; Liñares-Zegarra & Wilson, 2018).

National Level

National-level control variables refer to the variables that are not under the control of MFIs, but rather are situated outside the MFIs. Various national-level variables have been used to control their effect on the performance of MFIs as different countries are likely to have different institutional environments and different levels of macroeconomic and economic freedom.

Furthermore, Ahlin et al. (2011) found that institutional environment and macroeconomic have a significant impact on the performance of MFIs. Moreover, these indicators have also been suggested by Ault (2016) as national-level control variables. Similarly, Barry and Tacneng (2014), Ault and Spicer (2014), Sainz-Fernandez et al. (2015), and Chikalipah (2017) also found that the institutional environment has an impact on the financial performance and outreach of MFIs. As a result, this study has included all these indicators to control the effect. The data related to institutional environment and the macroeconomic of countries is available in the World Bank database and economic freedom related data is available in Heritage foundation database. Further details on these variables are mentioned below.

- *Institutional Environment*

WGI is a dataset that provides the information related to the quality of governance of a country. The data is collected through a large number of enterprises, as well as citizen and expert survey respondents in developing countries. The WGI project constructs aggregate indicators of six broad dimensions of governance also known as Kaufmann governance indicators (Kaufmann et al., 2010). The six indicators include voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. More specifically, voice and accountability, political stability and absence of violence, and government effectiveness capture the overall effectiveness and efficiency of the government in the country, while regulatory quality, rule of law, and control of corruption capture the overall ability of the government to implement rules and regulations. Hence, this study has included only

two indicators i.e., *political stability and absence of violence* and *rule of law* as institutional environment control variables. This decision was also made because including all six variables may have caused a multicollinearity issue (explained below in section 2.10) between variables and also caused confusion while interpreting the results. An estimate of governance performance ranges from approximately -2.5 (weak) to 2.5 (strong).

A strong institutional environment enables institutions to formulate business-friendly policies that contribute to reducing corruption, which in turn allows small business to prosper. In such an environment, the demand for financial services of MFIs may rise, contributing to their overall performance. However, there is another school of thought that believes that a strong institutional context has a negative impact on the performance of MFIs. They believe that effective government and better rules and regulation lead to higher costs for small businesses, which reduces demand for financial services from MFIs. They also argue that reducing corruption means reducing opportunities for small businesses to avoid all kinds of costly government rules and tax payments or may make it more difficult to gain access to government services that are difficult to obtain without paying bribes and reduce their demand for financial services from MFIs, thus lowering their performance (Hermes & Hudon, 2018).

Political stability and absence of violence: This measures perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism. Estimates of governance performance ranges from approximately -2.5 (weak) to 2.5 (strong).

Rule of law: This reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Estimates of governance range from approximately -2.5 (weak) to 2.5 (strong).

- ● *Macroeconomic Variables*

Macroeconomic indicators measure the size of the national microfinance market. Larger markets may create economies of scale and reduce the cost of serving the poor, or the countries with stronger economies may not need the credit from MFIs because the people in those countries will have income from jobs or easy access to finance from various other sources. This means there may be less demand for microfinance in economically stronger countries and greater demand in less well-developed economies. However, a growing economy may motivate entrepreneurs to invest in new businesses or extend existing businesses, resulting in higher demand for MFIs,

which may improve the performance of MFIs. This shows that macroeconomic conditions do impact the performance of MFIs. Therefore, to control the impact, i.e., GDP per capital, lending rate and population variables have been included. These macroeconomic variables have been explained below. The data is collected from the World Bank.

GDP per capita: This measures a country's economic output in proportion to the size of its population. GDP per capita is calculated by dividing total GDP by population. A higher GDP per capita indicates a better economy, while a lower GDP per capita indicates a weaker economy.

Real interest rate: This represents rate of interest after adjusting for inflation. MFIs that charge higher interest rates are likely to have better financial performance compared to those that charge low interest rates as interest is the return that an MFI receives. On the other hand, the MFIs that charge low interest are more likely to have higher outreach. The interest rate depends on the countries and MFIs.

Population: The final macroeconomic variable used for this study is population size. It presents the total population of each country and has been transferred into logarithm to make it normally distributed. MFIs are more likely to have a higher number of clients and better performance in countries that have larger populations, while those operating in countries with smaller populations are likely to have a smaller number of clients. This shows that population size also influences the performance of MFIs. Therefore, population has been included as a control variable in this study.

- ***Economic Freedom***

The economic freedom index measures the impact of liberty and free markets around the globe. According to the Heritage Foundation, economic freedom is the right of every human to control his/her own property and labour. Economic freedom also measures how easy it is to operate a business in a particular country. Countries with greater freedom are easier to start businesses in, which can be beneficial to MFIs as they lend to those who wish to start businesses, meaning that economic freedom is directly related to the performance of MFIs. Heritage Foundation provides data related to six indicators in order to show the economic freedom of countries i.e. business freedom, labour freedom, monetary freedom, trade freedom, investment freedom, and financial freedom. However, as stated above, including all these variables may create a multicollinearity issue and confusion. Therefore, only the three variables that are most likely to affect the

performance of MFIs have been included as controls in this study i.e., *business freedom, trade freedom,* and *financial freedom*.

Business freedom: This indicates the efficiency of government regulation of business. It measures how difficult is to start, operate, and close a business, and is measured by an index ranging from 0 to 100. Countries with a higher score are countries in which it is easier to open, operate, and close businesses, while countries with a low score are countries in which it is difficult to start, operate, and close businesses or where barriers to entry are high. The performance of MFIs in the countries with greater business freedom is likely to be better because in those countries it is easier to start businesses and there are more opportunities to borrow credit from MFIs. The reverse is true for MFIs operating in countries with low levels of business freedom.

Trade freedom: This measures the absence of tariff and non-tariff barriers that affect imports and exports of goods and services. It is measured by an index ranging from 0 to 100. A higher score means there is greater freedom for investors to invest and open businesses as there will be fewer tariff barriers, making it easier to carry out imports and exports. As a result, the performance of MFIs in those countries are also likely to be better because such conditions will encourage more businesses to apply for help from microfinance institutions.

Financial freedom: This measures the efficiency of banks as well as the independence of the financial sector from government control and interference. The index ranges from 0 to 100. A higher score means that financial institutions are more free from government interference and regulation. However, higher freedom may lead to increased corruption and to decreased performance of financial institutions, which means that financial freedom is likely to have a negative relationship with the performance of MFIs.

In addition, we have also used the years dummies to control for the effect of time and the financial crisis as the data covers a wider period in which the global financial crisis took place.

All these variables have been presented in Table 4.1 to further explain the indicators used for this study. The table shows a short description, formula, and source of the data related to each of the variables.

4.6 Description of Variables

Table 4. 1: Description of all dependent and independent variables

Variable	Definition	Formula	Data Source
Dependent Variable			
Financial Performance			
Return on assets (ROA)	Net Operating income (less of taxes) compared to average assets. It measures how the institution is managing its assets to optimize its profitability. This ratio excludes donations and non-operating items.	Net operating income less taxes / Average Assets	Mix
Operational self-sufficiency (OSS)	Measures the institution's ability to cover its costs through operating incomes. Financial expense, impairment losses on loans and operating expenses are included in the calculation as they are a normal and significant cost of operating institution	Financial Revenue / (Financial expense on funding liabilities + Net impairment Loss on gross loan portfolio + Operating expense)	Mix
Outreach			
Log Number of active borrowers (Log NAB)	The numbers of individuals or entities that currently have an outstanding loan balance with the FSP or are primarily responsible for repaying any portion of the gross loan portfolio. Individuals who have multiple loans with FSPs are counted as a single borrower.	N/A	Mix
Average loan size (ALS)	Average outstanding loan balance per borrowers compared to local GNI per capita to estimate the outreach of loans relative to the low-income population in the country.	Average loan balance per borrower / GNI per capita	Mix
Market share of borrowers (MSBij)	New indicators to measure social performance indicators-It measures the breadth of outreach	Number of active borrowers (NABij) / Total number of active borrowers of MFIs in country J (TABj)	Bibi et al. (2018)
Market share of the number of borrowers adjusted for market share of assets (MSBAij)	New indicators to measure social performance indicators – It measures the depth of outreach	Market share of borrowers / Market share of Assets	Bibi et al. (2018)

Independent Variables and Control Variables

Commercial MFI	1 if MFI is registered as commercial MFI, 0 if non-commercial.	N/A	Mix
Assets (Log)	The logarithm of net assets of MFIs	N/A	Mix
Mature MFI	1 if MFI is operating for more than 8 years, 0 otherwise	N/A	Mix
Political stability/ No violence	Political Stability and Absence of Violence/Terrorism measures perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism.	Index ranges from -2.5 (weak) to 2.5 (strong) performance	World bank
Rule of law	Reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.	Index ranges from -2.5 (weak) to 2.5 (strong) performance	World bank
GDP per capita (Log)	The logarithm of GDP per capita	N/A	World bank
Real interest rate	The rate of interest after adjusting inflation	N/A	World bank
Population (Log)	Logarithm of population of each country	N/A	World Bank
Business freedom	An overall indicator of the efficiency of government regulation of business. The quantitative score is derived from an array of measurements of the difficulty of starting, operating, and closing a business	Index ranging from 0 to 100 (Higher score meaning the freedom and the opposite is repression)	Heritage Foundation
Trade freedom	A measure of the absence of tariff and non-tariff barriers that affect imports and exports of goods and services. The trade freedom score is based on two inputs:	Index ranging from 0 to 100 (Higher score meaning the freedom and the opposite is repression)	Heritage Foundation
Financial freedom	A measure of banking efficiency as well as a measure of independence from government control and interference in the financial sector	Index ranging from 0 to 100 (Higher score meaning the freedom and the opposite is repression)	Heritage Foundation

4.7 Empirical Analysis and Results

As stated above in section 2.8.1 this study applies quantitative research methods to analyse the data. More specifically, it has used descriptive statistics, correlation, and dynamic panel regression method to analyse the impact of the commercialisation of MFIs on their financial performance and outreach. Firstly, the data available for this study is panel data or longitudinal data which contains both cross-section and time-series data. Cross-section data refers to a type of data that consists of different individual firms or countries for the same period, and time-series data refers to a type of data of firms or countries over the period. In this study, it is the different MFIs related data over the years. Panel data provides more information and greater flexibility while analysing the data compared to cross-section data (Greene, 2002). Panel data can be analysed using various methods such as fixed effects (FE), random effects (RE), and dynamic panel model. Applications of FE or RE depend on various factors such as the variability of data and the nature of omitted variables (Baltagi, 2008; Wooldridge, 2013). According to Cameron and Trivedi (2010), it can also be determined using Hausman-Taylor's test (HT) on statistical software.

4.7.1 Endogeneity issue

Endogeneity is a problem that arises when independent variables are correlated with residual which can lead to bias estimation. Endogeneity can be caused by omitted variables, measurement error, heterogeneity, and reverse effect (Wooldridge, 2002). In this study, the independent variables are assumed to be correlated with residual (omitted variables). Indeed, variables such as the size and commercial or non-commercial status of MFIs may have a relationship with MFI management intention, motivation, and rules and regulations – all of which have not been included in the model. Furthermore, the dependent variables of financial performance and outreach might also affect whether MFIs choose to be commercial or non-commercial. For example, when an MFI starts to make a profit, this may motivate them to make more profit and, as a result, they might become a commercial MFI. It may also encourage MFIs to obtain more assets as they have spare money.

Similarly, being a non-commercial MFI and having a smaller number of borrowers and providing a smaller amount of loans to borrowers may not be cost-effective. As a consequence, MFIs may have to become commercial by necessity. In addition, Hartarska (2005) argues that MFIs with more experienced managers reach poorer borrowers and produce more sustainability. This shows that some managers are socially motivated and may decide to operate their firms as non-

commercial MFIs, but this qualitative data is difficult or impossible to obtain. Therefore, it is the norm for these variables to be omitted from the model. Thus, the commercial MFI variable and assets have been considered as endogenous variables on the model.

To address the endogeneity issue, the generalised method of moment (GMM) technique has been applied as this method is considered robust and more efficient (Roodman, 2009). GMM method is described in detail in the next section.

4.7.2 Dynamic Panel Data Analysis- GMM Method

This study has applied a dynamic panel- GMM method to address the endogeneity issue. This method makes it possible to create lag of dependent variable and control for past realisation by including as regressor. The most popular econometric method for estimating dynamic panel models has long been the generalised method of moments (GMM) (Roodman, 2009) developed by Holtz-Eakin et al., (1988), Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998). GMM method allows a researcher to control for endogeneity by exploiting the time-series dimension of the data, which enables them to create lags and lagged differences that can be adequate instruments for potential endogenous variables (Pugh et al., 2011).

GMM can be divided into 2 categories: difference GMM and system GMM (Roodman, 2009). Compared to these two types of GMM, system GMM provides more precise estimation as it allows to generate more instruments, which means more information used to estimate coefficients that leads to increase in efficiency (Bond, 2002a, p.17). Further, system GMM allows to include time invariant regressors which normally disappear in different GMM as differencing within groups must remove all the variables that are time invariant or constant (Roodman, 2009).

Within the system GMM, this study has applied a two-step system GMM because it is considered more augmented when the number of units (N) is larger and the time periods (T) are relatively small (Arellano & Bond, 1991; Roodman, 2009). Two-step system GMM is also considered to be robust and more efficient at addressing heteroscedasticity and autocorrelation (Roodman, 2009). We have used lagged values of variables that have been used as instruments while conducting two-step system GMM as it allows additional moment restrictions and corrects for any bias that would emerge using the standard difference GMM estimator (Blundell et al., 2000; Heid et al., 2012).

Auto regressive-AR (2) p-value is used to check if a serial correlation exists while applying two-step system GMM where null hypothesis means no serial correlation in the model. Similarly, Hansen test p-value has been used to check the validity of the instruments where null hypothesis is instruments are valid. All the institutional environment indicators, macroeconomic variables, economic freedom variables, and age are considered to be exogenous variables as dependent variables do not have reverse effects on these indicators. Furthermore, the instruments are expected to be less than groups in GMM method to achieve efficient estimation (Roodman, 2009). The results of these tests are available in below table 4.7 and 4.8 respectively.

4.7.3 Model Specification and Research Hypothesis

As explained in the introductory and research questions sections, the objective of this part of the thesis is to investigate the impact of the commercialisation of MFIs on their financial performance and outreach in developing countries. Therefore, the research question that is answered by this chapter is:

1. What effect does the commercialisation of MFIs have on their financial performance and outreach in developing countries?

To answer Research Question 1, the researcher has formulated the following equation (1), which will test the following research hypothesis and address the gap identified within the literature in the literature review section:

Hypothesis 1: The commercialisation of MFIs has had a significant positive effect on their financial performance and outreach in developing countries.

> *Hypothesis 1a. The commercialisation of MFIs has had a significant positive effect on their return on assets in developing countries.*

> *Hypothesis 1b. The commercialisation of MFIs has had a significant positive effect on their operational self-sufficiency in developing countries.*

Hypothesis 1c. The commercialisation of MFIs has had a significant positive effect on their number of borrowers (breadth of outreach) in developing countries.

Hypothesis 1d. The commercialisation of MFIs has had a significant positive effect on their average loan size (depth of outreach) in developing countries.

To test the hypothesis, this thesis has applied the dynamic panel model-two step system GMM using the following equation due to the fact that the assumption of present value has an association with past performance. Furthermore, it allows one to solve autocorrelation problems in the data.

$$Y_{itc} = Constant + \beta Y_{itc-1} + \beta Y_{itc-2} + \beta X_{itc} + \beta C_{tc} + \beta I_{tc} + \beta M_{tc} + \beta E_{tc} + \varepsilon_{itc} \qquad \text{equation (1)}$$

Y_{itc}= Financial performance and outreach of MFI i at a time t, located in country c.

Y_{itc-1} & Y_{itc-2} = First and second lags of financial performance and outreach MFI i at a time t, located in country c

X_{itc}= An independent variable of MFI i at a time t, located in country c

C_{tc}= A set of *firm characteristics control variables* at a time t, in country c

I_{tc} = A set of *institutional environment variables* at a time t, in country c

M_{tc}= A set of *macroeconomic variables* at a time t, in country c

E_{tc}= A set of *economic freedom variables* at a time t, in country c

ε_{itc} = Error term

4.7.4 Diagnostic tests

This study tested various data misspecifications to check whether the assumption of the regression method is violated. This study checked for ***multicollinearity, heteroscedasticity*** and ***serial-correlation*** as these issues are likely to arise in larger datasets.

Multicollinearity Test

Multicollinear occurs when there is a high correlation between two or more independent variables (Wooldridge, 2010). The existence of collinearity between variables affects regression estimates

adversely. The multicollinearity can be checked through correlation matrix and variance inflation factor (VIF). This study has used the VIF method, which is also suggested by Hair et al. (2006) and Gujarati (2003). They stated that mean VIF above 4 and individual VIF greater than 10 indicates the existence of a multicollinearity issue. The following table 4.2 shows the VIF results of the variables used for this part of the study.

Table 4. 2: Variance inflation factor (VIF)

Variable	VIF
Population (Log)	2.30
GDP per capita (Log)	2.17
Political stability	2.05
Trade freedom	1.71
Rule of law	1.63
Financial freedom	1.57
Business freedom	1.49
Assets (Log)	1.29
Mature MFI dummy	1.21
Commercial MFI dummy	1.19
Real interest rate	1.05
Mean VIF	**1.61**

The results show that VIF values of individual variables are not greater than 10 and mean VIF is less than 4, which indicates that the independent variables are not highly correlated (Cameron & Trivedi, 2010). This shows that there is no multicollinearity issue.

Heteroscedasticity

Another assumption of regression is that the errors term has constant variance; if this assumption is violated then it is known as heteroskedasticity (Hair et al., 2006). If the variables are heteroskedastic then it biases and thus invalidates statistical inference. This study has tested for heteroskedasticity using Breusch-Pagan/Cook-Weisberg test (hettest) whereby the null hypothesis is constant variance or homoskedasticity and the alternative is non-constant variance or heteroskedasticity (McAleer, 1994; Cameron & Trivedi, 2010). The following table 4.3 shows the results of heteroskedasticity using Breusch-Pagan/Cook-Weisberg test.

Table 4. 3: Breusch-Pagan/Cook-Weisberg test for heteroskedasticity

Dependent variable	P-value
	(If p-value > 0.05, then no heteroskedasticity)
ROA	0.000
OSS	0.000
Log NAB	0.000
ALS	0.000
MSB	0.000
MSBA	0.000

The results show that the data available for this study is heteroskedastic as the p-value is significant at the 1% level. In other words, the error variances are not equal. Therefore, the heteroskedasticity issue must be addressed.

Serial-Correlation/Autocorrelation

Another assumption of regression is that there is no serial correlation, which means that the error terms are not correlated with each other in a different time period but if it exists and has not been addressed then the result will be less efficient (Drukker, 2003). It can exist due to important variables being omitted or due to measurement errors. This study has tested for serial correlation using Wooldridge test (xtserial) whereby the null hypothesis is no serial-correlation and the alternative is the presence of serial correlation. The following table 4.4 shows the results of the Wooldridge test.

Table 4. 4: Wooldridge test for autocorrelation in panel data

Dependent variable	P-value
	(If p-value > 0.05, then no autocorrelation)
ROA	0.000
OSS	0.2049
Log NAB	0.000
ALS	0.000
MSB	0.000
MSBA	0.000

The results of the Wooldridge test above show the existence of autocorrelation within the data as the p-value of all the dependent variables is significant at the 1% level except for OSS. The test results show the existence of a serial correlation issue that needs to be addressed.

The diagnosis tests show that the data exhibits heteroskedasticity and serial correlation. However, the GMM method applied considered robust and efficient in handling these issues.

4.7.5 Empirical Results

4.7.5.1 Descriptive Statistics

Table 4. 5: Summary statistics of dependent and independent variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Dependent Variables					
ROA	10436	0.008	0.128	-3.453	0.799
OSS	11719	1.161	0.847	-47.845	36.627
NAB	12368	64913.44	371042.9	0	8166287
ALS	12279	0.751	2.294	0.000	112.769
MSB_{ij}	12704	0.009	0.034	0.000	0.785
$MSBA_{ij}$	12704	8.219	145.145	0.000	10336.590
Main independent variable					
Commercial MFI	12704	0.431	0.495	0.000	1.000
MFI-specific control variables					
Assets	12,318	6.01E+07	5.57e+08	0	4.23e+10
Mature MFIs dummy	12704	0.671	0.470	0.000	1.000
Institutional environment					
Political stability	12583	-0.766	0.721	-3.181	1.272
Rule of law	12632	-0.608	0.457	-1.897	1.433
Macroeconomic variables					
GDP per capita	12622	3136.89	3162.76	111.36	21188.12
Real interest rate	9744	6.766	11.193	-42.31	508.74
Population	12511	1.35e+08	3.08e+08	103604	1.36e+09
Economic variables					
Business freedom	12315	58.819	11.485	4.100	90.600
Trade freedom	12304	69.700	11.864	15.000	89.200
Financial freedom	12304	47.272	14.097	10.000	90.000

Financial Performance

Table 4.5 above provides the summary statistics of the variables used in this study. The table reports the number of observations, mean, standard deviation, and the minimum and maximum of all variables. The results show that, on average, MFIs are profitable as the mean of ROA is 0.008 and positive even though it is very small. The maximum value of ROA is 0.799 which

means one of the MFIs included in this study had 79% return and the minimum value is -3.45, which shows that there are MFIs that are running a loss. Similarly, the mean OSS is 1.17, which is 117%. This suggests that on average, MFIs included in this study are 117% operationally self-sufficient. The results also show the maximum and minimum value of OSS i.e., 36.62 and -47.84, respectively. Maximum value suggests that there is at least one MFI that can cover its operational cost 36 times, whereas the minimum value suggests that at least one MFI has not managed to cover its operational cost.

Outreach

The above summary statistics show that the average number of active borrowers of MFIs included in this study is 64,913 and the maximum is 8,166,287 while the minimum is 0. The highest number of borrowers is from VBSP MFI located in Vietnam. The minimum value shows that at least one of the MFIs did not provide credit services to a single person at some point. Similarly, the mean value of ALS is 0.75, which shows that the average loan size is small compared to the gross national income of the country. The minimum and maximum value of ALS are 0 and 112.76, respectively. This indicates that there is at least one MFI that has provided a huge amount of loans compared to the gross national income of the country.

The mean value of the market shares of borrowers is 0.009, which indicates that one MFI has an average of 0.9% market share of borrowers out of the total number of borrowers of MFIs in the country. The minimum and maximum values are 0 and 0.785, respectively, which shows that at least one of the MFIs had no borrowers at least for one year, while the maximum value suggests that at least one of the MFIs has 78% of market shares borrowers of total borrowers. Similarly, the average market share of borrowers adjusted for a market share of assets is 8.21, which suggests relatively smaller loans and greater outreach as a value greater than one indicates relatively smaller loans and greater outreach (Bibi et al., 2018). The minimum value is 0 but the maximum is 10336.590.

Independent and Control Variables

The table 4.5 shows that the mean value of commercial MFI is 0.43 which means 43% of samples are commercial oriented MFIs. Similarly, the summary statistics table shows that 67% of MFIs included in this study are mature MFIs. The mean value of assets $60,100,000 shows that the average number of MFIs included in this study has $60,100,000 worth of assets. The minimum value of assets is $0 which shows that at least one of the MFI did not have any assets whereas

the maximum value shows that at least one of the MFI included in this study had $42,300,000,000 worth of assets.

The mean of political stability and rule of law, which measure the institutional environment of the countries are -0.766 and -0.608 respectively. This suggests that the average number of countries included in this study have a negative institutional environment which is evident as the majority of MFIs operate in developing countries and most of the developing nations are politically unstable and have a weak rule of law. Although the political stability is measured using the value between -2.5 (weak) and +2.5 (strong), the minimum value of political stability in the above table is -3.181, which is the value of Iraq in 2004. This shows that Iraq had very weak political stability in 2004.

The summary statistics show the average GDP per capita is $3136.89, which indicates that the countries included in this study have average GDP per capita of $3136.89. The minimum is $111.36 which is the GDP per capita of Ethiopia in 2002 and the maximum is $21,188.12 which is the GDP per capita Trinidad and Tobago in 2008. Similarly, the mean value of the real interest rate is 6.766, which indicates that on average, the country included in this study has a real interest rate of 6.766% whereas the maximum value 508.74 suggests that at least one of the countries has 508.74% real interest rate. It was in 2006 in Zimbabwe. The minimum value of real interest rate is -42.31%. It was in Nigeria in 2010 which indicates that the inflation rate was greater than the nominal interest rate at that time. Likewise, the mean value of the population is 135,000,000 whereas the minimum and maximum are 103,604 and 360,000,000 respectively.

In addition, the economic freedom of a country has been included in this study and is measured by business freedom, trade freedom, and financial freedom. The mean values of these indicators are 58.81, 69.70, and 47.27, respectively. This suggests that the majority of countries that are included in this study have the freedom to conduct business and trade. However, the mean value of financial freedom suggest that the majority of the countries included in this study have less financial freedom. The minimum value of these indicators suggests that some of the countries have far less freedom whereas the higher values show that it is easier to conduct business and trade when the financial sector is free from government intervention and control.

4.7.5.2 Correlation

Table 4. 6: Correlation coefficient

Variables	ROA	OSS	Log NAB	ALS	MSB	MSBA	Commercial MFI	Assets (Log)	Mature MFI	Political stability/ no violence	Rule of law	GDP per capita (Log)	Real interest rate	Population (Log)	Business freedom	Trade freedom	Financial freedom
ROA	1																
OSS	0.405	1															
Log NAB	0.017	0.0014	1														
ALS	0.020	0.0266	-0.034	1													
MSB	0.018	-0.000	0.124	-0.0002	1												
MSBA	-0.018	-0.009	-0.004	-0.0117	0.0129	1											
Commercial MFI	0.017	-0.0125	0.038	0.0934	0.11	0.00913	1										
Assets (Log)	0.153	0.0261	0.32	0.106	0.268	-0.0737	0.268	1									
Mature MFI	0.102	0.0192	0.084	-0.0394	0.051	-0.0192	-0.167	0.291	1								
Political stability/no violence	-0.048	-0.0011	-0.068	0.056	0.11	-0.0037	-0.0745	-0.002	-0.0093	1							
Rule of law	-0.047	-0.0128	0.019	-0.133	0.0397	0.0134	-0.00447	0.031	0.0078	0.31	1						
GDP per capita (Log)	0.026	0.0215	-0.053	-0.143	0.0721	0.003	0.0966	0.209	0.103	0.322	0.294	1					
Real interest rate	0.040	0.011	-0.032	0.018	-0.023	0.000	-0.033	0.047	0.019	0.104	-0.059	0.049	1				
Population (Log)	-0.014	-0.0231	0.158	-0.174	-0.124	0.0115	0.0714	-0.008	-0.0141	-0.481	0.247	-0.050	-0.118	1			
Business freedom	0.017	0.0144	-0.002	-0.0772	0.0077	0.0073	0.103	0.125	0.02	0.0452	0.094	0.491	0.042	-0.162	1		
Trade freedom	0.063	0.034	-0.036	0.0249	0.0073	-0.0112	0.0376	0.153	0.159	0.221	-0.13	0.447	0.016	-0.422	0.295	1	
Financial freedom	0.038	0.0084	-0.099	-0.0559	-0.0247	0.0033	0.07	0.193	0.0645	0.246	0.115	0.441	0.143	-0.367	0.384	0.397	1

The above correlation table 4.6 shows the extent of correlation between all variables included in this study. The strength of correlation suggested by Evans (1996) has been used. Evans (1996) categorises the correlation strength into 5 categories: very weak, weak, moderate, strong, and very strong. If the correlation coefficient is between 0.00–0.19 then it is 'very weak'; if it lies between 0.20–0.39 then it is 'weak'; if the coefficient value is between 0.40–0.59 then it is 'moderate'; if the coefficient value is between 0.60–0.79 then it has 'strong' correlation; and, finally, if the correlation coefficient value lies between 0.80–1.0 then it has 'very strong' correlation.

The above correlation table 4.6 shows that all the variables are not very strongly or strongly correlated as most of them have a coefficient value of less than 0.50. ROA is moderately correlated with OSS; otherwise, the rest of the dependent variables have a very weak correlation with each other.

The main variable of interest, which is commercial MFI, has a positive but very weak correlation with all dependent variables i.e., ROA, NAB, ALS, MSB, and MSBA. However, the table shows that commercial MFI has a very weak and negative correlation with OSS. Similarly, the assets show a positive but very weak correlation with ROA, OSS, and ALS, but demonstrate a weak correlation with NAB and MSB and a weak but negative correlation with MSBA. Furthermore, the mature MFI variable also has a weak but positive correlation with ROA, OSS, NAB, and MSB, but has a weak and negative correlation with ALS and MSBA.

Moreover, the table shows that political stability has a very weak and negative correlation with ROA, OSS, NAB, and MSBA, but has a very weak but positive correlation with ALS and MSB. Similarly, the rule of law also has a very weak and negative correlation with ROA, OSS, and ALS but has a very weak and positive correlation with NAB, MSB, and MSBA.

Moreover, GDP per capita has a very weak and positive correlation with ROA, OSS, MSB, and MSBA, whereas it has a weak and negative correlation with NAB and ALS. The real interest rate of a country also has a very weak and positive correlation with ROA, OSS, ALS, and MSBA, but has a very weak and negative correlation with NAB and MSB. The population also has a very week and negative correlation with ROA, OSS, ALS, and MSB, whereas it has a very weak but positive correlation with NAB and MSBA.

In addition, business freedom has a very weak but positive correlation with ROA, OSS, MSB, and MSBA, but has a very weak and negative correlation with NAB and ALS. Similarly, trade freedom has a very weak but positive correlation with ROA, OSS, ALS, and MSB, but has a very weak and negative correlation with NAB and MSBA. Finally, financial freedom has a very weak but positive correlation with ROA, OSS, and MSBA, but has very weak and negative correlation with NAB, ALS, and MSB.

The main concern arises when the independent variables are highly correlated. This is because it can lead to a multicollinearity problem and if multicollinearity exists within the variables then the estimation may not be efficient and unbiased. In this study, the business freedom, trade freedom, financial freedom, GDP per capita, and population variables have either weak or moderate correlation but none of the independent variables are highly correlated, which means there is no multicollinearity issue as it only arises when the correlation coefficient is above 0.70 (Baltagi, 2008; Kennedy, 2008). Furthermore, the researcher applied a variance inflation factor (VIF) to check if the multicollinearity issue exists within the variables (see table 4.2 above) and the result of VIF shows no multicollinearity issue.

The following section shows the main results of this part of the thesis obtain from GMM method and also presents the discussion.

4.7.5.3 Financial Performance Results and Discussion

Table 4. 7: Link between financial performance and commercialisation of MFIs: two-step system GMM

VARIABLES	ROA	OSS
L. ROA	0.52***	
	(0.057)	
L. OSS		0.182**
		(0.084)
L2. OSS		0.101***
		(0.030)
Commercial MFI	0.079	-0.046
	(0.072)	(0.356)
Assets (Log)	0.021***	0.127**
	(0.005)	(0.064)
Mature MFI	-0.006	-0.100
	(0.014)	(0.109)
Political stability / No violence	0.008	0.039
	(0.005)	(0.027)
Rule of law	-0.001	-0.050
	(0.007)	(0.042)
GDP per capita (Log)	-0.003	-0.013
	(0.004)	(0.018)
Real interest rate	0.0003*	0.0007
	(0.0001)	(0.001)
Population (Log)	-0.001	0.014
	(0.002)	(0.001)
Business freedom	-0.000	0.001
	(0.000)	(0.001)
Trade freedom	0.0003*	0.003**
	(0.0001)	(0.001)
Financial freedom	-0.0006**	-0.003**
	(0.0003)	(0.001)
Year dummy 2008	-0.028***	-0.169***
	(0.007)	(0.047)
Year dummy 2009	-0.041***	-0.225***
	(0.007)	(0.056)
Year dummy	Yes	Yes
Constant	-0.275***	-1.297
	(0.082)	(0.912)
Observations	6,001	5,421
Number of MFIs	1,221	1,095
Number of Instruments	27	32
AB test AR (2) P-value	0.863	0.670
Sargen Test P-value	0.001	0.008
Hansen Test P-value	0.205	0.314

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The above result has been obtained using the two-step system GMM estimation. L represents the first lag of variable and L2 represents the second lag. Table 4.7 also shows the results of diagnostic statistics that are Arellano-Bond test AR (2) where null hypothesis is that there is no serial correlation (H_0= *No serial correlation)* or the errors term are sufficiently uncorrelated across individuals and alternative hypothesis is that the serial correlation exists within the model (H_1= *Serial correlation)* or error term are correlated across the individuals (Roodman, 2009; Lensink et al., 2018). The result shows that the p-value of AR (2) is not significant, which means that there is no serial correlation on estimation. In other words, the two-step system GMM has eradicated the serial correlation issue, which was available in the data.

Similarly, Sargen and Hansen tests are performed to check if the overidentifying restriction is valid, meaning if the instruments applied are valid. However, the Sargan test is only consistent under the assumption that the data is homoscedastic, which in this context does not apply because the data is not homoscedastic (Roodman, 2009). Therefore, the Hansen test has been used to check whether the instruments are valid where the null hypothesis is the instruments are valid (H_0= *Instruments are valid*) and alternative is instruments are not valid (H_1= *Instruments are not valid)*. The p-value of the Hansen test in Table 4.7 above does not reject the null hypothesis. Therefore, the instruments used for the estimation are valid.

Moreover, according to Roodman (2009), the instruments are expected to be less than groups in GMM method, which in this case is less than the number of MFIs. Table 4.7 also shows that the number of instruments is small compared to the number of MFIs. All these after estimation diagnosis tests are satisfactory which indicates that the results shown here are robust.

The following paragraphs show the main results and provide a discussion of the impact of the commercialisation of MFIs on their financial performance. The results have been categorised based on dependent variables i.e., ROA and OSS.

Return on Assets (ROA)

First of all, the lagged of ROA is positive and significant at 1%. It suggests that a percentage increase in ROA in the previous period implies an increase in ROA by 52% in the current year. This shows that past-year performance affects present-year performance and demonstrates the assumption of dynamic data. The results show that the main variable of interest, commercial MFI, has no significant association with ROA. This shows that adopting a commercial approach does not have a significant impact on the profitability of MFIs. This result is similar to the

findings of Cull et al. (2007), Mersland and Strom (2009), and Leite et al. (2019), as they also found no significant association between commercial MFIs and ROA. This could be because commercial MFIs rely on specialised staffs to make loans, which drives up their operating costs Gutirrez-Nieto et al., 2007). Thus, commercial MFIs are not making significantly higher profits than non-commercial MFIs. However, the result is not consistent with the findings of Chahine and Tannir (2010) as they found that MFIs that had transformed from NGOs have significantly higher ROA whereas D'Espallier et al. (2017) and Barry and Tacneng (2014) found a significant negative relationship between commercial MFIs and their financial performance.

The assets, meanwhile, has a significant positive association with ROA. This shows that increase one percent in assets of MFIs increases their ROA by $0.021. It also indicates that larger MFIs are making a larger amount of profit. This result is consistent with Golesorkhi et al., (2019), Mersland and Strom (2009), and Cull et al. (2007), all of whom also found a significant positive relationship between assets and the profitability of MFIs. According to Hartarska et al. (2013), it is reasonable due to the economy-of-scale advantage. Economies of scale allow larger MFIs to be more efficient, resulting in better financial performance. In contrast, Barry and Tacneng (2014) found a significant negative relationship between assets of MFIs and ROA, but the majority of studies suggest a positive association between size and the financial performance of MFIs.

The results show that mature MFIs are not significantly associated with ROA. This is similar to the findings of Bassem (2012) and Mersland and Strom (2009), as they also found no significant relationship between age and the profitability of MFI, whereas Cull et al. (2007), Chikalipah (2017), and Golesorkhi et. al. (2019) found a significant positive relationship. The findings in the literature are mixed. The relationship between mature MFIs and profitability is not unidirectional (Hermes & Hudon, 2018). On the one hand, life cycle theory suggests that performance increases with the age of the institution due to an increase in experience (they profit from a learning curve effect). Mature MFIs may also benefit from a first mover advantage. On the other hand, young MFIs may benefit from recent technologies or innovations when they start their operations. Mature MFIs may stick to older and less efficient processes that make them comparatively less efficient. For instance, younger MFIs may more easily adopt new management information systems and develop mobile banking platforms (Hermes & Hudon, 2018).

Similarly, the results show that political stability and the rule of law also have no significant association with ROA. This shows that the institutional environment in which MFIs are located

does not have a significant effect on the profitability of MFIs, but this finding is not consistent with the finding of Imai et. al. (2011). They also found a significant positive relationship between institutional environment and ROA. Similarly, Ahlin et al. (2011), Muller and Uhde (2013), and Chikalipah (2017) also found a significant positive effect of strong institutional environment on the financial performance of MFIs.

The results show that the macroeconomic variables i.e., GDP per capita and population do not have a significant relationship with the ROA of MFIs. It could be because the clients of MFIs concentrate their activities in the informal economy and the formal and informal economy are unrelated (Hermes & Hudon, 2018). The result is similar to the result of Bassem (2009), Muriu (2011), Muller and Uhde (2013), and Barry and Tacneng (2014), as they also found no significant association between GDP per capita and ROA. In contrast, Kuchler (2011) and Campbell and Rogers (2012) found a negative relationship between GDP per capita and ROA and Imai et al. (2011) found that GDP has a positive impact on the profitability of MFIs. The above result shows that the real interest rate also has a significant positive relationship with ROA. This shows that an increase of 1% on the interest rate will increase the profitability of MFIs by 0.03%. It is thus evident that an increase in interest rate means that the borrowers have to pay more interest to the finance provider and as a result, more profit is made.

Furthermore, the results show no significant relationship between business freedom and ROA, which is similar to the results of Muriu (2011) but is not in line with the findings of Chikalipah (2017), who found a significant positive relationship. We also found that trade freedom has a positive and statistically significant effect at the 10% significance level which means an increase in trade freedom of a country leads to an increase in profitability of MFIs. However, financial freedom has shown a significant and negative association with ROA. The results show that an increase of 1% on financial freedom of the country would leads to decrease ROA of MFIs by 0.06%.

Finally, we have included the year dummies to control for the time effect and the global financial crisis. In addition, we have presented the coefficient of both year dummy 2008 and year dummy 2009 to show the effect of the financial crisis as our data covers a crisis period and the results show that in this time there was a significant negative effect on the profitability of MFIs. The results show 2.8% decrease in ROA of MFIs in 2008 and 4.1% decrease in 2009. This finding is similar to the findings of Daher and Le Saout (2015).

Operational Self-sufficiency (OSS)

The results displayed in Table 4.7 above also show the relationship between OSS and the commercialisation of MFIs. First and second lagged have been included while employing two-step GMM and the results show that both first and second lagged variables are significant, which shows that current-year OSS is related to previous-year OSS. The results show that a percentage increase in OSS in the previous year and year before lead to an increase in OSS by 18.2% and 10.1% respectively in the current year.

The main variable of commercial MFI has no significant association with OSS, which is similar to the result of Cull et al. (2007), Mersland and Strom (2009), Bassem (2009), Louis and Baesens (2013), and Leite et al. (2019), whereas Tchakoute-Tchuigoua (2010) found private MFIs are more operationally self-sufficient than NGOs. The majority of studies suggest that OSS is not significantly different for both commercial and non-commercial MFIs.

The results show that assets variable has a significant positive relationship at a 10% significance level. This shows that one percent increase in the assets of MFIs leads to increase their operational self-sufficiency level by 0.12%. It also indicates that larger MFIs are more able to cover their operational cost. This is because larger MFIs benefit from economies of scale (Hermes & Hudon, 2018). This result is in line with the findings of Bassem (2009), Mersland and Strom (2009), Silva and Chavez (2015), Lensink et al. (2018), and Golesorkhi et al. (2019), as they all found a significant positive relationship, whereas Bassem (2012) found no significant relationship between size and OSS. It is clear, then, that size has a positive impact on the OSS of MFIs. The mature MFIs variable is not significantly correlated with OSS, which is a finding that is similar to the results of Lensink et al. (2018), Silva and Chavez (2015), Bassem (2012), and Hartarska (2005), but the result contrasts with the findings of Golesorkhi et al. (2019), Vanroose and D'Espallier (2013), and Bassem (2009), as they found a significant positive association between MFI's age and OSS, whereas Mersland and Strom (2009) found a significant negative effect of MFI's age and OSS. The findings on impact of MFI's age on OSS is therefore not unified.

Both political stability and rule of law have no significant relationship with OSS. This result is similar to the findings of Silva and Chavez (2015), as they also found no significant impact of both political stability and rule of law on OSS. In contrast, Muller and Uhde (2013) found a significant positive relationship with rule of law. Furthermore, Chikalipah (2017) and Ahlin et

al. (2011) found that a strong institutional environment has a positive effect on the performance of an MFI.

Similarly, the above results show that macroeconomic indicators i.e., GDP per capita, interest rate, and population also do not have a significant effect on OSS. Again, this could be because the clients of MFIs concentrate their activities in the informal economy and the formal and informal economy are unrelated (Hermes & Hudon, 2018). This result is similar to the findings of D'Espallier et al. (2017) and Vanroose and D'Espallier (2013), as they also found no significant effect of GDP per capita and population on OSS. However, Muller and Uhde (2013) found a significant negative association between GDP per capita and OSS. The results from the studies are therefore mixed.

The results also show that business freedom has no significant relationship with OSS, whereas trade freedom has a significant positive association and financial freedom has a significant negative association with OSS. The results show that an increase in trade freedom of the country leads to increase the OSS of MFIs of that country by 0.3% whereas an increase in financial freedom of the country leads to decrease in the OSS of MFIs of that country by 0.3%. Trade freedom has a positive association and it could be that if a country has fewer barriers to import and export goods and services, then poorer people operating in that country may feel more encouraged to start businesses, which in turn increases demand for microfinance. As a result, the performance of MFIs improves whereas financial freedom may encourage corruption which leads to losses (Hermes & Hudon, 2018). Kuchler (2011) also found no significant effect of business freedom and financial freedom on OSS.

Finally, the results show a significant negative effect of the global financial crisis on the OSS of MFIs as both the year dummies 2008 and 2009 are negative and significant at the 1% significance level. This is similar to the findings of Silva and Chavez (2015). The results show 16.9% decrease in OSS of MFIs in 2008 and 22.5% decrease in 2009.

4.7.5.5 Outreach Results and Discussion

Table 4. 8: Link between outreach and commercialisation of MFIs: two-step system GMM

VARIABLES	Log NAB	ALS	MSB	MSBA
L. Log NAB	0.316***			
	(0.081)			
L. ALS		0.557***		
		(0.113)		
L.MSB			0.973***	
			(0.052)	
L.MSBA				0.139**
				(0.063)
Commercial MFI	1.383***	1.378*	0.004**	-29.391
	(0.454)	(0.758)	(0.002)	(37.88)
Assets (Log)	0.536***	0.122**	0.0004**	4.120
	(0.102)	(0.061)	(0.0002)	(4.444)
Mature MFI	0.246*	0.137	0.000	-11.85
	(0.133)	(0.141)	(0.000)	(12.39)
Political stability /No violence	0.006	0.166*	0.000	-0.153
	(0.049)	(0.085)	(0.000)	(3.512)
Rule of law	0.167**	-0.109	0.000	-3.214
	(0.077)	(0.113)	(0.000)	(2.654)
GDP per capita (Log)	-0.389***	-0.167**	-0.000	0.621
	(0.059)	(0.073)	(0.000)	(2.309)
Real interest rate	-0.0004	0.002	0.000	-0.144
	(0.001)	(0.002)	(0.000)	(0.104)
Population (Log)	0.197***	-0.083*	-0.000**	1.681
	(0.035)	(0.048)	(0.000)	(1.324)
Business freedom	0.003*	-0.004	-0.000	0.072
	(0.002)	(0.003)	(0.000)	(0.104)
Trade freedom	0.000	0.000	-0.000	0.104
	(0.002)	(0.003)	(0.000)	(0.079)
Financial freedom	-0.003	-0.007	-0.000*	-0.033
	(0.002)	(0.004)	(0.000)	(0.081)
Year dummy 2008	-0.029	-0.129	-0.000	-4.590
	(0.067)	(0.092)	(0.000)	(3.802)
Year dummy 2009	-0.156**	-0.117	-0.000	-4.243
	(0.068)	(0.093)	(0.000)	(3.802)
Year dummy	Yes	Yes	Yes	Yes
Constant	-3.188**	0.847	0.003	-81.88
	(1.277)	(1.168)	(0.004)	(86.12)
Observations	7,139	7,082	7,380	7,380
Number of MFIs	1,373	1,365	1,395	1,395
Number of Instruments	39	78	84	30
AB test AR (2) P-value	0.596	0.202	0.699	0.797
Sargen Test P-value	0.000	0.000	0.000	0.091
Hansen Test P-value	0.165	0.165	0.661	0.401

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4.8 above shows that all the diagnostics results are satisfactory as p-values of AR (2) are not significant for all the equations. Similarly, Hansen test p-values are not significant, which is desirable as it shows that the instruments used are valid. The first lag of all the dependent variables have been included while applying two-step system GMM. The following paragraphs show the main results and provide a discussion of the impact of the commercialisation of MFIs on their outreach. The results have been categorized based on dependent variables i.e., NAB, ALS, MSB, and MSBA.

Number of Active Borrowers (Log NAB)

Table 4.8 shows the relationship between the commercialisation of MFIs and their outreach in developing countries. The results show that the commercial MFI variable has significant and positive relationship with NAB. The result shows that commercial MFIs are serving 138.3% more borrowers than non-commercial MFIs. This finding is similar to the findings of Chahine and Tannir (2010). However, the result is not consistent with the findings of Barry and Tacneng (2014) and Bassen (2009), as they found a significant negative relationship whereas Mersland and Strom (2009), Nurmakhanova et al. (2015), and Lensink et al. (2018) found no significant differences between the number of borrowers of commercial and non-commercial MFIs.

It was also found that the assets variable has a significant positive association with NAB. The result shows that a percentage increase in assets of MFIs leads to increase their number of borrowers by 0.53%. It also means larger MFIs have a larger number of borrowers. This could be because larger MFIs are more efficient and reach out to more clients than small MFIs (Hermes & Hudon, 2018). This is similar to the findings of Bibi et al. (2018), Lensink et al. (2018), Nurmakhanova et al. (2015), Barry and Tacneng (2014), Mersland and Strom (2009), and Bassem (2009), as they also found a significant positive relationship between the size and NAB of MFIs. However, Chahine and Tannir (2010) found no significant association between assets and NAB of MFIs. The majority of studies show that size has a positive impact on NAB of MFIs. The maturity of MFIs also has a significant and positive relationship with NAB. The result shows that mature MFIs or older MFIs are serving 24.6% more number of borrowers than young MFIs. This may be because mature MFIs are more experienced in tapping clients and fulfilling their demands. The result is consistent with Bassem (2009) and Barry and Tacneng (2014), as they also found a significant positive relationship. In contrast, Nurmakhanova et al. (2015) and Silva and Chavez (2015) found a significant negative relationship between mature MFI and NAB, whereas Lensink et al. (2018), Mersland and Strom (2009), and Hartarska (2005) found no

significant association. These findings show that the impact of age on NAB may not be unidirectional.

Furthermore, political stability has no significant effect on NAB but the coefficient is positive. Kuchler (2011) also found no significant association, whereas Silva and Chavez (2015) found a significant positive relationship between political stability and NAB of MFIs. The rule of law, meanwhile, has a significant and positive association at a 5% significance level. This suggests that MFIs serve more clients in countries where there is a better rule of law, but Kuchler (2011) and Silva and Chavez (2015) found no significant effect of rule of law on NAB. The result shows that one percent increase in rule of law of the particular country increases number of borrowers of MFIs of that country by 16.7%.

The results further reveal that GDP per capita has a significant negative effect on NAB, the population has a significant positive effect on NAB whereas the interest rate has no significant effect on NAB. This shows that one percent increase in GDP per capita of a country leads to a decrease in the number of borrowers of MFIs by 0.38%. This could be because increasing GDP per capita leads to a decrease in demand of microfinance services and as a result there are a smaller number of borrowers (Hermes & Hudon, 2018). However, Kuchler (2011) found no significant effect of GDP per capita on NAB. The population variable shows a significant positive relationship with NAB, which is evident in the fact that countries with larger populations are more likely to have higher NAB. The result shows that one percent increase in the population of the country increases the number of borrowers of MFIs by 0.19%. Nurmakhanova et al. (2015) also found a significant positive association between population density and NAB. The interest has no significant association with NAB.

Furthermore, all the economic freedom indicators such as business freedom, trade freedom, and financial freedom do not have a significant effect on NAB, whereas Kuchler (2011) found no significant effect of business freedom but did identify a significant and positive effect of financial freedom on NAB. Moreover, the results show that year dummies have no significant effect except year dummy 2009, which has a significant and negative effect on NAB. The result shows that the number of borrower of MFIs has decreased by 15.6% in 2009. This suggests that the NAB significantly decreased in 2009 due to the global financial crisis. Silva and Chavez (2015) found the same result.

Average Loan Size (ALS)

The results show that commercial MFIs have a significant positive relationship with ALS. The result shows that commercial MFIs provides 137.8% larger loans compare to non-commercial MFIs, which suggests that commercial MFIs are serving wealthier clients (Hartarska, 2005) who can afford larger loans. It is actually a negative impact in the context of microfinance. This result is consistent with Bassem (2009), Tchakoute-Tchuigoua (2010), Chahine and Tannir (2010), Wagenaar (2012), Barry and Tacneng (2014), Nurmakhanova et al. (2015), and D'Espallier et al. (2017). However, Mersland and Strom (2009) found no significant association between shareholder-owned MFIs and average loan size. Despite, Mersland and Strom (2009) found no significant relationship, the majority of studies found a negative impact of commercialisation of MFIs on the loan size.

Similarly, assets also have a significant and positive association with ALS. The result shows that one percent increase in the assets increases the average loan size of MFIs by 0.122%. This also suggests that larger MFIs are providing larger loans, which is similar to the findings of Mersland and Strom (2009), Nurmakhanova et al. (2015), Silva and Chavez (2015), and Lensink et al. (2018). However, Bassem (2012) found a significant negative relationship between assets and the ALS of MFIs, whilst Chahine and Tannir (2010), Barry and Tacneng (2014), and Bibi et al. (2018) found no significant association.

The results also show that the maturity of MFIs has no significant relationship with ALS which is similar to the findings of Bibi et al. (2018), Lensink et al. (2018), Silva and Chavez (2015), and Barry and Tacneng (2014). They also found no significant relationship between the age of MFIs and ALS. However, Bassem (2009) found that age has a significant negative impact on depth of outreach. Overall, the majority of studies show no significant relationship between the maturity of MFIs and their ALS.

In addition, political stability has a significant and positive association with ALS, although the rule of law has no significant effect. This suggests that an increase in the political stability of a country will increase the loan size of MFIs by 16.6% in that country. This result is similar to the findings of Muller and Uhde (2013), as they also found a positive association between political stability and loan size but they also found a significant and positive association between rule of law and loan size whereas Silva and Chavez (2015) found a significant negative impact of rule of law but no significant impact of political stability on loan size.

The results further show that GDP per capita and population have a significant negative effect on ALS. The results show that one percent increase in GDP per capita and population of the country lead to decrease the average loan size of MFIs of that country by 0.167% and 0.083% respectively. This suggests that MFIs in those countries where there is higher GDP per capita and larger population size are more likely to provide smaller loans. This result is similar to the findings of Vanroose and D'Espallier (2013), as they also found a significant and negative impact of GDP per capita and population on average loan size. However, Muller and Uhde (2013) found no significant association between GDP per capita and average loan size. The interest rate has no significant association with ALS.

Finally, the economic freedom variables have no significant association with ALS whereas Kuchler (2011) found a significant and negative association between business freedom and loan size but also a significant and positive relationship between financial freedom and ALS. The results also show that the two dummy years (2008 and 2009) do not have a significant effect on ALS, which suggests that the global financial crisis had no effect on the ALS of MFIs.

Market Share of Borrowers (MSB)

MSB is the new indicator for measuring breadth of outreach, as introduced by Bibi et al. (2018). The above results reveal that commercial MFIs have a significant positive relationship with MSB, which suggests that commercial MFIs are covering 0.4% higher market shares of borrowers than non-commercial MFIs.

Similarly, assets also had a significant and positive relationship with MSB, which indicates that an increase in assets will increase the market shares of the MFIs or that the larger MFIs have larger market shares of borrowers. This result is consistent with the findings of Bibi et al. (2018). Furthermore, the results reveal that the maturity of MFIs is not significant with MSB, whereas Bibi et al. (2018) found a significant positive relationship. The difference could be because Bibi et. al. (2018) only included data related to South Asian MFIs, whereas this study includes data from 114 countries.

The results also demonstrate that institutional environment variables (i.e., political stability and rule of law) have no significant effect on MSB. Similarly, the results show that GDP per capita and interest rate have no significant association with MSB, although population size has a significant negative effect. This suggests that in the countries where there is a larger population,

MFIs have small market shares of borrowers. The result shows interest has no significant association with NAB.

Likewise, the variables of business freedom and trade freedom are not significantly associated with MSB but financial freedom has a significant negative relationship with MSB of MFIs. This indicates that the countries which have less financial freedom or higher government interference to financial institutions have a higher market share of borrowers of MFIs. The result further shows that both year dummies 2008 and 2009 are not significant, which suggests that the global financial crisis has no significant effect on MSB.

Market Share of Borrowers Adjusted by Market Share of Assets (MSBA)

The results show that commercial MFIs have no significant association with MSBA. Similarly, assets variable also has no significant relationship with MSBA, although Bibi et al. (2018) found a significant and negative effect on MSBA. The results further reveal that all the other variables i.e., institutional environment indicators, macroeconomic indicators, and economic freedom are not significantly related to MSBA.

4.8 Summary and Conclusion

Table 4. 9: Effect of commercialisation of microfinance institutions on their financial performance and outreach.

Financial performance		Expected results	Actual results
	Return on assets (ROA)	+	No significant relationship
	Operational self-sufficiency (OSS)	+	No significant relationship
Outreach			
	Log Number of borrowers (Log NAB)	+	Positive relationship
	Average loan size (ALS)	-	Significant negative

(+ = positive relationship, - = negative relationship, and 0 = no relationship)

The objective of this research is to investigate the effect of the commercialisation of MFIs on their financial performance and outreach in developing countries. This study has been conducted because the results from previous studies are not clear and because majority of previous studies have not controlled for the impact of institutional environment. Furthermore, previous studies

have not applied GMM method, which is a method that more rigorously addresses potential endogeneity issues than other approaches do. This study has also used a larger dataset than previous studies such as Cull et al. (2009), Mersland and Strom (2009), Tchakoute-Tchuigoua (2010), Abrar and Javaid (2014), D'Espallier et al. (2017), Lensink et al. (2018), Leite et al. (2019) and others. The data was collected from the MIX Market, World Bank, and Heritage Foundation, and the final dataset includes 2,102 MFIs from 114 developing countries covering the period from 2002 to 2016. To analyse the data, this study has employed dynamic panel data analysis, while two-step GMM estimation technique has been employed in order to take account of any potential endogeneity issue.

The findings show that the commercialisation of MFIs does not help to improve their financial performance. This suggests that in spite of their status as commercial, commercial MFIs are not solely focused on financial performance but rather just trying to be sustainable.

However, the evidence suggests that the commercialisation of MFIs does help them to reach a greater number of borrowers, as the results show a significant positive impact on the number of borrowers-breadth of outreach of MFIs. Furthermore, the evidence suggests that the commercialisation of MFIs leads to increased loan size-depth of outreach, which indicates that the commercial MFIs are serving wealthier clients. This also confirms evidence found by other researchers that the commercialisation of MFIs leads to a 'mission drift' by decreasing the depth of outreach of commercial MFIs.

In addition, it can be concluded that the new measures of outreach are not in fact superior indicators as claimed by Bibi et al. (2018). The MSB is institution specific but it provides similar results to NAB. Moreover, MSBA does not show if MFIs are providing larger loans and higher outreach as MSBA values only indicate whether MFIs are providing larger loans and less outreach or smaller loans and greater outreach. Furthermore, it is diffiuclt to include and interpret MSBA value in methods like dynamic panel analysis as this technique includes lagged and instrumental variables.

This chapter has investigated the impact of the commercialisation of MFIs on their financial performance and outreach. The next chapter investigates how the commercialisation of MFIs affects their financial performance and outreach as most of the previous studies focused on impact studies but no study has been done yet as per the researcher knowledge. It shows that there is still a knowledge gap. The evidence has been gathered from MFIs of Nepal.

Chapter 5: Commercialisation of Microfinance Institutions –A Case Study of Nepal.

5.1 Introduction

To bridge the research gap presented in the literature review above in chapter 2, Section 2.8.2, this chapter investigates the impact of the commercialisation of MFIs on their financial performance and outreach in Nepal and also investigates how the commercialisation of MFIs affects their financial performance and outreach in general using the multiple MFI cases from Nepal. This chapter is organised into five sections. The first section provides background of the study, information on Nepal covering socio-economic conditions, the development of financial institutions in Nepal including MFIs, the development of MFIs in Nepal, other organisations that are related to MFIs in Nepal, the governance system of MFIs in Nepal, lending models used by MFIs in Nepal and finally presents the current state of MFIs in Nepal. The second and third sections present the research design of this part of the study and research method applied in which the researcher justifies the choice of research method. In the fourth section, the researcher explains the applied research method in greater detail, which includes the entire data collection process, complete analysis and results. Finally, the fifth section concludes the chapter.

5.1.1 Background of the Study

The results above in Tables 4.7 and 4.8 reveal that the commercialisation of MFIs has no significant impact on their financial performance but that it does have a significant positive impact on breadth of outreach and a significant negative impact on the depth of outreach in developing countries. However, the results do not explain how the commercialisation of MFIs affects their financial performance and outreach. Similarly, other previous studies such as Chahine and Tannir (2010), Tchakoute-Tchuigoua (2010), D'Espallier et al. (2013), D'Espallier et al. (2017), and Bensalem and Ellouze (2019) also focused on impact but no study has been found which examines how the commercialisation of MFIs affects their financial performance and outreach. Further, this part of the thesis also investigates the impact of the commercialisation of MFIs on their financial performance and outreach in Nepal as there is no study has been done yet despite the recent wave of commercialisation of MFIs in Nepal. The review of previous studies on commercialisation of MFIs in Nepal has been presented above in literature review section 2.8.2.

To fill the gap in the research and answer Research Question 2 and 3, the researcher needs to design a suitable research method. The researcher can apply either mixed method or qualitative method to answer the 'how' question as it is not possible to answer using the quantitative method. The researcher has decided to apply a mixed method approach which includes both quantitative and qualitative methods that complement one another (Creswell, 2014). First, this study used a quantitative method before using a qualitative method. Within the quantitative method, the researcher has applied generalised linear model (GLM) and propensity score matching method. Within the qualitative method, the researcher has applied case study method to answer the research question as it is a suitable method to answer 'how' questions (Yin, 2009). Furthermore, the case study method allows us to go beyond the quantitative statistical results and understand the data in greater depth within the specific context. Likewise, the case study method makes it easier to examine the implications of the macro-level results on a micro-level, which will in turn help to improve understanding of the social phenomena (Yin, 2009).

The researcher has decided to collect the data from MFIs in Nepal for this study. Nepal has been chosen as a case because it is one of the first few countries to apply the commercialisation approach in the microfinance industry. When MFIs began operating in Nepal, they were non-commercial and designed solely to improve social welfare. However, over recent years, that trend has changed. Non-commercial MFIs started to transform into commercial MFIs due to the need to achieve sustainability and growth. The first non-commercial MFI to transform into a commercial MFI in Nepal was Nirdhan Utthan Bank (NUB) in 1998. Since then, many other non-commercial MFIs have replicated this process and become commercial MFIs with the expectation of increasing their financial performance as well as their outreach to poor households.

Over the last decade, the commercialisation of MFIs in Nepal has taken place rapidly, and, by 2020, all the financial intermediary non-government organisations (FINGOs) that were operating as non-commercial MFIs have transformed into commercial MFIs. The trend of commercialisation of MFIs created serious concern over the objective of MFIs in Nepal. It raises concerns that MFIs in Nepal are focusing on profit when providing services rather than prioritising outreach to poor households (Jha, 2017; Dhakal, 2017). Despite rapid transformation and serious concerns, no study has been done yet on the commercialisation of MFIs in Nepal. Furthermore, Nepal has been chosen as a case because the researcher is from Nepal. The researcher is fluent in the Nepali language and understands the culture, which aids the data collection process.

5.1.2 Nepal at a Glance

Nepal is a landlocked country situated between the world's second (China) and the seventh (India) fastest-growing economies in the world. Kathmandu is the capital and largest city of Nepal. Nepal is famous as the birthplace of Buddha (who is the founder of Buddhism), as a country of mountains (as it is home to the tallest mountain in the world – Mount Everest), and for its Gurkha history. The total physical area of Nepal is approximately 147,516 square kilometers. Geographically, Nepal is divided into three ecological zones (mountain, hills, and plain areas). It has seen a decade-long civil war (1995–2005) and has undergone a political transition from a monarchy-based unitary state to the Federal Democratic Republic in 2015. Now, the country's political infrastructure has been divided into federal, state, and local governments. Following is a map of Nepal.

Figure 5. 1: Map of Nepal

5.1.3 Socio-Economic Context of Nepal

Nepal has a population of 28.51 million with more than 80% of the population living in the rural part of the country. According to the Central Bureau of Statistics (2011), approximately 30% of the total population live on less than USD 14 per month. According to the 2011 census, Nepal's religious make-up consists of 80.6% Hindu, 10.74% Buddhist, and 4.27% Muslim, Christian, and other religions. Nepali or Nepalese is the national and official language of the country, but various ethnic groups living in Nepal speak different dialects.

The gross domestic product (GDP) per capita of Nepal was $1,071.05 in 2019, which means it lies within the low-income economies, and the GDP in 2019 was 30.64 billion USD (World Bank, 2019). The GDP growth rate of Nepal was increasing gradually but has plummeted to the lowest it has been in 14 years due to the disruption caused by the earthquakes in 2015. However,

it is now growing again as the GDP growth rate of Nepal in 2018 and 2019 was 6.7% and 7%, respectively (Asian Development Bank, 2020).

The agriculture sector makes up approximately 31% of the economy of Nepal, with 64% of the population dependent on it. The economy of Nepal is also highly dependent on remittances, which have increased sharply over the last decade from 16.1% of GDP in 2006 to 31.8% of GDP in 2015, by far the highest in the SAARC region (Nordby et al., 2017). Nepal has made significant progress in poverty reduction from approximately 31% in the fiscal year 2005/2006 to less than 25.2% in the fiscal year 2010/2011, to 21.6% in the fiscal year 2016/2017. Nepal has also made progress on the Human Development Index over time. In 2016, it was ranked 145th out of 187 countries (Nordby et al., 2017) and came 142nd out of 189 in 2020 (UNDP, 2020). Despite Nepal recording modest socio-economic improvements, poverty remains a challenge to the country.

5.1.4 Development of Financial Institutions in Nepal

The history of the financial sector of Nepal is not particularly old. The first commercial bank was established in 1937 under a Special Act. Nepal Rastra Bank (NRB)- The Central Bank of Nepal was established in 1956. Since then, Nepal has made efforts to transform into a market-based economic system and adopted the policy of financial sector reforms intending to enhance saving mobilisation and credit allocation (Bista, 2008). As a result, various types of formal financial institutions have emerged in Nepal. Table 5.1 below shows the different types of formal financial institutions operating in Nepal.

Table 5. 1: Classification of formal financial institutions in Nepal

Financial institutions	Categories
Commercial banks	Class A
Development banks	Class B
Finance companies	Class C
Microfinance institutions	Class D
Saving and credit co-operatives	SACCOs
Financial intermediary non-government organisations	FINGOs/ NGOs

(Source: NRB, 2018)

Nepal Rastra Bank (NRB): NRB is the central bank of Nepal. NRB supervises, regulates, and creates policies for all the other formal financial institutions in Nepal. NRB has classified all the formal financial institutions into various categories, which are presented below.

Commercial banks: NRB has classified commercial banks into the 'class A' category. As of mid-July 2020, there are 27 commercial banks (NRB, 2020). Nepal Bank Limited was the first commercial bank to be established in Nepal in 1937. All the commercial banks in Nepal provide deposits, loan services, internet banking, and ATM facilities. The commercial banks have the largest number of deposit accounts and have provided the largest number of loans in Nepal. They also provide loans to other financial institutions.

Development banks: Development banks comes under the 'class B' category. Development banks were established in Nepal to provide capital to economic development projects. As of mid-July 2020, there are 20 development banks in Nepal (NRB, 2020). Development banks are divided into two categories: national level and regional/district level. Currently, there are 8 development banks that are operating at a national level and 12 at a regional level. They provide loans and financial help to larger projects that are operating at a national level.

Finance companies: Finance companies comes under 'class C' financial institutions. Currently, there are 22 finance companies, 19 of which operate at a national level and 3 of which operate at a district level. Finance companies provide loans with a high interest rate to individuals who do not qualify for a commercial bank loan. Moreover, finance companies provide various types of loans which may not be available in commercial banks such as loan-to-buy vehicles.

Microfinance institutions: MFIs are classified into 'class D' financial institutions. According to NRB, there are 85 MFIs as of July 2020, 45 of which are operating at the national level. MFIs provide both financial and non-financial services to low-income households who have no access to finance from commercial banks in Nepal. MFIs provides loans to those who wish to start or expand a business.

Saving and credit cooperatives (SACCOs): The community based SACCOs began to emerge in Nepal in the 1980s and currently there are more than 34,000 cooperatives operating in Nepal under the department of cooperatives with approximately 6 million members (NEFSCUN, 2020). Nepal Federation of Saving and Credit Cooperatives Unions (NEFSCUN) is an apex organisation that promotes and provides support to the cooperatives (NEFSCUN, 2020). Although there were

14 saving and credit cooperatives with a license to conduct limited banking activities up to 2018, they all had their licenses revoked from July 2018 by the Central Bank of Nepal (NRB, 2018). Currently, all the cooperatives are operating under the department of cooperatives. SACCOs is consider as non-commercial institutions which also provides microfinance to their members. They mostly operate in rural part of the country and there is no central data base for SACCOs. As a result, only self-reported data from SACCOs are available for this part of the study.

Financial intermediary non-governmental organisations (FINGOS): FINGOs were registered under the Institution Registration Act 1977 and were allowed to conduct limited banking transactions (Pant, 2016)**.** There were 36 FINGOs operating in Nepal until 2012. However, over time, some of them converted themselves into class D MFIs in order to sustain and grow. The remainder, meanwhile, had to transform into class D MFIs or be forced to shut down permanently due to the policy issued by the NRB. As a result, FINGOs no longer exist as of July 2020. All this has also been presented in Figure 5.2 below.

Figure 5. 2: Development of licensed financial institutions in Nepal
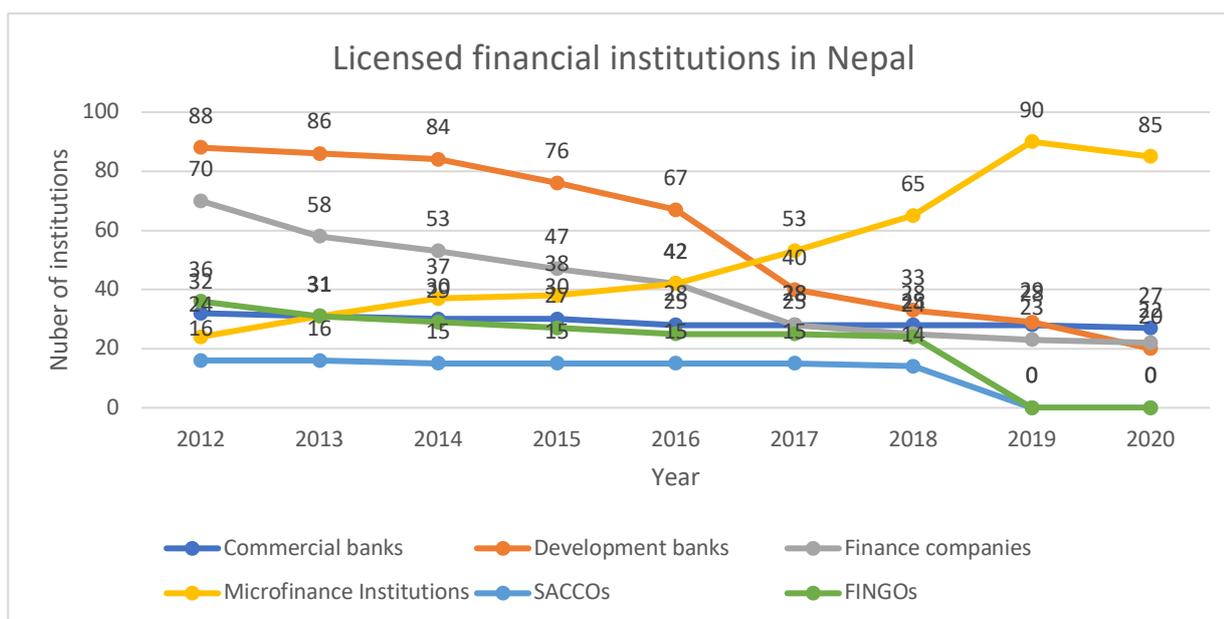
(Source: Nepal Rastra Bank- Central Bank of Nepal)

The above figure 5.2 shows the development of the formal financial institutions in Nepal over the last decade. The figure shows the rapid decline of development banks, finance companies, SACCOs which had a license to conduct limited banking activities, and FINGOS, but indicates the rapid rise of class D commercial MFIs. The following section discusses this development of MFIs in Nepal in greater detail.

5.1.5 Development of MFIs in Nepal

Microfinance has existed in Nepal for many years, dating back to the 1960s when a credit cooperative was established to provide credit to the agriculture sector (Sinha, 2001). Around the same time, the Agricultural Development Bank was also established to provide support and credit to the agriculture sector. In 1974, the Central Bank directed state-owned commercial banks to invest a portion of their budgets into the small business sector. However, the programme was not successful as only the rich and those who could provide collateral were able to access the programme. As a result, the government and Central Bank started the Intensive Banking Programme in 1981, whereby the group guarantee was used instead of physical collateral – but ultimately this approach proved unsuccessful.

Then, in 1990, the government of Nepal established Grameen rural development banks across 5 different regions (now only one remains, called Grameen Bikash Bank) of the country by following the Grameen model with major ownership of Nepal Rastra Bank – The Central Bank of Nepal. During the late 1990s, Nirdhan Utthan and Centre for Self-Help Development which were operating as FINGOs transferred into commercial MFIs and became Nirdhan Utthan bank (NUB) and Centre for Self-Help Development Bank (CSD) and started to provide microfinance services. Then, other MFIs also started to replicate the process and become commercial MFIs. By 2020, there are 85 commercial MFIs in Nepal.

There were three types of MFIs operating in Nepal i.e., class D-commercial MFIs, SACCOs, and FINGOs until 2018, but from 2020, only class D commercial MFIs are in operation in Nepal. In 2010, there were only 18 commercial MFIs in Nepal but over the last decade that number has increased by approximately 400%, many of whom have branches in multiple cities.

5.1.6 Informal Microfinance

Informal microfinancing refers to informal lending whereby lenders can be anyone such as friends, family, or landlords etc. Friends and family are the major providers of loans in the rural areas of Nepal. Most of the informal microfinance lending takes place to cover emergency costs or to fulfil cultural obligations such as wedding and birthday celebrations. In informal lending, the interest rate is normally high, but the process is quick and flexible.

In Nepal, there is also informal group lending whereby a group of people come together to collect money before offering the money to whoever is in need with the promise that the borrower will

eventually pay the money back. This monetary exchange then rotates through the process of 'Dhukuti' (rotating saving and credit associations), allowing Aama Samuha (mother group) to collect their fund and then provide to the next member who is in need. Despite informal microfinance being popular in Nepal, it is very difficult to collect data on it as it takes place between friends, family, and relatives. As a result, this study does not include data on informal microfinance.

5.1.7 Apex Organisation

An apex organisation is an institution that provides wholesale microfinance to retail MFIs. According to Rosenberg and Helms (2002), an apex organisation is a second-tier organisation that channels funding to various MFIs in a country or region. There are four apex organisations in Nepal that supply wholesale funds to retail MFIs. These institutions are the Rural Microfinance Development Centre Ltd (RMDC) (which helps to promote and develop the microfinance industry across the country), Sana Kisan Bikas Bank Ltd (SKBBL) (which specialises in promoting small farmer cooperatives), Rural Self Reliance Fund (RSRF) (which offers funds to NGOs and cooperatives), and the National Development Bank (which provides funds to SACCOs) (BWTP, 2010).

5.1.8 Microfinance Supporting Organisations in Nepal

Centre for Microfinance (CMF)
The CMF is one of the key organisations that supports MFIs in Nepal. It is a pioneer network organisation that emerged in 2000 with a not-for-profit agenda. Its objective is to strengthen MFIs in Nepal through networking, research, training, advisory services, hands-on support, and advocacy. The CMF is funded by the FORD Foundation (BWTP, 2010) which is an American based independent, non-profit grant-making organisation. Other organisations that support MFIs in Nepal are Rural Finance Nepal (RUFIN) (which is a joint project that provides technical assistance to the Agriculture Development Bank of Nepal (ADBN)), the Microfinance Association of Nepal (MIFAN), International network of alternative financial institutions (INAFI) Nepal, Grameen Replications Network, National Federation of Saving and Credit Union Nepal (NEFSCUN), as well as several cooperative networks and federations. However, most of them are inactive due to the lack of funding and geographical isolation of their members (BWTP, 2010).

5.1.9 Governance of MFIs in Nepal

The legal procedures of MFIs in Nepal are reasonably complex. The main legal drivers of MFIs in Nepal are the *Banks and Financial Institution Act (BAFIA) 2006* and *Financial Intermediary Act 1998.*

To establish a financial institution, the related person has to apply for registration in Nepal Rastra Bank (NRB) under the Company Act 2005 with the required documents as stated in the *Banks and Financial Institutions Act 2006* for prior approval as a public limited company. Additionally, there are co-operatives Act 1992 for SACCOs and SFCLs and the Financial Intermediary Societies Act 1998 for FINGOs. Furthermore, the government of Nepal introduced the Microfinance Policy 2007 to regulate MFIs (Kayastha, 2010). MFIs must comply with various legal requirements of banking authorities to retain their license; this includes establishing proper systems and transparent procedures, meeting an array of 'safety and soundness' tests, and meeting 'fit and proper tests' while appointing management and board members.

With the transformation from non-commercial to commercial MFIs, ownership has also changed. The ownership of commercial MFIs consists of founder NGOs, commercial investors such as financial institutions, the public, and others. One such example is NUB – the first NGO to transform into a commercial MFI in 1998. Now, 12% of NUB is owned by a founder NGO, 36% is owned by commercial investors, 41% is owned by the public, and 11% by others. In some MFIs, the public holds the majority ownership as it is legally required for public companies registered under the Company Act 1997 of Nepal to allocate at least 33% of their shares to the general public (Dhakal, 2012).

5.1.10 Lending Models Adopted by Nepalese MFIs

MFIs in Nepal have been providing services using various lending methods. Some of the widespread lending models that have been adopted by MFIs in Nepal are discussed below.

Microfinance institutions in Nepal have adopted various microfinance lending models which include Grameen model, village bank model, cooperative model, community model, small farmers cooperative model, and self-help group model. The Grameen model is one of the most popular models in Nepal and was adopted during the financial sector liberalisation in the late 1990s. The model was first introduced by an NGO called Nirdhan and later it was replicated by many other MFIs in Nepal. The Grameen model is more suitable in Tarai (plain) area of Nepal

where it is easy to access the institutions, easy to attend meetings, and transportation and infrastructure are better than in other regions (mountains and hills) of the country (BWTP, 2009).

The second model that is followed by Nepalese MFIs is the cooperatives model. This model allows a group of 25 people from the community to start a saving and credit cooperative (SCCs) by registering with the Department of Cooperatives. The saving and credit cooperatives are not regulated by the Central Bank of Nepal, but there are a few saving and credit cooperatives that have licence from the Central Bank of Nepal for limited banking services; additionally, they provide services to non-members, which is licensed under the Cooperative Act 1992 (Shrestha, 2009).

Nepal has adopted other models of microfinance to provide services to low-income households. One of them is the Small Farmer Cooperative Limited Model (SFCL). This model was first started in 1975 as a pilot project by Agricultural Development Bank Nepal (ADBN) and later registered legally in 1993 with the support of the German Agency for Technical Cooperation to help farmers in Nepal. It has a three-tier structure consisting of village level, ward level, and village development committee (VDC) level. At the village level, promoters help households to form a group; at ward level, groups with a common interest are integrated into intergroup associations; and, finally, at VDC level all groups and intergroups are represented in the executive committee. The executive committee is responsible for hiring staff and managers to run the cooperatives. The members of the credit group organise a regular meeting where they collect loan and savings instalments as well as issuing loans either with or without collateral (BWTP, 2009).

Apart from the above-mentioned model, Nepalese MFIs also adopt the self-help group model, village model, and community-based model, but the institutions that have adopted these models are disappearing as they have failed to place a strong focus on operational sustainability (Kayastha, 2012)

5.1.11 Current State of MFIs in Nepal

As previously stated, MFIs have been in existence and providing services to poor households in Nepal for several years. The first formal MFI in Nepal was established in 1990. Since then, numerous MFIs have emerged. Hence, few empirical studies have been conducted on MFIs in Nepal. Among the few studies that have been completed are the following: Bashyal (2005), who

investigated the impact of a microcredit programme on poverty alleviation in Nepal; Sharma (2008), who analysed the financial sustainability of MFIs in Nepal; Shrestha (2009), who investigated the status of progress achieved in poverty alleviation through microfinance programmes in Nepal; and Paudel (2013), who investigated the effects of microfinance on the living standards of Nepalese households.

In recent years, microfinance has gained more popularity in Nepal. In this time, the microfinance industry has undergone various changes such as the switch from group lending to individual lending and the switch from microcredit to microfinance. More importantly, non-commercial MFIs are transforming into commercial MFIs (Shah, 2016). These significant changes began in 1998 when the Enactment of Development Bank Act 1996 created the opportunity for NGOs to transform into commercial MFIs in Nepal. Nirdhan was the first FINGO to make the change, becoming NUB in 1998. Three other MFIs have followed the same route and established themselves as a microfinance bank. (1) DEPROSC Microfinance Development Bank (DDB) was promoted from DEPROSC-Nepal in 2001, which was established as a non-profit-making organisation in September 1993 under the Association Registration Act 1978, followed by (2) Chhemak Bikas Bank (CBB) promoted from Chimeki Sanstha in 2002 which was established as an NGO in 1991. The same year, (3) the Centre for Self-Help Development was promoted to Centre for Self-Help Development Bank, which was providing financial services as FINGO in the Eastern and Central region of Nepal since 1994 (Dhakal, 2012). Similarly, Nerude Laghu Bitta Bikas Bank Ltd came into existence in 2007, having been first established as NRDSC-NGO to provide microfinance.

FORWARD Community Microfinance Ltd was another MFI to transform in 2013 after taking over FORWARD-Nepal NGO. FORWARD Nepal was established in 1997 as a non-profit organisation to help disadvantaged groups in the rural poor. Likewise, Mahuli Community Development Center-NGO was promoted to Mahuli Samudayik Laghubitta Bittiya Sanstha Limited (MSLBSL) in 2012. Furthermore, due to the poor performance of regional Grameen development banks under government ownership, the Central Bank started a restructuring programme, which led ultimately to the privatisation of the five regional Grameen bank, unifying them as Nepal Grameen Bikas Bank Ltd (NGBBL) in July 2014; the majority of its shares, however, are owned by government-related financial institutions.

MFIs are not only upgrading from NGOs but also downscaling from commercial banks (class A) and development banks (class B). Examples are Laxmi Microfinance Ltd, which registered as a

class D MFI in 2010 as a subsidiary of Laxmi Commercial Bank (class A). Similarly, Reliable Microfinance Bittiya Sanstha Limited (RMBSL) (class D) was established in 2013 as a subsidiary of Reliable Development Bank Limited (class B). This shows that the number of commercial MFIs in Nepal is increasing. In recent years, that increase has gained speed (Shah, 2016). There were only 16 commercial MFIs in Nepal in 2012 but this increased to 90 in 2019 before falling slightly to 85 in 2020 (NRB, 2020). This is a significant increase within just a few years, and contrasts with the development of FINGOs, which are on the decline. There were 36 FINGOs in 2012 in Nepal but that decreased to 24 in 2018 before they completely disappeared in 2020. Figure 5.3 below shows the number of MFIs on a yearly basis in Nepal.

Figure 5. 3: Number of microfinance institutions in Nepal
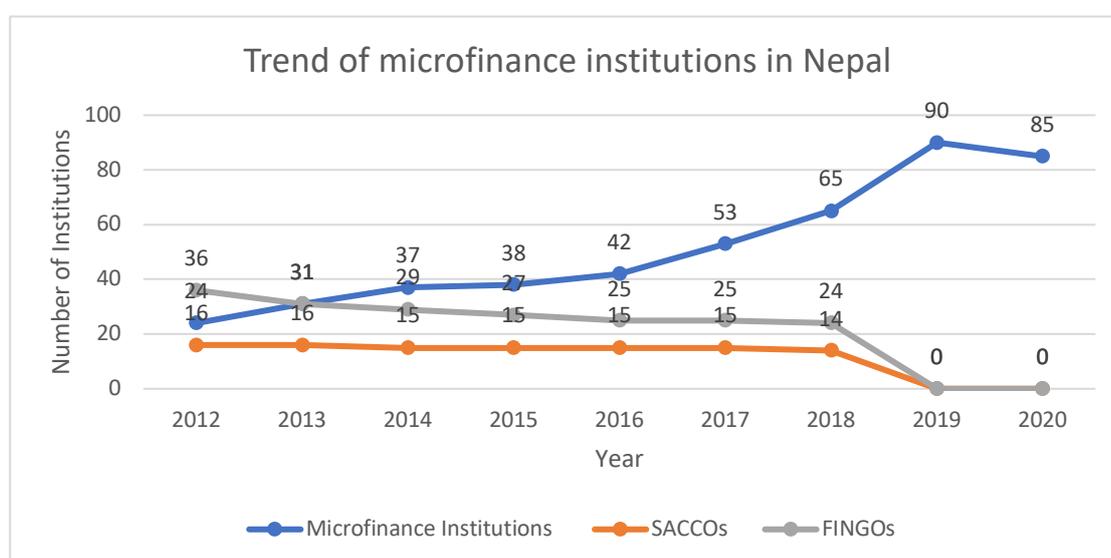
(Source: NRB, 2020)

The number of commercial MFIs in Nepal increased by more than 400% from 2012 to 2020. This trend is causing serious concerns about the commercialisation of MFIs in Nepal. Moreover, MFIs in Nepal are more focused on densely populated areas. The clients registering more than one MFI has been common practice in many areas of Nepal (Jha, 2017).

Dhakal (2007) stated that commercial MFIs are delivering their services in urban and densely populated peri-urban areas while highlighting the emerging issues in Nepalese microfinance sector. This suggests that MFIs in Nepal have started to focus on profitability. In addition, the governor of NRB-Central Bank of Nepal, Dr Chiranjibi, expressed concern about MFIs for being profit-oriented and city-centric in the fourth microfinance summit 2017. He stated that they were

more concerned about the ups and downs in the prices of the shares of their companies rather than the plight of poor people in the villages (The Rising Nepal, 2017).

All this shows that the commercialisation of MFIs has raised serious concerns among researcher and practitioners in Nepal. This has also led to a significant amount of debate within the field of microfinance on whether MFIs should be non-commercial or commercial. Despite this ongoing debate, no study has been found yet on the impact of commercialisation of MFIs on their financial performance and outreach in Nepal. Furthermore, a gap still exists in microfinance literature on how the commercialisation of MFIs affects their financial performance and outreach. Thus, this part of the thesis investigates the impact of commercialisation of MFIs on their financial performance and outreach in Nepal and how the commercialisation of MFIs affects their financial performance and outreach using multiple cases from Nepal.

5.2 Research Design

This study has chosen to apply a case study method. One of the main reasons for applying the case study method in this part of the study is that it aligns with the research questions, which are 'how' and 'why' questions (Yin, 2009). For instance, it will be asked whether non-commercial MFIs that have transformed into commercial MFIs have seen an increase or decrease in their profitability. But in this case, the question will further ask why/how the profitability has either increased or decreased, which will help to understand what happens after MFIs become commercial.

The case study can be carried out using a single case or multiple cases. A single case is used to understand the decision-making of a person, organisation, or group within a given context, while a multiple case study is used to understand the phenomenon by collecting data from two or more people, organisations, or groups within the context. This study has applied a multiple case study approach, which means that the data has been collected from two or more MFIs. A multiple case study allows the researcher to analyse the data both within the cases and between the cases and thus achieve greater confidence in the corroborated findings (Yin, 2018). The following section will provide the details on the research method, which includes sampling, data collection, data analysis, and findings.

5.3 Research Method

As stated above in sections 3.1, **positivists** adopt quantitative research methods in order to state what reality is, whereas **interpretivists** implement a qualitative approach to understand phenomena. The quantitative researcher believes that reality is objective and singular. The quantitative research method collects the numeric data and analyses it using statistical analysis method to check the causal relationships between the variables to test the hypothesis, whereas the qualitative research method uses non-numeric data to understand the social phenomenon. The qualitative researcher believes that reality is subjective and multiple. On the other hand, the ***pragmatist approach*** embraces the mixed method as a third research model (Saunders et al., 2012). It includes both quantitative and qualitative methods. It is the research design in which the researcher collects and analyses both quantitative and qualitative data in a single study concurrently or sequentially for the purpose of gaining a better understanding of the phenomenon (Creswell, 2014).

The mixed method is less well known compared to quantitative and qualitative methods because it only emerged as a separate method approximately 20 years ago (Subedi, 2016). It has been claimed by many methodologists that the mixed method is the most effective paradigm of research (Teddlie & Tashakkari, 2009; Bryman, 2012; Subedi, 2016) due to various reasons. Firstly, it provides a paradigm that philosophically embraces both the quantitative and qualitative method. Secondly, it avoids endless discussion and debate. Lastly, it reduces the risk of bias and weakness because it allows quantitative and qualitative methods to complement one another.

Justification for Choosing Mixed Method for the Study

Deciding which research method to apply depends on the research question and objective of the study (Creswell, 2014). Quantitative methods answer 'what' questions while qualitative methods answer 'why' and 'how' questions. The researcher has decided to apply the mixed method to address Research Question 2 (available above in section 5.3) because it allows the researcher to understand the phenomenon in depth as it includes both methods.

Within the mixed method, Creswell and Clark (2018) identified three core mixed method designs: convergent, explanatory and exploratory mixed method. The convergent design allows the researcher to compare the results of quantitative and qualitative research with the intent of obtaining a more complete understanding of a problem. Explanatory sequential design applies the quantitative method first, followed by the qualitative method. Exploratory sequential design begins with the qualitative phase followed by the quantitative phase. Out of these mixed methods, the researcher has applied the explanatory sequential mixed method. Further detail of the explanatory sequential mixed method is available below.

5.4 Explanatory Sequential Mixed Method

Choosing an appropriate mixed method for the research is a difficult task as the mixed method is not easy to implement. The researcher has to consider various issues such as the priority or weight given to the quantitative and qualitative data collection and analysis. They must use these considerations to form a sequence of data collection and analysis and to develop stages in the research process at which the quantitative and qualitative phases are connected and results are integrated (Creswell, 2014). However, the research questions and the objective are the main drivers of the research and so should determine the exact nature of the methods chosen.

To answer the research question 2 and achieve the second objective of this thesis, the explanatory sequential mixed method seems the best fit as this method allows the researcher to first collect quantitative data and analyse then collect qualitative data and analyse in second phase. This method is suitable also because the secondary quantitative data is already available, so it only makes sense to analyse the quantitative data first then apply the qualitative method. The qualitative data and its analysis refine and explain those statistical results by exploring participants' views in greater depth (Creswell, 2014; Ivankova et al., 2006). This is one of the most common and straightforward mixed methods. The explanatory sequential mixed method provides an opportunity for the exploration of the quantitative results in more detail. Figure 5.4 below shows the procedures or steps taken to complete the sequential explanatory mixed method for this part of the study, which has been divided into two i.e., the quantitative and qualitative phase. In the first phase, this study examines the effect of the commercialisation of MFIs using the quantitative method, and then in the second phase investigates how the commercialisation of MFIs affects their financial performance and outreach using the qualitative method.

Figure 5. 4: Explanatory mixed method

Explanatory mixed method procedures

Phase	**Procedures**	**Method applied**
Quantitative phase	Quantitative data collection	Secondary data (source: MIX Market) No. of MFIs = 41 Years = 2002–2013
	Quantitative data analysis	Descriptive, correlation, generalised linear model, and propensity score matching
Qualitative phase	Qualitative data collection	Semi-structured questionnaire Purposive and snowballing sampling Interview/questionnaire
	Qualitative data analysis	Coding Thematic analysis
Interpretation		

(Source: Ivankova et al., 2006)

5.4.1 Quantitative Phase

Explanatory sequential mixed method starts with a quantitative phase that includes quantitative data collection and statistical analysis. The quantitative method is used to determine the effect of the commercialisation of MFIs on their financial performance and outreach in Nepal. Once the impact study is complete, the researcher will conduct interviews or provide questionnaires to determine how commercialisation has affected financial performance and outreach, which will allow the researcher to answer Research Question 2.

Under the quantitative method, this study has applied descriptive statistics, correlation, GLM, and finally PSM estimation for robustness purposes. All the analysis has been done using STATA software. Further details on data collection, variables, and analysis methods are given below.

5.4.1.1 Quantitative Data Collection

This study has used secondary data for a quantitative study. The quantitative data related to MFIs is collected from the MIX Market platform, whereas the rule of law and GDP per capita data has been collected from the World Bank and the business freedom data is collected from the Heritage Foundation website. The data includes 41 MFIs from Nepal covering the period of 2002 to 2013. The total observation is 264. The data related to the MFIs from Nepal is not available beyond 2013. Therefore, the last year covered in this study is 2013. As stated above (section 4.2), the MIX Market provides a diamond ranking (5 being the complete data and 1 being incomplete) that represents the quality of the data. This study has used data that scores 3 or above for data quality purposes where 3 diamond means that the MFIs' have reported their financial data for two or more consecutive years. As stated above in section 4.2, the monetary data available in Mix market is nominal value adjusted by US dollar parity for all years (Leite et al 2019)

5.4.1.2 Dependent and Independent Variables

Financial performance is measured using ROA and OSS. Outreach has been measured using the breadth and depth of outreach. The breadth of outreach is measured through NAB and depth of outreach is measured through ALS.

The main independent variable is also the same as above. The dummy variable has been created based on whether an MFI is commercial or non-commercial. If an MFI is commercial, it is given the value 1, and if an MFI is non-commercial, it is given the value 0.

5.4.1.3 Control Variables

MFI characteristics and national-level control variables: This study has controlled for the effect of MFIs' characteristics as these are likely to have an impact on performance. This study has included assets as a control variable which is used as a proxy of the size of MFIs and a mature MFI dummy variable has also been included as a control variable.

In addition, we have also controlled for the national-level variables that may have an impact on the performance of MFIs. The detailed reasons to include these variables have been provided in section 4.5 above. However, not all the variables that are discussed above in section 4.5 have been included for this part of the study as all the variables do not have variation over the year in the context of Nepal. Therefore only a few variables (rule of law, real interest rate and business freedom) which varied over the time have been included. Following are the results from the quantitative data.

5.4.1.4 Model Estimation and Results

Since the dataset is small, an ordinary least squares (OLS) estimation method can be used. However, it is important to check whether the variables are normally distributed before applying OLS (Gujarati, 2003); thus, the estimation will be BLUE. If the assumption of the normal distribution is failed to satisfy, the OLS estimation will be inefficient (Gujarati, 2003). Therefore, we have tested for normality of the variables that are included in the equation using skewness and kurtosis-sktest (D'Agostino et al., 1990). The results can be seen in Figure 5.5 below.

Figure 5. 5: Normality test

```
. sktest returnonassets operationalselfsufficiency logNAB averageloanbalancep
> erborrowe profitstatusdummy logassets agedummy1 ruleoflaw realinterestrate
> businessfreedom
```

```
                      Skewness/Kurtosis tests for Normality
                                                      ─────── joint ───────
        Variable      Obs   Pr(Skewness)  Pr(Kurtosis)  adj chi2(2)   Prob>chi2

     returnonas~s      224      0.0000        0.0000          .          0.0000
     operationa~y      254      0.0000        0.0000          .          0.0000
           logNAB      253      0.0205        0.0000        29.18        0.0000
     averageloa~e      251      0.0000        0.0000          .          0.0000
     profitstat~y      264      0.0082          .            .            .
        logassets      263      0.0017        0.2437        10.04        0.0066
        agedummy1      264      0.0000        0.9034        41.14        0.0000
        ruleoflaw      264      0.8837        0.0000          .          0.0000
     realintere~e      189      0.0002        0.0000        53.05        0.0000
     businessfr~m      264      0.0006        0.0000          .          0.0000
```

The results in Figure 5.5 show the joint skewness/kurtosis test for normality. The null hypothesis is that a variable is normally distributed, and the alternative is not normally distributed (D'Agostino et al., 1990). The results show that all of the variables are significant at a 1% level, which indicates that the variables are not normally distributed as the null hypothesis is rejected. It also means that the error term in the model is likely to not be normally distributed (Shahriar et al., 2016). This shows that the assumption of the linear regression model has been violated. In this case, the OLS is not the best estimation as it will not provide an efficient and unbiased estimation. As a result, we have used a generalised linear model (GLM), which is considered to be more efficient in this context as it allows a reliable estimation of the parameter when the distribution of error term is other than normal (Greene, 2012). Consequently, the following model has been proposed:

$$Y_{it} = \text{Constant} + \beta X_{it} + \beta C_{it} + \beta I_t + \varepsilon \qquad \text{Equation (2)}$$

The dependent variable Y_{it} is a measure of financial performance and outreach of the MFI i at time t, where financial performance of MFIs is measured by ROA and OSS. Similarly, outreach is measured by NAB and ALS. X_{it} is commercial orientation of MFI i at time t which is the main variable of interest. It is a dummy variable and equals 1 if the MFI is registered as commercial and equals 0 if the MFI is registered as non-commercial. C_{it} is a set of characteristics of MFI i at a time t. I_t is a set of institutional environment variables at time t. Finally, ε shows the error term. Likewise, this study has included the year dummy to control the time or trend effect in the regression.

5.4.1.5 Descriptive Statistics

Table 5. 2: Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
ROA	0.014	0.041	-0.238	0.090
OSS	1.188	0.304	0.240	3.713
NAB	20,023	23,566.53	179	113,963
ALS	0.645	0.907	0	9.900
Commercial MFI	0.401	0.491	0	1
Assets	5,287,199	7,009,064	10,381.46	4.12e+07
Mature MFI	0.7840	0.412	0	1
Rule of law	-0.748	0.128	-0.951	-0.470
Real interest rate	-.66	3.86	-6.82	4.16
Business freedom	58.663	2.893	53.6	62.4

Financial Performance

Table 5.2 above shows the summary statistics of the variables included in this part of the study. The summary statistics show that the mean ROA is 0.014, which suggests that the average ROA of MFIs that are included in this part of the study is 1.4% whereas at least one of the MFIs has made a 9% profit as the maximum value of ROA is 0.090. The results also show that at least one of the MFIs had a loss of 24% as the minimum value of ROA is -0.23. The mean value of OSS is 1.18. This indicates that the average number of MFIs included in this study are operationally self-sufficient. The results also show that at least one of the MFIs could not manage to cover their cost as the minimum value of OSS is 0.24. This also means one of the MFIs has only managed to cover 24% of their operational cost whereas the maximum value of 3.71 suggests that at least one of the MFIs is highly self-sufficient as the institution can cover their operation cost 3.71 times using their financial revenue.

Outreach

The mean value of NAB is 20,023. It indicates that the MFIs in Nepal had 20,023 borrowers on average. The minimum value of NAB is 179 which shows that one of the MFI in Nepal had only 179 borrowers at some point whereas the maximum value is 113,963, which shows that at least one of the MFI in Nepal had 113,963 borrowers at some point. The average value of ALS is 0.64, which means that the ALS that borrowers have obtained is smaller than the GNI of Nepal. In other words, the MFIs in Nepal are providing smaller loans compare to the GNI of Nepal. However, the maximum value of 9.90 shows that at least one of the MFIs in Nepal has provided loans almost 10 times larger than the GNI of the country. The data shows that the average loan balance per borrowers of Chandeshwori MFI in 2008 was $3960.36 and the GNI of Nepal in 2008 was approximately $400. The minimum value is 0 which means at least one MFI in Nepal did not provide a loan at some point.

Independent and Control Variables

The average value of commercial MFI is 0.40, which suggests that 40% of MFIs included in this study are commercial MFIs and the remaining 60% are non-commercial MFIs. It is a dummy variable. Therefore, the minimum and maximum values are 0 and 1 respectively. Similarly, mature MFI is also a dummy variable and the mean value is 0.78. This indicates that 78% of MFIs included in this study are mature or have been running for 8 years or more. The mean value of assets is 5,287,199, which indicates that the average MFIs in Nepal have assets of $5,287,199. The minimum is value is 10,381.46 shows that one of the MFIs only had $10381.46 worth of assets at some point and the maximum value is 41,200,000 which means at least one of the MFI in Nepal had $41,200,000 worth of assets at some point.

Finally, the descriptive results also reveal that the mean value of rule of law is -0.748. The minimum value is -0.95 and the maximum is -0.47. This suggests that the rule of law is not effective in Nepal as the maximum value is negative. The average interest rate is -0.66% whereas the minimum and maximum values are -6.82% and -4.16%, respectively. Finally, the above summary statistics show that the average business freedom value is 58.66, whereas the minimum is 53.6 and the maximum is 62.4. These values of business freedom suggest that it is not very difficult nor very easy to start business in Nepal.

5.4.1.6 Correlation Coefficient

Table 5. 3: Correlation between all the dependent and independent variables

	ROA	OSS	Log NAB	ALS	Commercial MFI	Assets (Log)	Mature MFI	Rule of law	Real interest rate	Business freedom
ROA	1									
OSS	0.6756	1								
Log NAB	0.00	-0.0545	1							
ALS	0.0493	0.0081	-0.3714	1						
Commercial MFI	-0.1533	-0.1537	0.5824	-0.1978	1					
Assets (Log)	0.0379	0.0028	0.8354	0.0825	0.5072	1				
Mature MFI	-0.2402	-0.1717	-0.0361	0.1473	-0.3033	0.1208	1			
Rule of law	-0.0029	0.0616	-0.1864	0.1543	-0.0164	-0.1359	-0.0399	1		
Real interest rate	0.078	0.0404	-0.2356	0.1639	0.066	-0.2169	-0.13	0.7068	1	
Business freedom	-0.0481	0.0737	0.113	0.0215	-0.1047	0.1762	0.1406	0.3801	-0.2814	1

Table 5.3 shows the degree of correlation and the direction of the relationship between variables that are included in this study. Since the ROA, OSS, NAB, and ALS variables are dependent variables, the relationship between these variables has not been discussed here as it is not the objective of this study. However, the degree of association between dependent and independent variables has been discussed below as it may provide base information about the relationship between the independent variables and dependent variables. The association between independent variables has also been discussed below as it helps us to determine whether there is a multicollinearity issue. If the independent variables are highly correlated, then there may be a multicollinearity issue.

The degree of association has been classified as suggested by Evans (1996) into the following ranges: 0.00–0.19 is 'very weak', 0.20–0.39 is 'weak', 0.40–0.59 is 'moderate', 0.60–0.79 is 'strong', and 0.80–1.0 is 'very strong'. Commercial MFI status, which is the main variable of interest, has a negative and very weak relationship with ROA. Similarly, it has a negative and very weak relationship with OSS too. However, it has a positive and moderate relationship with the NAB but again has a negative and very weak relationship with ALS.

The assets variable has a positive but very week relationship with ROA, OSS and ALS. However, the assets variable has a positive and very strong relationship with NAB. Furthermore, the mature MFI dummy variable has a negative and weak association with ROA, whereas it has negative and very weak association with OSS, and NAB, but has a positive and weak relationship with ALS.

The rule of law has a negative and very weak association with ROA and NAB but has a positive and very week association with OSS and ALS. Furthermore, the correlation table shows interest rate has a very weak and positive relationship with ROA, OSS, and ALS, but shows a negative and weak relationship with NAB. Similarly, business freedom has a very weak but positive relationship with OSS, NAB, and ALS but has a negative and very weak association with ROA.

Finally, the independent variables are not highly correlated with each other apart from interest rate and rule of law. However, we have also tested the variance inflation factor (VIF) to check the multicollinearity issue and the results show that no multicollinearity issue exist as the VIF of individual variables are not greater than 10 and mean VIF is not higher than 4. The result of VIF can be seen on the table 5.4 below.

Table 5. 4: VIF

Variable	VIF
Rule of law	7.67
Real interest rate	7.07
Business freedom	4.36
Commercial MFI	1.68
log assets	1.67
Mature MFI	1.23
Mean VIF	**3.95**

5.4.1.7 Empirical Results and Discussion

Financial Performance

This section provides the estimation results obtained using GLM and a discussion of the relationship between the commercialisation of MFIs and their financial performance in Nepal.

Table 5. 5: Relationship between financial performance of MFIs and commercialisation: GLM estimation

VARIABLES	ROA	OSS
Commercial MFI	-0.037***	-0.254***
	(0.006)	(0.052)
Assets (Log)	0.009***	0.060***
	(0.003)	(0.018)
Mature MFI	-0.035***	-0.240***
	(0.006)	(0.040)
Rule of law	-0.116	-0.611
	(0.124)	(0.830)
Real interest rate	0.001	0.019
	(0.004)	(0.021)
Business freedom	0.000	0.113
	(0.008)	(0.022)
Year dummy	Yes	Yes
Constant	-1.99	-0.532
	(0.259)	(1.829)
Observations	161	180

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The table 5.5 shows that the main variable 'commercial MFI' has a significant negative impact on ROA. The result shows that the commercial MFIs have 3.7% less ROA than non-commercial MFIs in Nepal. This result is similar to the findings of Barry and Tacneng (2014). They also found that NGOs are more profitable than private MFIs in Sub-Saharan Africa. They stated that this may be because of the orientation of NGOs. NGOs are relatively specialised in providing lending services to microenterprises and poor households compared with their counterparts who tend to serve a variety of clients and offer more diverse financial services. In addition, commercial MFIs may have lower information quality about poorer households compared with NGOs. It may also be easier for poorer borrowers to obtain loans with smaller amounts from NGOs. In developing countries, poor information infrastructure may lead to credit rationing, especially among commercial MFIs. Moreover, NGOs may have the compensatory benefit of reducing the adverse selection of customers as they are more informed and are able to tap local information networks more easily and efficiently (Hansmann, 1996a). NGOs, which often rely on subsidies, may also benefit from the positive role of subsidisation on their productivity and efficiency (Hudon & Traca, 2011). Furthermore, Roberts (2013) showed that whilst commercial MFIs tend to charge higher interest rates, this may not translate to higher profitability. This is because they rely on specialised staff to make loans, which drives up their operating costs (Gutierrez-Nieto et al., 2007). It may also be that due to the higher interest rate charged by commercial MFIs, the borrowers are not borrowing loans from commercial MFIs. As a result, there is less profit. However, this result is not consistent with the findings of Singh (2012), Mersland and Strom (2009) and Leite et al. (2019) as they found no significant relationship between commercial MFIs and ROA.

The results also show that commercial MFI status has a significant negative relationship with OSS. The result shows that the commercial MFIs have 25.4% less operationally self-sufficient than non-commercial MFIs in Nepal. This is obvious from the relationship between commercial MFI status and ROA. If MFIs are not profitable, they are less likely to be self-sufficient. However, this result is not consistent with the findings of Tchakoute-Tchuigoua (2010), whose study found that private MFIs are more operationally self-sufficient than NGOs, whereas Lensink et al. (2018), Mersland and Strom (2009), and Cull et al. (2007) found no significant relationship between commercial MFIs and OSS.

The results show that assets variable has a significant and positive association with both ROA and OSS. The results show that one percent increase in assets of MFIs increases their ROA and OSS by 0.9% and 6% respectively. This indicates that larger MFIs are earning a significantly

higher profit and are also operationally self-sufficient. This could be due to the larger MFIs are taking advantage of economy of scale as stated above in section 4.7.5.3 or it could be because larger MFIs are providing large loans to a small number of borrowers. This result is similar to the findings of Mersland and Strom (2009), Lensink et al. (2018), and Golesorkhi et al. (2019).

Furthermore, mature MFI has a significant and negative relationship with ROA and OSS. The results show that mature MFIs are making 3.5% less profit and are 24% less operationally self-sufficient than young MFIs in Nepal. An explanation for this might be that young MFIs in Nepal are reaping the benefits from recent technologies or innovations whereas mature MFIs may have stuck to older and less efficient processes that make them comparatively less efficient. For instance, younger MFIs may more easily adopt new management information systems and more effectively develop mobile banking platforms (Hermes & Hudon, 2018). In addition, it could also be because younger MFIs are coming into market with commercial intention and expand rapidly in Nepal (Shah, 2005) whereas mature MFIs are not just focusing on profitability but also on social mission. Likewise, Wu et al. (2007) and Beck et al. (2005) found a negative relationship between age and ROA in the banking literature. They stated that this is because newly established banks are more flexible in their operational strategy and appear to enjoy more autonomy in their decision-making as well as being more willing to innovate, whereas older banks might have been relatively entrenched in their business methods, and thus relatively incapable of pursuing new profit opportunities. This result is similar to that of D'Espallier et al. (2017), who also found a significant negative relationship between MFIs' age and ROA and OSS. Similarly, Lensink et al. (2018) found a significant negative association between the age of MFIs and ROA. In contrast, Golesorkhi et al. (2019) found that MFIs' age has a significant positive impact on both ROA and OSS, whereas Mersland and Strom (2009) found a significant negative relationship between MFIs' age and OSS but no significant association with ROA.

The rule of law and interest rate are not significantly associated with either ROA or OSS, which suggests that these indicators are not significantly related to the financial performance of MFIs in Nepal. Likewise, the year dummy variables are not significantly related to ROA and OSS.

Outreach

This section provides the estimation results obtained using GLM and discusses the relationship between the commercialisation of MFIs and their outreach in Nepal.

Table 5. 6: Relationship between outreach of MFIs and commercialisation: GLM estimation

VARIABLES	Log NAB	ALS
Commercial MFI	0.655***	-0.782***
	(0.170)	(0.291)
Assets (Log)	0.672***	0.216**
	(0.057)	(0.104)
Mature MFI	-0.195*	0.072
	(0.103)	(0.104)
Rule of law	-0.678	1.404
	(1.878)	(1.418)
Real interest rate	-0.021	0.027
	(0.050)	(0.045)
Business freedom	0.047	-0.078
	(0.059)	(0.071)
Year dummy	Yes	Yes
Constant	-4.215	3.556
	(4.742)	(5.478)
Observations	183	182

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5.6 above shows the relationship between the outreach of MFIs and all the independent variables. The GLM estimation shows that commercial MFIs variable has a positive and significant relationship with the NAB. The result also shows that commercial MFIs have 65.5% higher number of borrowers compared to non-commercial MFIs in Nepal. However, the results also show that commercial MFIs has a significant negative association with ALS. This suggests that commercial MFIs are providing significantly smaller loans to borrowers than non-commercial MFIs are. The result shows that commercial MFIs are providing 78.2% smaller loan than non-commercial MFIs in Nepal. This result is similar to the findings of Tchakoute-Tchuigoua (2010), who also found that private MFIs are providing small loans, although it was also found that NGOs are providing services to a greater number of borrowers compared to private MFIs. This result is not consistent with Mersland and Strom (2009), as they found that shareholder-owned MFIs have no significant relationship with either the NAB and ALS.

Furthermore, the assets variable also has a significant and positive relationship with both the NAB and the ALS. The results show that a percent increase in assets of MFIs increases the NAB and ALS by 0.67% and 0.21% respectively. This is similar to the findings of Mersland and Strom (2009) and Lensink et al. (2018), as they also found a significant and positive impact of the size of MFIs on both NAB and ALS. In contrast, Bibi et al (2018) found that larger MFIs are serving a smaller number of borrowers but providing larger loans. They stated that this could be because

an increase in assets helps to obtain more resources and hire more employees, which in turn makes work processes more efficient which allows MFIs to serve more clients but serve fewer poor households. They suggested that when MFIs become larger, they shift their objective towards commercialisation. Furthermore, mature MFI has no significant impact on both NAB and ALS. This is similar to the results of Lensink et al. (2018), who found no significant relationship with both the number of credit borrowers and average loan size. However, Bibi et al. (2018) found a significant positive relationship with the breadth of outreach but not with the depth of outreach.

Moreover, the results show that an increase in rule of law, interest rate and business freedom have no significant impact on both NAB and ALS. Finally, the year dummy variables also have no significant relationship with both NAB and ALS.

5.4.1.8 Addressing Potential Endogeneity

The study has already estimated the results using the GLM method above in tables 5.5 and 5.6. However, certain variables were not included in our model that may have affected the financial performance and outreach of MFIs. For instance, the management intention and quality of MFIs may affect the commercial orientation and size of MFIs, but we cannot control for the effects of these variables as the data used for this study is secondary data and all those unobserved variables are in residual. Therefore, commercial orientation and assets variables can be potentially endogenous in our estimation as these variables may be correlated with residual and if this is the case, the results reported above using GLM estimation would be inefficient and inconsistent (Greene, 2012).

This issue has also been stated above in equation (1) and the two-step system GMM has been applied to address it. However, this study contains a small dataset which does not allow the researcher to apply the GMM method as the GMM estimation technique is based on a lag variable and if we were to create a lag variable then a large amount of data would be lost. Therefore, to reduce the biases of estimation, we have used the propensity score matching (PSM) method. PSM is considered an alternative experimental method in the observational study. It is also a commonly used method for impact analysis (Heckman et al., 1998) where a subject (i.e. MFI) receives treatment (i.e. commercial MFI status) and assets (size) and mature MFIs are considered as covariates.

However, before applying PSM, two of the data assumptions must be met i.e. (i) All the relevant observed characteristics should be controlled. In other words, all the variables that are suspected to influence potential outcome should be included. (ii) It is also important for data for both treatment and comparison units to be drawn from the same sources so that the measures used for control and outcome variables are identical or similarly constructed (Heinrich et al., 2010).

Firstly, the choice of control variables should be guided by theory or empirical evidence and should include as many control variables as possible but including unnecessary variables may also increase the variance of estimation and thus reduce its reliability, especially in small samples (Shahriar et al., 2018). We have used intuition and trial-and-error method while selecting the control variables. We have tested assets, maturity of MFIs, ROA, OSS, NAB, and ALS. The results show that if we used all the variables, the balancing property would not be satisfied, meaning the treatment and comparison groups are unlikely to be sufficiently similar. As a result, we have used MFI characteristics indicators (i.e., assets and mature MFIs) as control variables, as shown in equation (2), as these variables satisfied the balancing property condition.

Secondly, the data is self-reported; thus, the MFIs may not provide the same information. However, the data is managed, and the final data is available with the same information for treated and control groups. Third, the treated and control groups data used in this study is taken from the same country. This shows that the information for the treated variable and non-treated variables are likely to be same as the data arrives from the same source.

Although the conditions are satisfied to use PSM, the method does not completely remove the bias estimation as it cannot control for unobservable characteristics that affect the performance of MFIs, but Heckman et al. (1998, 1998b) stated that the bias coming from unobservable characteristics is small. Diaz and Handa (2006) evaluated the reliability of PSM relative to randomised experiment using the Mexican conditional transfer program PROGRESSA. They find that in cases where the outcomes are measured using comparable surveys, the bias arising from PSM is negligible. To summarise, even though PSM cannot eliminate the bias arising from unobservable characteristics, previous research indicates that this bias is likely to be small.
One of the advantages of the PSM is its semi-parametric nature, which imposes fewer constraints on the functional form of the treatment model (i.e., it does not have to be linear) as well as fewer assumptions about the distribution of the error term relative to the regression-based models. The main estimator capturing the Average Treatment Effect on the Treated (ATT) can be simply

written as the difference in the average outcomes for the treated and weighted average outcomes for the comparison group.

The PSM method has successfully been used in many different studies and has become a popular approach for estimating the causal effect. For example, Jalan and Ravallion (2003b) studied the impact of the workfare programme in Argentina. Brand and Halaby (2006) analysed the effect of elite college attendance on career outcomes using the PSM method to control the endogeneity issue. Similarly, Chen et al. (2009) studied the effects of the World Bank-financed on Southwest China Poverty Reduction. Likewise, Shahriar et al. (2016) applied the PSM technique to address the endogeneity problem while examining whether the profit orientation of MFIs affects their decisions to extend loans to business start-ups or not.

Firstly, the PSM estimates propensity score based on observable characteristics (control variables) and then two subjects with similar propensity scores are matched where one has received the treatment and the other has not. The study has used the nearest neighbour matching method whereby a commercial MFI and non-commercial MFI with the closest propensity scores are matched. We have also applied a kernel matching (KM) method for robustness. The following table 5.7 and 5.8 shows the propensity score matching method results.

Table 5. 7: Financial performance of MFIs: propensity score matching estimation

| Matching Method | ROA | | OSS | |
	Nearest Neighbor Matching (NNM)	Kernel Matching (KM)	Nearest Neighbor Matching (NNM)	Kernel Matching (KM)
ATT	-0.035	-0.024	-0.153	-0.099
Std. Error	0.01	0.007	0.078	0.036
t-statistics	*-4.678*	*-3.000*	*-1.946*	*-2.736*
No.of treated	105	105	105	105
No.of controlled	30	157	33	157

ATT: Average treatment effect on the treated

Table 5.7 above shows the results of the PSM estimation of financial performance indicators (i.e., ROA and OSS). The results reveal that commercial MFIs are significantly negative impact on the ROA as the t-statistic for ROA is significant. The rule of thumb is t-statistics smaller than 2 (1.96 in a large sample) indicate that an estimate is not significantly different from zero at the

conventional five per cent level. The average treatment effect on the treated (ATT) value of ROA is –0.035 (3.5%) and –0.024 (2.4%). This suggests that commercial MFIs earn 2.4–3.5% less profit than non-commercial MFIs. Similarly, OSS t-statistics are –1.946 and –2.736. It shows that OSS is not statistically significant using NNM, but is significant using KM. However, the OSS t-value (-1.946) using NNM is very near to 1.96. Therefore, it has been considered as significant and the ATT value of -0.09 and -0.15 indicate that commercial MFIs are less operationally self-sufficient by 9–15% than non-commercial MFIs in Nepal.

Table 5. 8: Outreach of MFIs: propensity matching estimation

Matching Method	Log NAB		ALS	
	Nearest Neighbor Matching	Kernel Matching	Nearest Neighbor Matching	Kernel Matching
ATT	0.781	1.006	-0.402	-0.834
Std. Error	0.574	0.313	0.592	0.851
t-statistics	1.361	*3.211*	-0.678	-0.981
No.of treated	105	105	105	105
No.of controlled	33	157	32	157

ATT: Average treatment effect on the treated

The results in Table 5.8 above present the PSM estimation of the outreach of MFIs. For the number of borrowers, t-statistics values are 1.361 and are not statistically significant. However, 3.211 using KM is significant which suggests that commercial MFIs serve a higher number of borrowers than non-commercial MFIs. Furthermore, the results show that the t-statistics value of ALS using NNM is –0.678 and using KM is –0.981, which is not significant.

5.4.1.9 Summary of the Quantitative Findings

Table 5. 9: Summary

Financial performance	Expected results	Actual results
Return on assets (ROA)	+	**Negative**
Operational self-sufficiency (OSS)	+	**Negative**
Outreach		
Breadth of outreach – *number of borrowers (NAB)*	+	**Positive**
Depth of outreach – *average loan size*	-	**No significant impact**

Table 5.9 above shows a summary of the quantitative results of this study. The overall results of the quantitative analysis indicate that commercial MFIs in Nepal are not considerably focused on financial performance because their average ROA is less than that of non-commercial MFIs, irrespective of the estimation method used. Similarly, commercial MFIs are less operationally self-sufficient than non-commercial MFIs in Nepal. This indicates that non-commercial MFIs are performing better financially than commercial MFIs in Nepal

Both GLM and PSM estimations show that commercial MFIs are serving a larger number of borrowers compared to non-commercial MFIs. Finally, the GLM estimation shows that commercial MFIs are providing smaller loans compared to non-commercial MFIs in Nepal. However, once the selection bias issue has been removed using the PSM technique, the result shows that commercial MFIs and non-commercial MFIs are not significantly different in terms of the average loan size.

The most notable result is that commercial MFIs are less profitable and less self-sufficient compared to non-commercial MFIs in Nepal. This is an unexpected outcome because commercial MFIs are expected to have higher profitability and sustainability, but the results show the opposite. This may be because non-commercial MFIs utilise subsidisation (Barry & Tacneng, 2014). It may also be because poor households borrow loans from non-commercial MFIs as commercial MFIs charge high interest rates, or it may be due to information asymmetry (Barry & Tacneng, 2014; Roberts, 2013).

5.4.2 Qualitative Phase

As stated above in section 5.3, this study uses both quantitative and qualitative methods to investigate how the commercialisation of MFIs affects their financial performance and outreach. The quantitative method helped to investigate the impact of the commercialisation of MFIs on their financial performance and outreach in Nepal, as shown in the above section (see section 5.4), and the result after addressing the selection bias/endogeneity issue shows that the commercialisation of MFIs in Nepal has a negative impact on profitability and sustainability, which means that commercial MFIs are making significantly less profit than non-commercial MFIs (see Table 5.5 and 5.7). The results also show that commercial MFIs are serving significantly large number of borrowers compared to non-commercial MFIs in Nepal (see Table 5.8). However, the data used in the quantitative study is from 2002 to 2013, and so it does not include data from recent years. This means the quantitative study above does not represent the impact of the commercialisation of MFIs in Nepal in recent years. Thus, it is important to further investigate the impact of the commercialisation of MFIs in recent years and to assess how it is affecting their financial performance and outreach.

Therefore, the objective of this section is to further investigate the impact of commercialisation of MFIs on their performance in Nepal and also discover how the commercialisation of MFIs' affects their financial performance and outreach. In order to achieve the objective, the researcher has adopted a qualitative research method. The qualitative research method has been chosen because the researcher is seeking the explanation of how the commercialisation of MFIs affects their financial performance and outreach. A qualitative method has been applied also because it allows us to answer 'how' questions and produces the findings from the real-world setting where the phenomenon unfolds. This method also allows us to understand the phenomena through the perspective of industry experts and experienced figures who are directly involved in the subject matter.

In the next few sections, the researcher explains all the processes involved in this qualitative study such as the ethics approval process, sampling, the data collection process, transcription, and the data analysis process.

5.4.2.1 Sampling

Before collecting the data, the next step after the ethics approval is sampling. Sampling is the process of selecting certain people, population groups, or organisations for study purposes as it

is difficult or sometimes impossible to collect data from the whole population (Flick, 2014). The sampling method is mainly divided into 'probability/random' and 'non-probability/non-random' sampling techniques (Kumar, 2014; Acharya et al., 2013). Probability sampling techniques are used as part of the quantitative method and allow the researcher to generalise the findings, whereas non-probability sampling methods are applied as part of the qualitative research method. Probability sampling includes random sampling, cluster sampling, and systematic sampling. Non-probability sampling includes convenience sampling, purposive sampling, snowball sampling, and quota sampling (Kumar, 2014; Acharya et al., 2013). Choosing the sampling method depends on the advantages, limitations, and types of the study.

The researcher has employed the non-probability purposive sampling method due to methodological guidance. In the explanatory mixed method, the sampling must be purposive in the qualitative phase as the same MFIs must be included for interview purposes that were involved in the quantitative study to investigate further. The sample size in this quantitative study is not large (41 MFIs). Therefore, the researcher has decided to include all the MFIs. However, the researcher could not contact all 41 MFIs because some of the MFIs have merged and become one MFI. Moreover, some of the MFIs' contact details were not available as they did not have an online presence. To compound this problem, some of them had changed their contact information without public updating it. As a result, the researcher has only found the contact information (email or phone number) of 28 MFIs. The researcher has also requested those who agreed to participate for other potential participants that they might know, with one of them providing another contact at a relevant institution. This means that we have also used snowball sampling in this study. Finally, the researcher has managed to collect qualitative data from 9 participants.

Among those 9 participants, 7 are from MFIs that have transformed from non-commercial to commercial. Of these 7 MFIs, one of them is partially owned by the government. The remaining 2 of the 9 participants are from saving and credit cooperatives. Saving and credit cooperatives are not transforming into commercial MFIs and are not allowed to do so as per the Nepalese government policy. The researcher has collected the data from saving and credit cooperatives to understand the current microfinance situation of Nepal and to obtain views on the commercialisation of MFIs, as information from multiple sources improves the quality of the data (Flick, 2014; Denzin, 1989b). In addition, it allows us to make a comparison as saving and credit cooperatives are considered to be non-commercial financial institutions. Table 5.10 below shows the detail information of the samples included in this part of the study. It shows the types

of institutions and the transfer date of commercial MFIs which allows the reader to understand the background of the participants. All the background information has been collected from the individual institution website. The next section explains how the data has been collected from the participants.

Table 5. 10: MFIs included in the qualitative study

MFIs	Types	Transferred date
MFI 1	Saving and credit cooperatives	N/A
MFI 2	Commercial MFI – partly government-owned	First established in 1992 as NGO and transformed into commercial MFI in 2014 but the majority of shares are still owned by government financial institution.
MFI 3	Commercial MFI	First established as NGO in 1993 and started microfinance services in 2003. Transformed into commercial MFI in 2018.
MFI 4	Commercial MFI	First established in 1993 as NGO and transformed into commercial MFI in 2007.
MFI 5	Commercial MFI	First established in 1995 and started microfinance services in 2000. Finally transformed into commercial MFI in 2017.
MFI 6	Commercial MFI	First established in 1986 as NGO. It started to provide microfinance operations in 1993 and transformed into commercial MFI in 1998.
MFI 7	Commercial MFI	First established as NGO in 1993 and started microfinance services in 2003. Transformed into commercial MFI in 2019.
MFI 8	Commercial MFI	First established as NGO in 1991 and started a microfinance programme in 1993. Finally transformed into commercial MFI in 2001.
MFI 9	Saving and credit cooperatives	N/A

5.4.2.2 Data Collection Procedures/Interview Process

There are two major approaches to collecting information or data about situations, persons, problems, or phenomena: primary and secondary data. Primary data can be collected through observation, interviews, and questionnaire surveys, whereas secondary data can be collected through archival records, documents, and physical artifacts (Kumar, 2014). To answer the research question and to achieve the objective of this chapter, primary data is suitable. As a result,

the researcher has decided to collect primary data using a semi-structured interview method and questionnaire survey. The rationale of choosing these two methods (interview and questionnaire) is to improve the sample size in the study. The questions were semi-structured, containing both closed-ended and open-ended questions. Closed-ended questions allow the interviewer to find out the background of the participants and open-ended questions allow the interviewees to openly express their views and honestly report their or institution's experiences. This approach may also lead the discussion into areas that may not have been previously considered but are potentially significant for understanding and answering the research questions and achieving the research objectives.

As stated above, 41 MFIs of Nepal have been included in a quantitative study, but the researcher could not find the contact information of all 41 MFIs; indeed, the information of only 28 MFIs was ultimately obtained. Once this process of collecting contact information was completed, the researcher sent out invites for interviews, including a brief introduction to the researcher and the research itself. However, the researcher received only two replies. This could be because this method of correspondence is not a common way to communicate in Nepal. Therefore, the researcher started calling all the MFIs but still could not reach most of them due to either their contact number being changed or because they did not pick up the phone call. Some of them were out of office due to the national lockdown caused by the COVID-19 pandemic. Some refused to participate in the study because they were suffering from COVID-19 or were too busy. Finally, 9 of them agreed to participate (7 agreed to an interview and 2 agreed to fill out questionnaires). After they agreed, the researcher sent them the information sheet and consent form to be signed.

Once the preliminary process was completed and the date and time were arranged, the researcher made a video call to each of the participants on the scheduled days. Before starting the formal interview, the researcher and participant engaged in an informal conversation where they introduced themselves and briefly discussed the research as well as clarifying that anonymity would be ensured. The researcher did this in order to make the participants feel comfortable before answering the research questions. Once the informal talk was finished, the researcher asked for consent to record the interview, to which all the participants agreed. The interviews have been recorded on two recording devices in case one recording malfunctioned and a back-up was needed. They have been recorded so that the researcher could transcribe the conversations. The researcher began formal interviews with general information or background of participants that included the name of the interviewees, their position in their institution, the

name of their institution, and their institution's legal status. This allowed the researcher to compare and contrast the answers of participants while analysing the data. Once the background information of the participants was clarified, the researcher slowly entered into the main research questions. The interviews took approximately 35 minutes on average, although one lasted as long as 1 hour.

The interviews took place over Zoom. Out of 9 participants, 6 (67%) were from fully commercial MFIs, 1 (11%) was from a partly government-owned MFI, and 2 (22%) were from saving and credit cooperatives. The data was collected from August–November 2020.

5.4.2.3 Transcription of Data

The questionnaire and interviews were completed in the Nepali language as this enabled the interviewees to express their opinions openly. Once the data collection process was completed, the researcher translated and transcribed the interviews into English and typed them into Microsoft Word, which was helpful for analysis purposes. Transcribing the interviews manually enabled the researcher to familiarise himself with the data and also provided an opportunity to understand what was being said, which was helpful for analysis (Flick, 2007).

5.4.2.4 Data Analysis Process

Qualitative data analysis is defined as the process of systematically searching for and arranging qualitative data (interview transcripts, observations, or other qualitative data) in order to understand the phenomena or to make sense of the huge amount of data by reducing the volume of raw information or identifying significant patterns and finally drawing a meaningful conclusion from data with a logical chain of evidence (Patton, 2015). There are various methods of analysing qualitative data with some of the most common being content analysis, grounded theory, narrative analysis, discourse analysis, and thematic analysis (Matthews & Ross, 2010; Braun & Clarke, 2013). Choosing the best method to analyse the qualitative data is based on the type of data available, the research objective, and the questions to be answered (Robson, 1993). Therefore, based on the data, objective, and research question, the researcher has adopted a thematic analysis method to analyse the data collected for this study. The thematic analysis method is also appropriate for this study because it is a flexible method that allows the researcher to focus on the data in different ways. The researcher has applied the thematic analysis method using Nvivo software to analyse the qualitative data collected from the interviews and the questionnaire surveys.

The thematic analysis method helps to identify the patterns, ideas, and concepts of the qualitative data and allows the researcher to answer the research questions. According to Braun and Clarke (2006), thematic analysis is a method for systematically identifying, organising, and offering insight into patterns of meaning (themes) across a dataset. This method also teaches the mechanics of coding and analysing qualitative data systematically that can be linked to the researcher's objective and research questions. Thematic analysis can be conducted using an inductive, deductive, or hybrid approach (Braun & Clarke, 2006; Fereday & Muir-Cochrane, 2006). This study has applied an inductive approach because the researcher does not know the themes of the research in advance, instead developing them later in the process of data analysis.

In an inductive thematic analysis, various steps have been suggested by different researchers (Braun & Clarke, 2006; Bazeley, 2013; Creswell & Poth, 2018). Ultimately, the researcher has followed the steps suggested by Braun and Clarke (2006) as they provide clear guidelines on how to conduct thematic analysis and also because they are commonly used and well recommended steps. The following table 5.11 shows the steps suggested by Braun and Clarke (2006).

Table 5. 11: Steps of thematic analysis

Step 1: Data familiarisation	Transcribing data, reading and re-reading the data, noting down initial ideas
Step 2: Generating initial codes	Coding interesting features of the data in a systemic fashion across the entire dataset
Step 3: Searching for themes	Collating codes into potential themes
Step 4: Reviewing themes	Checking if the themes work in relation to the coded extracts (Level 1) and the entire dataset.
Step 5: Defining and naming themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
Step 6: Producing the report	The final opportunity for analysis and a write-up of the report relating back to the research question and literature.

(Source: Braun & Clarke, 2006)

Once the data collection process was completed, the data was translated and transcribed into Microsoft Word. After the translation and transcription process were completed, the researcher read through the transcription to find out if the answers that the participants provided matched

the transcriptions. Secondly, the data was imported into software called Nvivo for analysis purposes. Nvivo allows researchers to manage, categorise, analyse, and visualise qualitative data effectively and efficiently (Bazeley & Jackson, 2013). After importing the data into Nvivo, the data was categorised based on the interview questions. Once the data was sorted based on the interview questions, the researcher conducted the coding process. The researcher applied the open coding method and generated the codes from the raw data. Not all the data that has been collected was coded, as some of it was not relevant to the study. Creswell (2014) has stated that qualitative data is so dense and rich that not all of the information can be used in a qualitative study. Therefore, only information relevant to the subject of the research was coded. After completing the coding process, the researcher started to merge similar codes or codes that provide similar meaning in step three.

In step four, the researcher checked if the themes that had been developed provided the overall meaning of initial codes or first-order themes. In step five, the researcher refined the themes and provided the final name for each theme in order to accurately represent the data and also to answer the research question. The researcher has developed 3 themes that answer the research questions. In addition, the researcher has reported 2 new themes that have emerged while conducting analysis. Finally, the researcher has written up the report relating back to the research question. All the codes and themes are shown in Figure 5.6 below.

5.4.2.5 Validity and Reliability

Reliability and validity are concerned with the evaluation of the quality of research and form the criteria for judging the quality of research designs. According to Yin (2009), reliability and validity are two factors that qualitative researchers should be concerned about while designing a study, analysing results, and judging the quality of a study. In general, reliability focuses on consistency of measures and validity focuses on the accuracy of measures (Golafshani, 2003).

Moreover, some qualitative researchers have argued that the term validity does not apply to qualitative research but, at the same time, they have acknowledged the need for some kind of qualifying check or measure for their research. For example, Creswell and Miller (2000) suggest that validity is affected by the researcher's perception of validity in the study and his/her choice of paradigm assumption. As a result, many researchers have developed their own concepts of validity and have often generated or adopted what they consider to be more appropriate terms,

such as quality, rigour, and trustworthiness (Davies & Dodd, 2002; Stenbacka, 2001). Although the researchers have defined reliability and validity in various terms in qualitative studies, the question remains of 'How to maximise the validity and as a result the reliability or trustworthiness of qualitative study' (Stenbacka, 2001). Consequently, Patton (2002) and Creswell and Clark (2018) suggested 'triangulation' as a strategy for improving the validity and reliability of research or the evaluation of findings. Flick (2014) also described triangulation as the optimal strategy for promoting the quality of a qualitative study. Triangulation of data in qualitative research mainly consists of collecting data using two or more methods, followed by analysing, comparing, and combining the results.

The researcher has applied various methods to maximise validity and reliability. The researcher has achieved triangulation by collecting the data from 3 different types of microfinance service providers i.e., a government-owned MFI, commercial MFIs, and saving and credit cooperatives to improve the validity and reliability. Furthermore, the researcher has conducted the interviews in the participants' preferred language in order to allow them to express themselves openly and easily, which helps to improve the quality of data and eventually improve the reliability and validity of the research (Twinn, 1997). In addition, the researcher has collected the qualitative data from those institutions which have already been used in quantitative research above as a part of the sequential explanatory mixed method which also helps to improve the reliability and validity. Moreover, the researcher has clearly outlined all the qualitative data collection process and analysis steps here in this thesis for transferability, which allows a future researcher to model future research on similar qualitative research methods but in different settings. Also, the researcher allowed the interviewees to openly express their opinions in the semi-structured interviews in order to ensure authenticity (Yostrakul, 2018).

5.4.2.6 Qualitative Data Analysis and Findings

This section presents the qualitative results attained from the thematic analysis. This section has presented the *research question* at the beginning and the themes afterwards in order to answer the question and finally provide *evidence* to support the themes.

- ***What impact does the commercialisation of MFIs have on their financial performance and outreach in Nepal?***

- ***How does the commercialisation of MFIs affect their financial performance and outreach?***

The first-order themes have been created from raw data, then grouped into second-order themes, before being clustered into third-order themes, and, finally, being developed into general themes. The thematic analysis revealed five major themes: *(i) positive impact (ii) endogenous factors (iii) exogenous factors (iv) mission drift and (v) COVID-19 and lockdown*. Figure 5.6 shows how the themes have been developed. These themes have then been discussed in detail and supported by evidence below.

Figure 5. 6: Thematic analysis

First order theme   Second order theme   Third order theme   General theme

Profit is increasing (6)
Operational self-sufficiency is increasing (6)
Number of borrowers (NoB) is increasing (6)
Loan size is increasing (8)
→ Profit, OSS, NoB, loan size are increasing

Commercial MFIs are making larger profit (8)
Commercial MFIs are highly self-sufficient (4)
Commercial MFIs have higher number of borrowers (4)
Commercial MFIs are providing larger loans (6)
→ Higher profit, OSS, NoB, loan size

→ Positive impact

Purpose is to make profit (4)
Profit intention (6)
Focused on urban area (1)
Make money quickly (1)
→ Profit intention

Income generating activities (1)
Cost reduction (1)
Increase in number of borrowers (2)
Increase in profitability (4)
Increase in Reserve (3)
To be viable and sustainable (1)
Fewer larger loans is less expensive (1)
→ Increase in Profitability

→ Profit

Size of an institution (1)
Size of the institution (1)
Size of the institution (2)
→ Size of the MFI

Expansion of services (1)
Business growth (2)
Branch expansion (3)
Better coverage (2)
→ MFI's growth

→ Size

Increase in client's business (3)
Increase in income level of clients (1)
→ Clint's growth

Government increased the loan limit (1)
Loan size (1)
Loan ceiling (1)
→ Loan size

→ Endogenous factors

Improvement in services (2)
Target (1)
Team Leadership (1)
Extra initiation (1)
→ Leadership

Staff efficiency (1)
Become more active (1)
Timely (1)
Better customer service (1)
→ Staff efficiency

→ Management & Staff efficiency

Demand (3)
Availability of other option (2)
→ Competition

High Interest rate (4) → Interest rate

Aware about institution (1)
Financial literacy (2)
→ Financial awareness

Access to funds (1)
Funding from donors (2)
→ Access to fund

→ Exogenous factors

Trust (2) → Trust

Purchasing power & inflation (1)
Value of money (1)
→ Inflation

Age (1) → Age

Duplication (2)
Service reduction (1)
Mission drift (1)
→ Mission Drift

Profit has decreased due to Covid (3)
Operational Self-Sufficiency has decreased due to Covid (2)
Number of borrowers has decreased due to Covid (3)
→ Covid-19 & Lockdown

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Theme 1: Positive Impact

This theme addresses the first question of this chapter i.e. ***What impact does the commercialisation of MFIs have on their financial performance and outreach in Nepal in recent years?*** The findings show that the commercialisation of MFIs has had a positive impact on their financial performance and outreach in Nepal in recent years. The theme 'positive impact' suggests that the profitability, operational self-sufficiency, number of borrowers, and loan size of MFIs have been increasing due to commercialisation. This theme has been developed because the participants from commercial MFIs stated that their profitability, operational self-sufficiency, number of borrowers, and loan size have been increasing in the wake of commercialisation. However, larger loan size represents the negative impact in the context of microfinance (see section 4.7.5.5 for further explanation). Furthermore, the majority of participants also stated that the commercial MFIs have higher profitability, operational self-sufficiency, and number of borrowers, and that they provide larger loans than non-commercial MFIs in Nepal. Following is the evidence from the participants.

> *Obviously. We are making a profit.*   **(MFI 4, commercial MFI)**

> *It has been slightly increasing obviously.*   **(MFI 5, commercial MFI)**

> *Profitability has been increasing in the past years.*   **(MFI 8, commercial MFI)**

Similarly, ***MFI 3, MFI 6****, and **MFI 7**,* all of which have also become commercialised, mentioned that their profitability is increasing. Similarly, saving and credit cooperatives and the government-owned commercial MFI also stated that they are making a profit or that their profitability has been increasing.

> *We are making a profit continuously and currently managed to have our own building.*
>   **(MFI 1, saving and credit cooperative)**

> *Yes, we are in profit.*   **(MFI 9, saving and credit cooperative)**

> *The profitability percentage has been increasing every year.*
>   **(MFI 2, government-owned commercial MFI)**

This shows that the profitability of MFIs in Nepal is increasing irrespective of whether they are commercial or non-commercial MFIs. However, the participants also added that the commercial MFIs in Nepal have higher profitability compared to non-commercial MFIs, which suggest that

the commercialisation of MFIs has a positive relationship with profitability. Following are some of the quotes from the participants that show that commercial MFIs are making higher profits.

Commercial MFIs in Nepal tend to earn a higher profit than non-commercial MFIs.
(MFI 1, saving and credit cooperative)

Commercial microfinance institutions do make more profits than non-commercial.
(MFI 6, commercial MFI)

Commercial microfinance institutions in Nepal are not making less profit than non-commercial MFIs. Opposite to that, they are making more profit than non-commercial MFIs.
(MFI 8, commercial MFI)

Despite the majority of commercial MFIs, saving and credit cooperatives, and the government-owned commercial MFI stating that their profitability has been increasing, **MFI 5** and **MFI 7,** which are commercial MFIs that transformed from non-commercial MFIs recently in 2017 and 2019 respectively, stated that their institutions' profitability slightly decreased after the transformation but that they are not running at a loss. They stated that they did not have to pay corporation tax while they were non-commercial MFIs, whereas once they become commercial, they had to pay corporate tax and a 10% bonus to employees which led to a decrease in their profitability. The following quotes are from **MFI 5** and **MFI 7.**

In our context of profitability, it has slightly decreased. For example, when we were a FINGO, we were not allowed to distribute the bonus but now after becoming a company, the first thing we have to do is distribute the 10% bonus to employees and only then comes other provisions. Because of this, there is an impact on about 10 to 15% profit and loss. When we were an NGO, we did not have to pay tax for the same work that we are doing currently but now we have to pay 30% corporate tax. So, there is an impact on institution profitability.
(MFI 5, commercial MFI)

When we were FINGOs, we were service focused and whatever we earned used to stay within the institution. We did not distribute any profit. Now, after becoming profit-oriented, the Rastra Bank stated that we have to lend the loan on 14%, then it became 22% and later it became 18% and now it is 15%. The profit is not as good as when the institutions were FINGOs or compared to those microfinance institutions that were registered in the company at the early phase.
(MFI 7, commercial MFI)

This shows that the commercialisation of MFIs leads to a decrease in their profitability in the short term due to the increase in expenditure. However, it has a positive impact in the longer term as the majority of commercial MFIs that transformed a long time ago have stated that their profitability is increasing.

Secondly, the participants stated that their operational self-sufficiency level has been increasing due to commercialisation. This shows that transforming into commercial MFIs has led to an increase in operational self-sufficiency. The majority of commercial MFIs have stated that their operational self-sufficiency level is increasing. Following are the quotes from participants.

> *Our institution's self-sufficiency is increasing continuously.*
> **(MFI 3, commercial MFI)**

> *It has been increasing although some years there is fluctuation. It dropped for one or 2 years. Last year, it dropped but if you see the previous year's trend, it has been increasing.*
> **(MFI 4, commercial MFI)**

> *It has been increasing although some years there is fluctuation. It dropped for one or 2 years. Last year, it dropped but if you see the previous year's trend, it has been increasing.*
> **(MFI 5, commercial MFI)**

Similarly, **MFI 6** and **MFI 8** have also stated that their operational self-sufficiency level has been increasing, which indicates a positive impact. Likewise, the saving and credit cooperatives and the government-owned MFI also stated that their operational self-sufficiency level has been increasing.

> *Our organisation's self-sufficiency is increasing every year.*
> **(MFI 1, saving and credit cooperative)**

> *Yes, it has been increasing every year.* **(MFI 9, saving and credit cooperative)**

> *In Nepal, if you see, all the microfinance institutions have converted into commercial and due to this, the institutions' profitability, the financial position has become better, not worse but better. The profitability position has been increasing. Now what this will do is, it will maintain the institution sustainability. All the microfinance institutions are becoming self-sustainable.* **(MFI 2, government-owned commercial MFI)**

Although both saving and credit cooperatives stated that their self-sufficiency level has increased, the participants added that the commercial MFIs are highly self-sufficient in comparison. Following are the quotes.

> *Nepal's commercial microfinance institutions are significantly more self-sufficient than non-commercial microfinance institutions.* **(MFI 1, saving and credit cooperative)**

> *Previously, the non-commercial institutions were more self-sufficient but now it is less compared to commercial.* **(MFI 4, commercial MFI)**

> *Commercialisation is helping MFIs to be operationally self-sufficient.*
> **(MFI 6, commercial MFI)**

> *Commercial MFIs are more self-sufficient.* **(MFI 9, saving and credit cooperative)**

This shows that commercialisation has a positive impact on the operational self-sufficiency of MFIs in Nepal. Despite the majority of participants stating that commercial MFIs are more operationally self-sufficient and that self-sufficiency levels increase as a result of commercialisation, **MFI 7,** which recently transformed into a commercial MFI, mentioned that their institution's self-sufficiency level has decreased after becoming a commercial MFI. When asked for the reason for this, the participant stated that it is due to the increase in staff cost, investment in technology, and the increase in the cost of branch expansion. Following is the quote from the participant.

> *We transfer from FINGO. It has been operating as a company for only about 1.5 years. If you compare with FINGO, we operated as FINGO for 12 to 15 years. If you compare the FINGO and this institution now, the OSS is less compared to FINGO. OSS has been decreased.* **(MFI 7, commercial MFI)**

Interviewer: What is the reason for that?

> *There are many reasons for a decrease in OSS. When we were FINGOs, many of us were working as a volunteer where the salaries were not a lot, less expenditure. Another thing is that once you become a company, a lot of things are necessary such as tablet bank, mobile banking, SMS banking, slip print, good software, and investing in these things increases the cost. Further, due to the competition, the branches have to expand, which increases cost.* **(MFI 7, commercial MFI)**

Although **MFI 7** stated that their self-sufficiency level has decreased, the participant also stated that the institution has been operating as a commercial MFI for only approximately 1.5 years and that they have had to invest in technologies, staff, and branch expansion in order to survive and that they have had to pay corporation tax, which has resulted in cost increases. Similarly, **MFI 2** stated that only a few commercial MFIs are self-sufficient and that those established recently are not self-sufficient.

> *Most of the MFIs which have established later are not self-sufficient. Only a few, say about 10, which you can count on your hand, are self-sufficient. Those who have more capital, have earned more profit, whose capital base is wider and those who are doing high volume lending. They are self-sufficient.* **(MFI 2, government-owned commercial MFI)**

This indicates that those commercial MFIs in Nepal that are only recently established are less operationally self-sufficient or that their self-sufficiency level seems to be slightly decreased due to a temporary increase in costs. However, the findings indicate that this is only for the short term as the majority of the commercial MFIs that transformed into commercial MFIs a long time ago have stated that their operational self-sufficiency level has increased over the years.

Thirdly, the majority of the participants from commercial MFIs stated that their number of borrowers is increasing. Furthermore, the participants stated that the commercial MFIs have a higher number of borrowers than non-commercial MFIs in Nepal. Following are some of the quotes from participants.

> *20,000 number of credit borrowers. The number of credit borrowers is increasing.*
> **(MFI 3, commercial MFI)**

> *It has been increasing. We started with 15 members and 5 of them borrowed the loan and now it has reached 45,000.* **(MFI 5, commercial MFI)**

> *The number of borrowers is around 200,000 in the past three years. We had an increase in the number of borrowers a couple of years back in double digits, but it has stabilised nowadays. But still, the numbers are increasing.* **(MFI 6, commercial MFI)**

Similarly, *MFI 4, MFI 7,* and *MFI 8*, which are also commercial MFIs, stated that their number of borrowers has been increasing. This shows that the number of borrowers of commercial MFIs is increasing. However, the saving and credit cooperatives (*MFI 1 and MFI 9*) and the government-owned MFI (*MFI 2*) also stated that their number of borrowers is increasing.

> *The average number of borrowers is 429 per year. The membership has been increasing every year but as we have been slow to expand the organisation, the average growth rate is currently low.*
> **(MFI 1, saving and credit cooperative)**

> *Yes, every year employees will be given the target that will cover the increased cost in annual planning and working according to the target leads to an increase in the number of borrowers. It has to increase.*
> **(MFI 2, government-owned commercial MFI)**

> *Every year this has been increasing. On average we have about 80,000 members and 10,000 have borrowed the loan which is about 8%.*
> **(MFI 9, saving and credit cooperative)**

Although both saving and credit cooperatives and the government-owned commercial MFI stated that their number of borrowers are increasing, they also added that commercial MFIs have a higher number of borrowers compared to non-commercial MFIs. Following are the quotes.

> *Non-commercial MFIs have less number of borrowers and commercial has more.*
> **(MFI 4, commercial MFI)**
> *Most of the commercial microfinance institutions have a larger number of borrowers except for some non-commercial microfinance institutions.*
> **(MFI 8, commercial MFI)**

> *Commercial MFIs have a greater number of borrowers than non-commercial. There are no criteria where they have to operate although the market is free. They can start wherever they want. Those who can design their product and cover the area.*
> **(MFI 9, saving and credit cooperative)**

This shows that the number of borrowers of commercial and non-commercial MFIs in Nepal is increasing but the findings also show that the number of borrowers of commercial MFIs is higher than that of non-commercial MFIs in Nepal, which indicates that commercialisation has helped to increase their number of borrowers.

Fourth, the findings show that the commercialisation of MFIs has led to an increase in their loan size. The majority of commercial MFIs stated that their loan size is increasing. Following are some of the quotes that support this result. The amounts mentioned below have been converted into US dollars to make it easier to form analytical comparisons.

Our average loan size was Rs.73,000 ($620) in 2019 and Rs.85000 ($723) in 2020. This is the latest data which I have just updated today. Therefore, it shows that our loan size has increased by Rs. 13000 to Rs.15000 ($110 to $115) on average.
(MFI 3, commercial MFI)

Because of commercialisation, the loan size has increased. Previously (when we were a non-commercial MFI), we used to give Rs.10 thousand to Rs.30 thousand ($85 to $255) loans but now it has increased. The average loan size now is Rs.65 thousand ($550) but if you see the average loan size of the first quarter of this year became Rs.70 thousand ($595).
(MFI 4, commercial MFI)

It has increased. We used to provide Rs.5 thousand to Rs.15 thousand ($45 to $127) at the beginning (when we were a non-commercial MFI) and Rs.50 thousand ($425) used to be a large loan. Now, we provide Rs.3 hundred thousand ($2500) if the borrower is borrowing for the first time and then after Rs.10 hundred thousand ($8500) and Rs.15 hundred thousand ($12500). The average loan is Rs.1.5 to Rs.2 lakh ($850 to $1260).
(MFI 7, commercial MFI)

Similarly, **MFI 5, MFI 6,** and **MFI 8**, which have transformed from non-commercial to commercial MFIs, also stated that their loan size is increasing. Furthermore, one of the saving and credit cooperatives and the government-owned commercial MFI also stated that their average loan size is increasing, whereas the other saving and credit cooperative (**MFI 1**) stated that their loan size is not increasing.

Yes, we have been increasing our loan size. **(MFI 9, saving and credit cooperative)**

Obviously, the loan size is increasing. The size of a loan increases every year. The average loan size is Rs.90,000 per borrowers ($765).
(MFI 2, government-owned commercial MFI)

Loan size is not increasing, because, as mentioned above, the risk level of this type of loan has increased and we have not been able to increase it as there is no basis to secure it. **(MFI 1, saving and credit cooperative)**

In addition to the above statements, the participants also added that the commercial MFIs are providing larger loans compared to the non-commercial MFIs, which suggests that commercialisation has led to an increase in their average loan size. Following are the quotes.

Commercial microfinance institutions in Nepal do not provide significantly smaller loans than non-commercial MFIs because cooperatives provide much smaller loans than them.
(MFI 1, saving and credit cooperative)

I think commercial microfinance institutions provide larger loans.
(MFI 4, commercial MFI)

Actually, commercial microfinance institutions are providing larger loans compared to non-commercial microfinance institutions. The average loan size in the last financial year was Rs.94,000. **(MFI 8, commercial MFI)**

In summary, the commercialisation of MFIs has increased their profitability and operational self-sufficiency in the long run despite the profitability and operational self-sufficiency level decreases for short run due to increase in cost. Similarly, the findings show that the commercialisation of MFIs has increased their average number of borrowers, and average loan size. However, increases in loans size mean that the institutions are not serving poor clients but rather serving richer clients (Hartarska, 2005), which means that commercialisation has had a negative impact on the depth of outreach. The rest of the themes show how the commercialisation of MFIs leads to an increase in their profitability, operational self-sufficiency, average number of borrowers, and average loan size. In other words, the following themes will explain the underlying process of what happens after a non-commercial MFI transforms into a commercial MFI to enable their profitability, operational self-sufficiency, average number of borrowers, and average loan size to increase.

Theme 2: Endogenous Factors

The theme 'endogenous factors' refers to the internal factors of MFIs or factors that are in control of MFIs. Those factors are *profit, size*, and *management and staff efficiency*. The theme 'endogenous factors' has been developed because the common idea across these sub-themes i.e., *profit, size* and *management and staff efficiency* are that they all are endogenous. The above theme *'positive impact'* has shown that the commercialisation of MFIs has led to an increase in their profitability, operational self-sufficiency, number of borrowers, and average loan size – and it is these endogenous factors that explain how commercialisation has led to such increases. Below figure 5.7 shows how the commercialisation of MFIs has led to increased financial performance and outreach through endogenous factors. The different colour arrows show which endogenous factor has influenced the dependent variables. For example, 2 of the orange arrows show that *management and staff efficiency* have influenced the operational self-sufficiency and number of borrowers.

Figure 5. 7: Theoretical Framework.
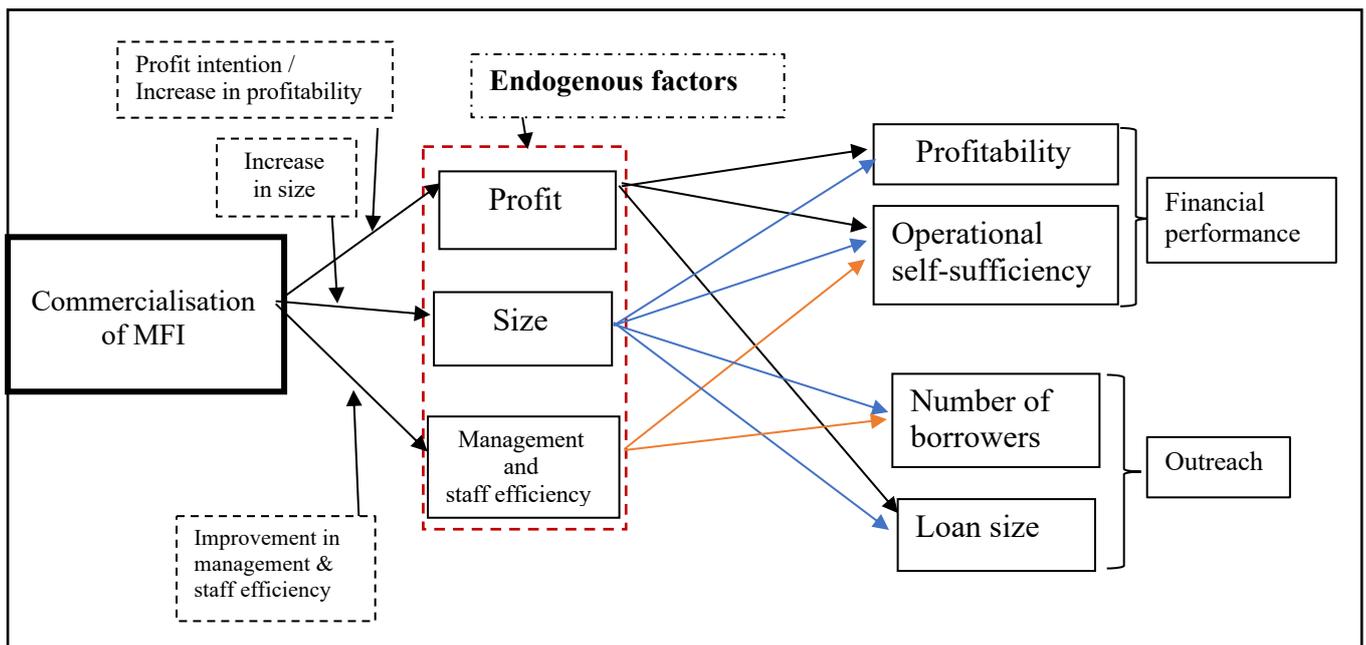
The above framework in Figure 5.7 shows how the commercialisation of MFIs engenders their financial performance and outreach through the change in their objective and size and management and staff efficiency. The following section discusses in detail how the commercialisation of MFIs affects these endogenous factors, which in turn lead to an increase in

financial performance and outreach. The above in Figure 5.6 also shows how these endogenous factors have been developed. These endogenous factors have been discussed in detail below.

i) Profit

The sub-theme '*profit*' refers to either the *profit-making intention* or *increase in profitability*. This sub-theme has been developed because the participants stated that their profitability and loan size are increasing due to their *profit-making intention*. Furthermore, the participants also stated that their operational self-sufficiency levels improved after commercialisation due to an *increase in their profitability*. The common theme between these two reasons is *profit*. This suggests that the commercialisation of MFIs leads to a change in focus from non-profit to profit-making, which leads to an increase in profitability and loan size. Moreover, an increase in profitability leads to improved self-sufficiency levels. This is discussed in detail below with supporting quotes from participants.

The findings show that moving from non-commercial MFI to commercial, changes an MFI's focus from providing social welfare to profit maximisation. As a result, the profitability of commercial MFIs increases. The participants stated that this is because once an institution becomes a commercial MFI, they have shareholders/investors whom the institutions have to provide dividends at the end of the year. Thus, they *expand their services*, *reduce operational cost*, and *focus on the urban area* of the country where it is easier to acquire clients and make a profit. Following are some of the quotes that support the sub-theme 'profit intention'.

> *Commercial microfinance institutions are based in an urban area and providing services rather than in rural area, as a result, the profit is increasing.*
> **(MFI 3, commercial MFI)**

> *After becoming commercial, it became profit-oriented whereas previously it was more society-oriented. Once the institution becomes profit-oriented, it will have shareholders, there will be investors where they seek for return although microfinance is about society-oriented and about profitability, it has become better than previously. After becoming a company, it is doing good. Profitability is increasing.* **(MFI 4, commercial MFI)**

> *Commercial MFIs' motive is to earn profit whereas non-commercial are service-oriented. Commercial MFIs do have the pressure of making profits to distribute as a dividend to their shareholders. So, their motives become to earn more profit for their shareholders whereas non-commercial is to serve the larger population in their area. Commercial MFIs do make more profits than non-commercial as their motive is clear to make a profit and the pressure to pay dividends to shareholders whereas non-commercial are rather focussed on serving rather than making profits.* **(MFI 6, commercial MFI)**

Similarly, **MFI 9**, which is a saving and credit cooperative, and **MFI 2**, which is a government-owned commercial MFI, also stated that commercial MFIs have higher profits, or that their profitability has been increasing because they are focused on making a profit.

> *Class D microfinance (commercial MFIs) have higher profit because they are a completely profit-oriented institution, completely. We, cooperatives, are not just for profit but for the service too. We go hand in hand. We completely do not focus on profit; we are also a service-oriented institution.* **(MFI 9, saving and credit cooperative)**

> *In Nepal, microfinance institutions are more commercialised. Commercialisation is taking place rapidly and institutions are becoming more profit-oriented rather than focusing on social activity and becoming non-profit. This is the only reason, there is no other reason.* **(MFI 2, government-owned commercial MFI)**

The participants also stated that one of the major reasons why commercial MFIs are providing larger loans is because they want to *make a profit*. This indicates that the transformation of non-commercial MFIs to commercial MFIs leads to a change in their focus from non-profit to profit-oriented. As a result, commercial MFIs start providing larger loans. **MFI 4, MFI 6,** and **MFI 7** are all examples of this shift in attitude. Following are the quotes.

> *I think commercial microfinance institutions provide larger loans because they intend to make a profit quicker. I think they have the pressure to provide larger loans by forgetting the value and norms of microfinance so that the institution will be viable and become sustainable, make a large profit quickly because the management might have said that they need profit in the first year but the objective of non-commercial is poverty alleviation and might continue with poverty alleviation. Therefore, I think commercial microfinance provides larger loans.* **(MFI 4, commercial MFI)**

> *Loan size also increases as commercial MFIs have to cover their administration cost incurred in loan management. So, if the loan size gets bigger the cost goes down. Managing fewer large-sized loans is less expensive than managing a large number of smaller loans.* **(MFI 6, commercial MFI)**

> *They want to make money quickly. Therefore, they are providing larger loans to make a profit. There are no other reasons.* **(MFI 7, commercial MFI)**

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Similarly, the saving and credit cooperatives and government-owned MFI also stated that the commercial MFIs are providing larger loans because their focus is to make a profit.

> *The purpose of the commercial institutions is to make a profit, they have given loans by bearing in mind the cost of the loan (interest) even if borrowers do not meet the criteria.*
> **(MFI 1, saving and credit cooperative)**

> *FINGOs are non-profit or non-commercialised and income-generating activity is only one part, they have social part separately but like us, the bank's main work is involved in income-generating activities.* **(MFI 2, government-owned commercial MFI)**

The sub-theme 'profit' also refers to an *increase in profitability* of MFIs. The participants stated that one of the major reasons why the operational self-sufficiency of commercial MFIs is increasing, or commercial MFIs are more operationally self-sufficient than non-commercial MFIs, is because the profitability of commercial MFIs is higher and steadily increasing. This is evident. After all, the increase in profitability means that the institutions will have more funds to cover their operational costs. This shows that the commercialisation of MFIs leads to an increase in profitability, which gives MFIs greater access to funds and eventually increases their operational self-sufficiency. Following are the quotes from the participants that support the findings.

> *OSS is related to profitability. Self-sufficiency is increasing. We have to keep 20% as a general reserve of profit if there is profit. The general reserve fund has been increasing every year. All of the profit that the institution makes will not be distributed; as a result, the fund will automatically increase. Therefore, self-sufficiency is increasing along with the increase in capital.* **(MFI 4, commercial MFI)**

> *Yes. As profit is increasing over the years that means an MFI's earnings are getting better to cover its operational cost so is the operational self-sufficiency ratio.*
> **(MFI 6, commercial MFI)**

> *The operational self-sufficiency level has been increasing each year but not as expected. The reason for this is increase in profitability. We are utilising the profit. We are not distributing. Last year, we had about Rs.3 to 4 Coror ($255,000 to $341,000) which has already gone into the market. This year, there was about 2 to 3 Coror ($170,000 to $255,000) which is also in the market. For this money, we do not have to pay interest to wholesale lenders. Due to this type of fund, operational self-sufficiency is increasing.* **(MFI 7, commercial MFI)**

In summary, the commercialisation of MFIs leads to a change in their goal from non-profit to profit maximisation, which positively impacts their profitability, and an increase in profitability in turn leads to improved operational self-sufficiency as an increase in profitability means that institutions will have additional funds to cover their costs. Similarly, shifting their goal to profit maximisation also leads to an increase in their loan size because a larger loan means a larger return.

ii) Size

The second endogenous factor is 'size'. The sub-theme 'size' refers to the size of the institution, the size of the client's business, the size of the client's income, and the size of the loan. The results show that the commercialisation of MFIs leads to an increase in the size of MFIs, the size of the client's business, the size of the client's income, and the size of the loan, all of which will positively affect the financial performance (both profitability and operational self-sufficiency) and outreach (both number of borrowers and average loan size) of MFIs. The sub-theme 'size' has been developed because the participants stated that the reason why their financial performance and outreach have been increasing is because of an increase in size. Some stated it was due to the number of borrowers growing, some stated that their clients' businesses are growing, and some said it was because their loan size is increasing. The common theme among these reasons is size.

The participants stated that transforming from a non-commercial MFI into a commercial MFI allows them to operate at the national level rather than in a limited area. As a result, they establish branches in many places, which leads to an increase in their size, their number of borrowers, and also increases the loan size and ultimately the profitability of the institutions. Transforming into commercial MFIs helps to increase the size of the MFIs. It means more loans are available to clients as the larger institutions will have a greater amount of capital to invest in businesses. This allows clients to borrow extra loans, which helps them to grow their businesses, which improves clients' ability to make repayments, which means MFIs get a return on their investments, which ultimately increases their profit. This shows that commercialisation leads to an increase in the overall size of MFIs and clients' business. As a result, MFIs' profitability increases. For instance, *MFI 3, MFI 4*, and *MFI 8*, which are all commercial MFIs, stated that their profitability has been increasing due to branch expansion, increase in loan size, increase in the number of borrowers, and increase in clients' business. Following are some of the quotes from the respondents which shows how the profitability of commercial MFIs increases due to increase in size.

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We have expanded our branch and have been providing services to those places for the first time where many bank and microfinance institutions could not reach. Remittance, micro insurance, livestock insurance, members financial literacy programmes have been running continuously. As a result, the number of members has been significantly increased and also the institution's profit has been increasing. **(MFI 3, commercial MFI)**

The reason is that there are criteria for MFIs to provide a loan such as if a microfinance institution has provided a loan of Rs.50 thousand this year then next year, it has to increase, and the following year again has to increase. There is a loan ceiling for the first, second, and third year. Therefore, due to the ceiling the loan increases.
(MFI 4, commercial MFI)

The second reason is that MFIs are continuously expanding their branches, members, and transactions. So, obviously, when everything increases, the profit also increases.
(MFI 4, commercial MFI)

Commercial MFIs are making more profit than non-commercial MFIs. The main reason is the size of the institution, size of the business, and size of the clients. Microfinance institutions are expanding their services and because microfinance institutions brought lower-level income category people into the formal banking system, the expansion of loans and saving operation has been increased and, as a result, profit was increasing.
(MFI 8, commercial MFI)

The participants from the commercial MFIs and the government-owned commercial MFI also stated that their self-sufficiency level is increasing due to their business growth. This suggests that the commercialisation of MFIs leads MFIs towards professionalism, use of technologies, and hiring skilled employees, which helps them to become more self-sufficient. Following are quotes from *MFI 2* and *MFI 4,* which show that their self-sufficiency levels have improved due to their business growth.

The operational self-sufficiency of this institution is increasing due to professionalism and business growth. **(MFI 2, government-owned commercial MFI)**

The reason for the increase in self-sufficiency is because of the institution's growth. Not only employees but also technologies have been used. Online transaction and online reporting have been started. We do collection through tablets and skilled employees have been used. Due to all these reasons, institutions became self-sufficient.
(MFI 4, commercial MFI)

Furthermore, the analysis reveals that commercial MFIs have a larger number of borrowers compared to non-commercial MFIs and their number of borrowers are increasing due to an increase in size. This suggests that commercial MFIs have a larger number of branches and better coverage or that MFIs are expanding their branches and increasing their coverage after becoming commercial, which leads to an increase in the number of borrowers. The majority of commercial MFIs stated that their number of borrowers is increasing, or that they have a higher number of borrowers due to the increased size of their institution.

> *It was an NGO before and was allowed to operate in a specific area but once it has become a company and commercial organisation, we are allowed to work at a national level after having permission. once we become a national level organisation, we expanded throughout the nation although we are working in 33 districts out of 77 districts in Nepal. So, obviously, the number of borrowers also increased accordingly.*
> **(MFI 4, commercial MFI)**

> *The reason for the increase in the number of borrowers is because we reach out to many places.* **(MFI 5, commercial MFI)**

> *Non-commercial MFIs, meaning those MFIs which were society-oriented, have all been moved to the class D category by following the order from Nepal Rastra Bank. Similarly, cooperatives that are running microfinance programmes are limited but they have better outreach in the rural areas. Therefore, commercial microfinance institutions have a greater number of borrowers.* **(MFI 3, commercial MFI)**

> *Number of commercial MFIs has increased significantly in the last few years and the geographical area coverage has also gone up, so the average number of borrowers is larger than non-commercial borrowers.* **(MFI 6, commercial MFI)**

> *Most of the commercial MFIs have a larger number of borrowers except for some non-commercial microfinance institutions due to the size of the institution, size of the business, and size of members.* **(MFI 8, commercial MFI)**

Similarly, one of the saving and credit cooperatives also stated that commercial MFIs have a higher number of borrowers because they are allowed to operate at a national level and expand their branches.

> *There are no criteria where commercial MFIs have to operate. The market is free. They can start wherever they want. Those who can design their product and cover the area.*
>
> **(MFI 9, saving and credit cooperative)**

Furthermore, the participants from commercial MFIs each stated that their institution's loan size is increasing or that they are providing larger loans compared to non-commercial MFIs because their own businesses and their clients' businesses are growing. This shows that commercialisation leads MFIs to an increase in their capital and area coverage. It also means that clients can borrow more loans from MFIs, which they can then use in their business to expand further, and with the increase of their business, they demand larger loans. For instance, **MFI 4** stated that their loan size is increasing because their clients' businesses are improving, and their own capacity has increased.

> *The year when a member enrols to the institution counts as year 1 and how his business size is increasing in year 2. Say for example I was raising 5 goats at the start and as a result of the increase in the number of goats, the client will increase the loan size next time.*
>
> **(MFI 3, commercial MFI)**

> *On average the members of microfinance institutions are doing better. Another reason is due to institutional capacity such as an increase in capital.*
>
> **(MFI 4, commercial MFI)**

> *Loan size is increasing because those who are borrowing loans from MFIs are utilising loans properly and improving their saving habits, which led to improving the living standard of the customers and, as a result, the loan size is also increasing.*
>
> **(MFI 8, Commercial MFI)**

> *Expansion of services from our MFI are increasing which led to an increase in income and lifestyle of members and due to that the loan size is increasing annually.*
>
> **(MFI 8, commercial MFI)**

In summary, the commercialisation of MFIs has led to increases in the size of MFIs and the size of clients' businesses, which has ultimately led to increases in profitability, operational self-sufficiency, number of borrowers, and the loan size of MFIs.

iii) Management and Staff Efficiency

The third endogenous factor, 'management and staff efficiency', refers to managers leading staff to enable them to perform in the most efficient way possible. The analysis found that the commercialisation of MFIs leads to improvements in institutions' management and staff efficiency, which ultimately helps to improve their self-sufficiency level and their number of borrowers. The participants from commercial MFIs stated that they are more self-sufficient

compared to non-commercial MFIs, or that their self-sufficiency level is increasing because of efficient employees, leadership ability, and extra initiative taken by managers. Similarly, the participants from commercial MFIs stated that they have a higher number of borrowers or that their number of borrowers is increasing because their staffs are more active and working efficiently. This shows that the common idea behind these reasons is improved management and staff efficiency. As a result, the third-order theme of 'management and staff efficiency' has been developed.

The results show that the commercialisation of MFIs enables MFIs to improve their management and staff efficiency level. This suggests that employees were not properly supervised and were not accountable while they were subsidised by the government or based on donation. However, when they moved to commercial MFIs, they were made part of formal management structures whose underlying principles dictate that if work is not carried out efficiently, then the institution will not survive. As a result, employees receive targets to make them work more efficiently, which ultimately helps to improve their operational self-sufficiency level. Following are the quotes from the participants supporting this interpretation of the findings.

Previously (when the MFI was non-commercial), employees were not efficient when the institution used to be owned by the government and the institution was at a loss in the past. However, after becoming a commercial MFI, employees realised that the government will not look after the institution. They realised that if there is a loss and if the situation becomes like the past, they can lose their job and if you do not do your job, you may not get a salary. So, the profitability position has been increasing. Now what this will do is it will maintain the institution sustainability. All the microfinance institutions are becoming self-sustainable.
(MFI 2, government-owned commercial MFI)

Operational self-sufficiency is increasing also because of leadership ability and skills. They do also influence and due to the whole environment and also due to the good team spirit of the institution, it is moving forward.
(MFI 2, government-owned commercial MFI)

We have started an outlet called Green Shop to sell the product that has been produced by members in a different district. and regional market. This sort of extra initiative is supporting our business to build up and increase. Consequently, the institution's   self-sufficiency   is   increasing   continuously.
(MFI 3, commercial MFI)

Similarly, the participants from commercial MFIs stated that their number of borrowers is increasing because their staffs are working efficiently and also because their management is providing them with targets and supervising them effectively. This suggests that commercialisation makes institutions' employees work effectively and provide customer-centric services, which leads to an increase in the number of borrowers. For instance, *MFI 5, MFI 8*, and **MFI 2** stated that their number of borrowers is increasing because they are more active, provide services according to customers' demands, and have more clearly defined targets to meet.

The reasons for the increase in the number of borrowers are we became more active; we reach many places and make them aware of us. **(MFI 5, commercial MFI)**

Due to loan services from commercial institutions being provided in a timely manner and according to customer demand, the number of borrowers is increasing. **(MFI 8, commercial MFI)**

The employees get targets about how much loan outstanding per staff has to be, how many new members have to be per staff. Due to this, the number of borrowers is increasing. **(MFI 2, government-owned commercial MFI)**

Overall, the findings show that the commercialisation of MFIs positively affects three endogenous factors of MFIs i.e., *profit, size*, and *management and staff efficiency*, which eventually leads to an increase in their profitability, operational self-sufficiency, average number of borrowers, and average loan size. The following section discusses the exogeneous factors that also lead to the increased financial performance and outreach of MFIs.

Theme 3: Exogenous Factors

The theme 'exogenous factors' refers to factors that are not under the control of MFIs but have an impact on their financial performance and outreach. In other words, these are the external reasons why MFIs' financial performance and outreach are increasing. The factors are *competition, interest rate, financial awareness, access to fund, trust, inflation*, and *age*. These factors have been discussed in detail below.

i) Competition

The second-order theme of 'competition' is one of the external reasons why commercial MFIs are providing larger loans or why their loan size is increasing. The participants stated that they are providing larger loans because many MFIs are competing to attract clients. Competition provides a number of attractive options to clients, which encourages MFIs to provide loans according to client demand.

> *There was a demand from customers and the institutions have to work according to the customer demand. The customers keep demanding the loan and we act accordingly.*
> **(MFI 4, commercial MFI)**

> *When other institutions increase the loan size, the members also started demanding the same so we have to increase the loan size.* **(MFI 5, commercial MFI)**

> *Clients say if you are not giving a similar loan amount then I will leave your institution and go to another one. So whatever others have done, we are also doing the same by reviewing the policies. Just a few days back, one of the clients borrowed Rs.10 lakh. I have one file in my table requesting Rs.15 lakh with collateral and I have to give them. If I don't then they will leave.* **(MFI 7, commercial MFI)**

ii) Interest Rate

Interest rate refers to the rate that MFIs charge on the loans they offer to borrowers. A higher interest rate is one of the reasons that commercial MFIs' profitability is increasing. The participants stated that commercial MFIs are borrowing money from traditional banks at a lower interest rate and providing it to clients at a higher rate. As a result, commercial MFIs' profitability is increasing. The interest rate is under the exogeneous factor's theme because the minimum interest rate is set by the government rather than the MFI themselves. In other words, the interest rate is controlled by the Central Bank of Nepal.

> *Commercial MFIs in Nepal tend to earn higher profits than non-commercial MFIs because they charge higher interest rates on loans than they receive on loans.*
> **(MFI 1, saving and credit cooperative)**

> *We have to borrow money from commercial and development banks on 10% and lend on 15% with a 5% margin.* **(MFI 2, government-owned commercial MFI)**

> *The profit was good when there was no COVID. Although the interest rate was capped to us, the rate was capped to the wholesale lender as well. We used to get a margin of 4 to 5% and because of this, the profit was good.* **(MFI 7, commercial MFI)**

iii) *Financial Awareness*

Financial awareness has also emerged as one of the reasons why commercial MFIs' number of borrowers is increasing. The sub-theme 'financial awareness' shows that the increase in financial literacy has led to an increase in the number of borrowers of commercial MFIs. When the researcher asked participants from commercial MFIs why they have a higher number of borrowers or their borrowers are increasing. Some of them also said the following.

> *We made a package for financial education and ran sessions regularly.*
> **(MFI 3, commercial MFI)**

> *Another thing is that people are becoming more educated now, they started to realise there has to be some source of income. Therefore, they started to come to the banks and financial institutions to get services and become members, which also resulted in an increase in the number of borrowers.* **(MFI 5, commercial MFI)**

> *The reason for the increase in the number of borrowers is that we made them aware of us.*
> **(MFI 5, commercial MFI)**

iv) *Access to Funding*

The findings also demonstrate that 'access to funding' is one of the reasons why commercial MFIs' operational self-sufficiency is increasing. The second-order theme of 'access to funding' refers to the funds available to the institution. The findings show that it is easier for commercial MFIs to access funds at a low cost from tradition banks. As a result, commercial MFIs' operational self-sufficiency is increasing. Following are the quotes from participants.

> *Nepal's commercial MFIs are significantly more self-sufficient than non-commercial MFIs because they are run by donors, including private sector banks or financial institutions. They receive funds and capital easily at a low cost and those which are operated by donors' agencies, they even receive the fund without administrative costs and technical help.* **(MFI 1, saving and credit cooperative)**

> *One of the reasons for the increase in our self-sufficiency is because we have some funding from outsiders.* **(MFI 3, commercial MFI)**

> *Commercial MFIs do have better access to funds than non-commercial MFIs from which they can generate revenue to cover all operating costs.* **(MFI 6, commercial MFI)**

Although *MFI 1* and *MFI 3* stated that commercial MFIs have funding from donors, not all commercial MFIs in Nepal have funding from outsiders. Only a small minority of those that transformed from NGOs recently are still receiving donations because they remain in connection with those donor agencies. *MFI 3*, for example, stated that they are still receiving funds from a donor agency, even though they transformed to a commercial MFI in 2018. However, commercial MFIs in Nepal have easy access to funding from wholesale lending banks, traditional banks, and development banks, as confirmed by *MFI 6.*

v) *Trust*

Another exogenous factor that affects the profitability of commercial MFIs is 'trust'. This refers to the confidence that clients have in an MFI. MFIs that go to the effort of working closely with clients are able to increase levels of trust among clients. If clients trust the institution, then they will borrow loans from the institution repeatedly and pay the interest in return, which helps to increase the profitability of the MFI. Clients also invest savings in the institutions, which can be capital to MFIs to invest in other clients or businesses, which can eventually increase the profitability of MFIs.

> *The reasons for the increase in profit are we have been focusing on rural areas for the last 15 years, we have close relations with members, our members trust us.*
> *(MFI 3, commercial MFI)*

vi) *Inflation*

The second-order theme of 'inflation' has also emerged from the interviews as one of the reasons why commercial MFIs are providing larger loans, or their loan size is increasing. The sub-theme of 'inflation' refers to the purchasing power of the currency in the country. This suggests that the loan size of MFIs is increasing because the inflation rate of the country is increasing. The participants stated that they are providing larger loans because the value of money has decreased.

> *When we started microfinance 2057 B.S., the loan size was a maximum of Rs.5 thousand but now you will not even get the jacket with Rs.5 thousand. Say for example, if somebody says they want to start a fancy shop and request for a loan then Rs.5 or Rs.10 thousand would not do anything so because of time and situation, the loan size needs to increase.*
> *(MFI 5, commercial MFI)*

> *The other reason could be because of purchasing power.* *(MFI 7, commercial MFI)*

vii) *Age*

Another exogenous factor that emerged from this study is 'age', which was found to be linked to loan size. The 'age' refers to the age of MFIs and of clients' businesses. In other words, an increase in the age of MFIs and clients' businesses leads to an increase in the loan size of MFIs. The participants from commercial MFIs stated that their loan size is increasing because they have been operating for many years and the loan size increases over the time.

> *We have been running this microfinance programme continuously for 15 years. Therefore, the average loan size is increasing, obviously.* **(MFI 3, commercial MFI)**

> *The institution has to increase the loan size because if a person borrowed the loan for the first year and gets Rs.1 hundred thousand ($850), they become a loanee for 2 years then Rs.2 hundred thousand ($1700) and third year they get Rs5 hundred thousand (£4250) and next year they get Rs.7 hundred thousand ($5950).*
> **(MFI 2, government-owned commercial MFI)**

Theme 4: Mission Drift

The fourth theme that has emerged from this qualitative study is 'mission drift'. The theme 'mission drift' refers to the fact that the MFIs in Nepal are moving away from their core focus of social welfare towards profit maximisation. The participants stated that the commercialisation of MFIs in Nepal has created *unhealthy competition*, which has resulted in *duplication/overlap of loans* or *multi lending* to borrowers. The participants also stated that multiple lending is taking place due to a lack of a central credit information system. Furthermore, the participants stated that commercialisation has *increased the expenditure* of the institutions. Moreover, one of the participants noted that the commercialisation of MFIs in Nepal has managed to *reduce the services* that clients were receiving. Finally, some of the participants raised a concern regarding the situation of the microfinance industry of Nepal. They stated that the microfinance institutions in Nepal are *drifting away from their mission*. As a result, the theme of 'mission drift' has been developed. Following are some quotes from the participants that support this theme.

> *In Nepal, there are 125 MFIs. Therefore, there is duplication between them, overlap in members and providing loans without meeting the minimum criteria or without looking at a business plan and without looking at business status, Microfinance institutions are investing loans.* **(MFI 3, commercial MFI)**

The market became crowded. Consequently, duplication started to emerge, and the clients' conditions started to become worse. The clients started to borrow money from a lot of institutions and decided not to pay back.   **(MFI 7, commercial MFI)**

The services that clients used to received have been impacted, such as previously it was easy to make rules, regulations, and policies so we had our own life insurance policy where they used to get money if they are pregnant, money for their children's education, money for the death ceremony or losses in the house, pension savings. But now after becoming the company, these sorts of facilities are not there as the Rastra Bank did not allow for this. The commercialisation of microfinance or becoming a company and moving towards the corporate culture has led to the reduction of the services and facilities that clients used to get.   **(MFI 5, commercial MFI)**

Poor people cannot afford larger loans, they may need Rs.15 thousand, Rs.20 thousand, Rs.25 thousand and do not need more than Rs.50 thousand. But the current situation is, as I have already stated, that those larger institutions always seek profit and providing larger loans and when providing larger loans, poor people are left behind. The social impact of this is vanishing.   **(MFI 7, commercial MFI)**

After becoming profit-oriented, the institutions are not following the norms of microfinance. The mission drift is happening.   **(MFI 7, commercial MFI)**

As stated above, the commercialisation of MFIs in Nepal has led to unhealthy competition, multi financing, and over-lending. However, the participants also stated that steps are taking place to solve these issues. For instance, *mergers between the MFIs* and the *development of a credit information bureau (CIB)* in Nepal is taking place to reduce unhealthy competition and multi financing.

Nepal Rastra Bank has made a policy to merge these institutions. Now, what they are saying for the merger is either you merge yourself quickly, otherwise, we raised the capital. Raising capital means they said not by issuing the right share but earn profit and make it up. So, by force, they have to merge with the larger institution.
(MFI 2, government-owned commercial MFI)

Now, duplication is slowly reducing because we all have registered in a credit information bureau (CIB). Those who ran away are already on the blacklist, so it is decreasing.
(MFI 7, commercial MFI)

Theme 5: COVID-19 and Lockdown

The impact of the COVID-19 pandemic and the resultant lockdown was never intended to be investigated in this research, but the participants have nevertheless mentioned its impact and so it has been taken into consideration. Therefore, the researcher has identified 'COVID-19 and lockdown' as an emerging theme. The theme of 'COVID-19 and lockdown' refers to the effect of COVID-19 and lockdown on the financial performance and outreach of MFIs in Nepal. The findings show that the lockdown has a negative impact on the profitability, operational self-sufficiency, and the number of borrowers of MFIs. **MFI 2, MFI 4**, and **MFI 6** stated that their profitability has decreased due to the lockdown. Following are the quotes from participants.

> *Now, if you talked about COVID, after this the profitability is reduced a bit because the whole world is all over the place. You know the economy of Nepal, shutdown, lockdown and because of all these, it has been reduced a bit but it's not like a very sad situation.*
> **(MFI 2, government-owned commercial MFI)**

> *This year, the 2019/20 financial year, a lot of microfinance institutions including ours, their profit has decreased due to the effect of the global pandemic and COVID. Last year, this institution distributed 20% dividend but this year we reduced it to 10%. This year, due to the pandemic, there was a lockdown since March, and it has significantly impacted the microfinance sector in Nepal. The profitability has slightly decreased.*
> **(MFI 4, commercial MFI)**

> *In the last fiscal year, profit has gone down by around 70%. This is due to COVID-19 and seems as temporary in nature.* **(MFI 6, commercial MFI)**

This shows that the profitability of MFIs in Nepal has decreased due to the lockdown. The participants also stated that their clients' businesses are not performing well due to the lockdown. Consequently, the clients could not pay their loan instalments, which **reduced the repayment rate**. Furthermore, institutions' **expansion has stopped** and so they have had to **provide a rebate** to those clients whose businesses were struggling due to the lockdown. Due to these reasons, their profitability has decreased.

> *In the current situation, due to the lockdown, the clients' businesses are not doing well. As a result, they have not been able to pay the instalments and the delinquency has been increasing, default is increasing. Some only send interest, not full instalment. Therefore, we have to make a loan loss provision each month and the loan loss provision is increasing.* **(MFI 7, commercial MFI)**

> *The expansion of branches, members, borrowers, and services has stopped. Therefore, this institution is not in a loss but has not been able to make a profit as expected.*
> **(MFI 5, commercial MFI)**

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Due to COVID, we had to provide a rebate to our clients including in interest. The interest rate has also been decreased from 18% to 15%. Because of all these reasons, last year the profit has slightly decreased. **(MFI 4, commercial MFI)**

This study also shows that COVID-19 and lockdown have had a negative impact on the operational self-sufficiency of MFIs in Nepal. *MFI 4* and *MFI 9* stated that their operational self-sufficiency level has decreased this year due to the lockdown.

Our previous year's OSS was 125% but the last year it has dropped to 113%.
(MFI 4, commercial MFI)

This year it has all gone down due to COVID-19. Due to the coronavirus, the financial institutions have not been able to invest the amount that meant to invest, and we also have not invested the amount we meant to invest.
(MFI 9, saving and credit cooperative)

Although *MFI 4* and *MFI 9* have mentioned that their operational self-sufficiency level has decreased because they could not utilise their funds due to the lockdown, *MFI 5* stated that they felt no significant impact from lockdown on their operational self-sufficiency level due to their effective leadership and management and because of the staff's commitment.

There was no impact of lockdown because of physical management. Other institutions shut down their operation completely and went home like a holiday, but our staff went to villages to make members aware of COVID-19 and how they can protect against COVID-19. We went there for awareness, but we received our instalment money. We went for awareness, but they gave us the instalment that they had to pay. We did not force them, we just asked them to pay only as much as they can. We have collected almost 80% of the money. It is possible due to the leadership style, organisation culture, physical management, and staff's commitment towards the institutions. It is a matter of internal management. The impact of COVID-19 is equal to everybody but the way we manage this is different from others. Therefore, we become successful.
(MFI 5, commercial MFI)

Finally, the findings also show that there is a negative impact of lockdown on the number of borrowers of MFIs in Nepal. The findings show that the number of borrowers is decreasing due to the lockdown. The following quotes have been presented to support the result and theme.

Due to COVID, the number of borrowers has decreased. There is no business opportunity. They say what I am going to do with borrowed money, we do not want the loan now. **(MFI 5, commercial MFI)**

Currently, it has decreased due to the globally spreading COVID-19. **(MFI 8, commercial MFI)**

Due to corona, the number of borrowers has slightly decreased. **(MFI 9, saving and credit cooperative)**

Overall, the findings show that the lockdown caused by COVID-19 has led to a reduction in MFIs' profitability, operational self-sufficiency, and number of borrowers. This is because the *repayment rate has decreased* as clients' businesses were not in operation as a result of lockdown. Similarly, the institutions *could not utilise their available funds* and also *had to provide a rebate* to their clients. However, one of the MFIs experienced no significant impact of lockdown on their business because they continue operating throughout the lockdown period.

5.4.2.7 Discussion of Qualitative Results

The main purpose of this chapter is to investigate how the commercialisation of MFIs affects their financial performance and outreach. To answer the research question, firstly, the researcher has investigated the impact that the commercialisation of MFIs has on their financial performance and outreach and then investigated how the commercialisation of MFIs affects their financial performance and outreach.

The qualitative results show that the commercialisation of MFIs has led to an increase in profitability, operational self-sufficiency, number of borrowers, and average loan size in Nepal. This study found a positive effect of commercialisation of MFIs on the profitability in the long run although the profitability decreases for the short term because of a sudden increase in costs. For instance, commercial MFIs were required to pay 30% corporation tax after becoming commercial, but it seems that due to the economy of scale the profitability outweighs the costs in the longer run. This is also supported by the participants' responses as *MFI 5*. MFI 5 recently

transformed into a commercial MFI, stated that their profitability is slightly decreased while participants from MFIs that became commercial many years ago have stated that they are in profit or that their profitability has been increasing. This result is similar to the findings of D'espallier et al. (2017), as they also found that profit tends to decrease in the short term but not necessarily in the medium term.

Similarly, the qualitative results also found that the commercialisation of MFIs has a positive impact on their operational self-sufficiency level in Nepal, which suggests that the commercial MFIs are highly self-sufficient, or that their self-sufficiency level has been increasing over time. The finding is consistent with the findings of Tchakoute-Tchuigoua (2010) and Sharma (2008), as both their studies also found that private MFIs are more self-sustainable. However, Cull et al. (2007), Mersland and Strom (2009; 2008), and Leite et al (2019) found that being commercial had no impact on the sustainability of MFIs.

Furthermore, the qualitative study found that being commercial positively influenced MFIs' number of borrowers. This suggests that commercial MFIs are serving a larger number of borrowers in Nepal. The result is similar to the findings of Chahine and Tannir (2010) and Louis and Baesens (2013), as they both also found that commercial MFIs reach more customers than non-profit MFIs, whereas Mersland and Strom (2009) and Nurmakhanova et al. (2015) found no significant association between being commercial and the number of borrowers.

Moreover, the qualitative findings also show that commercial MFIs are providing larger loans and that the loans are increasing compared to those of non-commercial MFIs in Nepal. The results coincide with the findings of Tchakoute-Tchuigoua (2010), Chahine and Tannir (2010), Wagenaar (2012), Nurmakhanova et al. (2015), and D'Espallier et al. (2017), as they also found that commercial MFIs are providing larger loans compared to non-commercial MFIs, but the results do not coincide with the findings of Mersland and Strom (2009), who found no significant association between shareholder firms (SHF) and average loan size.

Finally, the study has found that the commercialisation of MFIs has an impact on these three endogenous factors i.e., *profit intention, size*, and *management and staff efficiency*, which leads to an increase in their profitability, operational self-sufficiency, number of borrowers, and average loan size. This suggests that after becoming commercial MFIs, their intention changes from social welfare to profit making, their size increases, and their management and staff work effectively and efficiently. As a result, their profitability, operational self-sufficiency, number of borrowers, and average loan size increase. Previous studies (Chahine & Tannir 2010; Tchakoute-

Tchuigoua, 2010; Nurmakhanova et al., 2015; D'Espallier et al., 2017; Leite et al., 2019) have investigated the relationship between the commercialisation of MFIs and their financial performance and outreach but they have failed to investigate how the commercialisation of MFIs affects their financial performance and outreach as per the researcher's knowledge. As a result, this study has reported the theoretical framework of how the commercialisation of MFIs affects their endogenous factors (profit focus, size, and management & staff efficiency) and thus leads to an increase in their profitability, operational self-sufficiency, number of borrowers and loan size for the first time.

Similarly, this study has also reported exogenous factors i.e., *competition, interest rate, financial awareness, access to the fund, trust, inflation*, and *age*, all of which led to an increase in profitability, operational self-sufficiency, number of borrowers, and average loan size of commercial MFIs. Previous studies such as Mersland and Strom, (2009), Nurmakhanova et al. (2015), D'Espallier et al. (2017), Lensink et al. (2018), and Leite et al. (2019) have used some of these factors as a control variable separately, including competition, interest rate, inflation, and age, but this study has reported three additional factors i.e., *financial awareness, access to funding,* and *trust*, each of which also affect the performance of MFIs for the first time. Further, this study reported that the MFIs in Nepal are drifting away from their mission due to the commercialisation of MFIs, as this has led to increased loan size and the increased provision of multiple loans.

5.4.2.8 Summary of Qualitative Findings

In this chapter, the researcher investigated the impact of commercialisation of MFIs on their performance in Nepal and how the recent wave of commercialisation of MFIs affected their financial performance and outreach. The study found that the commercialisation of MFIs in Nepal has led to decrease their profitability in the short run but increases in the long run. Further, the qualitative result also shows that the operational self-sufficiency, number of borrowers and loan size of commercial MFIs in Nepal is increasing. It has also provided a novel theoretical framework of how the commercialisation of MFIs affects their financial performance and outreach.

This qualitative study offered important insights by highlighting how the commercialisation of MFIs affects their endogenous factors i.e., *profit focus, size*, and *management and staff efficiency*, all of which have led to an increase in their profitability, operational self-sufficiency,

number of borrowers, and loan size. Furthermore, this study presented the exogenous factors i.e., ***competition, interest rate, financial awareness, access to funding, trust, inflation***, and *age* that affect profitability, operational self-sufficiency, number of borrowers, and loan size.

Moreover, the qualitative study also found that the commercialisation of MFIs has created unhealthy competition in Nepal, which has resulted in the duplication of loans or multi financing, an increase in expenditure, a reduction in services, and an increase in loan size, all of which are indications of mission drift. This qualitative study also shows that the lockdown has negatively affected MFIs' profitability, operational self-sufficiency, and number of borrowers in Nepal.

5.4.3 Comparison & interpretation of quantitive & qualitative results

The above quantitative result (see section 5.4.1.8, Table 5.7) shows that commercial MFIs has significantly less profitable than non-commercial MFIs. The result also suggests that commercialisation of MFIs or being commercial MFIs has a negative impact in the short run whereas the qualitative result reveals that the profitability of commercial MFIs decreases in the short run due to a sudden increase in costs but increases in the long run. The qualitative result revealed further information. Therefore, further analysis has been done to arrive at a conclusion.

The researcher has investigated the long-run effect of commercialisation of MFIs on their profitability by fitting the year variable and ROA of commercial MFIs on the fit plot. Figure 5.8 shows that the profitability of commercial MFIs is less than the non-commercial MFIs and also shows that the ROA of commercial MFIs decreases initially but increases in the long run. The following figure shows the result from the fit plot. Figure 5.8 shows the fit plot with detailed information where the blue colour represents the fit plot of ROA of non-commercial MFIs and the red colour represents the fit plot ROA of commercial MFIs. The figure 5.9 shows only the fit plot of ROA of commercial MFIs.

Figure 5. 8: ROA of commercial & non-commercial MFIs: Quadratic fit plot
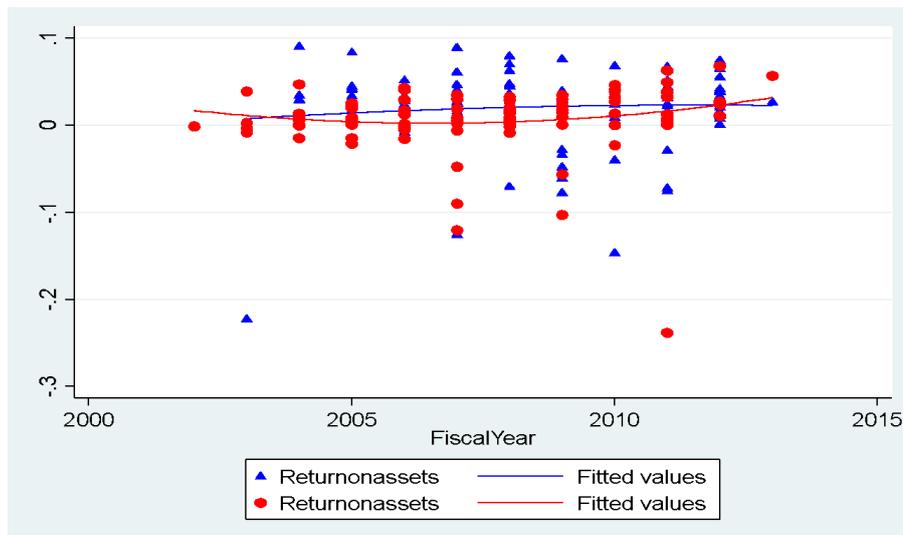
Figure 5. 9: ROA of commercial MFIs: Quadratic fit plot
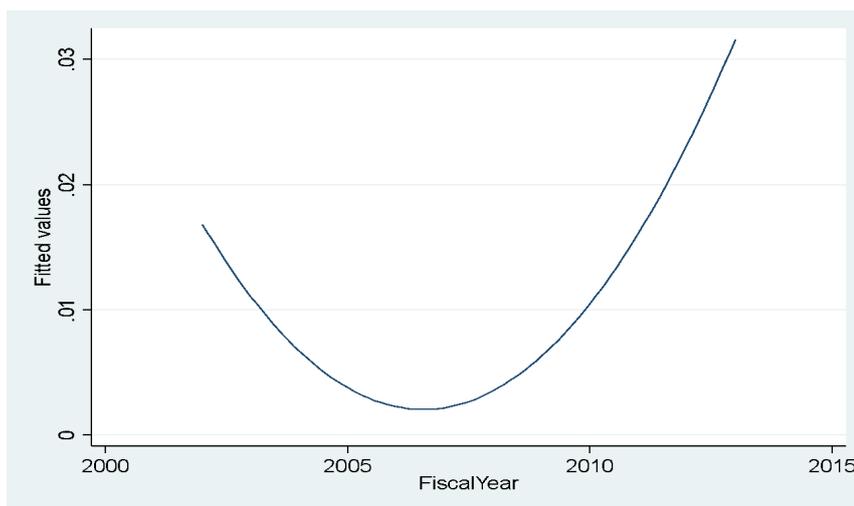
Similarly, the quantitative result above (see section 5.4.1.8, Table 5.7) shows a significant negative impact of commercialisation of MFIs on operational self-sufficiency which mean the commercial MFIs are less operationally self-sufficient than non-commercial MFIs. However, the qualitative finding shows a positive effect that contradicts each other. Further analysis using fit plot shows that the commercial MFIs is less operationally self-sufficient than the non-commercial MFIs but this does not necessarily mean the operational self-sufficiency of commercial MFIs is decreasing but rather the following figure 5.10 shows that the operational self-sufficiency of commercial MFIs is increasing over the years.

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Figure 5. 10: OSS of commercial & non-commercial MFIs: Quadratic fit plot
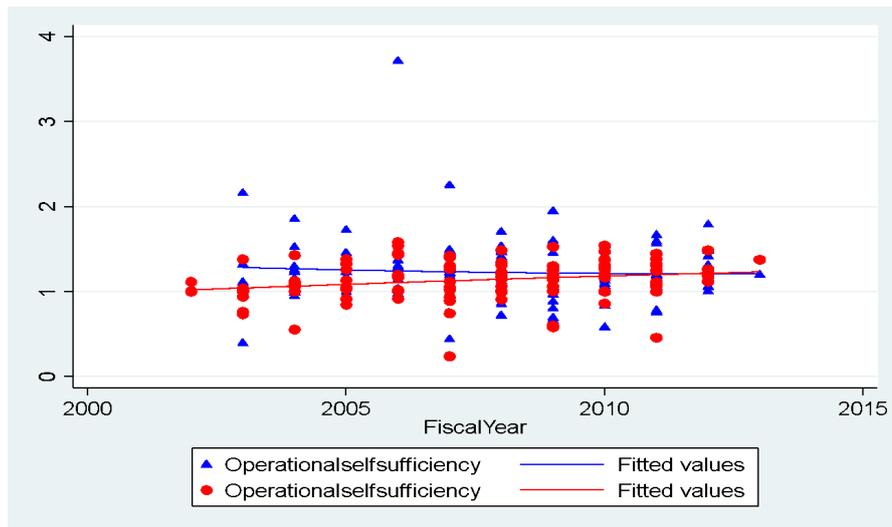
Further, the above quantitative result (see section 5.4.1.8, Table 5.8) shows a significant positive impact of commercialisation of MFIs on the number of borrowers which suggest that the commercial MFIs has a higher number of borrowers than non-commercial MFIs. The qualitative result shows that the number of borrowers of commercial MFIs is increasing. The following figure 5.11 also shows that the number of borrowers of commercial MFIs is much higher than non-commercial MFIs and has also increased over the years.

Figure 5. 11: NAB of commercial & non-commercial MFIs: Quadratic fit plot
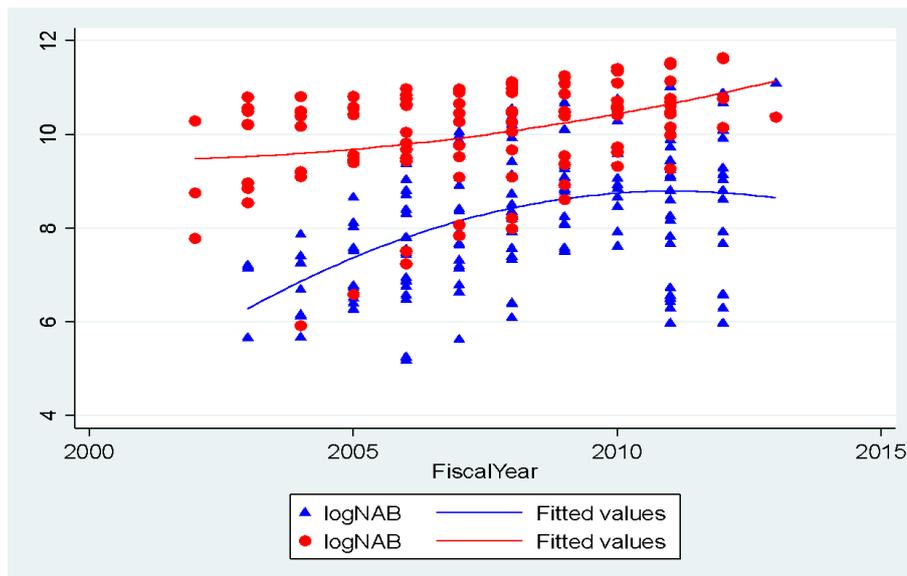
The quantitive result shows that being commercial MFIs in Nepal has no significant impact on their average loan size (see section 5.4.1.8, Table 5.8) which suggest that the average loan size

of commercial and non-commercial MFIs is not significantly different. In addition, the qualitative result shows that the loan size of commercial MFIs is increasing over the years. Further analysis using a fit plot shows that the average loan size of non-commercial and commercial MFIs is not much different but the average loan size of commercial MFIs is increasing over the years.

Figure 5. 12: ALS of commercial & non-commercial MFIs: Quadratic fit plot
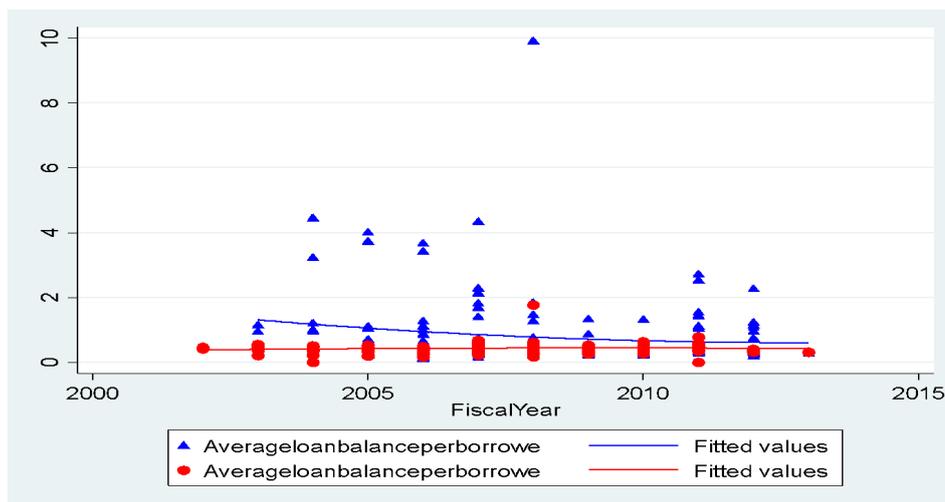
5.5 Conclusion of Chapter 5

The main aim of this chapter was to investigate the impact of the commercialisation of MFIs on their financial performance and outreach in Nepal and how the commercialisation of MFIs is affecting their financial performance and outreach. To investigate this subject, this study applied a mixed method and based on the results, it can be concluded that the commercial MFIs are less profitable than non-commercial MFIs in Nepal and the commercialisation of MFIs reduces the profitability in the short run but increases in the long run. Further, it can be concluded that the commercial MFIs are less operationally self-sufficient than non-commercial MFIs in Nepal but the operational self-sufficiency level of commercial MFIs is increasing over the years.

Furthermore, it is also concluded that the commercial MFIs are serving a larger number of borrowers compared to non-commercial MFIs in Nepal and also the number of borrowers of commercial MFIs is increasing over the years whereas the loans size of both commercial and non-commercial MFIs are not significantly different but the loan size of commercial MFIs is increasing over the years.

In addition, the qualitative study showed that the commercialisation of MFIs leads to a change in the ***focus of MFIs***, which allows them to increase their ***size*** and improve their ***management and staff efficiency*** which eventually leads to increases in their profitability, operational self-sufficiency, number of borrowers, and loan size. Thirdly, this study identified the various exogenous factors i.e., ***competition, interest rate, financial awareness, access to funding, trust, inflation***, and ***age*** that affect the performance of commercial MFIs. Fourthly, the study has found that MFIs in Nepal are heading towards mission drift due to commercialisation. Finally, this study also reported that the COVID-19 lockdown has had a negative effect on the profitability, operational self-sufficiency, and number of borrowers of MFIs in Nepal.

Up to now, the researcher has answered Research Questions 1, 2, and 3. The researcher has explored the impact of the commercialisation of MFIs on their financial performance and outreach. Then, the researcher has further explored the impact of commercialisation of MFIs on their financial performance and outreach and how it affects their financial performance and outreach using a case study of Nepal. However, the research question 4 has not been answered yet. Therefore, the next part of the thesis (chapter 6) investigates the relationship between the profitability of MFIs and the provision of loans to business start-ups. This topic has been investigated because no study has been found by the researcher on this topic despite few studies available on microfinance and business start-ups.

Chapter 6: Profitability of Microfinance institutions and provision of loans to business start-ups.

6.1 Introduction

To fulfil the research gap presented in literature review, section 2.8.3 and answer research question 4, this chapter investigates the relationship between profitability of MFIs and provision of loan to business start-ups. This chapter is organised into four sections. Section 1 presents the introduction in which the researcher has outlines the background of the study, introduces the term 'start-ups/entrepreneurship and also explained how microfinance evolved to serve small business start-ups/entrepreneurs. Section 2 provides a research methodology that includes the researcher's explanation of which research method has been applied, how the data has been collected and a description of dependent, independent, and control variables used in this study. Section 3 discussed the data analysis technique used for this part of the study and also presents the empirical results, which include summary statistics, correlation analysis, and the results of MLM estimation. Furthermore, this section presents the MLM estimation result of the relationship between the profitability of commercial and non-commercial MFIs on the provision of loans to business start-ups. Then, this section presents the results of the robustness check before section 4 provides the conclusion of this chapter.

6.1.1 Background of the Study

The popularity of microfinance has increased rapidly over the last few decades and is now widely considered to foster entrepreneurial activity (Attanasio et al., 2015), leading to the improved welfare of poor households (Bruton et al., 2013; Tamvada, 2010). MFIs provide support and equip potential entrepreneurs both with the skills and financial capital required to start new business as part of their social mission which will eventually promote economic growth as entrepreneurship plays a vital role in the economy of the country (Churchill & Mishra, 2018). Since MFIs were originally established to provide credit services to entrepreneurs, studies have also emerged investigating the relationship between microfinance and entrepreneurship.

Sultakeev et al. (2018) studied the relationship between microfinance and entrepreneurship in Kyrgyzstan. Similarly, Attanasio et al. (2015) conducted a study on microfinance and entrepreneurship development in Mongolia. Furthermore, Augsburg et al. (2015) investigated the relationship between microcredit and self-employment in Bosnia and Herzegovina. However,

these studies are based on case study methods due to a lack of data availability and therefore the results all differ greatly from each other (this is further discussed above in the literature review section 2.8.3). Thus, the relationship between microfinance and entrepreneurship remains unclear.

In recent years, cross-country data started to emerge and, as a result, several studies started to appear on microfinance and entrepreneurship such as Shahriar et al. (2016), who investigated the effect of profit-orientation on the provision of financial capital to business start-ups. Similarly, Churchill and Mishra (2018) studied the impact of the ethnic diversity of MFIs on start-ups. As per the researcher's knowledge, only these two cross-county studies have been published so far, which suggests that an insufficient number of studies have been done yet to understand the relationship or impact. Newman (2017) also stated that the impact of microfinance on entrepreneurship is still not clear. Similarly, with the increase in popularity of microfinance worldwide, scholars have raised doubts about the real impact of microfinance on entrepreneurship development (Hermes & Lensink, 2011; Kent & Dacin, 2013; Chliova et al., 2015). This shows that further study on microfinance and entrepreneurship is required.

Moreover, whilst MFIs were originally established for social welfare and providing financial capital to low-income households who want to start a new business, over recent decades they have increasingly focused on profitability for sustainability purposes. It is not known whether MFIs provide more loans or less to business start-ups when their profitability increases as there are no studies available on this topic. Standard theory suggests that higher bank profitability dissuades a bank's risk taking, and thus it is associated with larger capital reserves because profitable banks stand to lose more shareholder value if downside risks are realised (Keeley, 1990; Kripfganz & Sarafidis, 2021: 672). On the other hand, more profitable banks can borrow more and engage in risky activities on a larger scale under the presence of leverage constraints (Martynova, Ratnovski & Vlahu, 2020) which suggests that an increase in profitability of MFIs leads to an increase in the number of loans to risky businesses such as start-ups.

In addition, the studies related to the performance of MFIs have been shifting in recent years. Recently, the researchers started to investigate the relationship between financial performance and outreach. In the past, both financial performance and outreach have been used as dependent variables or as measurements of the performance of MFIs, but recently the researchers began to investigate the relationship between profitability, sustainability, and outreach of MFIs. For instance, Quayes and Joseph (2021) investigated whether a trade-off exists between financial

performance and social outreach of MFIs. Churchill (2020) also investigated whether there is a trade-off between microfinance sustainability and outreach. Similarly, Quayes (2015) and Nurmakhanova et al. (2015) also examined the relationship between financial sustainability and the outreach of microfinance institutions.

Despite the debate and lack of studies, no study has been found yet that investigated the relationship between profitability and the provision of financial capital to business start-ups. This shows that there is still a knowledge gap. Hence, this chapter investigates the relationship between the profitability of MFIs and the provision of loans to business start-ups using multilevel method (MLM) to fill the gap. Multilevel method is applied because it is considered a better estimation technique for hierarchical structure data (Im & Sun, 2014; Peng et al., 2015).

6.1.2 Entrepreneurship: Start-ups Business

In this section we have outlined the popular theory of entrepreneurship, discussed the availability of finance for start-ups/entrepreneurs, and also provided details about the importance of microfinance for entrepreneurs and start-up businesses. We then describe the literature linking microfinance to entrepreneurship and, finally, present the research gap for this study and explain the method used to analyse the data.

Entrepreneurship/start-ups have no common definition. However, there are two differing theories of entrepreneurship that have been popularised by Schumpeterian and Krizner respectively (Swedberg, 2000; Cheah, 1990). Schumpeter's (1934) theory of entrepreneurship states that entrepreneurship is not merely about setting up businesses, but also about innovation or new combinations. He also explained that an entrepreneur is an innovator who brings new products or services to the market. He noted that entrepreneurship encompasses the following five factors.

- Introduction of a new product or service
- New method of production
- New business in new market or new business in existing market
- New source of supply of raw materials
- New organisation of any industry, like the creation of a monopoly position or the breaking up of a monopoly position.

On the other hand, Kirzner's (1973) theory of entrepreneurship states that innovation and new combinations are not the necessary conditions for entrepreneurship, but rather it is about perceiving opportunities and exploiting them. He believes that entrepreneurs benefit from the discovery of the existence of profitable discrepancies and gaps in knowledge and information that others have not perceived yet and exploited (Swedberg, 2000; Cheah, 1990).

Entrepreneurship or start-ups come in various forms, shapes, and size. There is no uniform definition of start-ups. Different countries define start-ups or entrepreneurship differently. Some define start-ups or entrepreneurship as self-employment (Reynolds et al., 2005), some define them as firm-level behaviour meaning the combinations of individual, organisational, or environmental factors that influence how and why entrepreneurship occurs, and others define them as an individual-level cognitive behaviour (Shane & Venkataraman, 2000; Shane, 2012). Despite the confusion, various researchers have defined entrepreneurship in a broader sense. According to Gartner (1985), entrepreneurship is a 'new venture creation or 'new start-ups'. Similarly, Hart (2003) defined entrepreneurship as a 'process of starting and continuing to expand new businesses. Levie and Autio (2011), meanwhile, stated that entrepreneurship is about the process of exploiting opportunities as well as the creation of new start-ups regardless of achieving success or not.

This shows that the definition of entrepreneurship has been generally divided into 2 categories. One category sees entrepreneurship as being about innovation, whereas the other sees it as exploiting opportunities. However, financial institutions typically define business start-ups as new ventures operating for less than 6–12 months and say that the individuals who start these new ventures are called entrepreneurs because they take a risk to begin new start-ups. Therefore, in this study, start-ups or entrepreneurship is defined as new businesses at the early phase. This definition of start-ups or entrepreneurship has also been adopted for this study because this research is about whether the profitability of MFIs impact the decision to provide loans to business start-ups. In this case, the decision has to be made by the MFIs. Therefore, it would be rational to accept the definition from the perspective of these institutions.

Generally, entrepreneurship can be divided into six categories based on various objectives: *lifestyle business, small business, scalable start-up, buyable start-up, large company, and social enterprise* (Pytkowska & Korynski, 2018). Each of these has been described in detail below.

Table 6. 1: Types of business start-ups/entrepreneurs

Types of start-up business	Key driver	Description
Lifestyle	Work to live a passion	A lifestyle entrepreneur is living the life they love, works for themselves full-time or part-time while pursuing their personal passion. She or he starts business activities.
Small business	Work to feed the family	Often family businesses, barely profitable, small businesses are not designed for scale, but rather to feed the family.
Scalable	Born to be big	Silicon Valley type of enterprise that has the vision to change the world.
Buyable	Born to flip	Often web and app start-ups, they are founded to be sold to larger companies.
Large scale	Innovate and evaporate	Growth through sustaining innovation, offering new products that are variants of core products.
Social enterprise	Driven to make a difference	The goal is to make the world a better place, not to take market share or to create wealth for the founders.

(Source: Pytkowska & Korynski, 2018)

Although business start-ups are divided into various categories, they can be classified into the necessity and opportunity entrepreneurship category (Wennekers et al., 2005; Aparicio et al., 2016) because an individual decides to start a business venture either because it is necessary for them to start a business to generate income to survive or because an opportunity is available (Williams & Williams, 2014). Necessity-driven entrepreneurship is about becoming entrepreneurs starting up businesses in order to avoid unemployment or starting a venture to fulfil basic human needs, whereas opportunity-driven entrepreneurship means starting a business to take advantage of opportunities and to make a profit (Singer et al., 2015). In developing countries, entrepreneurship is more likely to be necessity-driven as there is limited employment and many poor people are forced to start new businesses just to generate basic income (Naude, 2010).

Studies suggest that new ventures or entrepreneurship play a significant role in the economic growth of countries regardless of whether it is necessity-driven or opportunity-driven entrepreneurship as they help to create employment. Entrepreneurship may also contribute to national economies by enhancing the knowledge of what is technically viable and what consumers prefer by introducing variations of existing products and services in the market (Stein et al., 2010; Adekunle, 2011). Despite playing a vital role, entrepreneurs face various challenges

when starting a new venture, with one of the most significant barriers being access to finance (Banerji et al., 2015; Kushnir et al., 2010). Indeed, it is difficult for start-up businesses to receive funds from formal traditional banks due to the risk involved with business start-ups.

6.1.3 Access to Finance for Business Start-ups/Entrepreneurship

It is estimated that 400 million formal and informal micro, small, and medium-sized enterprises (MSMEs) are currently doing business in emerging markets (Stein et al., 2010) with three-quarters of these businesses being considered micro (Kushnir et al., 2010) and MSMEs overall generating more than half of employment and one-third of GDP (Stein et al., 2010). Entrepreneurs have been the driving force for national economies for many years (Stel et al., 2005). In the European Union (EU), 90% of businesses are described as small or medium enterprises (SMEs) and are considered the backbone of national economies because they are responsible for two-thirds of jobs (EUR-Lex, 2016). Studies also suggest that irrespective of type of entrepreneurship, starting a business helps to improve the living standard of the poor (Adekunle, 2011). According to Baumol (1990), entrepreneurship is the engine of economic well-being and prosperity. Baumol and Storm (2008) also suggested that entrepreneurship is the ultimate determinant of the economic growth of a country. Similarly, Sobel (2008) stated that entrepreneurs can contribute to the welfare of society. Furthermore, Acs et al. (2016) suggested that entrepreneurship is helping to increase economic activity by creating more jobs and generating more income for more people.

Other studies also found that entrepreneurship has a positive significant relationship with economic growth (Acs et al., 2018; Acs, 2010; Audretsch et al., 2008). Bruton et al. (2008) argued that entrepreneurship pushes economies forward. It has been described as a crucial engine of economic and social development of a country (Ahlstrom & Ding, 2014). Small businesses and entrepreneurs have been advanced as a viable way to promote growth in rural areas. Moreover, management scholars and economists are increasingly recognising that entrepreneurship or new venture creation is a significant part of solving poverty around the world (Ahlstrom, 2010; Alvarez et al., 2015).

Although studies show that entrepreneurship has a significant positive impact, limited access to credit from traditional banks has been identified as a major factor affecting the establishment and growth of entrepreneurship and small businesses (Banerji et al., 2015). Kushnir et al. (2010) also stated that access to finance has been the top issue for MSMEs in developing countries. The

credit constraint is, more so, higher for start-up firms given the greater likelihood of failure compared to already established firms. It could also be due to various internal and external factors such as age and reputation and types of business. Newer businesses are more likely to die than older businesses and the likelihood that businesses survive increases with age. Similarly, reputed businesses are more likely to obtain a loan than start-ups as they have a long history of doing business that start-ups lack. In addition, financial institutions prefer to invest in certain types of business. In general, start-up businesses are considered highly risky by financial institutions because of their high likelihood of failure (Shahriar et al., 2016). This shows that one of the biggest barriers for entrepreneurs to start a new venture is lack of access to funds.

Therefore, to solve this issue, various solutions have been proposed promoting funding for small business start-ups. One of these was MFIs, which provide credit and non-credit facilities to poor households to help poor individuals start small or micro businesses. MFIs emerged in developing countries due to limited access to services from formal financial institutions to poor households because of the lack of physical collateral, complicated and various procedures to obtain services from formal banks, and the lack of supply of credit in rural areas of the country (Imai & Azam, 2012). It is considered one of the key tools for reducing poverty through self-employment. Modern MFIs have been providing services since the late 1970s. The Grameen Bank is the first formal/modern MFI that started to provide finance to women when the founder of the Grameen Bank found that 42 women who made bamboo stools were stuck in a debt cycle due to the lack of capital while visiting a local village in Bangladesh. Since then, MFIs have gained success globally (Bruton et al., 2011) and within just a few decades, MFIs have served more than 200 million clients (Reed, 2015). As recognition, the founder of Grameen Bank received the Nobel Peace Prize in 2006. Field et al. (2010) suggested that microfinance has become a significant help to entrepreneurs as it helps to start new businesses. Similarly, Newman et al. (2014) stated that microfinance can help to start new enterprises linking with psychological and social capital in borrowers.

6.2 Research Methodology

This section explains the research approach and method that have been adopted for this part of the study and provides the justification for accepting a specific method. This section does not explain the research philosophy, approach, and method in great detail as this has already been discussed above in chapter 3. This section briefly explains the research method, data collection method and describes the dependent and independent indicators that are used for this part of the study.

6.2.1 Research Approach and Method

The research approach addresses how the research question has been answered. This is only discussed briefly in this section as it has already been discussed in detail in section 2.4.1 above. As stated above, the positivist paradigm is associated with testing existing theories or hypotheses that have been developed in advance, whereas interpretivism is about interpreting the experience and behaviours of people in society.

Similarly, distinguishing between a deductive and inductive approach is also key here. The deductive approach starts with hypothesis and is used to test that hypothesis based on numeric data using quantitative methods, whereas the inductive approach develops new theories through qualitative methods (Saunders et al., 2012).

Based on the discussion above, this chapter has applied the positivist paradigm, deductive approach and quantitative method as the objective of this part of the study is to test a hypothesis. This study has used secondary data to investigate the relationship between the profitability of MFIs and the provision of financial capital to business start-ups and analysed the available data using Multilevel Method (MLM). It is because the data available for this study is in hierarchy structure or lower-level data is nested in higher-level constructs and MLM estimation technique provides more accurate estimation in hierarchical data (Im and Sun, 2014). Further detail on MLM has been discussed below in section 6.3.3.

6.2.2 Data Collection

This chapter examines the relationship between the profitability of MFIs and the provision of financial capital to business start-ups using multiple sources of data. The main source of data on MFIs and the proportion of start-up enterprises financed by MFIs is collected from the MIX Market (www.themix.org). The MIX Market is a non-profit organisation which annually publishes the self-reported data of MFIs around the world. The data relates to MFIs' institutional environment, which is collected from the World Bank (www.worldbank.org), and to economic freedom, which is taken from the Heritage Foundation (www.heritage.org). The data covers 566 MFIs from 93 countries from the period of 2008 to 2018. The year 2008 has been taken as a base year because the data related to the provision of financial capital to business start-ups is not available before 2008 and 2018 has been taken as a final year because the data after this period was not available during the data collection time. The monetary data available in Mix market is nominal value adjusted by US dollar parity for all years (Leite et al 2019).

6.2.3 Dependent Variables

The dependent variable for this study is the *proportion of financed start-us businesses by MFI*, which has been calculated using the formula below. The dependent variable has been calculated using the formula because the data source does not provide the data related to the proportion of financed business start-ups itself, but it does provide the number of start-up businesses financed by individual MFIs and the total number of borrowers. The researcher has calculated the ratio because it provides a better understating of the performance of MFIs.

Proportion of financed start-up businesses = *Total number of start-up enterprises financed by MFI divided by the total number of borrowers of MFI.* (Source: Shahriar et al., 2016)

The data related to the variables can be observed directly in the MIX Market. However, the data available in the MIX Market is self-reported. Therefore, not reporting data related to whether MFI provides the loan to business start-ups do not necessarily suggest that MFI does not finance business start-ups at all. In other words, missing values were not treated as zeros in the data set. Furthermore, the MIX Market does not contain any information about the type of start-up that MFIs have financed in a given year. However, as we mentioned in the previous section, irrespective of their type, start-ups in less developed countries face a high likelihood of failure in

their start-up stage; and, as a result, they are considered risky lending propositions by lenders. Thus, the lack of information on the type of start-ups may not meaningfully influence our results.

6.2.4 Independent and Control Variables

This study is investigating whether the profitability of MFIs influences the provision of loans to business start-ups. The profitability of MFIs is measured using ROA, which is the main independent variable. This study has used various MFIs' characteristics indicators as control variables such as the size of MFIs measured through assets, commercial-oriented MFI status, age, and number of borrowers (Shahriar et al., 2016). Furthermore, the influence of the institutional environment has been controlled using indicators such as political stability and the rule of law. Similarly, the impact of macroeconomics has been controlled by including the GDP per capita and population. Moreover, this study has controlled the effect of economic freedom using business freedom and financial freedom indicators as this may affect the decision of MFIs to provide loans to business start-ups. All these indicators are described in detail in section 4.5. The control variables used in this study are taken from the study that identified the factors that affect the performance of MFIs (Ahlin et al., 2011) and the nearest study Shahriar et al. (2016), who investigated whether the profit orientation of MFIs affects the provision of financial capital to business start-ups. The individual indicators may not be exactly the same, but the indicators used as control variables in this study measure similar elements. For instance, Shahriar et al. (2016) used *ease of starting business* rank to measure how easy it is to start a business in the country, but this study used *business freedom* which also measures the same thing. All these variables have been outlined briefly in the next section below.

6.2.5 Description of Variables

This section presents a snapshot of all the variables used for this study. Table 6.2 below also provides a short description of all the variables alongside their index and the source of each variable.

Table 6. 2: Description of variables

Variable	Description	Source
Proportion of financed start-up business	The proportion of financial capital to business start-ups (Total number of start-up enterprises financed by MFI divided by the total number of borrowers)	Mix Market
Return on assets (ROA)	Net operating income (less of taxes) compared to average assets. It measures how the institution is managing its assets to optimize its profitability.	Mix Market
Mature MFI	1 if MFI is mature and if it is not mature then 0.	Mix Market
Assets (Log)	The logarithm of net assets of MFIs net assets of MFIs.	Mix Market
Commercial MFI	1 if MFI is registered as commercial MFI, 0 if non-commercial MFI.	Mix Market
Log Number of active borrowers (Log NAB)	The logarithm total number of borrowers of MFI.	Mix Market
Political stability/ No violence	Political stability and absence of violence. (Index: -2.5 to 2.5)	World Bank
Rule of law	Reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. (Index: -2.5 to 2.5)	World Bank
GDP per capita (Log)	The logarithm of GDP per capita.	World Bank
Population (Log)	The logarithm of a population of each country.	World Bank
Business freedom	An overall indicator of the efficiency of government regulation of business. The quantitative score is derived from an array of measurements of the difficulty of starting, operating, and closing a business (Index:0 to 100).	Heritage Foundation
Trade freedom	A measure of the absence of tariff and non-tariff barriers that affect imports and exports of goods and services. The trade freedom score is based on two inputs (Index: 0 to 100).	Heritage Foundation

6.3 Data Analysis and Results

This section presents the empirical results obtained from the data analysis. The researcher has analysed the available data using summary statistics, correlation matrix, and finally MLM regression. The summary statistics and correlation matrix show the base results and, finally, MLM regression determines whether the profitability of MFIs significantly influences the decision to provide financial capital to business start-ups.

6.3.1 Descriptive Statistics

Table 6. 3: Summary statistics of dependent and independent variables

Variable	N	Mean	Std. Dev.	Min	Max
Proportion of financed start-up business	938	0.11	0.171	0	1
ROA	801	0.01	0.138	-2.774	0.450
Mature MFI	905	0.75	0.431	0	1
Assets	866	7.38e+07	2.27e+08	2.27e+08	2.18e+09
Commercial MFI	871	0.39	0.489	0	1
NAB	934	64298	205608.6	3	4622578
Political stability/no violence	914	-0.71	0.704	-2.793	1.049
Rule of law	914	-0.55	0.477	-1.896	1.433
GDP per capita	911	4376.84	3674.75	300.30	16007.09
Population	912	2.00e+08	4.02e+08	186205	1.38e+09
Business freedom	896	60.18	13.080	4.1	90.6
Trade freedom	894	74.06	8.382	44.8	89.2

Table 6.3 above shows the summary of variables used for the study. The mean value of a dependent variable that is the proportion of financed microenterprises for the period of 2008 to 2018 was 0.11(11%) while the minimum value is 0 (0%) and the maximum is 1 (100%). This shows that out of the total number of borrowers, on average 11% of loans were provided to start-up business by MFIs. The minimum value shows that there is at one MFI that did not provide loans to business start-ups at all for one year and the maximum value shows that all the borrowers of MFIs were start-up businesses. The data shows that an MFI called WODASS that operates in Nigeria had a total number of borrowers of 1,520 in 2010 and all of them were start-up enterprises.

The average value of ROA, which is the main regressor, was 0.015 (1.5%). This means that MFIs included in this study were making an average of 1.5% profit. The minimum value was -2.77 (277%) and the maximum was 0.45 (45%). The minimum value suggests that at least one of the MFIs included in this study made a huge loss, while the maximum value suggests that at least one of the MFIs included in this study made a 45% return at some point. The mean value of mature MFIs is 0.75 (75%), which means that 75% of MFIs included in the sample are mature MFIs (running for 8 or more years) and the other 25% are younger MFIs. Similarly, the mean value of assets is $73,800,000 which means that the MFIs included in this study has an average of $73,800,000 worth of assets whereas the minimum is $2,279 which shows that one of the MFI included in this study has only $2,279 worth of assets and maximum is $2,180,000,000, which shows at least one of the MFI included in the sample has $2,180,000,000 worth of assets in year 2012.

The mean value of the commercial MFI variable was 0.39 (39%), which means that only 39% of MFIs in the sample are commercial MFIs and 61% are non-commercial MFIs. The mean value of a number of borrowers is 64,298 which means the MFIs included in this study has an average of 64,298 borrowers whereas the minimum value is 3 which mean one of the MFIs i.e., Inam MFI from Azerbaijan in 2012 has provided the loan to only 3 borrowers and the maximum value is 462,578 which shows that at least one of the MFI (i.e. Janalakshmi MFI from India in 2015) included in this study has provided the loan to 462,578 number of borrowers.

The average value of political stability and rule of law are -0.75 and -0.55 respectively. This suggests that the majority of MFIs that were included in this study are located in countries where the institutional environment is weak. Furthermore, the average value GDP per capita of the countries that have included in this study is $4,376 where the minimum and maximum GDP per

capita are \$300 and \$16,007 respectively. In addition, the mean value of the population is 200,000,000 whereas the minimum and maximum are 186205 and 1,380,000,000 respectively.

Moreover, the average index of business freedom was 60.18 while the minimum was 4.1 and the maximum was 90.6. It shows that on average, the countries included in the study have medium business freedom. The minimum value suggests that it was very difficult to start a business, operate and close in one of the countries (i.e., Belize in 2010) and the maximum value suggests that it was easier to start, operate, and close a business in one of the countries i.e., Georgia in 2013. Similarly, the average index of trade freedom was 74.06 which suggest that on average, countries included in this study have freedom to do trade. The minimum and maximum index were 44.8 and 89.2 respectively.

6.3.2 Correlation Coefficient

Table 6. 4: Correlation between dependent and independent variables.

		1	2	3	4	5	6	7	8	9	10	11	12
1	Proportion of financed start-ups business	1											
2	ROA	-0.090	1										
3	Mature MFI	-0.050	0.014	1									
4	Assets (Log)	-0.153	0.047	0.420	1								
5	Commercial MFI	-0.147	0.036	-0.257	0.201	1							
6	Number of active borrowers (Log NAB)	-0.016	-0.003	0.323	0.774	0.044	1						
7	Political stability/no violence	-0.071	-0.017	0.116	0.038	0.006	-0.170	1					
8	Rule of law	0.025	-0.040	-0.008	-0.032	-0.027	-0.003	0.307	1				
9	GDP per capita (Log)	-0.047	0.066	0.168	0.074	-0.121	-0.192	0.333	0.287	1			
10	Population (Log)	0.125	-0.045	-0.180	-0.146	-0.047	0.208	-0.457	0.194	-0.118	1		
11	Business freedom	-0.183	0.12	0.125	0.140	-0.022	-0.092	0.170	0.015	0.450	-0.428	1	
12	Trade freedom	-0.066	0.001	0.169	0.135	-0.003	-0.125	0.269	0.085	0.488	-0.474	0.444	1

Table 6.4 above shows the correlation matrix or shows the correlation level and direction of the relationship between all the variables included in this study. The correlation level is measured using Evans (1996) as above in section 4.7.5.2. The matrix shows that the main independent variable ROA has a very weak negative correlation with the dependent variable. Similarly, mature MFI, assets, commercial MFI, and the number of borrowers also have a very weak negative correlation with the proportion of financed start-up businesses.

Furthermore, the institutional environment indicators i.e., political stability also has a very weak negative correlation with the dependent variable. However, the rule of law has a very weak positive correlation with the dependent variable. In addition, the macroeconomic variable i.e., GDP per capita has a weak negative association with the dependent variable but the population has a weak positive association with the dependent variable.

Moreover, the economic freedom indicators i.e., business freedom and financial freedom have a weak negative correlation with the dependent variable. Finally, all the independent variables are not highly correlated. However, the assets variable is moderately correlated with the number of borrowers.

6.3.3 Multilevel Model Estimation

The MLM estimation has been applied because, in recent years, management researchers have used MLM estimation technique for hierarchical structure data as it provides more accurate estimation (Im & Sun, 2014; Peng et al., 2015). MLM is also known as a general linear mixed model, mixed-effects model, and hierarchical linear model. It is a model that helps analyse data with a multilevel or hierarchical structure data where units are nested within the higher level(s), such as students in classes, classes in schools, and so on.

The data available for this study is hierarchical in the sense that countries are in a higher level (level 3), MFIs are in level 2 and year observation is in a lower level (level 1), which means the yearly observation are nested in the MFIs and the MFIs are nested in different countries. MFIs in the same country are likely to share common practices with regard to their business processes, including screening, selecting, and monitoring clients. Furthermore, MFIs are influenced by their local environments (Ahlin & Townsend, 2007); thus, the behaviours and activities of MFIs tend to be similar within the same country. Additionally, when units are

clustered, classical regression analysis is not appropriate since the underlying hypothesis of independence of the observations is violated and using classical regression analysis leads to downward bias standard errors and, hence, inferences about the effect of the covariates might be spurious (Hox, 1995). Moreover, MLM also helps to diminish endogeneity by separating the error term in parts (Leite et al., 2019). In other words, the MLM with random intercepts allows each MFI and each country to have its own intercept that controls endogeneity at the MFI and country levels.

This study also tests for interclass correlation (ICC) which represents the variance of a dependent variable between two groups. The ICC result illustrates whether the data is clustered between groups and allows to decide whether to apply MLM or classical regression. This study estimates null model to calculate the ICC using the following equation 3.

$$Y_{it} = \beta_0 + u_{0j} + \alpha_{ij} \qquad \text{equation (3)}$$

Where the i represents the MFIs and j is the country. Hence, Y_{it} is the proportion of financed business start-ups by MFI in country j. β_0 represents the overall mean of the dependent variable among countries, u_{0j} represents the effect of the country and α_{ij} represents the error term. The result of ICC from the equation (3)'s null model is presented in the first column of Table 6.6 below.

The rule of thumb is if the ICC value is higher than 0.05, the MLM is suitable. The ICC result 0.098 shows that the data are clustered. As a result, MLM is more appropriate than ordinary least square (OLS) as it violates the OLS regression assumption of data independence (Hausknecht et al., 2008; Monsalves et al., 2020). Therefore, this study employs an MLM approach with a three-level hierarchical model to estimate the results with the 'xtmixed' command in Stata software.

The MLM technique has been applied also because none of the above estimation techniques (GMM, GLM and PSM) used are suitable for this part of the study. The GMM method that is used in Chapter 4 is not viable here due to the small observation. The number of countries (93) and the number of MFIs (566) are high but the amount of time-series data is small. Secondly, the researcher considered applying OLS or GLM as above in Chapter 5 but, as stated above,

the dependent variable of this study is not normally distributed (see figure 6.3 below). Thus, in this case, OLS is not the best method to apply. The GLM method could be used in this study but as stated above it does not reduce or remove the endogeneity issue. In Chapter 5 the endogeneity issue has been reduced by applying PSM technique because the main independent variable was binary or dummy. However, the main independent variable, i.e., ROA for this part of the study, is a continuous variable, not binary. As a result, PSM cannot be used. In this case, the MLM reduces the endogeneity issue by separating the error term in parts (Leite et al., 2019). Therefore, the researcher has no other option but to apply the MLM method. This study has applied the random intercept model and the results are available in following Table 6.6. The random intercept model is preferred because it allows variations of the intercept at higher level groups and it assumes that although the slope is parallel, the intercepts of different countries are different because the profitability of MFIs vary in different countries due to the size of MFIs, types of MFIs and age of MFIs. Thus, the following equation 4 has been developed to estimate the random intercept multilevel model. The result from the equation 4 has been presented in Table 6.6 below.

$$\text{Full model: } Y_{tjk} = \underbrace{\gamma_{000} + \gamma_1 P_{tjk} + \gamma_2 C_{tjk}}_{\text{Fixed effect}} + \underbrace{u_{00k} + \pi_{0jk} + \alpha_{tjk}}_{\text{Random effect}} \qquad \text{equation (4)}$$

The above equation (4) shows the full multilevel model where both fixed and random parts are included. First part shows the fixed part of the model where γ_{000} is the grand mean, P_{ijk} is the profitability of MFI at a time t of MFI j in country k, C_{ijk} represents all the control variables used at a time t of MFI j in country k. In the random part of the model, u_{00k}, π_{0jk} and α_{ijk} show the random effect associated with country, MFI in the country and error term, respectively.

6.3.4 Diagnostic Test

The researcher has again conducted various diagnostic tests for this part of the study to generate reliable results or to achieve best linear unbiased estimation. This study has tested for multicollinearity, heteroskedasticity, autocorrelation and normality.

i)   Multicollinearity

It is necessary to check whether a multicollinearity issue exists. This has been done using Variance Inflation Factor (VIF). The VIF result in table 6.5 below shows that the mean VIF value is 2.22, which is less than 4, and the individual VIF is less than 10. This means that multicollinearity issue does not exist between the independent variables (Cameron & Trivedi, 2010). If the mean VIF value is higher than 4 and individual VIF is more than 10, then it means, there is multicollinearity issue between the variables and that needs to be addressed.

Table 6. 5: VIF

Variable	VIF
Assets (Log)	4.62
NAB	4.42
Population (Log)	2.76
GDP per capita (Log NAB)	2.18
Trade freedom	1.78
Political freedom	1.77
Business freedom	1.64
Mature MFI	1.48
Rule of law	1.38
Commercial MFI	1.33
Return on assets	1.03
Mean VIF	**2.22**

ii)   **Heteroskedasticity**

In addition to testing for multicollinearity, this study has also tested for heteroskedasticity and autocorrelation. Heteroskedasticity has been checked using Breusch-Pagan /Cook-Weisberg test (hettest) where the null hypothesis is constant variance or homoskedasticity and the alternative is non-constant variance or heteroskedasticity (McAleer, 1994; Cameron & Trivedi, 2010).

Figure 6. 1: Test for heteroskedasticity

```
. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
        Ho: Constant variance
        Variables: fitted values of proporitionoffinancedmicroenterp

        chi2(1)       =     93.89
        Prob > chi2   =    0.0000
```

The Breusch-Pagan/Cook-Weisberg test is significant at a 1% level and thus rejects the null hypothesis of homoskedasticity. This means that the residual in the equation is also likely to not be homoscedastic.

iii)   Autocorrelation/Serial Correlation

The autocorrelation test may not be required if the data is a cross-section, but the data used for this study includes time-series data and cross-section. Therefore, it is also important to test for autocorrelation. Consequently, we have tested autocorrelation using the Wooldridge test (xtserial) and the result shows that the p-value is significant at a 5% level, which means autocorrelation exists within the model. The result is shown below.

Figure 6. 2: Test for autocorrelation

```
. xtserial proporitionoffinancedmicroenterp returnonassets agedummy1 logassets profitstatusdummy2 logNoB politicalstabilitynovoilence rul
> eoflaw loggdppercapitacurrentus logpopulation businessfreedom tradefreedom


Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,     41) =     4.731
          Prob > F =    0.0354
```

iv)   Normality Test

Finally, this study has also tested for normality to check whether the classical regression method is suitable for this study. The results below show the joint skewness/kurtosis test for normality. The Prob>chi2 values of the variables are used to test if the variables are normally distributed. The null hypothesis is that a variable is normally distributed, and the alternative is not normally distributed (D'Agostino et al., 1990). The results show that all of the variables except business freedom are significant, which indicates that the variables are not normally

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distributed as the null hypothesis is rejected. It also means that the error term in the model is likely to not be normally distributed (Shahriar et al., 2016). This shows that the OLS method is not suitable for this study.

Figure 6. 3: Test for Normality

```
. sktest proporitionoffinancedmicroenterp returnonassets profitstatusdummy1 agedummy1 lo
> gNoB logassets politicalstabilitynovoilence ruleoflaw loggdppercapitacurrentus logpopu
> lation businessfreedom tradefreedom

                        Skewness/Kurtosis tests for Normality
                                                         ———— joint ————
       Variable |    Obs   Pr(Skewness)  Pr(Kurtosis)  adj chi2(2)   Prob>chi2
    proporitio~p |    938      0.0000        0.0000          .           0.0000
    returnonas~s |    801      0.0000        0.0000          .             .
    profitstat~1 |    871      0.0000          .             .             .
      agedummy1 |    905      0.0000        0.0000          .           0.0000
         logNoB |    934      0.0001        0.6762        14.61         0.0007
       logassets |    866      0.0331        0.1090         7.08         0.0289
    politicals~e |    914      0.0006        0.2563        11.97         0.0025
       ruleoflaw |    914      0.0000        0.0001        28.12         0.0000
    loggdpperc~s |    911      0.0839        0.0000        57.81         0.0000
    logpopulat~n |    912      0.0000        0.0000        34.37         0.0000
    businessfr~m |    896      0.1288        0.2355         3.71         0.1566
     tradefreedom |    894      0.0028        0.0000        26.49         0.0000
```

The diagnostic tests show that both heteroskedasticity and autocorrelation issues exist, and these issues must be addressed too. However, this study is applying MLM technique which is designed to model dependency (i.e., autocorrelation) and heteroscedasticity (at any level). Therefore, MLM technique will automatically solve these issues (Steele, 2007; Bullen et al, 1997).

6.3.5 Results and Discussion

Table 6. 6: Relationship between the proportion of financed business start-ups and profitability of MFIs – MLM estimation

Variables	Proportion of financed Business start-ups	
	Model 0	Model 1
ROA		-0.141
		(0.103)
Commercial MFI		-0.037**
		(0.016)
Mature MFI		-0.009
		(0.021)
Number of borrowers (Log)		0.017***
		(0.007)
Assets (Log)		-0.022***
		(0.007)
Political stability/ no violence		-0.012
		(0.016)
Rule of law		0.013
		(0.017)
GDP per capita (Log)		0.010
		(0.012)
Population (Log)		-0.004
		(0.007)
Business freedom		-0.002***
		(0.001)
Trade freedom		0.001
		(0.001)
Year dummies		Yes
Constant	0.110***	0.385**
	(0.008)	(0.180)
Observations	938	705
Number of groups	93	81
Variance Components		
ICC - Country level	0.098	0.021
ICC- MFI level | Country		0.357

Robust standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 6.6 above shows that the relationship between the proportion of loans to business start-ups and all the independent variables. The model 0 shows the results from null model and model 1 represents the results from random intercept model. The results show that an increase

in the profitability of MFIs has no significant impact on the provision of financial capital to the business start-ups. However, the p-value (0.12) is near to 10% significance level and the coefficient is negative, which suggests that it may have a negative relationship with the provision of loans to business start-ups.

Commercial MFI status also has a significant negative impact on loans to business start-ups as it is significant at a 5% level. The result shows that the commercial MFIs are providing 3.7% less number of loans to start-ups business compare to non-commercial MFIs. This result is similar to the findings of Shahriar et al. (2016) and Churchill and Mishra (2018). They stated that non-commercial MFIs are more inclined to provide credit to business start-ups because this lending behaviour reflects their goal of being social lenders. In comparison, commercial MFIs prefer to lend to more established businesses that are less risky and more likely to survive than start-ups

Similarly, the mature MFI dummy variable is also not significant, whereas assets have a significant negative impact on the proportion of financed business start-ups. This shows that larger MFIs are providing less number of loans to business start-ups than smaller MFIs. This result is similar to the findings of Shahriar et al. (2016), as they also found a negative association between size and proportion of loans to business start-ups. The result also shows that the number of borrowers has a significant positive relationship with the provision of loans to start-ups. It shows that the MFI with a higher number of borrowers also has a higher number of loans to business start-ups. Shahriar et al. (2016) also found a positive relationship.

Furthermore, political stability and rule of law, which are institutional variables, demonstrate no significant impact on the dependent variable. This is similar to the findings of Shahriar et al. (2016), as they also found no significant relationship between political stability and the proportion of loans to business start-ups, but the result is not consistent with the findings of Churchill and Mishra (2018), as they found a significant positive relationship between institutional quality and the number of loans to business start-ups.

Similarly, GDP per capita and population also have no significant association with the provision of loans to business start-ups. This result is similar to the result of Shahriar et al. (2016), as they also found no significant association between GDP per capita and the dependent variables, but Churchill and Mishra (2018) did find a significant positive association.

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The results also show that business freedom has a significant negative impact on decisions to provide loans to business start-ups as it is significant at a 1% level with coefficient -0.002. This indicates that where it is relatively less easy to start a business, MFs are more likely to provide funds to start-ups. The trade freedom has no significant association.

Overall, the results show that the profitability of MFIs does not significantly influence the decision to provide loans to business start-ups, but it can be said that the profitability of MFIs and lending to business start-ups has a negative association. The results also show that assets, commercial MFI status, and business freedom have a significant negative impact, while the number of borrowers has a positive relationship.

Table 6.6 also shows the random part of the results. The null model shows that 9.8% loans to business start-ups by MFIs is explained by country difference but when the control variables are included the effect of country difference is reduced to only 2.1%. The results also show that the country and MFIs difference together explains 36.7% loans to business start-ups by MFIs. In other words, 36.7% variance in loan to business start-ups is explained by country and MFI difference.

6.3.6 Robustness check

The above result in table 6.6 shows that the profitability of MFIs has no significant impact on the provision of financial capital to business start-ups. To confirm the main results, a further investigation has been carried out by replacing the main explanatory variable ROA to ROE, which also measures the profitability of MFIs (Meyer, 2019). The result using ROE as a main explanatory variable is available below in Table 6.7. The result shows that ROE also has significant negative impact on providing finance to business start-ups. Similarly, assets, commercial MFI status, and business freedom have a significant negative impact on the dependent variable, whereas the number of borrowers has a significant positive relationship. All the results are similar, which suggests that the result obtained for this study is robust and reliable.

Table 6. 7: Robustness checks – multilevel model

VARIABLES	Proportion of financed Business start-ups
ROE	-0.001**
	(0.00)
Commercial MFI	-0.036***
	(0.014)
Mature MFI	0.004
	(0.018)
Number of borrowers (Log)	0.019**
	(0.008)
Assets (Log)	-0.024***
	(0.008)
Political stability/ no violence	-0.014
	(0.019)
Rule of law	0.01
	(0.023)
GDP per capita (Log)	0.006
	(0.012)
Population (Log)	-0.001
	(0.007)
Business freedom	-0.002**
	(0.001)
Trade freedom	0.001
	(0.001)
Constant	0.347*
	(0.187)
Observations	705
Number of groups	81

6.3.7 Provision of Financial Capital to Business Start-ups: Profitability of Commercial and Non-commercial MFIs.

Once it was found that the profitability of MFIs has a no significant relationship with the provision of loans to business start-ups, this study further investigated whether an increase in profitability of commercial and non-commercial MFIs influences the decision differently on providing loans to business start-ups. It is important to investigate this further because it will provide more in-depth understanding of the issue. It is also important because these two types of MFIs (i.e., commercial and non-commercial) have different objectives. As stated above, commercial MFIs seek profit while non-commercial MFIs strive to contribute to society.

Shahriar et al. (2016) found that commercial MFI status has a significant influence on the provision of financial capital to business start-ups, which suggest that the commercial orientation of MFIs does matter. However, it is not known whether these two types of MFI make decision differently to provide loans to business start-ups when their profitability changes. It may be that the increase in profitability of commercial MFI make their decision to provide loan to business start-ups differently than when increase in profitability of non-commercial MFI because their goal or objective is different. Therefore, this sub-section investigates the relationship between the profitability of commercial and non-commercial MFIs and the provision of loans to business start-ups. To investigate this, the study has applied descriptive statistics and MLM estimation technique. The results from these methods are noted below.

6.3.7.1 Summary Statistics

Table 6. 8: Mean of dependent and main independent variable of commercial and non-commercial MFIs.

Year	Commercial MFI		Non-commercial MFI	
	Average Proportion of financed start-ups business	Average ROA	Average Proportion of financed start-ups business	Average ROA
2008	0.0000	0	0.2860	0
2009	0.3389	0	0.0469	0
2010	0.0837	.0318673	0.1204	.0187497
2011	0.0884	.0350262	0.1815	.032536
2012	0.1051	.005781	0.1406	-.0074196
2013	0.1482	.042236	0.1192	-.0052283
2014	0.0566	.0432391	0.0897	.031971
2015	0.0431	.0158313	0.1307	.0118462
2016	0.0586	.0156455	0.1008	.0198672
2017	0.0000	.02934	0.1081	-.29915
2018	0.0000	0	0.0089	
Mean	**0.0839**	**.0262167**	**0.1212**	**.0112159**

Table 6.8 above shows the mean value of the proportion of financial capital to business start-ups and ROA of both commercial and non-commercial MFIs over the years. The total mean

value of the proportion of financial capital to the business start-ups of commercial and non-commercial MFIs are 0.0839 and 0.1212, respectively. This shows that non-commercial MFIs are providing a greater number of loans to business start-ups than commercial MFIs. However, the average proportion of loans to start-ups of commercial MFIs is higher in 2009 and 2013 compared to that of non-commercial MFIs.

The table 6.8 also shows that the total mean value of ROA of commercial MFIs is higher than that of non-commercial MFIs. The trend of the proportion of financial loans to business start-ups of non-commercial MFIs increases from 2009 to 2011, but after 2011 it decreases, until 2014. The trend of average return on assets of non-commercial MFIs is not very clear as the average ROA in 2010 and 2011 are positive but in 2012 and 2013 they are negative. Again, they are positive in 2014, 2015, and 2016, but in 2017, it shows -2.99.

However, the trend of the proportion of loans provided to business start-ups by commercial MFIs seems to increase at the beginning of 2010 until 2013 before decreasing slightly. The average ROA of commercial MFIs, meanwhile, stays the same in this period. In 2012, though, the average ROA significantly decreases before increasing in 2013 and 2014. The average ROA then decreases in 2015 and 2016. Although the average ROA of commercial MFIs ebbs and flows, it does not have a negative value, which suggests that commercial MFIs have never been running at a loss. Table 6.9 below shows the estimation results from MLM method.

6.3.7.2 Results

Table 6. 9: Proportion of financial capital to business start-ups: profitability of commercial and non-non-commercial MFIs – Multilevel model estimation

	Proportion of finance to business start-ups	
VARIABLES	Commercial MFI	Non-Commercial MFI
Return on assets	-0.012	-0.251
	(0.059)	(0.184)
Mature MFIs	0.015	-0.032
	(0.023)	(0.035)
Number of borrowers (Log)	0.016**	0.019*
	(0.008)	(0.010)
Log assets	-0.022***	-0.023**
	(0.008)	(0.011)
Political stability/ no violence	-0.010	-0.023
	(0.018)	(0.024)
Rule of law	0.024	-0.004
	(0.026)	(0.027)
GDP per capita (Log)	0.019	0.014
	(0.014)	(0.017)
Population (Log)	0.001	-0.008
	(0.010)	(0.009)
Business freedom	-0.001	-0.003***
	(0.001)	(0.001)
Trade freedom	0.001	-0.001
	(0.002)	(0.002)
Year dummy	YES	YES
Constant	0.108	0.463**
	(0.263)	(0.218)
Observations	275	430

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The above results show that the ROA of both commercial and non-commercial MFIs has no significant relationship with the proportion of financial capital provided to business start-ups. Despite the main regressor not being significant, the results suggest that the profitability of both commercial and non-commercial MFIs has a negative association with the proportion of loans given to business start-ups as both have a negative coefficient. Similarly, the mature MFI dummy variable of both commercial and non-commercial MFIs is also not significant with the dependent variable.

However, the assets of both commercial and non-commercial MFIs have a significant negative relationship with the dependent variable. This shows that larger MFIs are providing a smaller number of loans to business start-ups regardless of whether they are commercial or non-commercial. Furthermore, the results reveal that the number of borrowers of commercial MFIs has a significant positive relationship with the dependent variable, but that it is not significant for non-commercial MFIs. This suggests that an increase in the number of borrowers of commercial MFIs leads to an increase in the proportion of loans given to business start-ups, which is evident as the proportion of financial capital to business start-ups ratio is calculated based on the number of borrowers. However, it is not significant for non-commercial MFIs, which means that even though the number of borrowers of non-commercial MFIs increases, the proportion of loans to start-ups does not increase. Moreover, the institutional and macroeconomic indicators (i.e., political stability, rule of law, GDP per capita, and population) are not significant. This suggests that these indicators do not influence the decision to provide loans to business start-ups for both commercial and non-commercial MFIs.

Finally, the results reveal that business freedom does not significantly influence the decision of commercial MFIs to provide loans to business start-ups. However, it was shown that there is a significant negative influence on the decision of non-commercial MFIs to provide loans. This suggests that where there is higher freedom to set up a business, non-commercial MFIs are less likely to provide loans to business start-ups. The trade freedom variable is not significant. Finally, the estimation has also included the time dummy to control for trend effect, but the result revealed that it is not significant with the dependent variable.

6.4 Conclusion of Chapter 6

This part of the study investigated the relationship between the profitability of MFIs and the provision of financial capital to business start-ups using unbalanced panel data from 566 MFIs covering the period from 2008 to 2018. No research has been conducted on this topic before, so this study was breaking new ground. Furthermore, this study has investigated whether the relationship between the profitability of commercial and non-commercial MFIs is different with regards to the provision of financial capital to business start-ups as these two types of MFIs have different objectives.

In order to investigate the relationship, this study has applied the MLM model and controlled for MFI characteristics such as size, age, commercial MFI status, and the number of borrowers. Furthermore, this study has controlled for the external influences of the institutional environment using political stability and rule of law. It has also controlled for the effect of macroeconomic variables such as GDP per capita and population. Moreover, business freedom and trade freedom have been included as control variables to see if the economic freedom variables of the country have any impact on the dependent variable. Finally, we controlled for trend effect by adding year dummy variables.

The results reveal that the main explanatory variable (ROA) has no significant impact on the provision of loans to start-up businesses. However, the result shows that another proxy of profitability (i.e, ROE) has significant negative relationship with the provision of loans to business start-ups. In addition, the p-value (0.12) is also very close to 10% significant level. Therefore, it can be concluded that profitability of MFIs has negative relationship with the provision of loan to business start-ups but not significant. Further, the important result that this study found is that the commercial MFIs is providing less number of loans to business start-ups compare to non-commercial MFIs and further validates the findings of Shahriar et al., (2016).

Furthermore, this study concludes that larger MFIs provide a smaller number of loans to business start-ups regardless of whether the MFI is commercial or non-commercial. Similarly, the study found that commercial MFIs provide a lower number of loans to start-ups compared to non-commercial MFIs. In addition, this study concludes that MFIs provide a greater number of loans to business start-ups in countries where it is less easy to start a business. However, a

further study found that business freedom has negatively influenced non-commercial MFIs' decisions to lend to business start-ups, but that business freedom does not significantly influence commercial MFIs' decisions to lend to business start-ups.

Chapter 7: Summary and Conclusion of the Overall Thesis

7.1 Introduction

The main aim of this chapter is to summarise the key findings and to outline the key contributions of the whole thesis. It also provides relevant policy implications and suggestions for future research and finally states the limitations of the research. Therefore, this chapter has been divided into five sections. The first section summarizes the empirical chapters of this thesis, the second section outlines the policy implications, the third section records the contributions made by the thesis, the fourth section acknowledges the limitations of the research, and, finally, the fifth section provides suggestions for further research.

The first objective of this thesis is to investigate the impact of the commercialisation of MFIs on their financial performance and outreach. Formal MFIs were first established in the 1970s with the goal to provide credit service to poor households so that they could start businesses or expand existing ones, which would eventually help to improve their living standard. In other words, microfinance was established for social welfare and poverty reduction. They were based on donations and subsidies. However, over time, MFIs started to adopt a commercial approach due to the increasing need to become self-sustainable. Over the last few decades, the commercialisation of MFIs has increased rapidly but, despite this increase, relatively few studies exist that examine the impact of the commercialisation of MFIs and even those studies that are available are not conclusive due to a lack of consensus. Moreover, previous studies fail to apply rigorous methodology such as dynamic panel GMM estimation technique that address potential endogeneity issues. Therefore, this study has developed the hypothesis to test whether the commercialisation of MFIs has a positive impact on their financial performance and outreach.

To test the hypothesis, a dummy variable i.e., commercial MFI status (commercial vs non-commercial MFIs) has been created. This indicator is used because, although different countries adopt a different legal status for MFIs, the institutions still fall broadly into the category of either commercial or non-commercial (though some articles refer to the distinction as for-profit or not-for profit). In the dataset, determining this status is possible by assessing the profit status, which pertains to whether the institution is a for-profit or not-for-profit MFI. The dependent variables are financial performance and outreach of MFIs. The financial

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performance is measured using ROA and OSS, whereas outreach is measured through breadth of outreach (*number of borrowers*) and depth of outreach (*average loan size*). In addition, this study has also added two new variables i.e., *Market share of borrowers* and *Market share of number of borrowers adjusted by market share of assets* to measure breadth and depth of outreach created by Bibi et al. (2018) to test whether these new indicators are better compared to existing one as claimed by the Bibi et al. (2018).

The empirical findings reveal that the adopting commercial approach or commercialisation of MFIs has no significant impact on financial performance as the results shows that the main regressor (commercial vs non-commercial MFIs) has no significant relationship with both ROA and OSS which means that we reject the *hypothesis 1a and 1b* stated above in section 4.7.3. However, the result shows that the commercialisation of MFIs has a significant positive impact on their breadth of outreach as the main regressor has a significant positive association with the number of borrowers which means we accept the *hypothesis 1c* stated above in section 4.7.3. The result also revealed that the commercialisation of MFIs has a significant positive relationship with average loan size, which suggests that the commercialisation of MFIs leads to an increase in their average loan size, which actually is a negative impact in the microfinance context because it indicates that the commercialisation of MFIs leads to the serving of richer clients – those who can afford larger loans which means we reject the *hypothesis 1d* stated above in section 4.7.3. In other words, the findings show that commercial MFIs are providing larger loans to a larger number of borrowers, which is an indication that commercial MFIs are seeking profit by providing loans to richer clients as they can afford larger loans. Therefore, it can be concluded that MFIs are drifting away from their mission due to the commercialisation process.

Furthermore, this study tested whether the new variables i.e., *Market share of borrowers* and *Market share of number of borrowers adjusted by market share of assets* are suitable for estimation techniques such as dynamic panel analysis method. The findings show that the first variable, which is Market share of borrowers, is suitable to measure breadth of outreach as it provides better measures of performance of MFIs because it is ratio based on total number of borrowers rather than just the number of borrowers. However, another indicator i.e., Market share of number of borrowers adjusted by market share of assets is not a suitable variable to measure the depth of outreach as this variable undergoes various transformations. First, it needs the number of borrowers to be transformed into the market share of borrower ratio. Then the

assets variable needs to be transformed into the market share of assets ratio. Lastly, these two ratios need to be transferred into another ratio, so the overall ratio is relatively difficult to calculate and then apply. It is also difficult to interpret in dynamic panel analysis as it adds additional complexity on dynamic modelling. Additionally, it does not show if the MFIs are providing larger loans to a larger number of borrowers as this indicator only shows if the MFIs are providing a larger loan to a small number of borrowers or small loans to a larger number of borrowers.

The second objective of this thesis is to investigate the impact of commercialisation of MFIs in Nepal and how the commercialisation of MFIs affects their financial performance & outreach. The data has been collected from MFIs in Nepal. Nepal has been selected as a case study for three reasons. Firstly, Nepal is one of only a few countries whose MFIs adopted a commercial approach at an early stage, so there is a long history of commercialisation to draw upon as stated above in Chapter 5. Secondly, despite the rapid increase of commercial MFIs in Nepal over the last decade, no studies have been conducted to investigate the impact of the commercialisation of MFIs in Nepal as per the researcher's knowledge, which shows that there is a knowledge gap. Thirdly, this study has applied mixed method to understand the phenomena in-depth, which consists of both quantitative and qualitative study where quantitative data is used from secondary data from MIX Market. However, for qualitative data collection, the researcher needs to understand the participants' language to communicate and the researcher is fluent in the Nepali language and also understands the culture due to ethnic background, both of which help in qualitative data collection. Indeed, if another country had been chosen, it would have been difficult to collect the qualitative data.

The results from mixed method show that commercial MFIs are significantly less profitable than non-commercial MFIs in Nepal. Further, the result reveals that the commercialisation of MFIs led to reducing their profitability in the short run but increases in the longer run. The result also shows that commercial MFIs are less operationally self-sufficient than non-commercial MFIs in Nepal but their self-sufficiency level is increasing over the years. However, the findings also show that commercial MFIs have higher outreach than non-commercial MFIs in Nepal as their number of borrowers are significantly higher than the non-commercial MFIs. Furthermore, the results reveal that the average loan size of both commercial and non-commercial MFIs are not significantly different in Nepal but the average loan size of commercial MFIs is increasing over the years. This suggests that MFIs in Nepal are also

drifting away from their main mission slowly as an increase in loan size indicates that MFIs are serving richer clients to maximise profit. Moreover, the qualitative analysis shows that the commercialisation of MFIs leads to a change in the goal of MFIs, increases their size, and improves management and staff efficiency, all of which contributed to their financial performance and outreach.

The third objective of this thesis is to examine the relationship between the profitability of MFIs and the provision of financial capital to business start-ups. Shahriar et al. (2016) investigated the impact of profit-orientation on the provision of financial capital to business start-ups. Furthermore, Churchill and Mishra (2018) investigated the impact of ethnic diversity on microenterprise start-ups. However, no study has examined whether the profitability of MFIs influences the decision to provide loans to business start-ups. There is a strongly fought debate on this particular subject. One school of thought believes that an increase in profitability of MFIs leads to a decrease in the number of loans given to start-ups, as standard theory suggests that a higher bank profitability dissuades a bank's risk taking; thus, it is associated with larger capital reserves because profitable banks stand to lose more shareholder value if downside risks are realised. Others believes that more profitable banks can borrow more and engage in risky activities on a larger scale under the presence of leverage constraints which suggest that an increase in profitability of MFIs leads to an increase in the number of loans to risky businesses such as start-ups. Therefore, this study has created research question Q4 to investigate further.

To investigate, this study has used unbalanced panel data of 566 MFIs from 93 countries covering the period from 2008 to 2016. The researcher analysed the data using MLM method and found that the profitability of MFIs has negative relationship with the provision of loans to business start-ups. Further, the result also shows that commercial MFI provides less number of loans to business start-ups. Furthermore, we also checked whether the impact of the profitability of commercial and non-commercial MFIs is different. The result shows no significant difference.

Finally, it can be concluded from the overall thesis that the MFIs in developing countries are drifting away from their mission slowly due to the commercialisation as the results show that MFIs are serving richer clients than poor and also show a negative correlation between their profitability and proportion of loan to business start-ups.

7.2 Policy Implications and Recommendations

The empirical findings in chapter 4 show that adopting a commercial approach or being a commercial MFI has no significant impact on financial performance but has significant positive impact on breadth of outreach and has a significant negative impact on depth of outreach. This suggests that commercial MFIs are providing larger loans to a larger number of clients than non-commercial MFIs, it can be concluded that in general commercial MFIs are shifting their objective of social welfare slowly towards profitability. Therefore, utilising the findings and conclusions of this study, policymakers such as governments, MFIs, and related agencies can make policies which will motivate MFIs to balance out their social and financial goals.

Secondly, the case study of Nepalese MFIs reveals that commercial MFIs in Nepal are also providing larger loans to borrowers. Therefore, utilising the empirical findings from this study, the government and related agencies of Nepal should make policies that direct commercial MFIs towards achieving both their social and financial objectives rather than just being focused on financial gain. This study also allows us to understand how the commercialisation of MFIs affects their financial performance and outreach. It helps policymakers to understand the commercialisation process and allows them to understand the processes involved in recently commercialised MFIs undergoing mission drift. Policymakers can utilise this finding and design policies that prevent mission drift.

The findings in chapter 6 show that profitability of MFIs does not significantly impact the decision to provide loan to business start-ups, but it does have a negative relationship with the provision of loans to business start-ups. It indicates that those MFIs that are not making significant profit are providing larger numbers of loans to business start-ups and, once their profitability increases, they begin to provide fewer loans to business start-ups. Therefore, the researcher recommends that policymakers encourage MFIs to provide loans to business start-ups even after their profitability increases by designing various policies that can help poor people who are trying to improve their living standard through entrepreneurial ventures.

7.3 Research Contribution

The first objective of this thesis is to investigate the impact of the commercialisation of MFIs on their financial performance and outreach. It contributes towards the existing literature on the commercialisation of MFIs. Furthermore, this study is the first to use a dynamic panel data analysis method while investigating the effect of the commercialisation of MFIs. Therefore, this study has also filled the methodological gap. It also contributes to the debate of whether MFIs should be welfarist or institutionalist. Further, this study has also tested if the new indicators of outreach introduced by Bibi et al. (2018) are suitable or not for the first time, which helps other researchers to decide whether to include these indicators or not in their study.

The second objective of this thesis is to investigate the impact of the commercialisation of MFIs on their financial performance and outreach in Nepal and how the commercialisation of MFIs affects their financial performance and outreach. This contributes to the literature of microfinance in Nepal. This study also helps us to understand how the commercialisation of MFIs affects their financial performance and outreach for the first time and contributes to the knowledge gap.

The third objective of this thesis is to investigate whether the increase in profitability of MFIs affects their decision to provide financial capital to business start-ups. This contributes to the microfinance and entrepreneurship literature as this subject has not been addressed before. This study also contributes to the debate of whether an increase in profitability of MFIs leads to an increase or decrease in the number of loans given to business start-ups.

7.4 Research Limitations

As expected in any research, this study suffered from a number of limitations. The researcher has tried to minimise the limitations as much as possible, but some of the limitations could not be minimised. These limitations have been discussed below respective to each of the three research objectives.

Chapter 4 looks at the first objective of this thesis which investigated the impact of the commercialisation of MFIs on their financial performance and outreach in developing economies using GMM method. The main limitation of this part of the study is data related.

This study investigates the impact of the commercialisation of MFIs, but the data does not show when the non-commercial MFIs became commercial MFIs. Rather, it merely shows the current status of the MFIs. Furthermore, the data does not show how the non-commercial MFIs become commercial MFIs (i.e., Greenfield, downgrading, upgrading, or merger).

Chapter 5 looks at the second objective of this thesis which investigated the impact of the commercialisation of MFIs in Nepal and how the commercialisation of MFIs affects their financial performance and outreach. The main limitation of this part of the study is related to the nature of the samples used. The data was collected from MFIs and cooperatives in Nepal, but a large number of cooperatives in Nepal are situated in rural areas, which means that the data related to a large number of cooperatives is not included in this study as it is not available. Moreover, many MFIs and cooperatives lack an online presence, which made it difficult to collect data from them. Similarly, many other MFIs may not have reported their data as MFI-related data in MIX Market is self-reported. Therefore, the findings of this study may not accurately represent all the MFIs of Nepal. Furthermore, as the data was solely collected from MFIs in Nepal, the findings may be applicable to similar other developing countries, but care is required when generalising the results.

Chapter 6 looks at the third objective of this thesis which investigated the relationship between the profitability of MFIs and the provision of financial capital to business start-ups. The main limitation of this part of the study is a methodological issue. This study applied the MLM model because the dataset used had a hierarchical structure whereby lower units were nested in higher units. Despite the MLM model being the most suitable technique to analyse the hierarchical data, there was still a potential endogeneity issue that could arise as a result of omitted variable bias, measurement error, reverse effect, and selection bias. However, the researcher believes that the estimation is reliable and will not be hugely different even if this study applies estimation techniques that address endogeneity issues as the standard errors on the MLM model estimation are very small but the estimation is still not completely BLUE. Thus, it is necessary to be careful when interpreting the coefficient. Furthermore, only a few MFIs report their number of loans to business start-ups and some MFIs do not report any data at all, as it is not mandatory. This means that some MFIs do not report the types of start-ups they are lending to. As a result, the data available for this study is limited, which in turn limits further exploration.

7.5 Further Research

The research is not an isolated event, but rather one part of a continuous process. Therefore, the researcher has suggested further research related to this topic. Firstly, it is suggested that research be done on the impact of the commercialisation of MFIs on clients' education, health and well-being, living standards and poverty reduction as it is still not well understood, even though MFIs purportedly exist to improve social welfare. It is important to understand the impact of MFIs from the clients' perspective rather than just understanding it from the MFIs' perspective.

Furthermore, the method applied in chapter 5 did not address the potential endogeneity issue due to lack of instrument variables and small data set. Therefore, it is advised that further research should be conducted using more sophisticated estimation method that can address potential endogeneity problems once a large dataset is available. In addition, as stated above, the types of start-ups are not reported but if this information is made available in the future, a study is recommended on the effect of the profitability of MFIs on different types of start-ups, as this will help to better understand the relationship between microfinance and start-up businesses. Finally, insufficient number of studies are available on the link between microfinance and entrepreneurship. Therefore, it is also recommended that research be conducted on impact of microfinance on entrepreneurship and how microfinance is aiding in the development of entrepreneurship.

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Appendix

Appendix of Chapter 4

Appendix A: ROA and Commercialisation of MFIs- Two-Step System GMM estimation.

```
. xtabond2 returnonassets l.returnonassets profitstatusdummy logassets agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita rea
> linterestrate logpopulation businessfreedom tradefreedom  financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8 yeardum
> my9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14 yeardummy15, gmm(l.returnonassets profitstatusdummy logassets, lag(1 1)co
> llapse) iv(agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita realinterestrate logpopulation businessfreedom tradefreedom
> financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8 yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardu
> mmy14 yeardummy15) two robust small orthogonal nodiffs
Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
Warning: Two-step estimated covariance matrix of moments is singular.
  Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.

Dynamic panel-data estimation, two-step system GMM
```

Group variable: **mfiid**			Number of obs	=	6001
Time variable : **fiscalyear**			Number of groups	=	1221
Number of instruments = 27			Obs per group: min =		1
F(24, 1220) = 8.56				avg =	4.91
Prob > F = 0.000				max =	14

returnonassets	Coef.	Corrected Std. Err.	t	P>|t|	[95% Conf. Interval]	
returnonassets						
L1.	.5285458	.0572172	9.24	0.000	.4162909	.6408007
profitstatusdummy	.0789537	.0728177	1.08	0.278	-.063908	.2218154
logassets	.0213347	.0050202	4.25	0.000	.0114856	.0311839
agedummy1	-.0065306	.0143302	-0.46	0.649	-.0346451	.0215839
politicalstabilitynovoilence	.0085198	.0057736	1.48	0.140	-.0028074	.019847
ruleoflaw	-.0001893	.0072509	-0.03	0.979	-.0144149	.0140363
loggdppercapita	-.0034153	.0040778	-0.84	0.402	-.0114156	.004585
realinterestrate	.000327	.000196	1.67	0.095	-.0000575	.0007115
logpopulation	-.0011371	.0026271	-0.43	0.665	-.0062912	.004017
businessfreedom	-.0000841	.0002255	-0.37	0.709	-.0005264	.0003583
tradefreedom	.0003635	.0001934	1.88	0.060	-.0000159	.0007429
financialfreedom	-.0006554	.000305	-2.15	0.032	-.0012539	-.000057
yeardummy4	-.0082074	.0060506	-1.36	0.175	-.0200781	.0036633
yeardummy5	-.0108235	.0056118	-1.93	0.054	-.0218335	.0001864
yeardummy6	-.022902	.0063734	-3.59	0.000	-.0354059	-.010398
yeardummy7	-.028088	.0075678	-3.71	0.000	-.0429353	-.0132406
yeardummy8	-.0412173	.0077842	-5.29	0.000	-.0564891	-.0259454
yeardummy9	-.0296839	.0082811	-3.58	0.000	-.0459307	-.0134371
yeardummy10	-.0366132	.0088196	-4.15	0.000	-.0539164	-.0193099
yeardummy11	-.0403623	.0093257	-4.33	0.000	-.0586586	-.022066
yeardummy12	-.0424639	.0109009	-3.90	0.000	-.0638505	-.0210773
yeardummy13	-.0407899	.010416	-3.92	0.000	-.0612252	-.0203546
yeardummy14	-.0422549	.0102668	-4.12	0.000	-.0623975	-.0221123
yeardummy15	-.0677181	.0163872	-4.13	0.000	-.0998684	-.0355678
_cons	-.2750832	.0827635	-3.32	0.001	-.4374577	-.1127087

```
Instruments for orthogonal deviations equation
  Standard
    FOD.(agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita
    realinterestrate logpopulation businessfreedom tradefreedom
    financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8
    yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14
    yeardummy15)
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    L.(L.returnonassets profitstatusdummy logassets) collapsed
Instruments for levels equation
  Standard
    agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita
    realinterestrate logpopulation businessfreedom tradefreedom
    financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8
    yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14
    yeardummy15
    _cons
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    D.(L.returnonassets profitstatusdummy logassets) collapsed

Arellano-Bond test for AR(1) in first differences: z =  -4.50  Pr > z =  0.000
Arellano-Bond test for AR(2) in first differences: z =  -0.17  Pr > z =  0.863

Sargan test of overid. restrictions: chi2(2)    =  13.73  Prob > chi2 =  0.001
  (Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(2)    =   3.17  Prob > chi2 =  0.205
  (Robust, but weakened by many instruments.)
```

Appendix B: OSS and Commercialisation of MFIs- Two-Step System GMM estimation.

```
. xtabond2 operationalselfsufficiency l.operationalselfsufficiency l2.operationalselfsufficiency profitstatusdummy logassets agedummy1 poli
> ticalstabilitynovoilence ruleoflaw loggdppercapita realinterestrate logpopulation businessfreedom tradefreedom  financialfreedom yeardumm
> y4 yeardummy5 yeardummy6 yeardummy7 yeardummy8 yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14 yeardummy15, gmm(l.
> operationalselfsufficiency l2.operationalselfsufficiency, lag(1 3)collapse) gmm( profitstatusdummy logassets, lag (2 2)collapse) iv(agedu
> mmy1 politicalstabilitynovoilence ruleoflaw loggdppercapita realinterestrate logpopulation businessfreedom tradefreedom  financialfreedom
>  yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8 yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14 yeardummy1
> 5) two robust small orthogonal nodiffs
Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
Warning: Two-step estimated covariance matrix of moments is singular.
   Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.

Dynamic panel-data estimation, two-step system GMM
```

Group variable: **mfiid**		Number of obs	=	5421
Time variable : **fiscalyear**		Number of groups	=	1095
Number of instruments = 32		Obs per group: min =		1
F(25, 1094) = 3.23			avg =	4.95
Prob > F = 0.000			max =	13

operationalselfsufficiency	Coef.	Corrected Std. Err.	t	P>|t|	[95% Conf. Interval]	
operationalselfsufficiency						
L1.	.1822023	.0849236	2.15	0.032	.0155707	.348834
L2.	.1012942	.0304663	3.32	0.001	.0415152	.1610732
profitstatusdummy	-.0466542	.386233	-0.12	0.904	-.8044955	.711187
logassets	.1270564	.0644431	1.97	0.049	.0006104	.2535024
agedummy1	-.1003652	.1092256	-0.92	0.358	-.3146806	.1139502
politicalstabilitynovoilence	.0397166	.0272269	1.46	0.145	-.0137063	.0931395
ruleoflaw	-.0506356	.0422339	-1.20	0.231	-.1335042	.0322329
loggdppercapita	-.0135962	.0187917	-0.72	0.470	-.0504679	.0232756
realinterestrate	.0007396	.0010094	0.73	0.464	-.001241	.0027201
logpopulation	.0146021	.0140464	1.04	0.299	-.0129588	.0421631
businessfreedom	.0014695	.001062	1.38	0.167	-.0006144	.0035533
tradefreedom	.0033767	.0014136	2.39	0.017	.0006031	.0061504
financialfreedom	-.0033939	.0013536	-2.51	0.012	-.0060499	-.0007379
yeardummy4	-.027198	.022915	-1.19	0.236	-.0721602	.0177643
yeardummy5	-.0397865	.0284635	-1.40	0.162	-.0956356	.0160627
yeardummy6	-.088222	.0476239	-1.85	0.064	-.1816665	.0052225
yeardummy7	-.1694968	.0478574	-3.54	0.000	-.2633995	-.0755941
yeardummy8	-.2245689	.0561942	-4.00	0.000	-.3348296	-.1143082
yeardummy9	-.1840624	.0745793	-2.47	0.014	-.3303969	-.0377278
yeardummy10	-.2194434	.0789323	-2.78	0.006	-.3743192	-.0645676
yeardummy11	-.1973513	.0715788	-2.76	0.006	-.3377986	-.056904
yeardummy12	-.206455	.0714267	-2.89	0.004	-.3466039	-.0663062
yeardummy13	-.2141614	.0702029	-3.05	0.002	-.351909	-.0764138
yeardummy14	-.2261844	.0697726	-3.24	0.001	-.3630877	-.0892811
yeardummy15	-.3404844	.1213587	-2.81	0.005	-.5786065	-.1023623
_cons	-1.296767	.9115614	-1.42	0.155	-3.085373	.4918396

```
Instruments for orthogonal deviations equation
  Standard
    FOD.(agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita
    realinterestrate logpopulation businessfreedom tradefreedom
    financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8
    yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14
    yeardummy15)
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    L2.(profitstatusdummy logassets) collapsed
    L(1/3).(L.operationalselfsufficiency L2.operationalselfsufficiency)
    collapsed
Instruments for levels equation
  Standard
    agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita
    realinterestrate logpopulation businessfreedom tradefreedom
    financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8
    yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14
    yeardummy15
    _cons
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    DL.(profitstatusdummy logassets) collapsed
    D.(L.operationalselfsufficiency L2.operationalselfsufficiency) collapsed
```

```
Arellano-Bond test for AR(1) in first differences: z =  -1.24  Pr > z =  0.213
Arellano-Bond test for AR(2) in first differences: z =  -0.43  Pr > z =  0.670
```

```
Sargan test of overid. restrictions: chi2(6)   =  17.36  Prob > chi2 =  0.008
  (Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(6)   =   7.07  Prob > chi2 =  0.314
  (Robust, but weakened by many instruments.)
```

Appendix C: NAB and Commercialisation of MFIs- Two-Step System GMM estimation.

```
. xtabond2 logNAB l.logNAB profitstatusdummy logassets agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita realinterestrate lo
> gpopulation businessfreedom tradefreedom  financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8 yeardummy9 yeardummy10
> yeardummy11 yeardummy12 yeardummy13 yeardummy14 yeardummy15, gmm(l.logNAB, lag(2 .)collapse) gmm(profitstatusdummy logassets, lag(2 2)col
> lapse) iv(agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita realinterestrate logpopulation businessfreedom tradefreedom  f
> inancialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8 yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardum
> my14 yeardummy15) two robust small orthogonal nodiffs
Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
Warning: Two-step estimated covariance matrix of moments is singular.
  Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.

Dynamic panel-data estimation, two-step system GMM
```

Group variable: **mfiid**			Number of obs	=	7139	
Time variable : **fiscalyear**			Number of groups	=	1373	
Number of instruments = 39			Obs per group: min =		1	
F(**24, 1372**) = 183.15				avg =	5.20	
Prob > F = 0.000				max =	14	

logNAB	Coef.	Corrected Std. Err.	t	P>|t|	[95% Conf. Interval]	
logNAB						
L1.	.3163102	.0810734	3.90	0.000	.1572689	.4753515
profitstatusdummy	1.382724	.4536132	3.05	0.002	.4928735	2.272575
logassets	.5364571	.1021473	5.25	0.000	.3360753	.736839
agedummy1	.2462221	.132507	1.86	0.063	-.0137161	.5061604
politicalstabilitynovoilence	.0069296	.0496586	0.14	0.889	-.0904853	.1043446
ruleoflaw	.1665332	.0778475	2.14	0.033	.0138202	.3192462
loggdppercapita	-.3891578	.0595241	-6.54	0.000	-.5059259	-.2723897
realinterestrate	-.0004406	.0012672	-0.35	0.728	-.0029265	.0020452
logpopulation	.1971807	.0350202	5.63	0.000	.1284816	.2658797
businessfreedom	.0035803	.0020494	1.75	0.081	-.0004401	.0076007
tradefreedom	.0004684	.0022597	0.21	0.836	-.0039644	.0049011
financialfreedom	-.003516	.0022171	-1.59	0.113	-.0078653	.0008333
yeardummy4	.0050363	.0268582	0.19	0.851	-.0476512	.0577239
yeardummy5	-.0202686	.0341662	-0.59	0.553	-.0872923	.0467551
yeardummy6	-.0534979	.0568496	-0.94	0.347	-.1650194	.0580237
yeardummy7	-.0384208	.0686648	-0.56	0.576	-.1731201	.0962785
yeardummy8	-.1559853	.0679989	-2.29	0.022	-.2893784	-.0225921
yeardummy9	-.174292	.0759366	-2.30	0.022	-.3232564	-.0253276
yeardummy10	-.1477796	.0848159	-1.74	0.082	-.3141625	.0186033
yeardummy11	-.1223956	.0844316	-1.45	0.147	-.2880247	.0432335
yeardummy12	-.1460567	.0893625	-1.63	0.102	-.3213586	.0292451
yeardummy13	-.0756476	.0931423	-0.81	0.417	-.2583643	.1070691
yeardummy14	-.1295463	.0943598	-1.37	0.170	-.3146515	.0555589
yeardummy15	-.233217	.1455377	-1.60	0.109	-.5187175	.0522836
_cons	-3.188325	1.276915	-2.50	0.013	-5.693242	-.6834081

```
Instruments for orthogonal deviations equation
  Standard
    FOD.(agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita
    realinterestrate logpopulation businessfreedom tradefreedom
    financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8
    yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14
    yeardummy15)
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    L2.(profitstatusdummy logassets) collapsed
    L(2/14).L.logNAB collapsed
Instruments for levels equation
  Standard
    agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita
    realinterestrate logpopulation businessfreedom tradefreedom
    financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8
    yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14
    yeardummy15
    _cons
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    DL.(profitstatusdummy logassets) collapsed
    DL.L.logNAB collapsed
```

Arellano-Bond test for AR(1) in first differences: z = -3.60 Pr > z = 0.000					
Arellano-Bond test for AR(2) in first differences: z = -0.53 Pr > z = 0.596					

```
Sargan test of overid. restrictions: chi2(14)   = 76.94  Prob > chi2 = 0.000
  (Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(14)   = 18.99  Prob > chi2 = 0.165
  (Robust, but weakened by many instruments.)
```

Appendix D: ALS and Commercialisation of MFIs- Two-Step System GMM estimation.

```
. xtabond2 averageloanbalanceperborrowe l.averageloanbalanceperborrowe profitstatusdummy logassets agedummy1 politicalstabilitynovoilence r
> uleoflaw loggdppercapita realinterestrate logpopulation businessfreedom tradefreedom  financialfreedom yeardummy4 yeardummy5 yeardummy6 y
> eardummy7 yeardummy8 yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14 yeardummy15, gmm(l.averageloanbalanceperborro
> we, lag(1 1)) gmm(profitstatusdummy logassets, la(1 .)collapse) iv(agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita reali
> nterestrate logpopulation businessfreedom tradefreedom  financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8 yeardummy
> 9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14 yeardummy15) two robust small orthogonal nodiffs
Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
Warning: Two-step estimated covariance matrix of moments is singular.
  Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.

Dynamic panel-data estimation, two-step system GMM
```

```
------------------------------------------------------------------------------
Group variable: mfiid                           Number of obs      =      7082
Time variable : fiscalyear                      Number of groups   =      1365
Number of instruments = 78                      Obs per group: min =         1
F(24, 1364)    =      7.55                                      avg =      5.19
Prob > F       =     0.000                                      max =        14
------------------------------------------------------------------------------
```

averageloanbalanceperborrowe	Coef.	Corrected Std. Err.	t	P>|t|	[95% Conf. Interval]	
averageloanbalanceperborrowe						
L1.	.5572168	.1122556	4.96	0.000	.3370044	.7774291
profitstatusdummy	1.377619	.7575809	1.82	0.069	-.1085314	2.863769
logassets	.1220153	.0615164	1.98	0.048	.0013382	.2426923
agedummy1	.1373181	.1407207	0.98	0.329	-.1387344	.4133706
politicalstabilitynovoilence	.1656803	.0859446	1.93	0.054	-.0029176	.3342781
ruleoflaw	-.1086469	.1130557	-0.96	0.337	-.3304289	.113135
loggdppercapita	-.1665427	.0734709	-2.27	0.024	-.310671	-.0224145
realinterestrate	.0025637	.0022605	1.13	0.257	-.0018706	.0069981
logpopulation	-.0834653	.0485061	-1.72	0.086	-.1786199	.0116894
businessfreedom	-.0042202	.0031299	-1.35	0.178	-.0103601	.0019196
tradefreedom	.0005478	.0028318	0.19	0.847	-.0050073	.006103
financialfreedom	-.0070841	.0048191	-1.47	0.142	-.0165378	.0023696
yeardummy4	-.0367754	.0379285	-0.97	0.332	-.11118	.0376291
yeardummy5	-.0584485	.0521273	-1.12	0.262	-.1607069	.0438099
yeardummy6	-.0561604	.0714608	-0.79	0.432	-.1963454	.0840247
yeardummy7	-.1292029	.0924929	-1.40	0.163	-.3106465	.0522408
yeardummy8	-.1172034	.0937479	-1.25	0.211	-.3011091	.0667022
yeardummy9	-.0979188	.1026867	-0.95	0.340	-.2993598	.1035222
yeardummy10	-.1060971	.1119989	-0.95	0.344	-.325806	.1136117
yeardummy11	-.1113538	.1145853	-0.97	0.331	-.3361363	.1134287
yeardummy12	-.1733228	.1255572	-1.38	0.168	-.4196289	.0729834
yeardummy13	-.1761815	.1267558	-1.39	0.165	-.424839	.072476
yeardummy14	-.1767069	.1233713	-1.43	0.152	-.418725	.0653112
yeardummy15	-.1938789	.1483298	-1.31	0.191	-.4848583	.0971004
_cons	1.04533	1.216253	0.86	0.390	-1.340599	3.431259

```
Instruments for orthogonal deviations equation
  Standard
    FOD.(agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita
    realinterestrate logpopulation businessfreedom tradefreedom
    financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8
    yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14
    yeardummy15)
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    L(1/14).(profitstatusdummy logassets) collapsed
    L.L.averageloanbalanceperborrowe
Instruments for levels equation
  Standard
    agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita
    realinterestrate logpopulation businessfreedom tradefreedom
    financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8
    yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14
    yeardummy15
    _cons
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    D.(profitstatusdummy logassets) collapsed
    D.L.averageloanbalanceperborrowe
------------------------------------------------------------------------------
Arellano-Bond test for AR(1) in first differences: z =  -0.76  Pr > z =  0.444
Arellano-Bond test for AR(2) in first differences: z =  -1.27  Pr > z =  0.202
------------------------------------------------------------------------------
Sargan test of overid. restrictions: chi2(53)   =1766.84  Prob > chi2 =  0.000
  (Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(53)   =  62.91  Prob > chi2 =  0.165
  (Robust, but weakened by many instruments.)
```

Appendix E: MSB and Commercialisation of MFIs- Two-Step System GMM estimation.

```
. xtabond2 msbij l.msbij profitstatusdummy logassets agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita realinterestrate logp
> opulation businessfreedom tradefreedom  financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8 yeardummy9 yeardummy10 ye
> ardummy11 yeardummy12 yeardummy13 yeardummy14 yeardummy15, gmm(l.msbij, lag(2 2)collapse) gmm (profitstatusdummy logassets , lag(1 2)) iv
> (agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita realinterestrate logpopulation businessfreedom tradefreedom  financialf
> reedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8 yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14 year
> dummy15) two robust small orthogonal nodiffs
Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.
Warning: Two-step estimated covariance matrix of moments is singular.
  Using a generalized inverse to calculate optimal weighting matrix for two-step estimation.

Dynamic panel-data estimation, two-step system GMM
─────────────────────────────────────────────────────────────────────────
Group variable: mfiid                        Number of obs      =      7380
Time variable : fiscalyear                   Number of groups   =      1395
Number of instruments = 84                   Obs per group: min =         1
F(24, 1394)   =     57.03                                   avg =      5.29
Prob > F      =     0.000                                   max =        14
```

msbij	Coef.	Corrected Std. Err.	t	P>|t|	[95% Conf. Interval]	
msbij						
L1.	.9733266	.052155	18.66	0.000	.8710158	1.075637
profitstatusdummy	.0043174	.0022975	1.88	0.060	−.0001896	.0088244
logassets	.0004753	.0002081	2.28	0.023	.0000671	.0008834
agedummy1	.000286	.0005051	0.57	0.571	−.0007048	.0012768
politicalstabilitynovoilence	.0001303	.0003055	0.43	0.670	−.0004691	.0007296
ruleoflaw	.0007735	.0005596	1.38	0.167	−.0003243	.0018713
loggdppercapita	−.00009	.0002962	−0.30	0.761	−.0006709	.000491
realinterestrate	8.84e−06	.0000176	0.50	0.616	−.0000258	.0000434
logpopulation	−.0004227	.0001801	−2.35	0.019	−.0007759	−.0000694
businessfreedom	−.0000221	.0000135	−1.63	0.103	−.0000486	4.43e−06
tradefreedom	−.0000136	.000013	−1.05	0.295	−.0000391	.0000119
financialfreedom	−.00003	.000016	−1.87	0.062	−.0000614	1.49e−06
yeardummy4	.0002451	.0001974	1.24	0.215	−.0001422	.0006323
yeardummy5	9.42e−06	.0002564	0.04	0.971	−.0004936	.0005124
yeardummy6	.0000711	.0003239	0.22	0.826	−.0005644	.0007065
yeardummy7	−.0001007	.0003876	−0.26	0.795	−.0008611	.0006596
yeardummy8	−.0005727	.0004021	−1.42	0.155	−.0013615	.000216
yeardummy9	−.0007233	.0004661	−1.55	0.121	−.0016376	.000191
yeardummy10	−.0006128	.000561	−1.09	0.275	−.0017133	.0004878
yeardummy11	−.0005937	.0005455	−1.09	0.277	−.0016639	.0004764
yeardummy12	−.0010211	.0006747	−1.51	0.130	−.0023446	.0003024
yeardummy13	−.0013901	.0007503	−1.85	0.064	−.002862	.0000817
yeardummy14	−.0010697	.0006737	−1.59	0.113	−.0023914	.0002519
yeardummy15	−.0016162	.0008513	−1.90	0.058	−.0032862	.0000538
_cons	.0039864	.0043832	0.91	0.363	−.0046119	.0125848

```
Instruments for orthogonal deviations equation
  Standard
    FOD.(agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita
    realinterestrate logpopulation businessfreedom tradefreedom
    financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8
    yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14
    yeardummy15)
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    L(1/2).(profitstatusdummy logassets)
    L2.L.msbij collapsed
Instruments for levels equation
  Standard
    agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita
    realinterestrate logpopulation businessfreedom tradefreedom
    financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8
    yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14
    yeardummy15
    _cons
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    D.(profitstatusdummy logassets)
    DL.L.msbij collapsed
─────────────────────────────────────────────────────────────────────────
Arellano-Bond test for AR(1) in first differences: z =  −1.85  Pr > z =  0.064
Arellano-Bond test for AR(2) in first differences: z =   0.39  Pr > z =  0.699
─────────────────────────────────────────────────────────────────────────
Sargan test of overid. restrictions: chi2(59)   = 313.24  Prob > chi2 =  0.000
  (Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(59)   =  53.96  Prob > chi2 =  0.661
  (Robust, but weakened by many instruments.)
```

Appendix F: MSBA and Commercialisation of MFIs- Two-Step System GMM estimation.

```
. xtabond2 msbaij l.msbaij profitstatusdummy logassets agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita realinterestrate lo
> gpopulation businessfreedom tradefreedom  financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8 yeardummy9 yeardummy10
> yeardummy11 yeardummy12 yeardummy13 yeardummy14 yeardummy15, gmm(l.msbaij, lag (2 2)collapse) gmm( profitstatusdummy logassets , lag(2 1)
> collapse) iv(agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita realinterestrate logpopulation businessfreedom tradefreedom
>  financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8 yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 year
> dummy14 yeardummy15) two robust small orthogonal nodiffs
Favoring space over speed. To switch, type or click on mata: mata set matafavor speed, perm.

Dynamic panel-data estimation, two-step system GMM
────────────────────────────────────────────────────────────────────
Group variable: mfiid              Number of obs       =      7380
Time variable : fiscalyear         Number of groups    =      1395
Number of instruments = 30         Obs per group: min  =         1
F(24, 1394)   =      1.53                         avg  =      5.29
Prob > F      =      0.048                         max  =        14
```

msbaij	Coef.	Corrected Std. Err.	t	P>|t|	[95% Conf. Interval]	
msbaij						
L1.	.1387586	.0639493	2.17	0.030	.0133114	.2642059
profitstatusdummy	-29.69262	37.879	-0.78	0.433	-103.9986	44.61336
logassets	4.119597	4.44418	0.93	0.354	-4.598404	12.8376
agedummy1	-11.85146	12.39079	-0.96	0.339	-36.15807	12.45515
politicalstabilitynovoilence	-.1528646	3.512287	-0.04	0.965	-7.042802	6.737073
ruleoflaw	-3.214109	2.65393	-1.21	0.226	-8.420237	1.992019
loggdppercapita	.6207592	2.308919	0.27	0.788	-3.908572	5.150091
realinterestrate	-.1442606	.1040104	-1.39	0.166	-.3482944	.0597731
logpopulation	1.680742	1.323649	1.27	0.204	-.9158156	4.277301
businessfreedom	.0721891	.1037115	0.70	0.487	-.1312583	.2756365
tradefreedom	.1037356	.0791545	1.31	0.190	-.0515392	.2590104
financialfreedom	-.033418	.0812655	-0.41	0.681	-.1928338	.1259978
yeardummy4	2.393417	2.449503	0.98	0.329	-2.411693	7.198528
yeardummy5	-.9868163	2.087529	-0.47	0.636	-5.081854	3.108222
yeardummy6	-1.831809	3.840744	-0.48	0.633	-9.366071	5.702454
yeardummy7	-4.590197	3.752622	-1.22	0.221	-11.95159	2.771198
yeardummy8	-4.243069	3.802037	-1.12	0.265	-11.7014	3.215262
yeardummy9	-4.934572	4.556991	-1.08	0.279	-13.87387	4.004727
yeardummy10	-6.183391	5.169176	-1.20	0.232	-16.3236	3.956813
yeardummy11	-5.500364	4.74581	-1.16	0.247	-14.81006	3.809336
yeardummy12	-4.916002	4.550131	-1.08	0.280	-13.84184	4.009841
yeardummy13	-4.376468	4.229609	-1.03	0.301	-12.67355	3.920617
yeardummy14	-4.277473	4.188151	-1.02	0.307	-12.49323	3.938286
yeardummy15	-7.095825	7.085541	-1.00	0.317	-20.9953	6.803648
_cons	-81.87525	86.12265	-0.95	0.342	-250.8192	87.06872

```
Instruments for orthogonal deviations equation
  Standard
    FOD.(agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita
    realinterestrate logpopulation businessfreedom tradefreedom
    financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8
    yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14
    yeardummy15)
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    L(1/2).(profitstatusdummy logassets) collapsed
    L2.L.msbaij collapsed
Instruments for levels equation
  Standard
    agedummy1 politicalstabilitynovoilence ruleoflaw loggdppercapita
    realinterestrate logpopulation businessfreedom tradefreedom
    financialfreedom yeardummy4 yeardummy5 yeardummy6 yeardummy7 yeardummy8
    yeardummy9 yeardummy10 yeardummy11 yeardummy12 yeardummy13 yeardummy14
    yeardummy15
    _cons
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    D.(profitstatusdummy logassets) collapsed
    DL.L.msbaij collapsed
────────────────────────────────────────────────────────────────────
Arellano-Bond test for AR(1) in first differences: z =  -0.94  Pr > z =  0.345
Arellano-Bond test for AR(2) in first differences: z =   0.26  Pr > z =  0.797
────────────────────────────────────────────────────────────────────
Sargan test of overid. restrictions: chi2(5)    =   9.49  Prob > chi2 =  0.091
  (Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(5)    =   5.13  Prob > chi2 =  0.401
  (Robust, but weakened by many instruments.)
```

Appendix of Chapter 5

Appendix A: Financial Performance (ROA & OSS) and Commercialisation of MFIs- GLM estimation.

```
. glm returnonassets profitstatusdummy logassets agedummy1 ruleoflaw realinterestrate bus
> inessfreedom i.fiscalyear, robust
note: 2008.fiscalyear omitted because of collinearity
note: 2009.fiscalyear omitted because of collinearity
note: 2010.fiscalyear omitted because of collinearity

Iteration 0:   log pseudolikelihood =  330.30095

Generalized linear models                      No. of obs      =        181
Optimization     : ML                          Residual df     =        151
                                               Scale parameter =  .0010314
Deviance         =  .1557364532                (1/df) Deviance =  .0010314
Pearson          =  .1557364532                (1/df) Pearson  =  .0010314

Variance function: V(u) = 1                    [Gaussian]
Link function    : g(u) = u                    [Identity]

                                               AIC             =  -3.978894
Log pseudolikelihood =  330.3009508            BIC             =  -787.1363
```

| | | Robust | | | | |
returnonassets	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
profitstatusdummy	-.0370482	.0064237	-5.77	0.000	-.0496385	-.0244579
logassets	.0090988	.0029573	3.08	0.002	.0033025	.014895
agedummy1	-.0354193	.0055029	-6.44	0.000	-.0462047	-.0246338
ruleoflaw	-.1167431	.1242378	-0.94	0.347	-.3602447	.1267585
realinterestrate	.0040939	.0030543	1.34	0.180	-.0018923	.0100802
businessfreedom	.000619	.0031854	0.19	0.846	-.0056243	.0068623
fiscalyear						
2005	-.0056366	.0072753	-0.77	0.438	-.0198959	.0086228
2006	.0139437	.0100813	1.38	0.167	-.0058153	.0337027
2007	.0104869	.017625	0.60	0.552	-.0240574	.0450312
2008	0	(omitted)				
2009	0	(omitted)				
2010	0	(omitted)				
cons	-.1990919	.2595904	-0.77	0.443	-.7078798	.309696

```
. glm operationalselfsufficiency profitstatusdummy logassets agedummy1 ruleoflaw realinte
> restrate businessfreedom i.fiscalyear, robust
note: 2008.fiscalyear omitted because of collinearity
note: 2009.fiscalyear omitted because of collinearity
note: 2010.fiscalyear omitted because of collinearity

Iteration 0:   log pseudolikelihood  -35.535357

Generalized linear models                      No. of obs      =        180
Optimization     : ML                          Residual df     =        170
                                               Scale parameter =  .0920079
Deviance         =  15.64133489                (1/df) Deviance =  .0920079
Pearson          =  15.64133489                (1/df) Pearson  =  .0920079

Variance function: V(u) = 1                    [Gaussian]
Link function    : g(u) = u                    [Identity]

                                               AIC             =  .5059484
Log pseudolikelihood = -35.53535684            BIC             =  -867.1613
```

| | | Robust | | | | |
operationalselfsuffi~y	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
profitstatusdummy	-.2542765	.0522544	-4.87	0.000	-.3566933	-.1518596
logassets	.0595859	.0181962	3.27	0.001	.023922	.0952499
agedummy1	-.2395542	.0398665	-6.01	0.000	-.3176916	-.1614179
ruleoflaw	-.6118754	.8300254	-0.74	0.461	-2.238695	1.014944
realinterestrate	.0193666	.0217763	0.89	0.374	-.0233141	.0620474
businessfreedom	.0113008	.0222847	0.51	0.612	-.0323754	.054978
fiscalyear						
2005	.0107606	.0561115	0.19	0.848	-.0992159	.1207371
2006	.1496273	.1217379	1.23	0.219	-.0889747	.3882292
2007	.0720857	.1260253	0.57	0.567	-.1749193	.3190907
2008	0	(omitted)				
2009	0	(omitted)				
2010	0	(omitted)				
_cons	-.5325922	1.829472	-0.29	0.771	-4.118292	3.053108

Appendix B: Outreach (NAB & ALS) and Commercialisation of MFIs- GLM estimation.

```
. glm logNAB profitstatusdummy logassets agedummy1 ruleoflaw realinterestrate businessfre
> edom i.fiscalyear, robust
note: 2008.fiscalyear omitted because of collinearity
note: 2009.fiscalyear omitted because of collinearity
note: 2010.fiscalyear omitted because of collinearity

Iteration 0:   log pseudolikelihood = -201.79332

Generalized linear models                       No. of obs      =         183
Optimization     : ML                           Residual df     =         173
                                                Scale parameter =    .5619789
Deviance        =  97.22234869                  (1/df) Deviance =    .5619789
Pearson         =  97.22234869                  (1/df) Pearson  =    .5619789

Variance function: V(u) = 1                     [Gaussian]
Link function    : g(u) = u                     [Identity]

                                                AIC             =    2.314681
Log pseudolikelihood = -201.7933244             BIC             =   -804.0188
```

LogNAB	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf. Interval]	
profitstatusdummy	.6554904	.1701785	3.85	0.000	.3219466	.9890343
logassets	.6722179	.0568957	11.81	0.000	.5607044	.7837315
agedummy1	-.1949782	.1027858	-1.90	0.058	-.3964346	.0064782
ruleoflaw	-.6785862	1.878196	-0.36	0.718	-4.359782	3.00261
realinterestrate	-.0216288	.0504338	-0.43	0.668	-.1204772	.0772196
businessfreedom	.0471149	.0591909	0.80	0.426	-.0688972	.163127
fiscalyear						
2005	-.0370389	.1997238	0.19	0.853	-.3544126	.4284904
2006	-.0724511	.2336999	-0.31	0.757	-.5304944	.3855922
2007	-.0612919	.3073536	-0.20	0.842	-.6636938	.54111
2008	0	(omitted)				
2009	0	(omitted)				
2010	0	(omitted)				
_cons	-4.215584	4.742522	-0.89	0.374	-13.51076	5.079589

```
. glm averageloanbalanceperborrowe profitstatusdummy logassets agedummy1 ruleoflaw realin
> terestrate businessfreedom i.fiscalyear, robust
note: 2008.fiscalyear omitted because of collinearity
note: 2009.fiscalyear omitted because of collinearity
note: 2010.fiscalyear omitted because of collinearity

Iteration 0:   log pseudolikelihood = -245.16368

Generalized linear models                       No. of obs      =         182
Optimization     : ML                           Residual df     =         172
                                                Scale parameter =    .9164402
Deviance        =  157.6277097                  (1/df) Deviance =    .9164402
Pearson         =  157.6277097                  (1/df) Pearson  =    .9164402

Variance function: V(u) = 1                     [Gaussian]
Link function    : g(u) = u                     [Identity]

                                                AIC             =    2.803996
log pseudolikelihood = -245.1636791             BIC             =   -737.4614
```

averageloanbalancepe~e	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf. Interval]	
profitstatusdummy	-.7817509	.2911249	-2.69	0.007	-1.352345	-.2111566
logassets	.2155571	.1038289	2.08	0.038	.0120561	.419058
agedummy1	.0724589	.1040318	0.70	0.486	-.1314397	.2763574
ruleoflaw	1.404321	1.418702	0.99	0.322	-1.376283	4.184925
realinterestrate	.027817	.0450267	0.62	0.537	-.0604336	.1160676
businessfreedom	-.0787292	.0716213	-1.10	0.272	-.2191044	.0616461
fiscalyear						
2005	-.0315475	.3003507	-0.11	0.916	-.620224	.5571291
2006	.1265366	.2649142	0.48	0.633	-.3926856	.6457588
2007	-.0309866	.3022757	-0.10	0.918	-.6234361	.561463
2008	0	(omitted)				
2009	0	(omitted)				
2010	0	(omitted)				
_cons	3.556371	5.4783	0.65	0.516	-7.180899	14.29364

Appendix C: Return on Assets (ROA) and Commercialisation of MFIs- PSM estimation.

```
. attnd returnonassets profitstatusdummy  logassets agedummy1, pscore(myscore) comsup boot dots


 The program is searching the nearest neighbor of each treated unit.
 This operation may take a while.
(3 missing values generated)
(1 missing value generated)



ATT estimation with Nearest Neighbor Matching method
(random draw version)
Analytical standard errors
```

n. treat.	n. contr.	ATT	Std. Err.	t
105	30	-0.035	0.008	-4.678

```
Note: the numbers of treated and controls refer to actual
nearest neighbour matches
```

```
Bootstrapping of standard errors

command:      attnd returnonassets profitstatusdummy logassets agedummy1 , pscore(myscore) comsup
statistic:    attnd      = r(attnd)
...............................................

note: label truncated to 80 characters
```

```
Bootstrap statistics                          Number of obs   =      264
                                              Replications    =       50
```

Variable	Reps	Observed	Bias	Std. Err.	[95% Conf. Interval]	
attnd	50	-.0353373	.0103577	.0093421	-.054111 -.0165635	(N
					-.041177 -.0093714	(P
					-.0419804 -.0283149	(BC

```
Note:  N  = normal
       P  = percentile
       BC = bias-corrected
```

```
ATT estimation with Nearest Neighbor Matching method
(random draw version)
Bootstrapped standard errors
```

n. treat.	n. contr.	ATT	Std. Err.	t
105	30	-0.035	0.009	-3.783

```
Note: the numbers of treated and controls refer to actual
nearest neighbour matches
```

```
. attk returnonassets profitstatusdummy  logassets agedummy1, pscore(myscore) comsup boot
> dots


 The program is searching for matches of each treated unit.
 This operation may take a while.



ATT estimation with the Kernel Matching method


 ─────────────────────────────────────────────────────────────
 n. treat.    n. contr.      ATT   Std. Err.           t
 ─────────────────────────────────────────────────────────────

     105          157     -0.024          .             .

 ─────────────────────────────────────────────────────────────

Note: Analytical standard errors cannot be computed. Use
the bootstrap option to get bootstrapped standard errors.




Bootstrapping of standard errors

command:        attk returnonassets profitstatusdummy logassets agedummy1 , pscore(myscore)
> comsup bwidth(.06)
statistic:     attk        = r(attk)
.................................................

note: label truncated to 80 characters

Bootstrap statistics                       Number of obs    =        264
                                           Replications     =         50


 ──────────────────────────────────────────────────────────────────────────
 Variable   │   Reps  Observed      Bias  Std. Err. [95% Conf. Interval]
 ───────────┼──────────────────────────────────────────────────────────────
       attk │    50 -.0236141 -.0016666  .0078723  -.0394341  -.0077941   (N)
            │                                       -.0390295  -.0101079   (P)
            │                                       -.0363674   -.009022   (BC)
 ──────────────────────────────────────────────────────────────────────────

Note:  N  = normal
       P  = percentile
       BC = bias-corrected




ATT estimation with the Kernel Matching method
Bootstrapped standard errors


 ─────────────────────────────────────────────────────────────
 n. treat.    n. contr.      ATT   Std. Err.           t
 ─────────────────────────────────────────────────────────────

     105          157     -0.024      0.008      -3.000

 ─────────────────────────────────────────────────────────────
```

Appendix D: Operational self-sufficiency (OSS) and Commercialisation of MFIs- PSM estimation.

```
. attnd operationalselfsufficiency profitstatusdummy  logassets agedummy1, pscore(myscore
> ) comsup boot dots


 The program is searching the nearest neighbor of each treated unit.
 This operation may take a while.
(1 missing value generated)



ATT estimation with Nearest Neighbor Matching method
(random draw version)
Analytical standard errors


 ─────────────────────────────────────────────────────────────
 n. treat.    n. contr.       ATT    Std. Err.           t
 ─────────────────────────────────────────────────────────────

      105           33     -0.153       0.078       -1.946

 ─────────────────────────────────────────────────────────────
Note: the numbers of treated and controls refer to actual
nearest neighbour matches




Bootstrapping of standard errors

command:       attnd operationalselfsufficiency profitstatusdummy logassets agedummy1 , ps
> core(myscore) comsup
statistic:     attnd        = r(attnd)
..................................................

note: label truncated to 80 characters

Bootstrap statistics                      Number of obs    =      264
                                          Replications     =       50

 ─────────────────────────────────────────────────────────────────────
 Variable │    Reps  Observed      Bias   Std. Err. [95% Conf. Interval]
 ─────────┼───────────────────────────────────────────────────────────
    attnd │      50 -.1525735  .0212737  .0463458   -.245709  -.0594381   (N)
          │                                         -.2072658 -.0294745   (P)
          │                                         -.2319707 -.0817389   (BC)
 ─────────┴───────────────────────────────────────────────────────────
Note:  N   = normal
       P   = percentile
       BC  = bias-corrected



ATT estimation with Nearest Neighbor Matching method
(random draw version)
Bootstrapped standard errors


 ─────────────────────────────────────────────────────────────
 n. treat.    n. contr.       ATT    Std. Err.           t
 ─────────────────────────────────────────────────────────────

      105           33     -0.153       0.046       -3.292

 ─────────────────────────────────────────────────────────────
Note: the numbers of treated and controls refer to actual
nearest neighbour matches
```

```
. attk operationalselfsufficiency profitstatusdummy  logassets agedummy1, pscore(myscore)
>  comsup boot dots


The program is searching for matches of each treated unit.
This operation may take a while.



ATT estimation with the Kernel Matching method

_____
 n. treat.   n. contr.       ATT   Std. Err.           t
_____

      105        157    -0.099           .           .
_____

Note: Analytical standard errors cannot be computed. Use
the bootstrap option to get bootstrapped standard errors.




Bootstrapping of standard errors

command:      attk operationalselfsufficiency profitstatusdummy logassets agedummy1 , psc
> ore(myscore) comsup bwidth(.06)
statistic:    attk      = r(attk)
.............................................

note: label truncated to 80 characters

Bootstrap statistics                       Number of obs    =       264
                                           Replications     =        50

_____
Variable  |  Reps  Observed      Bias  Std. Err. [95% Conf. Interval]
_____|_____
     attk |    50 -.0985513  .0091554  .0360186  -.1709334  -.0261692   (N)
          |                                      -.1555753  -.0285851   (P)
          |                                      -.1744846  -.0354223   (BC)
_____|_____

Note:  N  = normal
       P  = percentile
       BC = bias-corrected




ATT estimation with the Kernel Matching method
Bootstrapped standard errors

_____
 n. treat.   n. contr.       ATT   Std. Err.           t
_____

      105        157    -0.099       0.036      -2.736
_____
```

Appendix E: Number of active borrowers (NAB) and Commercialisation of MFIs- PSM estimation.

```
. attnd logNAB profitstatusdummy  logassets agedummy1, pscore(myscore) comsup boot dots


 The program is searching the nearest neighbor of each treated unit.
 This operation may take a while.
(1 missing value generated)



ATT estimation with Nearest Neighbor Matching method
(random draw version)
Analytical standard errors
```

n. treat.	n. contr.	ATT	Std. Err.	t
105	33	0.781	0.574	1.361

```
Note: the numbers of treated and controls refer to actual
nearest neighbour matches




Bootstrapping of standard errors

command:       attnd logNAB profitstatusdummy logassets agedummy1 , pscore(myscore) comsup
statistic:     attnd       = r(attnd)
..................................................

note: label truncated to 80 characters
```

```
Bootstrap statistics                    Number of obs   =      264
                                        Replications    =       50
```

Variable	Reps	Observed	Bias	Std. Err.	[95% Conf. Interval]	
attnd	50	.7813566	.0370417	.3624246	.053037 1.509676	(N)
					.2804378 1.797773	(P)
					.2804378 2.186637	(BC)

```
Note:  N   = normal
       P   = percentile
       BC  = bias-corrected




ATT estimation with Nearest Neighbor Matching method
(random draw version)
Bootstrapped standard errors
```

n. treat.	n. contr.	ATT	Std. Err.	t
105	33	0.781	0.362	2.156

```
Note: the numbers of treated and controls refer to actual
nearest neighbour matches
```

. attk logNAB profitstatusdummy logassets agedummy1, pscore(myscore) comsup boot dots

The program is searching for matches of each treated unit.
This operation may take a while.

ATT estimation with the Kernel Matching method

n. treat.	n. contr.	ATT	Std. Err.	t
105	157	1.006	.	.

Note: Analytical standard errors cannot be computed. Use
the bootstrap option to get bootstrapped standard errors.

Bootstrapping of standard errors

command: attk logNAB profitstatusdummy logassets agedummy1 , pscore(myscore) comsup
> bwidth(.06)
statistic: attk   = r(attk)
....

note: label truncated to 80 characters

Bootstrap statistics   Number of obs   =   264
                                              Replications   =   50

Variable	Reps	Observed	Bias	Std. Err.	[95% Conf. Interval]	
attk	50	1.00551	-.0589244	.313151	.3762097 1.634811	(N)
					.4929485 1.636553	(P)
					.5185827 1.733226	(BC)

Note: N = normal
       P = percentile
       BC = bias-corrected

ATT estimation with the Kernel Matching method
Bootstrapped standard errors

n. treat.	n. contr.	ATT	Std. Err.	t
105	157	1.006	0.313	3.211

Appendix F: Average Loan size (ALS) and Commercialisation of MFIs- PSM estimation.

```
. attnd averageloanbalanceperborrowe profitstatusdummy  logassets agedummy1, pscore(mysco
> re) comsup boot dots


  The program is searching the nearest neighbor of each treated unit.
  This operation may take a while.
(1 missing value generated)
(1 missing value generated)



ATT estimation with Nearest Neighbor Matching method
(random draw version)
Analytical standard errors


 _____
 n. treat.    n. contr.        ATT     Std. Err.           t
 _____

      105         32       -0.402        0.592      -0.678

 _____
Note: the numbers of treated and controls refer to actual
nearest neighbour matches
```

```
Bootstrapping of standard errors

command:       attnd averageloanbalanceperborrowe profitstatusdummy logassets agedummy1 ,
> pscore(myscore) comsup
statistic:     attnd       = r(attnd)
.................................................

note: label truncated to 80 characters

Bootstrap statistics                          Number of obs     =      264
                                              Replications      =       50

 _____
 Variable  |   Reps  Observed      Bias  Std. Err. [95% Conf. Interval]
 _____|_____
    attnd  |    50 -.4015483 -.5572825  1.480898  -3.377523   2.574427   (N)
           |                                      -4.177322    .1245435   (P)
           |                                      -4.236373    .1155382  (BC)
 _____
Note:  N   = normal
       P   = percentile
       BC  = bias-corrected



ATT estimation with Nearest Neighbor Matching method
(random draw version)
Bootstrapped standard errors


 _____
 n. treat.    n. contr.        ATT     Std. Err.           t
 _____

      105         32       -0.402        1.481      -0.271

 _____
Note: the numbers of treated and controls refer to actual
nearest neighbour matches
```

```
. attk averageloanbalanceperborrowe profitstatusdummy  logassets agedummy1, pscore(myscor
> e) comsup boot dots


 The program is searching for matches of each treated unit.
 This operation may take a while.



ATT estimation with the Kernel Matching method


 ─────────────────────────────────────────────────────────
 n. treat.   n. contr.      ATT   Std. Err.          t
 ─────────────────────────────────────────────────────────

     105         157     -0.834          .               .

 ─────────────────────────────────────────────────────────
Note: Analytical standard errors cannot be computed. Use
the bootstrap option to get bootstrapped standard errors.




Bootstrapping of standard errors

command:       attk averageloanbalanceperborrowe profitstatusdummy logassets agedummy1 , p
> score(myscore) comsup bwidth(.06)
statistic:     attk      = r(attk)
.............................................

note: label truncated to 80 characters

Bootstrap statistics                   Number of obs    =       264
                                       Replications     =        50


 ─────────────────────────────────────────────────────────────────────
 Variable  │    Reps  Observed      Bias  Std. Err. [95% Conf. Interval]
 ──────────┼──────────────────────────────────────────────────────────
     attk  │     50 -.8343926  -.040209  .8509019  -2.544344  .8755587  (N)
           │                                       -2.804072  .0431296  (P)
           │                                       -2.804072  .0645781  (BC)
 ─────────────────────────────────────────────────────────────────────
Note:  N   = normal
       P   = percentile
       BC  = bias-corrected



ATT estimation with the Kernel Matching method
Bootstrapped standard errors


 ─────────────────────────────────────────────────────────
 n. treat.   n. contr.      ATT   Std. Err.          t
 ─────────────────────────────────────────────────────────

     105         157     -0.834     0.851       -0.981

 ─────────────────────────────────────────────────────────
```

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Appendix of Chapter 6

Appendix A: Proportion of financed start-ups business- Null model

```
. xtmixed proporitionoffinancedmicroenterp ||country:, robust

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0:    log pseudolikelihood =  342.00613
Iteration 1:    log pseudolikelihood =  342.00749
Iteration 2:    log pseudolikelihood =  342.00749

Computing standard errors:

Mixed-effects regression                        Number of obs     =        938
Group variable: country                         Number of groups  =         93

                                                Obs per group:
                                                            min =          1
                                                            avg =       10.1
                                                            max =         86

                                                Wald chi2(0)      =          .
Log pseudolikelihood =  342.00749               Prob > chi2       =          .

                                      (Std. Err. adjusted for 93 clusters in country)
```

proporitionoffinancedmicroenterp	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf. Interval]
_cons	.1102192	.0088123	12.51	0.000	.0929474 .127491

Random-effects Parameters	Estimate	Robust Std. Err.	[95% Conf. Interval]
country: Identity			
sd(_cons)	.0537635	.0088346	.0389596 .0741924
sd(Residual)	.1630443	.0086296	.1469784 .1808663

```
. estat icc

Intraclass correlation
```

Level	ICC	Std. Err.	[95% Conf. Interval]
country	.09807	.0326231	.0501287 .1830261

Appendix B: Proportion of financed to start-ups business and Return on Assets of MFIs-MLM estimation

```
. xtmixed proporitionoffinancedmicroenterp returnonassets profitstatusdummy2 agedummy1  logNoB logassets politicalstabi
> litynavoilence ruleoflaw loggdppercapitacurrentus logpopulation businessfreedom tradefreedom i.fiscalyear|| country:
> || mfiname:, robust

Performing EM optimization:

Performing gradient based optimization:

Iteration 0:   log pseudolikelihood =  314.87383
Iteration 1:   log pseudolikelihood =  315.47112
Iteration 2:   log pseudolikelihood =  315.47405
Iteration 3:   log pseudolikelihood =  315.47405

Computing standard errors:

Mixed-effects regression                        Number of obs     =        705
```

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
country	81	1	8.7	80
mfiname	416	1	1.7	6

```
                                        Wald chi2(17)     =     118.63
Log pseudolikelihood =  315.47405       Prob > chi2       =     0.0000
```

(Std. Err. adjusted for 81 clusters in country)

proporitionoffinancedmicroenterp	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf. Interval]	
returnonassets	-.1670001	.1082211	-1.54	0.123	-.3791097	.0451094
profitstatusdummy2	-.036154	.0139773	-2.59	0.010	-.063549	-.008759
agedummy1	.0035785	.0176039	0.20	0.839	-.0309244	.0380815
logNoB	.0182705	.008438	2.17	0.030	.0017324	.0348087
logassets	-.0232147	.0085808	-2.71	0.007	-.0400329	-.0063966
politicalstabilitynavoilence	-.0155117	.0194537	-0.80	0.425	-.0536404	.0226169
ruleoflaw	.0092171	.0230034	0.40	0.689	-.0358687	.0543029
loggdppercapitacurrentus	.0064028	.0123192	0.52	0.603	-.0177424	.0305479
logpopulation	-.001435	.0074104	-0.19	0.846	-.0159592	.0130892
businessfreedom	-.0018392	.0008127	-2.26	0.024	-.0034321	-.0002462
tradefreedom	.0008663	.0011458	0.76	0.450	-.0013794	.0031119
fiscalyear						
2011	.0362932	.016402	2.21	0.027	.0041458	.0684406
2012	.0174429	.01894	0.92	0.357	-.0196789	.0545647
2013	.0379199	.0251326	1.51	0.131	-.011339	.0871789
2014	.0106094	.0176688	0.60	0.548	-.0240208	.0452396
2015	-.0204516	.0176895	-1.16	0.248	-.0551225	.0142193
2016	-.0173145	.0178851	-0.97	0.333	-.0523686	.0177396
_cons	.3367903	.1886024	1.79	0.074	-.0328636	.7064443

Random-effects Parameters	Estimate	Robust Std. Err.	[95% Conf. Interval]	
country: Identity				
sd(_cons)	.0234793	.01244	.0083118	.066325
mfiname: Identity				
sd(_cons)	.0931289	.0114646	.0731641	.1185417
sd(Residual)	.128693	.0136783	.1044923	.1584987

```
. estat icc

Residual intraclass correlation
```

Level	ICC	Std. Err.	[95% Conf. Interval]	
country	.0213789	.023822	.0023397	.1690908
mfiname|country	.3577217	.0890117	.2067564	.5434047

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Appendix C: Proportion of financed to Business start-ups and Return on Equity of MFIs-MLM estimation.

```
. xtmixed proporitionoffinancedmicroenterp returnonequity profitstatusdummy2 agedummy1 LogNoB logassets politicalstabi
> litynovoilence ruleoflaw loggdpercapitacurrentus logpopulation businessfreedom tradefreedom i.fiscalyear|| country:
> || mfiname:, robust

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0:   log pseudolikelihood =  312.85625
Iteration 1:   log pseudolikelihood =  313.42609
Iteration 2:   log pseudolikelihood =  313.42901
Iteration 3:   log pseudolikelihood =  313.42901

Computing standard errors:

Mixed-effects regression                        Number of obs      =        705
```

Group Variable	No. of Groups	Observations per Group		
		Minimum	Average	Maximum
country	81	1	8.7	80
mfiname	416	1	1.7	6

```
                                                Wald chi2(17)      =     126.29
Log pseudolikelihood = 313.42901                Prob > chi2        =     0.0000
```

(Std. Err. adjusted for 81 clusters in country)

proporitionoffinancedmicroenterp	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf. Interval]	
returnonequity	-.0009687	.0004074	-2.38	0.017	-.0017672	-.0001702
profitstatusdummy2	-.0360937	.0138404	-2.61	0.009	-.0632204	-.0089671
agedummy1	.0040932	.0178389	0.23	0.819	-.0308704	.0390568
LogNoB	.0191791	.0081711	2.35	0.019	.0031641	.0351941
logassets	-.0242423	.008435	-2.87	0.004	-.0407745	-.00771
politicalstabilitynovoilence	-.0141758	.0194602	-0.73	0.466	-.0523172	.0239656
ruleoflaw	.010206	.0226577	0.45	0.652	-.0342023	.0546143
loggdpercap tacurrentus	.0059313	.0123608	0.48	0.631	-.0182954	.0301581
logpopulation	-.0013951	.0073637	-0.19	0.850	-.0158278	.0130375
businessfreedom	-.0019483	.0007969	-2.44	0.014	-.0035101	-.0003865
tradefreedom	.0009378	.0011502	0.82	0.415	-.0013165	.0031921
fiscalyear						
2011	.0350621	.0163739	2.14	0.032	.0029698	.0671543
2012	.0191014	.0195467	0.98	0.328	-.0192094	.0574122
2013	.037985	.0251271	1.51	0.131	-.0112631	.0872332
2014	.0078839	.017704	0.45	0.656	-.0268154	.0425831
2015	-.0200185	.0173939	-1.15	0.250	-.0541099	.0140728
2016	-.0164016	.0176786	-0.93	0.354	-.0510509	.0182478
_cons	.346884	.1874045	1.85	0.064	-.020422	.71419

Random-effects Parameters	Estimate	Robust Std. Err.	[95% Conf. Interval]	
country: Identity				
sd(_cons)	.025127	.0116073	.0101609	.0621368
mfiname: Identity				
sd(_cons)	.0919843	.0114328	.0720969	.1173574
sd(Residual)	.129579	.0138102	.1051515	.1596812

Appendix D: Proportion of financed to Business start-ups and Return on Assets of commercial vs non-commercial MFIs- MLM estimation.

```
. xtmixed proporitionoffinancedmicroenterp returnonassets profitstatusdummy2 agedummy1 logNoB logasset
> s politicalstabilitynovoilence ruleoflaw loggdppercapitacurrentus logpopulation businessfreedom trad
> efreedom i.fiscalyear if profitstatusdummy2==1, robust cluster(mfiname)
note: profitstatusdummy2 omitted because of collinearity

Mixed-effects regression                          Number of obs      =         275

                                                  Wald chi2(16)      =       42.19
log pseudolikelihood =  188.46842                 Prob > chi2        =      0.0004

                                           (Std. Err. adjusted for 178 clusters in mfiname)
```

proporitionoffinancedmicroenterp	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf. Interval]	
returnonassets	-.0116529	.059292	-0.20	0.844	-.1278631	.1045572
profitstatusdummy2	0	(omitted)				
agedummy1	.0152592	.0234738	0.65	0.516	-.0307487	.061267
logNoB	.016251	.0081461	1.99	0.046	.0002849	.0322171
logassets	-.0217051	.007858	-2.76	0.006	-.0371064	-.0063037
politicalstabilitynovoilence	-.0103655	.0175009	-0.59	0.554	-.0446665	.0239356
ruleoflaw	.0239386	.0255283	0.94	0.348	-.0260958	.0739731
loggdppercapitacurrentus	.0194652	.0140446	1.39	0.166	-.0080617	.0469922
logpopulation	.0013504	.0102098	0.13	0.895	-.0186605	.0213612
businessfreedom	-.0013284	.0009987	-1.33	0.183	-.0032857	.000629
tradefreedom	.001032	.0015018	0.69	0.492	-.0019115	.0039755
fiscalyear						
2011	.0211795	.0205464	1.03	0.303	-.0190908	.0614498
2012	.0193996	.0275781	0.70	0.482	-.0346526	.0734518
2013	.0709912	.0378309	1.88	0.061	-.003156	.1451384
2014	-.0042071	.0291622	-0.14	0.885	-.0613639	.0529497
2015	-.0496914	.0230397	-2.16	0.031	-.0948484	-.0045343
2016	-.0095645	.0257901	-0.37	0.711	-.0601121	.0409831
_cons	.1077692	.2632599	0.41	0.682	-.4082106	.623749

Random-effects Parameters	Estimate	Robust Std. Err.	[95% Conf. Interval]	
sd(Residual)	.1255329	.0091721	.1087838	.1448608

```
. xtmixed proporitionoffinancedmicroenterp returnonassets profitstatusdummy2 agedummy1 logNoB logasset
> s politicalstabilitynovoilence ruleoflaw loggdppercapitacurrentus logpopulation businessfreedom trad
> efreedom i.fiscalyear if profitstatusdummy2==0, robust cluster(mfiname)
note: profitstatusdummy2 omitted because of collinearity

Mixed-effects regression                          Number of obs      =         430

                                                  Wald chi2(16)      =       37.16
log pseudolikelihood =  139.51238                 Prob > chi2        =      0.0020

                                           (Std. Err. adjusted for 246 clusters in mfiname)
```

proporitionoffinancedmicroenterp	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf. Interval]	
returnonassets	-.2511917	.1838604	-1.37	0.172	-.6115515	.1091681
profitstatusdummy2	0	(omitted)				
agedummy1	-.0323559	.0348533	-0.93	0.353	-.1006672	.0359554
logNoB	.0186905	.0095393	1.96	0.050	-6.12e-06	.0373871
logassets	-.022786	.0108275	-2.10	0.035	-.0440076	-.0015645
politicalstabilitynovoilence	-.0228433	.0238081	-0.96	0.339	-.069663	.0239765
ruleoflaw	-.0038765	.027048	-0.14	0.886	-.0568896	.0491366
loggdppercapitacurrentus	.013999	.0172583	0.81	0.418	-.0198462	.0478441
logpopulation	-.0080124	.0090946	-0.88	0.378	-.0258374	.0098126
businessfreedom	-.0027537	.0009376	-2.94	0.003	-.0045914	-.0009161
tradefreedom	-.0006945	.0016552	-0.42	0.677	-.0039582	.0025691
fiscalyear						
2011	.0535373	.0283463	1.89	0.059	-.0020205	.109095
2012	.0058655	.0314434	0.19	0.852	-.0557625	.0674935
2013	.0195752	.0267218	0.73	0.464	-.0327985	.071949
2014	-.0037412	.0265526	-0.14	0.888	-.0557835	.048301
2015	-.0027262	.0278174	-0.10	0.922	-.0572473	.051795
2016	-.0262281	.0255936	-1.02	0.305	-.0763907	.0239345
_cons	.5745348	.2540544	2.26	0.024	.0765973	1.072472

Random-effects Parameters	Estimate	Robust Std. Err.	[95% Conf. Interval]	
sd(Residual)	.1749271	.0090344	.1580867	.1935615