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**Determinants and Effects of the Internal Audit  
Function in Microfinance Institutions – A Global  
Perspective.**

**A thesis presented in partial fulfilment of the  
requirements for the Degree of**

**Doctor of Philosophy**

**in**

**Accountancy**

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**Abiodun Omidiji**

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## Abstract

This research investigates the determinants and effects of the internal audit (IA) function in microfinance institutions (MFIs) using data from the World Bank's Microfinance Information Exchange database. The sample is comprised of 1,025 MFIs during the period 2010–2018. MFIs are specialised financial institutions established to provide vital financial services to the poor, and it is of particular interest to identify and understand the determinants of their IA function. Moreover, IA has wider implications for the microfinance industry which is reported to lack effective governance and control mechanisms. This thesis therefore consists of two distinct studies: (i) the study of the determinants of IA function in MFIs; (ii) the study of the association between IA function, loan losses, and financial performance in MFIs.

In the first study, I find that as MFIs increase outreach, proportion of female board directors, and level of financial performance, the existence of the IA function in MFIs is advanced. I also find that sensitivity to operational costs can deter MFIs from investing in the IA function.

In the second study, I find that the IA function reduces the rate of loan loss occurrence in MFIs. I also find that the IA function improves the financial performance of MFIs through its significant positive effect on institutional operational self-sufficiency. Furthermore, I find that the negative association between loan losses and financial performance is not significantly higher in MFIs without IA, than in those with IA. The IA function therefore both reduces the risk of writing off bad loans and improves profitability, but it cannot solitarily eliminate the adverse impact of loan losses on MFI financial performance.

This thesis extends the corporate governance and IA literature by identifying the factors that determine IA existence from the MFI perspective. It also provides evidence of the effect of the IA function on MFI loan losses and financial performance. This thesis reveals the potentiality

of the IA function for improving governance and risk management in MFIs and its findings provide policy and practice implications for the microfinance industry, development agencies and governments to consider.

This thesis is dedicated to:

The Lord God Almighty,  
My pillar of Strength and  
the Source of my Inspiration

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## List of Abbreviations

<b>ACRONYM</b>	<b>MEANING</b>
2SLS	Two-stage Least Squares Regression Method
ATM	Automated Teller Machine
BRAC	Bangladesh Rural Advancement Committee
CBOK	Common Book of Knowledge
CEO	Chief Executive Officer
CobIT	Control Objectives of Information and Related Technology
COSO	Committee of Sponsoring Organisations
FINCA	Foundation for International Community Assistance
GDP	Gross Domestic Product
GNI	Gross National Income
IA	Internal Audit
ICT	Information and Communication Technology
IIA	Institute of Internal Auditors
ILO	International Labour Organisation
IMF	International Monetary Fund
IT	Information Technology
MFIs	Microfinance Institutions
MIVs	Microfinance Investment Vehicles
MIX Market	Microfinance Information Exchange Market Database
NASDAQ	National Association of Securities Dealers Automated Quotations
NBFI	Non-bank Financial Intermediaries
NGOs	Non-governmental Organisations
PAT	Profit After Tax
ROA	Return on Assets
SOX	Sarbanes-Oxley Act
TCE	Transaction Cost Economics
UK	United Kingdom
US	United States
VIF	Variance Inflation Factor
WDI	World Development Indicators

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of thesis

This thesis is an investigation of the internal audit (IA) function in microfinance institutions (MFIs) around the world. MFIs are financial institutions that are involved in providing financial services to the poor, especially in developing economies. They have the twofold objective of maintaining financial sustainability and helping to alleviate poverty through social outreach. Generally, MFIs are institutions that provide financial services to low-income people in countries with weak infrastructure (Beisland et al., 2015; Armendáriz de Aghion and Morduch, 2000). They are small-sized entities when compared to commercial banks (Nikaido et al., 2012). They comprise non-governmental organisation MFIs (NGO-MFIs), cooperatives and credit unions, non-bank financial intermediaries (NBFIs), microfinance banks (MFBs), and rural banks (Microbanking Bulletin, 2009).

MFIs grew from about 620 institutions in 1997 to about 3,700 by 2012 (Lassoued, 2017). They are estimated to have extended loans worth more than US\$125 billion to more than 200 million borrowers within the last three decades, and they have gained recognition as providers of credit services to the poor (Convergences, 2018; Hermes and Hudon, 2018). However, within their hallmark product, i.e., the provision of loans to the poor, is also the biggest threat to their existence (Hardy et al., 2013; Rhyne and Otero, 2006; Hulme, 2000). Due to the nature of MFI clients and the structure of MFI loans, the credit risk profile of MFIs is heightened (Chikalipah, 2018; Tchuigoua, 2016). As the microfinance industry grew, it faced the challenge of high scale over-indebtedness (Schicks, 2010) and the associated risk posed to loan portfolio quality. Crucial stakeholders including donors, investors, customers, and capital providers then called for urgent

measures to address these problems (Beisland et al., 2015; Mori and Mersland, 2014; CSFI, 2014), arguing that when loan losses go unchecked, they ultimately affect the financial performance of MFIs (Schäfer and Fukasawa, 2011), which can be detrimental to their social outreach. The existing literature provides arguments that poor loan portfolio performance has serious implications for MFI financial performance and the achievement of financial sustainability goals (Schicks, 2013; Daher and Le Saout, 2015; Kar and Swain, 2014; Iqbal et al., 2019). Similarly, credit risk and poor loan performance can hinder MFIs in achieving their social goals (Lassoued, 2017). A key determining factor in reducing credit and sustainability risks (financial and social) is the quality of institutional governance (Lassoued, 2017). MFI credit risks are generally seen as the risk to revenues or capital because of late or non-payment of loan obligations by borrowers (Fernando, 2007). Ayayi (2012) uses a sample of 92 MFIs in Vietnam over the period 2005–2007 to assess credit risk in the microfinance industry and finds that well-implemented good governance practices are significantly and positively associated with an MFI's low credit risk.

From the Agency theory perspective, the use of IA is one of the internal control and governance monitoring mechanisms recommended by both the extant literature and microfinance stakeholders to address MFIs' loan portfolio and loan loss problems (Isern et al., 2008; Mbeba, 2007; Steinwand, 2000; Okello et al., 2019; Goodwin-Stewart and Kent, 2006). It has been argued that the IA function can detect both the internal control weaknesses in MFI loan portfolio policies and poor compliance with it. It can also provide a timely warning when the loan portfolio is at risk (Mbeba, 2007; Haq et al., 2008). The IA function also plays an important role in strengthening internal control policies and procedures through systematised monitoring and risk mitigation (Ayayi, 2012).

However, despite the potentiality of IA's notable benefits for MFIs, less than 45 percent of sampled MFIs used in previous studies have the IA function in existence (Beisland et al., 2015; Steinwand, 2000). This raises the question: why do some MFIs have an IA function while others do not? Furthermore, the literature does not provide clear findings on the role of IA in mitigating loan losses in MFIs. This thesis therefore proceeds to ask two research questions. First, *"What are the factors that determine the existence/presence of IA in MFIs?"*. This question investigates the theoretical underpinnings that can be used to explain the propositions of the existence of IA in MFIs. This question is also influenced by the search for complementary corporate governance mechanisms that can influence the existence of the IA function in MFIs, for example, board characteristics or composition. Further grounds for focusing on the existence of the IA function in MFIs is provided by their emphasis on achievement of financial and social performance. In addition, and drawing from the TCE theory's proposition, the first research question attempts to understand if the operational efficiency of an MFI is related to the implementation of the IA function, from the standpoint of value-addition or cost constraint.

There are divergent opinions as to whether the IA function should be recommended and implemented by MFIs in the same way that is expected of mainstream financial institutions as part of the mechanism for curbing credit risks and achieving financial performance (BIS, 2012). Greuning et al. (1999) and Mbeba (2007) assert that the IA function is fundamental to the management of an MFI's risk-taking activities like loan disbursement and recovery, while Ledgerwood and White (2006) add that IA forms a major component of an MFI's internal control system over lending activities. Although Thrikawala et al. (2016) find evidence that IA may cause MFIs to incur additional costs without the commensurate financial returns, other existing literature strongly argue that IA can contribute to the financial performance of institutions.



The second research question is therefore motivated as: “*What effect does the IA function have on the mitigation of loan losses, and achievement of healthy financial performance in MFIs?*”. It is advanced from queries on the extent of the involvement of IA in the loan portfolio performance of MFIs. Also considered in the second research question is the possible impact IA can have on loan losses resulting from MFIs’ loan repayment and credit risks.

These two core research questions are considered fundamental to the understanding of the influence and role of IA in the microfinance industry, be it at the firm level, country level, or at the wider regional level. These research questions are also important in examining whether IA helps MFIs to achieve their dual objectives, i.e., financial sustainability and social outreach.

Consequently, the first study in this thesis focuses on the first research question by examining the determinants of the IA function in MFIs, globally. In particular, it explores the MFI characteristics that can influence the existence/establishment of the IA function. The second study uses the second research question to explore the association between IA, loan losses and MFI financial performance. In particular, it tests the impact of IA on both MFI loan loss indicators and MFI financial performance indicators. For both studies, this thesis utilises a comprehensive panel dataset from the Microfinance Information Exchange (MIX Market)<sup>1</sup>, comprising a sample of 1,025 observations of MFIs across 63 countries over the period 2010–2018. The MIX Market database contains expansive financial and social performance information on MFIs around the globe, having converted individual financial and outreach reports provided by the MFIs into

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<sup>1</sup> The MIX (Microfinance Information Exchange) Market is a database for microfinance where all MFIs and supporting organisations share their data. The MIX Market dataset has helped build transparency in the microfinance industry for more than 20 years by covering thousands of financial service providers and a huge number of datapoints for each provider (<https://www.findevgateway.org>). It can be accessed via the World Bank’s Data Catalogue (<https://databank.worldbank.org/source/mix-market>).

systematised financial and outreach variables (Quayes, 2012). This standardised presentation of variables enhances comparability across institutions with varied characteristics.

The remainder of this chapter is organised as follows: Section 1.2 presents the motivation for both studies. In section 1.3, the findings of the studies are outlined. Section 1.4 defines the contributions of the studies. Section 1.5 presents the implications of the studies in this thesis. Finally, section 1.6 sets out the organisation of the entire thesis.

## 1.2 Motivations for the research

There are three motivations for this research. First, MFIs play a critical role in the provision of much needed financial services by the financially excluded populace in emerging economies. The uncertain climate in the microfinance industry (Guérin et al., 2018; Cobb et al., 2016), and failure or underperformance of MFIs (Dorfleitner et al., 2017; Sainz-Fernandez et al., 2015), can adversely affect millions of beneficiaries globally, resulting in non-fulfilment of the microfinance promise (Morduch, 1999). In fact, various studies like Bassem (2013) and Mersland and Strom (2009), have examined the relationship between MFIs' sustainability and performance, and the governance and control structures that can aid the long-term sustainability of MFI operations. This study therefore extends the frontiers of empirical research by examining the IA function as a mechanism to both help MFIs achieve financial performance and mitigate losses that threaten their long-term existence. The study of IA as an important governance dimension in MFIs, is predicated on arguments that favour its use for mitigating MFI risks (Mbeba, 2007). There is a dearth of evidence on the impact of IA's characteristics and functionality as a governance mechanism for the microfinance industry. Indeed, the impact of IA in an organisation and its *raison d'être* is lacking in the extant literature (Mihret and Yismaw, 2007).

Second, the literature is replete with studies on the IA function in mainstream financial institutions. However, there is a dearth of empirical studies on the IA function in MFIs, especially on the factors that can determine the existence of IA in MFIs. When compared to the many significant IA studies in mainstream banking (Cahill, 2006; BIS, 2012; Gras-Gil et al., 2012), the paucity of rigorous studies on IA in MFIs demonstrates the necessity of bridging this knowledge gap in the literature. According to Beisland et al. (2015), the study of IA existence in MFIs should broaden the understanding of the workings of internal corporate governance mechanisms (Davidson et al., 2005) within the microfinance industry. It is important to understand the existence and use of IA in MFIs, an industry that is beleaguered with corporate governance issues (CSFI, 2012; Steinwand, 2000; Fernando, 2007; Mori et al., 2015).

Third, previous studies show that MFIs are highly concerned with the cost implications of operations (Meyer, 2019). The microfinance industry grapples with high operating costs and low profits because microfinance services are expensive to deliver sustainably (Mersland and Strom, 2009; Hermes et al., 2011; Benedetta et al., 2015). MFIs can only implement and invest in internal governance and control mechanisms as far as is practical, as the cost of implementation of controls must be weighed, in comparison to both the probability of risk of loss and size of loss (Ledgerwood et al., 2013). This study therefore also seeks to examine if the existence or non-existence of IA in MFIs as a control and risk management system, is related to the running costs for MFIs.

In its entirety, this research has three principal objectives. First, it attempts to identify the determinants of the existence of IA in MFIs. Second, it endeavours to provide new insights on the effect of the IA function on loan losses in MFIs. Finally, it examines the impact of IA on MFI financial performance.

### 1.3 Findings of the studies

The following section presents the summary of the findings of the two studies in this thesis.

#### *1.3.1 The determinants of internal audit function in microfinance institutions*

The main finding from the first study is that, of the total population of MFIs in the MIX Market global dataset studied, the proportion of MFIs which have an IA function stands at 25%. This is consistent with Beisland et al.'s (2015) findings, drawn from a separate microfinance rating agency's webpage, which point to the assumption that IA is still a growing professional practice in the microfinance industry (Beisland et al., 2015). According to Beisland et al. (2015), the study of IA existence in MFIs should broaden the understanding of the workings of such institutions' internal corporate governance mechanisms (Davidson et al., 2005).

The results of the empirical analyses reveal that the depth of MFI outreach is positively and significantly connected to the existence of IA. MFIs that target deeper outreach (more women borrowers as clients), may lack efficient operations due to a trade-off between outreach and sustainability (Mersland and Strom, 2008). Thus, MFIs that focus on financially marginalised clients, for example, female borrowers, are likely to have established the IA function as part of their governance mechanisms (Barry and Tacneng, 2014) to improve the efficiency of their operations and institutional sustainability. Addressing some of the challenges that accompany providing financial services to microfinance clients, for example, high operational costs, lack of credit history and information asymmetry, increases the need for the IA function to provide assurance monitoring of the MFI's risk control systems. Findings from empirical research show that banking regulations by central banks or other banking supervision institutions have a statistically insignificant relationship with the establishment of the IA function in MFIs. It is yet to be suggested that banking and prudential regulation determine the existence of IA in MFIs.

However, this is in line with the argument that MFIs have found ways to circumvent banking regulations and corporate governance requirements (like the CEO, managerial, and internal auditor positions) for accessing deposits from the public (Tucker and Tellis, 2005; Ledgerwood and White, 2006). This study finds that female directorship in MFIs is positively and significantly related to the existence of the IA function. This is consistent with the argument that both IA and female directors are tougher monitors (Adams and Ferreira, 2009; Strom et al., 2014). This may indicate that female board directors favour the use of co-monitoring mechanisms like IA to perform board monitoring duties. This collaborative oversight function probably has strong implications for MFIs and further research. The tests further reveal that the cost per MFI borrower, i.e., the average cost to serve an MFI borrower per year, has a significantly negative correlation with IA function. So, as the average cost per borrower increases, the likelihood of implementing IA decreases. This is consistent with the position of transaction cost economic theory (TCE), that organisations use the most efficient mix of governance mechanisms for monitoring activities, based on the cost function minimisation view of minimising transaction costs (Kim and Mahoney, 2005). This is because monitoring costs are expensive (Kim and Mahoney, 2005). It can therefore be argued that the establishment and recurrent costs associated with IA as a governance and monitoring mechanism in MFIs, may not be cost-optimal for some MFIs. Lastly, the study found IA existence to be significantly and positively correlated with financial performance in MFIs. This is consistent with findings from Castanheira et al. (2010), showing that financial institutions whose performances are measured based on risks, returns, and profitability, consider IA as very important for enterprise risk management.

### *1.3.2 The association between internal audit, loan losses, and financial performance of MFIs*

The empirical results from the second study reveal a negative and significant association between IA and the two measures of loan losses, i.e., *loan loss rate* and *impairment losses on loans*. This evidence implies that MFIs with IA should record lower loan losses. This is in line with Guimares et al.'s (2018) argument that IA presence may reduce client over-indebtedness, which is a cause of loans being written off as lost (Mader, 2013). It is also consistent with Statovci et al.'s (2021) suggestion that detective and preventive internal controls (such as IA), may have the effect of reducing non-performing loans in commercial banks. The estimation results for the relationship between IA and operational self-sufficiency (*OSS*) reveals that *IA* is positively and significantly correlated with the financial performance of MFIs. Mersland and Strom (2009) suggest that the activities of the internal board auditor may aid the board's ability to improve the financial performance of their MFIs. The estimation result can also indicate the extended effect of IA's oversight over issues around accountability and financial irregularities in MFIs (Sarens et al., 2009; Rönkkö et al., 2018; Bananuka et al., 2018). In light of these findings, the present study used a divided sample of those MFIs with IA and those without, in order to examine the relationship between loan loss and financial performance. Results show that the negative relationship between loan losses and financial performance is not less significant in MFIs with IA than in those without. This aligns with Okello et al.'s (2019) study of IA's role in the financial performance of Kenyan banks. The study implies that non-performing loans do not only reduce financial performance but can also moderate the significant positive relationship between the quality of IA work and financial performance. This implies that in addressing loan loss problems in MFIs, IA needs to be effectively combined with other credit risk control measures (Hutchinson

and Zain, 2009) such as customer protection, and the institutional and legal environment (Schicks, 2013).

#### 1.4 Contributions of the thesis

Both studies in this thesis contribute to the internal audit and the microfinance literature in several ways. First, they make key contributions to a growing body of literature exploring the factors that determine the existence of IA function in MFIs. This thesis contrasts with prior studies that have explored the determinants and effectiveness of the use of IA in firms from diverse sectors such as financial, manufacturing, and service (Goodwin-Stewart and Kent, 2006; Arena and Azzone, 2007; Rönkkö et al., 2018). To my knowledge, this thesis is the first empirical research that delves into the determinants of the existence and functionality of IA in the microfinance industry. Similar to Goodwin-Stewart and Kent (2006), my research not only provides a better understanding of the conditions that drive IA existence in MFIs, and the conditions that may restrict MFIs from establishing or implementing the IA function, it also provides contributory information on the use of the IA function in addressing MFI loan portfolio risk.

Second, existing literature has highlighted the need to know the specific forms of governance relationships that can determine the existence and effectiveness of IA in institutions. Lenz and Hahn (2015) posit that knowing how to best position the IA function within an organisation's risk management, governance, and compliance infrastructure is a new research area for IA relationships. This thesis contributes to knowledge of useful IA relationship forms by providing evidence that female board directors can determine the existence of IA in MFIs. The results further suggest that the IA-female board directors' relationship enhances MFI monitoring mechanisms. Again, Siqani and Sekiraca's (2016) study shows the impact of IA in reducing credit

risk in commercial banks. The results from this thesis extend the scope of IA-credit risk impact examination in MFIs, and the results imply that IA is well positioned as a risk control and monitoring function within MFIs.

Third, Lenz and Hahn (2015) further pose the question: *“What are the key processes and success factors when setting up an IA function?”*. They refer to the investigation of the key processes and factors as a research opportunity for understanding IA processes. The results of the first study of this thesis contribute to the literature in the microfinance industry by indicating that factors like cost-efficiency and good financial performance can influence the desired outcome of an MFI’s effort to set up an IA function.

Fourth, the second study of this thesis shows that the IA function has the effect of mitigating MFI loan losses. This fills a gap in the literature and responds to the observation by previous authors that there is a dearth of studies on the impact of IA on financial performance and underlying loan losses in MFIs (Thrikawala et al., 2016). In fact, Lenz and Hahn (2015) point out that investigating the impact of IA within specific organisational contexts will contribute to knowledge on matching IA function with various organisational forms. This thesis therefore not only gives specific and deserved attention to IA in MFIs, but also shows the impact of IA on the loan portfolio and financial performance of microfinance organisations.

Fifth, Sarens (2009) posed the question: *“Given the current corporate governance context, what is the meaning of IA function quality?”*. Sarens (2009) describes this question as an opportunity to research IA’s capacity to monitor and enhance risk management and internal control processes. This thesis’ results show a negative effect of IA on loan losses, and this research therefore contributes to the literature which supports IA’s contribution to the quality of corporate governance (Sarens et al., 2012).



Sixth, Eden and Moriah (1996) explored the impact of IA on the financial performance of 224 bank branches for a period of one year and found it to be significant. However, their study was limited to branches that got audited, having noted that auditing specialists have not proposed a comparison of the relative business performance of audited and unaudited organisational units. The second study of this thesis contributes to the literature by extending the study to unaudited MFIs, i.e., by splitting the sample into MFIs with or without an IA function. In this way, the impact of IA on loan losses and financial performance in MFIs lacking IA was made distinctive.

Finally, the second study complements the body of research examining the impact of IA on the financial performance of institutions in the microfinance and banking industry (Bassem, 2009; Mersland and Strom, 2009; Eden and Moriah, 1996). Its findings illuminate the IA function as an independent appraisal function by way of isolating it from other board control structures, and broadly analysing its effect across MFIs' organisational processes. Prior studies have to some degree restricted the examination of IA's impact to within the context of reporting to the board of directors.

This thesis observes that institutions including MFIs may use third parties such as an external accounting firm (Carey et al., 2006), an incumbent audit firm (Coram et al., 2008), or an industry-specialist IA function provider (Baatwah et al., 2021), as alternatives to an in-house IA function. However, this thesis also observes that an IA function with firm- and industry-specific knowledge (Speklé et al., 2007) is more useful to MFIs. Also, the organisation of the IA function within MFIs, as against the use of external parties, is more likely to be specifically associated with monitoring the compliance of MFIs with policies. Specifically, the monitoring of compliance with those policies which are aimed at curbing risks associated with credit and client-over-

indebtedness. Therefore, IA activities are central to the internal management control systems (Widener and Selto, 1999) of MFI performance and risk management assessment. Hence, the internal expertise of in-house internal auditors in areas that affect different aspects of the organisation, is more appropriate for managing internal control systems (Carey et al., 2006). This view is consistent with the Transaction Cost Economic theory's proposition that when the asset specificity of the IA function increases, institutions are more likely to establish an IA function than outsource the activity (Speklé et al., 2007).

### 1.5 Implications of the thesis

Generally, the findings in this thesis have implications for IA practice, MFIs, and regulators. They provide insights for prospective investors and fund providers in their investment decision making. With regards to strengthening the governance and control environment in MFIs, the findings should motivate MFI boards to invest in IA in order to increase the quality of internal audit assurance services. The findings indicate that IA presence can minimise risks arising from information asymmetry and poor adherence to credit risk policies. An increase in the quality of IA assurance should have a considerable impact on the support provided for board monitoring and oversight roles. Specifically, this thesis has targeted implications.

The results have implications for microfinance investment vehicles (MIVs), the board and management of MFIs, banking regulators, IA practice, governments, development organisations, and future research. First, the evidence provided in this thesis showing the positive effect that IA has on MFI financial performance can serve as a good criterion for MIVs willing to provide capital to profitable MFIs. In fact, Holt and DeZoort (2009) find that IA reporting disclosures have a positive effect on investors' confidence in the reliability of financial reports, and the effectiveness of a firm's oversight systems. Audited information is likely to be considered by

investors as more reliable than unaudited information (Holt and DeZoort, 2009). Cobb et al. (2016) argue that on average, commercial funding flows to MFIs that provide evidence of financial strength. Mori et al. (2015) add that the key indicators investors seek in funding of investment prospects are transparency and trust in the internal control of MFI operations. So, investors can select MFIs with an IA function knowing that there are internal governance and control structures in place to tackle principal-agent problems. Investors can also be guaranteed of a system that verifies the risk management and internal control procedures established to prevent loan losses are operational and complied with.

Second, there are implications for board audit committees of MFIs based on the findings of this research, as they provide insight into the importance of implementing IA recommendations on loan loss exposures and credit portfolio status. The implementation of IA recommendations through the board's audit committee is arguably among the most robust internal control process monitoring mechanisms in MFI operations (Mbeba, 2007). The effectiveness of an audit committee is more likely to be enhanced through its interactions with the IA function, which in turn improves the corporate governance quality of organisations (Zaman and Sarens, 2013).

Third, lending contracts and loan administration procedures designed by the MFI's board and management can benefit from the ex-ante assurance provided by IA, as a mechanism for reducing loan loss exposure. This thesis's results show that IA has a negative effect on loan losses, being an ex-ante monitoring mechanism. However, these results also imply that it may be more difficult for IA to apply corrective measures to loan losses once they begin to escalate to the point of having a significant impact on MFI financial performance.

Fourth, this thesis concludes that the voluntariness of the establishment of IA in MFIs has a cost-benefit undertone because the results show that the cost per borrower has a negative effect on the existence of IA. Thus, it may be necessary for banking/prudential regulators to incentivise MFIs with some cost-cushioning policies to encourage them to invest in IA. Using this approach will benefit regulators who can use IA as an internal regulation instrument. This will also benefit MFIs who can now qualify to transit from credit-only institutions to deposit-taking institutions by virtue of being prudentially regulated.

Fifth, the positive effect of outreach on IA existence in MFIs should be of interest to governments, development organisations, and donor agencies. This is because these institutions are particular about the social performance and increase in outreach to low-income clients of those MFIs they support (Khachatryan et al., 2017). It will therefore be helpful to add the presence or existence of the IA function to the criteria used in selecting socially oriented MFIs, because IA serves as a control mechanism for the risks that are associated with increasing depth of outreach by MFIs.

Sixth, the IA practice can mould its expertise to fit the microfinance industry by creating IA domain knowledge and frameworks. In line with this, internal auditors in the industry would need to develop assurance and consulting skills that fit the microfinance domain. The IA professional bodies may wish to be guided by the findings in this study in issuing professional standards for the practice of internal auditing in MFIs.

Finally, this thesis provides suggestions for future research to make further contributions to IA studies in microfinance. The extant literature outside of the scope of microfinance is replete with studies on the effect of the IA function on financial reporting and performance matters. Academic studies on the operations-related services provided by the IA function in MFIs are

much needed. Empirical evidence suggesting the economic benefits of IA to MFIs will shed light on the effect of IA's operation-related services on MFI operating performance. In addition, intricate components of the IA function such as compliance internal auditing, management internal auditing, and specialisations in financial audit can be further researched.

## 1.6 Organisation of the thesis

The remainder of this thesis is structured as follows. Chapter two presents an overview and background discussion of microfinance industry/institutions and internal audit. Chapter three discusses the theoretical framework for the studies in this thesis. Chapter four presents the first study, being the determinants of IA in MFIs globally. The fifth chapter discusses the second study, being the association between IA and the loan losses and financial performance of MFIs. Chapter six concludes the thesis and provides the implications, contributions, and limitations of the studies in this thesis.

## CHAPTER TWO

### AN OVERVIEW OF INTERNAL AUDIT (IA) AND MICROFINANCE INSTITUTIONS (MFIs)

#### 2.1 Introduction

This chapter provides the descriptive outlay from research on microfinance institutions (MFIs) and the internal audit (IA) function. It discusses the financial architecture and characteristics of the microfinance industry and the role of IA in MFIs from governance, control, and risk management perspectives.

The background review proceeds from three thematic areas. First, it illustrates the IA function in organisations and its location and perception within MFIs. Second, it discusses what microfinance means, the description of MFIs and the nature of their services, and the various general reports on the impact and challenges of microfinance. It compares MFIs with traditional banks in terms of clientele and operational focus. It then deals with literature associated with loan losses and its impact on the overall objective for the establishment of MFIs globally. Finally, this chapter discusses the IA function in relation to MFIs.

#### 2.2 Internal Audit (IA) – A background

The transitioning role of IA has brought changes to its definition, public image, and *raison d'être* for its establishment in organisations. Although historians believe that IA activities originated during the Babylonian, Greek, Roman, and Italian city-states empires, double-entry bookkeeping and auditing emerged around 1494 A.D., preceding the need for a separate internal assurance function (Ramamoorti, 2003). Further, the formal establishment of the IA function came about around the early part of the 20<sup>th</sup> century, while the first *Statement of Responsibilities of the Internal Auditor* was issued in 1947 by the Institute of Internal Auditors (Ramamoorti, 2003). Between 1947 and 1993, the *Statement of Responsibilities of the Internal*

*Auditor* expanded the scope of IA from dealing with just accounting and financial matters, to examining and evaluating the adequacy and effectiveness of the system of internal control of organisations, and the quality of performance (Ramamoorti, 2003). Further changes also came to areas in which internal auditors worked. The 1978 definition<sup>2</sup> of the IA function provided by the *Standards for the Professional Practice of Internal Auditing* involved appraisal, examination and evaluation activities, framing it as a watchdog for an organisation's system of control and quality of performance (Ramamoorti, 2003). However, by the late 1990s, internal auditors functioned in several areas including compliance audit, transaction audit, fraud investigation, enterprise-wide risk management, assurance, and consulting (Ramamoorti, 2003; Hass et al., 2006). As changes came to the functions of the internal auditor, so too did they come to the terminologies to which they referred. Terms previously used in describing internal auditors like "governance watchdogs" (Roussy, 2013), and "organisation police officers" (Calvin et al., 2021), were replaced with perceptions like "consultant to top management", "protective shield", "keeper of secrets" (Roussy 2013), "trusted advisors" (IIA, 2020), "helper of objective achievement", and "supporter of organisational success" (Hass et al., 2006). According to the IIA, IA is defined as:

"an independent, objective assurance, and consulting activity designed to add value and improve an organisation's operations. It helps an organisation accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes" (IIA, 1999).

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<sup>2</sup> Internal auditing is an independent appraisal activity established within an organisation as a service to the organisation. It is a control which functions by examining and evaluating the adequacy and effectiveness of other controls. The objective of internal auditing is to assist members of the organisation in the effective discharge of their responsibilities. To this end, internal auditing furnishes them with analyses, appraisals, recommendations, counsel, and information concerning the activities reviewed. The audit objective includes promoting effective control at reasonable cost (IIA, 2002b).

This “most proactive and comprehensive” (Hass et al., 2006) definition provides some unambiguous and value-adding functions that can be performed by IA, for example, consulting, helping to achieve organisational objectives, and supporting organisational success (Hass et al., 2006).

Stakeholders’ interests affect the roles and responsibilities of the internal auditor and have contributed to the evolution of IA in organisations. According to Eulerich and Eulerich (2020), the audit committee members and/or the board make demands of the internal auditor to provide a high level of assurance on internal control systems, risk management and governance processes. On the other hand, the CEO/management may require the internal auditor to provide consulting and advisory services (Eulerich and Eulerich, 2020). The internal auditor’s work should also be adequate for the external auditor’s purposes to be usable (ISA 610). ‘Adequate’ would mean that the internal auditor is well trained and technically proficient, their work has adequate supervision, review, and documentation, and that their work has enough evidence to allow reasonable judgements to be made from it (ISA 610).

The introduction of frameworks has also influenced the role played by IA in different circumstances. In addition, legislation like the Sarbanes-Oxley (SOX) Act of 2002 caused a major shift of focus for the IA function. SOX is a major piece of US legislation that carved out an independent function for IA within enterprises. Under SOX, IA is tasked with the review and documentation of internal controls for important processes, the identification of key control points, and the examination of those identified controls (Moeller, 2009). Specifically, section 404 of SOX says that internal auditors while reviewing internal controls, can act as internal consultants to management in reporting the adequacy of internal controls, and can deputise for external auditors in the review of controls (Moeller, 2009). Furthermore, internal control



frameworks like the COSO-ERM (Committee of Sponsoring Organisations of the Treadway Commission<sup>3</sup> - Enterprise Risk Management) and CobiT (Control Objectives for Information and Related Technology) expanded the scope of and lent credence to the internal auditor's work. The COSO-ERM framework allows IA and the organisation to evaluate and measure risks at every level (Moeller, 2009). The CobiT framework guides internal auditors who must provide higher levels of assurance on the assessment of information technology (IT) controls, which is a component of the enterprise-wide internal control system (Hass et al., 2006). The CobiT provides a framework for the understanding and application of technology to IA activity in the review of IT-related controls (Moeller, 2009) resulting in value-addition to the organisation (Hass et al., 2006).

Given the broad spectrum of roles that IA could play because of the various influences mentioned, internal auditors also began to specialise in auditing of industries like financial services, government and non-governmental organisations, oil and gas, wholesale and retail, and IT-related services (Ramamoorti, 2003). With these "specialisations" came IA skills like analytical and critical thinking skills (Ramamoorti, 2003), leadership skills, and outstanding verbal and written skills (Mbeba, 2007), which created economic benefits to organisations (Jiang et al., 2020). A study by Jiang et al. (2020) finds that IA's involvement in operations-related services has a positive and statistically significant relationship with firm operating performance. In addition, the extant literature has linked IA with positive outcomes in the following: risk management in organisations (Carcello et al., 2020), internal control structures (Arena et al., 2007), a significant

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<sup>3</sup> The Committee was formed in the United States in 1985 by five private sector organisations. It is dedicated to guiding executive management and government entities in relevant aspects of organisational governance, business ethics, internal control, business risk management, fraud, and financial reports. The COSO framework is the internal control model created by the Committee to guide companies in evaluating their control systems.

reduction in earnings management incidence among managers (Prawitt et al., 2009), and prevention of fraud and fraudulent financial reporting (Gras-Gil et al., 2012; Coram et al., 2006). In addition, Raiborn et al. (2017) state that IA can be a critical component of the strategic management of recruitment and retention of personnel, human resource, IT systems, and data analytics. The authors add that IA should evaluate the strength of the ethical culture and tone at the top, by examining how the actions of top management can advance the internal control system.

In light of the depth of functions that can be performed by the internal auditor across a broad spectrum of roles and industries, the IA function within the microfinance industry and MFIs is therefore worth investigating. This is with due consideration for the provision of better governance, risk management, and controls that are required in this relatively young industry.

However, despite the merits of IA to organisations in terms of governance, risk management, and consulting activities, the cost of setting up and maintaining an IA function constitutes a major consideration for organisations (Raiborn et al., 2017). Some institutions regard the IA function as a cost centre and therefore struggle to provide the required funding for effective service delivery (Carcello et al., 2020). For IA to attract the necessary funding in terms of investment in setting up and maintaining the unit, its benefits must therefore exceed its costs (Carcello et al., 2020). In this regard, Raiborn et al. (2017) reports four ways through which organisations source IA. The first is for companies to have an in-house IA function. The second is to use third-party organisations like consulting firms or accounting firms. The third approach may be to have a partnership between an in-house IA unit and a third-party organisation. In connection with this, studies argue that institutions benefit from the collaboration between external and internal audit work by way of lowering the transaction costs that are linked to complex financial statement audit (Morrill and Morrill, 2003). Another study finds that internal

audit assistance can enhance the timeliness of the production of the external audit report (Abbott et al., 2012). In fact, Beisland et al., (2015) argue that it is logical for MFIs aiming at building a better control environment, to foster a complementary relationship between external audit and IAF. While a fourth option is to use pseudo-controls like periodic management information, effective monitoring, and firms with risk management expertise.

The institutional activities of IA can thus be broadly classified into risk assessment, control and assurance, compliance, and consultancy. These roles are connected to organisations' corporate governance (Soh and Martinov-Bennie, 2011).

The differences in viewpoints on the need for adopting an IA function in organisations can be explained from varied theoretical perspectives. For instance, welfare theorists opine that MFIs should prioritise the provision of loan funds to the poorest families or individuals (Adhikary and Papachristou, 2014). Going by their argument, welfarists are more akin to agree with microcredit schemes and methods that favourably impact and empower the client than the institution (Gutiérrez-Nieto and Serrano-Cinca, 2019). From this viewpoint, the believers in the welfarist theory may not see the direct impact of the establishment of IA on the client. On the other hand, institutional theorists encourage MFIs to respond to competitive financial market regulations by developing customised financial products (Bangoura, 2012), and to focus on effective governance, sustainability, and performance (Gutiérrez-Nieto and Serrano-Cinca, 2019). Institutional theorists perceive that establishing the IA function can contribute to organisational control and improve operational performance especially when modelled after successful institutions with existing IA structures (DiMaggio and Powell, 1983).

However, this thesis finds it noteworthy that the diversity of MFIs who are akin to social enterprises (Woller et al., 1999), can place a limitation on the broad applicability of management

and governance theories associated with established large firms in advanced societies. For instance, Lubatkin et al. (2005) argue that governance theories' behavioural assumptions may largely mirror the institutional context of highly developed and formal institutions. Hofstede et al. (2010) also document that the application and relevance of theories changes between developing and developed economies. For instance, they argue that governance theories are usually based on the implicit assumptions of contractual relationships, social order, and incentive. Hence, those assumptions may restrict the theories to the cultural environment and geographical borders in which they were conceptualised. Therefore, this thesis acknowledges the limitations of applying numerous governance and management theories to the microfinance sector.

### 2.3 Internal audit roles in banks and financial institutions

This section reviews the related literature on the role of IA in financial institutions, especially commercial banks. Goodwin-Stewart and Kent (2006) examined the use of IA by Australian publicly listed companies. They report a significant positive relationship between IA and firms in the financial services industry. They provide evidence that financial institutions with a risk-aware culture, integrate IA into their risk management mechanism considering their wide range of business risk exposure. They based their argument on the impact of IA on governance assurance and the value it adds to a system of controls required by the board in managing risks. From their study of the Spanish banking industry, Gras-Gil et al. (2012) submit that it is difficult to separate the role of IA from the link between the quality of financial information and corporate governance practices in banks. They argue that IA provides better financial audit and review of accounting information, thus enhancing the quality of financial reporting. Ge et al., (2012) find evidence that banks establish good internal governance mechanisms including IA, to protect the interests of shareholders. Moreover, Kaawaase et al. (2021) examined the relationship between

IA quality and financial reporting quality, using a sample of 62 financial institutions in Uganda consisting of 24 commercial banks, 29 insurance companies, 5 MFIs, and 4 credit institutions. Their study finds evidence that the quality of IA is positively and significantly associated with financial reporting quality. This finding agrees with Bananuka et al. (2018) who posit that the IA function positively and significantly enhances accountability in statutory corporations. Bananuka et al. (2018) further demonstrate that the assurance and consulting activities of IA in statutory companies contributes to accountability by reviewing internal control systems.

In 2012, the Basel Committee on Banking Supervision's accounting taskforce audit subgroup issued a supervisory guideline for examining the effectiveness of the IA function in banks. The guideline states that IA plays a very important role in the continuously evolving maintenance of a bank's internal control, risk management and governance systems (BIS, 2012). The Basel Committee believes that internal auditors make use of a risk-based perspective in designing their work and action plan, thus underscoring their ability to generate independent information on the risks faced by banks. This implies that the IA function is related to the internal control and risk management dimensions in banks, so IA is treated as part of the good corporate governance setup of banks (BIS, 2010). The Australian Stock Exchange (ASX) as a supervisory body for listed entities, released its first edition of the *Principles of Good Corporate Governance and Best Practice Recommendations* in March 2003. The seventh principle advances that all entities should regard the establishment of IA as a function that assesses the adequacy and effectiveness of the risk management and internal control system (Hay et al., 2017; Soh and Martinov-Bennie, 2011). Indeed, banking regulation and supervision have greatly influenced the role of IA (Dumitrescu, 2004) and its relationship with the corporate board, as both are considered important components of the corporate governance mosaic (Gras-Gil et al., 2012). Dumitrescu (2004) asserts that IA is the foundation for both the internal governance and control

of banking institutions. Mehran and Mollineaux (2012) state that US bank regulators expect boards to actively monitor progress in addressing internal control weaknesses identified by internal auditors.

In practice, IA is responsible for reviewing the effectiveness and quality of internal control systems established by banks. IA develops a reporting system that provides advisory support to management regarding matters of concern (Simpson, 2005). To effectively do this, the IA unit focuses on areas of high risk in their annual audit schedule. Each schedule is then accompanied by an elaborate, step-by-step audit programme to facilitate IA assignments (Simpson, 2005). On conclusion of every audit review, IA produces a report using risk management terms (Castanheira et al., 2010), for management's attention and remedial measures (Simpson, 2005). In relation to bank lending, IA can provide assurance services in connection with loan requests by applicants. Bandyopadhyay and Francis (1995) state that assurance levels can determine loan approval decisions by reducing the risk of information asymmetry of applicants. They find evidence that loan contracts have a higher chance of lower interest rates as the level of assurance increases. In detail, Bandyopadhyay and Francis (1995) state that the prospect of approving a loan is boosted from 26% at the compilation stage, to 48% at the review stage, to 62% with audit assurance. This suggests that IA assurance may facilitate loan approval and denial decisions in banks.

Studies have also widely commented on the relationship between IA and the financial performance of institutions. Egolum and Ukamaka (2021) note that an effective IA function can reduce overhead costs and minimise exposure to possible losses; both of which can have a significant impact on the financial performance of commercial banks. Hutchinson and Zain (2009) provide a role summation for IA using an intertwined analysis of functions that associate

IA quality with the financial performance of firms. They opine that risks are costly to organisations, so when IA enhances risk management in firms, it also mitigates the associated cost of the risks. Furthermore, they note that IA helps to ensure cost efficiency in the contractual relationship which exists between owners and managers of institutions. They add that the complementary relationship that exists between the internal and external audit helps to lower monitoring costs. An important point made by Hutchinson and Zain's (2009) study is that IA is contingent upon other corporate governance mechanisms which can influence its quality. Okello et al. (2019) provide evidence that an improvement in the IA function causes an improvement in the financial performance of commercial banks in Kenya. Their findings are consistent with Mustari et al. (2020), who examined commercial banks within the same region. Okello et al. (2019) further provide evidence that non-performing loans can moderate the positive significant relationship between IA and financial performance of banks. Their result is of interest to this study's examination of the relationship between IA, loan losses, and financial performance of MFIs. Faleye and Krishnan (2017) examined the influence of banks' governance mechanisms on risk-taking behaviour in commercial lending. They find that banks with more functional boards appear to ration the level of credit extended to riskier borrowers. This study argues that IA forms part of these functional boards based on IA's antecedents in the governance mosaic of financial institutions (as discussed earlier in this section).

While there have been several studies on IA in mainstream financial institutions, there is scant literature on the role of IA in the microfinance industry which is a niche market for supplying financial services to the poor (Meyer et al., 1996). As it is known today, 'microfinance' is a niche market that emerged in the 1970s. It has grown in the last four decades, becoming a recognized industry in the late 1990s and early 2000s (Copestake et al., 2016). The microfinance industry caters to the needs of clients who are unable to meet the conventional lending

conditions required by commercial banks. This lack of access may be caused by the client's profile such as size and type of enterprise, gender, level of education, and previous credit information. This study is therefore interested in this financial services niche which has arguably bridged the gap left by commercial banks. This next section therefore discusses the microfinance industry.

## 2.4 Microfinance: Definition, institutions, and the industry

Microfinance involves the provision of financial services to poor and low-income households to alleviate poverty, thereby leading to the socio-economic growth of those communities and households (Morduch, 1999). MFIs are the financial intermediaries established to deliver microfinance services. These institutions set out to provide their services via an assortment of programmes and products that are largely suited to the needs of their target clients, and the peculiarities of their trade or local economy. According to Ledgerwood (1999), MFIs base their services on their clients' poverty level, gender, ethnic extraction, religion, and business activity level. The spectrum of services provided by these institutions include micro-credit, savings, term deposits, agriculture, housing loans and at times, financial literacy. MFIs therefore play a critical role in developing economies by providing credit and delivering other financial services to the economically active poor, who are excluded from the services of traditional banks (Armendáriz de Aghion and Morduch, 2000; Zamore et al., 2019).

Microfinance services began to gain popularity in the mid-70s when individuals like Muhammad Yunus, through the Grameen Bank, began to lend money to poor households in Jobra, Bangladesh (Armendariz and Morduch, 2010). By 2018, about 140 million borrowers globally and especially in developing economies, had benefited from a loan portfolio of US\$124.1 billion and other services provided by MFIs. A large proportion of these beneficiaries were



women and rural dwellers,<sup>4</sup> those who Yunus found reliable in terms of loan repayment and ability to succeed in business (Armendariz and Morduch, 2010). The microfinance industry is characterised by institutions with different charter types, objectives, lending methodology, and profit-status. The peculiar characteristics of the microfinance industry as highlighted by the MFIs are described in the following sections.

#### *2.4.1 MFIs and traditional banks*

The concept of microfinance is based on filling a gap created by the exclusion of a certain category of clients from access to formal financial services, especially in developing countries. Based on the application of the theory of (credit) market failure,<sup>5</sup> MFIs are established to provide a solution to the inability of the financial system to efficiently allocate credit to the under-served and self-employed poor (Cull and Morduch, 2018). Indeed, they are established to serve a different purpose from commercial banks by focusing on those financially excluded from banking services (Vanroose and D'Espallier, 2013). According to Cull et al. (2014), MFIs reach out to low-income and unbanked community dwellers, who lack access to those banking facilities that are taken for granted in developed societies. For instance, the International Monetary Fund (IMF) Survey (2021) on financial access shows that the ratio of automated teller machines (ATMs) to adults in Bangladesh by 2019 was 9.4: 100,000, and only nine commercial bank branches served 100,000 adults. In addition, in Nigeria in 2018, only 16 ATMs were available to serve 100,000 adults, and there were only 4.3 commercial bank branches per 100,000 adults. However, in the UK in the same year, there were 110 ATMs per 100,000 adults and 25 commercial bank branches

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<sup>4</sup> According to the Microfinance Barometer 2018 report, MFIs had an estimated loan portfolio of US\$124.1 billion and an annual growth of +8.5% from 2017. Women and rural dwellers constituted 80% and 65% respectively of the 140 million borrowers.

<sup>5</sup> The theory of market failure describes the situation that arises when a competitive market fails in bringing about an efficient allocation of (credit) resources (Besley, 1994).

per 100,000 adults. In those areas where commercial banks are available, the stringent requirements for borrowers to access credit facilities like credit scoring, business registration, collateralization, level of education, and reliable cashflow, etc, may be prohibitive for rural people (Nikaido et al., 2012).

There is a large gap between available commercial banking services and the unbanked population requiring them. Among the unbanked are the very poor (people with an annual income of less than or equal to US\$60) (Mosley, 2001), the moderately poor (upper median range of households just below the poverty line) (Woller, 2002), and the poor but vulnerable population (households above the poverty line but still at the risk of slipping back into poverty) (Woller, 2002). These population groupings as a target market may not be attractive to commercial banks, which is why Vanroose and D’Espallier (2013) argue that the financial exclusion and diversity of microfinance clientele make the services of MFIs unique and demand-driven; MFIs should therefore achieve more success where the formal financial institutions fail. MFIs are thus serving the markets that should be the enclave of commercial banks. Vanroose and D’Espallier’s (2013) argument suggests MFIs have a high level of relevance to the economic development of their localities. Loans with sizes ranging from about US\$100 to US\$5,000, which may be very difficult to access from commercial banks by poor clients, can be sourced from MFIs. This is despite the peculiarity of microfinance clients which makes the use of traditional collaterals attached to loan contracts impractical (Vanroose and D’Espallier, 2013). For example, the popular Grameen Bank extended an average loan size of US\$144 per customer to 8 million customers in 2011 (Cull et al., 2014).

Vanroose and D’Espallier (2013) find evidence that MFIs do not only fill a gap in financial services, but also serve a larger number of people, when the traditional financial institutions fail

to deliver. However, Visconti (2016) points out that commercial banks face difficulty in downscaling their operations to provide microfinance services, due to a poor understanding of the microfinance market. However, some commercial banks are adopting the financial subsidiary model of having a microfinance services company (subsidiaries) who would specifically offer services to MFI clients more quickly (Rhyne and Lopez, 2003). The typical microfinance client may be apprehensive about approaching banks for assistance and may be unwilling to travel to commercial centres where banks are often located. MFIs, however, take their services to the potential client's home or community. Some MFIs offer to provide their services through mobile banking (m-banking) to facilitate easy receipt of disbursement and repayment of microfinance loans (Kumar et al., 2010). Deposit mobilisation is also one of the benefits that MFIs who use m-banking provide to their rural-based microfinance clients. Therefore, with the availability of innovative technology and proper governance mechanisms, MFIs are poised to continually provide relevant and useful services to the poor.

#### *2.4.2 MFI charter types*

The type of operational licence secured by an MFI defines the type of charter received from a regulatory body. The typical types of charter institution in the microfinance industry are banks, credit cooperatives, non-governmental organisations (NGOs), non-bank financial intermediaries (NBFIs), and rural banks (Microbanking bulletin, 2009).

Specifically, microfinance banks (MFBs) are usually incorporated as companies and licensed by the banking authority, to carry on the business of providing financial services like deposits and savings, credit, domestic funds transfer and non-financial services to microfinance clients (CBN, 2019).

Credit cooperatives are non-profit organisations owned and democratically controlled by members whose regular savings, form the pool of funds which are then loaned to members at affordable interest rates (Zeller, 2013).

NGO-MFIs are formed as societies and trusts to provide credit facilities to clients on a not-for-profit basis. They majorly source their loan funds from donor support and grants (Rupa, 2017).

NBFIs are described by the World Bank as financial institutions that do not have a full banking licence and as such, cannot accept deposits from the public. However, they complement banks by providing other financial services including micro-credit, venture capital, insurance, and financial consulting (World Bank, 2012). Lastly, rural banks are regulated by the banking authorities of a country and are licensed to provide formal financial services in rural areas. The MIX Market database used in this thesis classifies the MFI charter types into banks, credit union/cooperatives, NBFIs, NGO-MFIs, rural banks, and others.

### *2.4.3 Objectives of MFIs*

MFIs irrespective of type, are established to achieve two broad objectives. One, is the social mission of serving the poor, and two, is the achievement of financial sustainability (Schreiner, 2002; Kar, 2013). These double bottom-line objectives have created a never-ending schism in microfinance (Armendáriz and Jonathan, 2010). Bassem (2012) claims that because of these two objectives, MFIs face the dilemma of achieving good financial performance at the expense of their social mission, or increasing their outreach to the poor, thus neglecting financial performance. There are opinions that favour commercialisation in the industry, believing that commercialisation will lead to more profitable and efficient institutions that will serve their poor customers better (Christen and Drake, 2002).

Given these dual objectives, Bassem (2012) states that the performance of MFIs can be assessed from the outlook of both financial sustainability and social impact, leading to the possibility of a trade-off between financial viability and service to the poor. Indeed, there is a risk of focusing on financial objectives, at the risk of social objectives (Mersland and Strom, 2010). If the line between MFIs' objectives is described as increasingly becoming blurred (Copestake, 2007), then their profit orientation may similarly be difficult to identify due to the varieties of charter types and objectives.

#### *2.4.4 The profit-orientation of MFIs*

MFIs from the outset, are registered as either for-profit or not-for-profit institutions (Microbanking bulletin, 2009). According to Copestake et al. (2016), the earliest references to microfinance were made regarding not-for-profit institutions, being the onset of an emerging industry that has evolved over a little less than 40 years. For instance, Copestake et al. (2016) submit that the microfinance story is best told as a series of dynamic and innovative lending practices involving, government-subsidized loan schemes for small holder farms and businesses, friendly societies/credit cooperatives, NBFIs, and the recent transformation of some MFIs to publicly listed companies (Mersland and Strom, 2010). Indeed, critics have a lot of reservations about the commercialisation of microfinance by arguing that when MFIs focus on making profits, their lending rates will become too high for their borrowers, and as such they lose their essential objective of serving the poor (Cull et al., 2009). MFIs aiming for profit are inclined to extend larger loans to wealthier customers (Xu et al., 2016), and depend less on grants and donations (Copestake, 2007). The inclination towards profit or financial surplus is predicated on argument that profit-oriented MFIs can become more efficient in resulting in lower interest rates to MFI clients and higher returns to investors (Roberts, 2013).

#### *2.4.5 Social mission of MFIs*

To date, the uniqueness of MFIs is thought to be their hybrid operating model that combines social and financial objectives. However, the earliest known MFIs which emerged in developing economies were motivated by the need to meet development goals of reducing poverty and financial exclusion (Xu et al., 2016). As a social enterprise, MFIs are seen to tailor their banking and other financial services to economically poor clients and microbusinesses (Beisland et al., 2021; Xu et al., 2016). Furthermore, Beisland et al. (2021) find evidence that socially-oriented MFIs serve more rural and minority clients, are more responsibly concerned with meeting clients' needs with high-quality products/ services than making high profits, have well-articulated social objectives, and members of staff who show a strong commitment to achieving social goals. Microfinance also creates the opportunity for international and institutional investors to diversify their portfolio into socially oriented financial service provision (Visconti, 2016). According to D'Espallier et al. (2013), the literature rates the level of the social mission focus of MFIs using parameters like average loan size, interest rates charged on loans, and the number of female borrowers. To fulfil their social mission, MFIs are expected to focus on deepening outreach to poor clients especially in rural areas with smaller average loan sizes. However, the cost to clients comes in the form of higher interest rates (Xu et al., 2016).

#### *2.5 Lending methodologies of MFIs*

The earliest recorded successes of microfinance were attributed to the approach that MFIs used to disburse loans and collect repayments from their clients (Ghatak and Guinnane, 1999). Usually, microloans are extended to individual borrowers (individual lending methodology), group(s) of borrowers (solidarity/group-based lending methodology), or

organisations (village banking) that represent a group of borrowers. The methodology used determines the loan size, credit terms and conditions, and loan disbursement and collection.

The group-based lending method which is common in many countries (Ledgerwood, 1999), was hailed as a successful model of lending that saw millions of borrowers, especially in Bangladesh, having access to finance which they channelled into farming, micro-businesses, and trading. For instance, Haldar and Stiglitz (2016) highlight that the Grameen Bank and BRAC in Bangladesh, both of whom popularised the group-lending method, have loan repayment rates close to 90 percent, and a customer base of about 25 million. Under this model, borrowers are formed into groups of between 5 to 15 members (Haldar and Stiglitz, 2016; Ahlin, 2020) with a joint liability to repay loans borrowed at a lower rate of interest (Morduch, 1999). It was reported that his model reduces the problems of information asymmetry, adverse selection, and moral hazard, because group members cross-guarantee and peer-select themselves (Morduch, 1999). In fact, group-based lending addresses the adverse selection problem by utilising the local information network in obtaining first-hand information on borrowers and distinguishing between creditworthy and bad borrowers through the application of differential loan terms (Ghatak and Guinnane, 1999). Other characteristics of group-based lending such as peer pressure being a substitute for collaterals, holding meetings with loan officers as a group, and group monitoring of repayment behaviour (Wydick, 1999), all enhance loan repayment. The repayment rate has been the celebrated positive outcome of the group-based microfinance lending model (D'Espallier et al., 2011), because poor borrowers were initially believed to be unbankable and unable to repay loans (Morduch, 1999).

The individual lending model issues loans to individuals who will be solely responsible for repayment. Haldar and Stiglitz (2016) further highlight that the success of the group lending

model used by the Grameen Bank in the 1980s, caused a shift in paradigm to individual lending (Tchuigoua et al., 2020). Some group members who had built a strong credit history and successful repayment reputation were confident to now stand alone and negotiate loan contracts with MFIs. Lenders were also encouraged to introduce customised services by tailoring loan terms and conditions and loan size to individual or business needs (D'Espallier et al., 2011; Ledgerwood, 1999). However, individuals had to provide their MFI with a strong pledge to repay, and with some form of collateral, otherwise, they were disqualified from larger loan sizes in future (Ledgerwood, 1999). Individual lending is more time demanding for loan officers who have to maintain frequent and close contact with borrowers. However, the individual lending model holds the advantage of being cheaper and less labour-intensive than group-based lending in establishing a relationship with individual clients. Loans issued to individuals are also larger in size than those issued to the members within a group (Ledgerwood, 1999).

The village banking model can be credited to non-governmental organisations (NGOs), who assist in setting up financial institutions by partnering with local groups in villages (Morduch, 1999). NGOs such as the Foundation for International Community Assistance (FINCA), Catholic Relief Services, Freedom from Hunger, and Save the Children, are reported to have facilitated the creation of sustainable community-based financial institutions in many countries (Morduch, 1999). The model operates through a tripartite arrangement where donor provides bulk loan funds to an intermediary NGO, which then channels the funds to incorporated village banks each consisting of about ten to more than 200 members (Perez et al., 2011). These village banks are responsible for managing the funds for onward lending to individual members, as well as collection of loan repayments (Morduch, 1999; Crabb and Keller, 2006). So, the village banking model has the advantage of serving localities that are difficult to reach by traditional banks.



## 2.6 MFI loan structure and characteristics

The main activity of MFIs is lending, irrespective of their charter type or profit orientation (Tchuigoua et al., 2020), because loans constitute the largest asset of MFIs (Assefa et al., 2013), and just about all MFIs extend credit services (Ledgerwood, 1999). The way MFIs structure their lending therefore is key to analysing sectoral allocation of loans, portfolio growth, strategic change in lending methodology, and the business cycle. Field and Pande (2008) emphasize the strategic approach that financial institutions all over the world take in limiting credit risk associated with business loans, by structuring their loan contracts. They state that MFIs require clients to meet contractual obligations such as commencement of repayments immediately after loans are disbursed, and weekly loan instalments to prevent loan default. Microfinance practitioners think that applying a more regular loan instalment schedule can enhance the rate of loan repayment among MFI clients (Field and Pande, 2008), and it is probably why the common practice among MFIs is to demand weekly repayments. Ledgerwood (1999) adds that frequent repayment rates can indicate the willingness of MFI clients to repay loans. In view of this, I outline the key approaches that MFIs use to structure microloans to suit the preferred choices of clients, aimed at increasing repayment rate and reducing default.

First, MFIs generally target women borrowers. For instance, Cull et al. (2009) state that women constitute about 85% of the customer base of half of the NGO-MFIs globally. Similarly, Gyapong and Afrifa (2019) contend that MFIs model their business with a focus on women. Based on this, one can observe that MFIs structure their loans along gender lines by lending majorly to women (Etapé-Dubreuil and Torreguitart-Mirada, 2015; D'Espallier et al., 2013). A key reason why NGO-MFIs lend to women is that in the areas where MFIs operate, women are poorer than men. Women are excluded from major economic activities mainly due to social and cultural practices that legitimise gender discrimination. Pursuant to their social orientation, MFIs

therefore lend to women. According to D'Espallier et al. (2011), this is probably because MFIs get more benefit by focusing their lending on women. They add that MFIs and policymakers are more inclined to lend to women because they have better repayment behaviour than men. Other reasons may include lower credit risks, higher repayment rates, less challenging monitoring efforts, and better compliance with loan terms. Abdullah and Quayes (2016) find evidence that women are more fiscally disciplined than men and that providing loans to women results in better financial performance. For example, Grameen Bank found many merits in having a customer base made up 95% of women, including finding them more reliable than men (Armendáriz and Morduch, 2010). Female borrowers in Bangladesh were reported to have a repayment rate of 97% compared to 89% for male borrowers (Abdullah and Quayes, 2016). The success of the social experiment of lending to women groups by Grameen Bank in Bangladesh therefore led to the export of the model to other countries (Ghatak and Guinnane, 1999).

Second, MFI operations are observed along the rural, urban or both markets (Armendáriz and Morduch, 2010). MFIs thus tend to structure their loans to the uniqueness of clients' geographical inclination. If an MFI's preference for delivery of financial services is in rural areas, then they would by extension structure their loans around rural borrowers. According to Convergences (2019), by 2018, rural dwellers comprised 65% of the 140 million borrowers who had benefited from MFIs' services globally. Regionally, the percentage of rural borrowers to total borrowers was 62% in Eastern Europe and Central Asia, 47% in the Middle East and North Africa, 72% in South Asia, 60% in Africa, and 79% in East Asia and the Pacific. The exception to the penetration rate of MFIs in rural areas is the Latin America and the Caribbean region with only 23% of all borrowers being rural dwellers. The Grameen group-based lending model was designed to serve rural women whose business proposals reflected income-generating activities (Cull et al., 2009). The village banking model was also established to serve as financial service

providers in rural areas (Ledgerwood, 1999). However, Mersland and Strom (2010) argue that when MFIs are facing a drift in social mission, they will be expected to deprioritise lending to rural customers. They find that higher average operational costs in the rural market can influence MFIs' preference to have more customers in the urban market. Lopez and Winkler (2018) provide evidence that MFIs focusing on rural customers cannot take advantage of economies of scale and productivity in the same way those MFIs focusing on urban customers can. In essence, staying afloat and expansion potentials may force MFIs to select certain target locations and by extension, the loan structure. Empirical studies also highlight the choice of rural-urban targets based on the impact MFI services have on their clients. Islam and Islam (2018) find that in contrast to rural women, urban women clients are more personally, economically and socially empowered by access to microcredit. The rural-urban dichotomy remains a subject of study in microfinance research as MFIs find new ways of providing relevant and quality financial services to their target customers.

### *2.6.1 MFI loan terms and conditions*

The third factor that can influence loan structures in MFIs are the terms and conditions. The terms and conditions are expected to be fully disclosed in order to protect clients (García-Pérez et al., 2020). If the terms and conditions of a microloan conflict with the needs of the intended beneficiaries, then the loan products that are developed become supply-driven rather than demand-driven (Smets, 2006) and are of no worth to the loan applicants (Schreiner, 2002). Smets (2006) specifically adds that MFIs should make efforts to develop micro-housing finance products with terms and conditions that do not discriminate against clients living in informal settlements. Otherwise, the micro-housing loan loses its purpose of providing affordable housing for the poor. In discussing loan terms and conditions, the following characteristics are considered.

The purpose of the loan can be sub-classified into income-generating and non-income generating loans (García-Pérez et al., 2020). For income-generating loans, MFIs would carry out a needs assessment exercise on their target clients and then structure their loans according to intended use such as working capital, microenterprise expansion loans, trading loans, small business loans, and agricultural and livestock loans (Frankiewicz and Churchill, 2011). Non-income generating loans include education loans, emergency loans, housing loans and consumption loans (García-Pérez et al., 2020). Further analysis of the terms and conditions of income-generating loans shows that MFIs must consider providing loan products embedded with credit risk control such as collateral substitutes, compulsory savings, and incremental lending incentives. In addition, such products would have in-built controls that enable information on the borrower's character, the purpose of the loan, and ability to generate enough returns for loan repayment, to be gathered before disbursement, during project execution, and after full repayment (Frankiewicz and Churchill, 2011). Largely, the purpose of the loan helps the MFIs to objectively evaluate the repayment capacity of borrowers and the cash-generating ability of the borrower's enterprise. Non-income generating loans are usually offered to existing customers who have previously accessed an income generating loan or have running ones (Frankiewicz and Churchill, 2011); therefore, a relationship would have been built. Non-income generating loans are usually guaranteed using co-signers, savings, pledged assets, etc (Frankiewicz and Churchill, 2011).

Usually, the loan duration and periodic instalments of microenterprise loans are structured to run for short periods of two to twelve months (Frankiewicz and Churchill, 2011; Ledgerwood, 1999). However, MFIs may structure loan duration for agricultural enterprises and other seasonal business differently to align with the project's cashflow. In fact, agricultural lending may consist of relatively larger loans with longer maturity periods beyond the traditional

microfinance 12-month cap (Lopez and Winkler, 2018). Because of the risk associated with seasonal loan products, MFIs may introduce a linked micro-insurance product in order to mitigate credit risks arising from *force majeure* (García-Pérez et al., 2020). With regards to loan size and repayment period, the loan structure can be driven by loan purpose, lending methodology, and repayment capacity of borrower. Ledgerwood (1999) documents that MFIs applying: (1) the individual lending model have loan products with amounts varying between US\$100 to US\$3,000, and a repayment period of 14 months at an annual interest rate of 22% (Banerjee et al., 2015); (2) the group/solidarity lending model have loan amounts ranging from US\$100 to \$300 at 20% interest p.a. with weekly loan repayments; and (3) the village banking model have small loan amounts of about US\$50, repayable by weekly instalments.

## 2.7 MFI loan repayment

Having reviewed the general characteristics of microfinance loans and the different forms through which MFIs provide credit services to their clients, I turn to the inherent challenges of microcredit. Prompt loan repayment guarantees that an MFI can continue to operate sustainably because their highest revenue earning asset is the loan portfolio (Afrifa et al., 2019). For this reason, management of MFIs use a loan portfolio report to monitor the total loan portfolio and level of repayment for outstanding loans. The portfolio report contains a portfolio ageing schedule which separates MFI loans into groups according to their “age”, i.e., the number of days that have passed since the first time an instalment was missed. It is also a detailed schedule of an MFI’s microlending activity, the quality level of the loan portfolio, and the provisions made against potential losses (CGAP, 2009). Regulators in some countries also require MFIs to review their loan portfolio at least monthly using the ageing schedule, for prompt recognition of deterioration in portfolio quality (CBN, 2019).

It is important for MFIs to distinguish between performing and non-performing loan facilities in order to evaluate repayment performance. A facility is adjudged as fully performing when all due principal and interest payments have been repaid, or the principal and/or interest payments are not outstanding for more than 30 days (CBN, 2019). A non-performing loan is one with interest and principal being past due by 30 days or more (Natilson and Bruett, 2003). Using the ageing schedule as a tool, the CBN (2019) prudential guidelines for MFIs and the SEEP Network's *Financial Performance Monitoring Guide for Board Members of Microfinance Institutions* provide that non-performing or partially performing loan facilities could be categorised into four levels which are: (a) Pass and watch – a facility whose principal or interest payment is past due for more than 30 days but less than 60 days; (b) Sub-standard – a facility whose principal and/or interest payment is outstanding for more than 60 days but less than 90 days; (c) Doubtful – a facility whose outstanding unpaid principal and/or interest payment is greater than 90 days, but not more than 180 days; and, finally (d) Lost facility – a facility with an unpaid principal and/or interest balance that exceeds 180 days.

For each category, a stipulated loan loss provisioning (percentage) rate is multiplied by the outstanding loan amount, which then depicts the probability of the loan not being repaid (CGAP, 2009). The CBN (2019) provides a typical description of how the ages of portfolios are provisioned for. According to CBN (2019), the performing loans are provisioned for at the rate of 2%, the pass and watch loans at 5%, the sub-standard loans at 20%, the doubtful loans at 50%, and the lost loans at 100%. When loans are still categorised as *pass and watch*, *sub-standard*, and *doubtful*, they are described as delinquent, but when the loan falls into the *lost loan* category, it becomes a default and is provisioned for at 100%.

On the basis of these loan performance classification and reports from MFIs globally, stakeholders in the industry began to call for MFIs to introduce drastic credit risk control measures (CSFI, 2014). In the next sub-section, I discuss the delinquency and default problems in the microfinance industry.

### *2.7.1 Delinquency and default issues in microfinance*

Loan delinquency arises when borrowers are behind on one or more of their periodic loan repayments. A default arises when a loan will never be repaid and/or when the lending institution fails to recover loans provided to borrowers (Srinivasan, 2007; Kassim and Rahman, 2018). Kassim and Rahman (2018) argue that a chain of defaults could adversely impact the liquidity of an MFI, and its capacity to implement its credit programme with other clients. Even the Grameen Bank, which is the hallmark of MFIs globally, is not spared the problem of loan default. In 2001, about 19% of all Grameen Bank's loans were overdue by at least 12 months (Pearl and Phillips, 2001; Kassim and Rahman, 2018). Any microfinance loan not repaid within the generally acceptable loan cycle of 12 months can be described as in default (Srinivasan, 2007). Pearl and Phillips (2001) therefore argue that because Grameen Bank accepts that a loan is in default when it is 24 months past due on a payment, then 10% of all Grameen's loans are in default. In essence, its default rate is more than double the reference level of less than 5% in terms of average value of portfolio at risk that exceed 30 days (PAR>30), as stated by Kar and Swain (2014). Kassim and Rahman (2018) elaborated on the level of default using Grameen Bank's branches in the Tangail region of Bangladesh. They state that 37% loans in the Tangail region were overdue by 2017. Kassim and Rahman (2018) expatiate on some common causes of delinquency and default in microfinance loans from the perspectives of both lenders and borrowers. From the lenders' point of view, delinquency could be caused by poor loan monitoring after disbursement, lack of technical support for microfinance clients who could be

financially illiterate or lack business experience, poorly trained loan/field officers, and a lack of relevant information on microfinance recipients. The main causes of borrower default are moral hazard, information asymmetry and over-indebtedness due to multiple borrowings from different MFIs.

Because delinquency and default impede an MFI's effort to achieve financial and institutional sustainability, failure to deal with them could lead to an MFI's total collapse (Dixon et al., 2007). So, MFIs deal with the problem of delinquency and default in various ways, for example, rescheduling the loan if there were 'good' or acceptable reasons for default, continuing in their efforts to collect the monies, restructuring the loan terms and conditions (e.g., waiving the interest rate and penalties) depending on the amount outstanding, using the services of debt collection companies, and seizure of clients' collateral(s) (Solli et al., 2015).

However, despite the best efforts to recover delinquent and defaulted loans through various mechanisms, there are many instances where the MFI has to write-off the loans as lost. Such reasons could be debtor flight, where the borrower changes location and cuts off all contacts, or when the borrower dies.

### *2.7.2 Loan losses in MFIs*

The real financial losses incurred by MFIs due to the write-off of loans that have been deemed as irrecoverable are called loan losses (Mersland and Strom, 2012). Although the global supply of microcredit grew considerably between 2013 and 2018 at an average annual growth rate of about 11.5% (Convergences, 2019), those actively involved in or close to the industry have recognised the perennially high level of client over-indebtedness, delinquency, and default, as well as the resultant loan losses accompanying this growth (CSFI, 2014; CSFI, 2016; Milana and Ashta, 2020). The doubtful repayment capacity of some of these clients, over-indebtedness, poor



loan structuring, and the poor governance mechanisms within MFIs to deal with credit risks, are just some of the factors behind their MFI loan portfolio fears (CSFI, 2016).

In October 2010, a microfinance crisis erupted in the Indian state of Andhra Pradesh as a result of unsustainable expansion in the deployment of loans, leading to client over-indebtedness and non-performing loans (Mader, 2013). The borrowers were increasingly unable to service the loans as about 85% of the households in the Andhra Pradesh region had two or more loans, while about 60% had more than three loans from different MFIs. There are strong opinions that MFIs drifted away from empowering the poor towards profit-making, causing them to expand their loan portfolios too fast by lending aggressively to poor borrowers beyond their ability to pay back (Adhikari and Papachristou, 2014; Mersland and Strom, 2010). Between 2011 and 2012, nearly all the loans in the Andhra Pradesh region were non-performing (Mader, 2013). Due to the high level of default, MFI field officers and loan collection agents began to use questionable tactics to get repayments from microfinance borrowers, leading to more poverty and even suicides (Mader, 2013). This situation was a clear departure from the purpose of MFIs, which is to improve the economic and social lives of the poor, especially women in the developing world (the social mission and first bottom line), and to achieve financial sustainability (the second bottom line) (Kar, 2013).

Loan losses often indicate weaknesses in the lending institution's loan portfolio management systems (Fernando, 2007). MFIs are responsible for selecting borrowers based on repayment ability, appropriately structuring the loans, and providing borrowers with incentives to enhance repayment (Tchakoute-Tchuigoua and Soumare, 2019). It is a contentious issue whether loan losses are caused by bad borrowers or by bad lending decisions. Empirical research offers different views on MFI loan loss problems. According to Dorfleitner et al. (2017), writing

off bad loans results in loan losses and suggests that an MFI has unhealthy lending practices. Guo and Jo (2017) believe that inactive MFI borrowers primarily cause loan losses. This suggests that MFIs need to devise ways of keeping their clients active, in terms of repayment. Tchuigoua (2016) suggests that the lack of conventional collateral security for microfinance loans and borrower information asymmetry can raise the risk of loan losses. MFIs should innovatively find and demand practical collateral substitutes from their borrowers. In a related manner, Hardy et al. (2003) argue that management must take responsibility for proper loan repayment monitoring in order for MFIs to achieve financial sustainability. Summarily, loan losses can emerge from both borrowers' and lenders' circumstances.

Historically, many MFIs have adopted strategies in order to minimise loan losses, such as: the group-lending/peer-monitoring methodology (Crabb and Keller, 2006; Tchuigoua et al., 2020); targeting women borrowers exclusively because they are creditworthy (Armendáriz and Morduch, 2010); incentivising borrowers with larger loans on an incremental basis after every successful repayment (Tedeschi, 2006); and, avoiding lending to highly risky borrowers (Lassoued, 2017). In addition, some MFIs adopt a zero-tolerance policy on loan repayments to improve the quality their loan portfolios (Schicks, 2013). Notwithstanding that, MFIs have been criticised for lacking adequate borrower monitoring and follow-up capacity that can tackle the information asymmetry problem between MFIs and clients. Such information asymmetry makes tracking of inactive borrowers difficult, thus becoming a major catalyst for loan losses (CSFI, 2014). Furthermore, poor staff supervision and control contribute to portfolio quality problems (Dorfleitner and von Mosch, 2011).

### *2.7.3 Loan losses and financial performance*

There exists a strong association between financial performance and an MFI's loan portfolio because loans are the highest income generating asset for MFIs (von Stauffenberg et al., 2014) and a major reason for their existence. However, when these loans are lost to poor repayment, the resultant effect will be additional operational costs and lower income for MFIs (Bruett et al., 2005). In fact, Gyapong et al. (2021) submits that loan losses constitute the major reason for MFIs' attrition.

An MFI's financial performance is the outcome of effective provision of financial services to target clients, based on the operational scale and health of the loan portfolio. Highly profitable MFIs have ample scope of outreach and a high-quality loan portfolio (Schreiner, 2002; Daher and Le Saout, 2015). The financial sustainability of MFIs is hence associated with their financial performance, which means that they have been able to generate a surplus net income and are independent of subsidised funding (Bassem, 2012; Strom et al., 2014). It is doubtless that loan losses affect an MFI's financial performance and its ability to fulfil its social mission of reaching out to poor but economically active clients (Zamore et al., 2019). Vogelgesang (2003), Crabb and Keller (2006), Schicks (2013), Tchakoute-Tchuigoua and Soumare (2019), and Singh (2020), also buttress the fact that loan losses hamper MFIs' financial performance by causing loss of earnings from interest income, increasing operational cost, impairing equity, and hampering outreach and growth. Furthermore, loan losses can impact an MFI's outreach and ability to continue lending, distort cash cycle, eliminate refinancing options from capital providers, and ultimately result in going concern issues (Schafer and Fukasawa, 2011; Hoque et al., 2011). Consequently, MFI loan losses may lead to a failure in the achievement of institutional objectives, loss of competitive edge, and reputational damage.

The internal governance structure of MFIs will to a great extent be held responsible for poor loan repayment performance because of the strategic consequences of loan losses for MFIs' social mission, financial performance, and institutional reputation (Hardy et al., 2003). This responsibility is expected of the MFI governance structure but does not absolve borrowers from the reasons for loan losses. Financial institutions are expected to establish and implement strong mechanisms for curbing delinquency, default, and eventual loan losses. The management of MFIs are therefore expected to enact internal controls that reduce the conditions that promote poor loan portfolio and mitigate the occurrence of loan losses.

## 2.8 Internal audit in MFIs

Considering the sustainability and operational challenges that have accompanied MFIs' growth globally (Yimga, 2016), MFIs are being encouraged to set up better risk management practices and control structures in order to support effective risk management systems. A study of Vietnamese, East Asian, and Pacific MFIs' credit risk by Ayayi (2012) found that appropriate governance procedures play an active role in providing effective credit risk management. This supposes that relying heavily on the traditional credit risk mechanisms used by MFIs, such as peer-pressure based lending, demanding collateral substitutes from clients, or making compulsory savings a loan condition, may not adequately mitigate emerging portfolio risks. In addition, loan restructuring may become ineffective in managing delinquency, when there is rapid growth in the credit portfolio (CSFI, 2012). The microfinance industry therefore still faces two high-impact risks: first, that poor lending practices will lead to loan losses, and second, that the boards and management of MFIs may be failing in providing adequate credit risk monitoring and portfolio performance oversight (CSFI, 2014).

The internal audit (IA) function has been identified as one of those important mechanisms of internal control (Goodwin-Stewart and Kent, 2006; Beisland et al., 2015), equipped to improve

governance in institutions (IIA, 2012) and thus minimise the occurrence of loan losses in MFIs (Isern et al., 2008; Steinwand, 2000). The link between corporate governance mechanisms and loan loss occurrence is explored by Ramadhanti et al. (2021). They found evidence that there is a negative relationship between board independence and non-performing loans in Indonesian banks. A key attribute that IA brings to the governance of MFI operations is its independence. The Institute of Internal Auditors (IIA, 2004) defines internal auditing as an independent, objective assurance and consulting activity designed to add value and improve an organisation's operations. It helps an organisation to accomplish its objectives by bringing a systematic and disciplined approach to evaluating and improving the effectiveness of the risk management, control and governance process. The positive collaboration between IA function and the board of MFIs has been shown to improve institutional financial performance (Mersland and Strom, 2009), and can assist the board in performing their risk monitoring role (Mori and Mersland, 2014). The International Standards for the Professional Practice of Internal Auditing (ISPPA) require that internal audit activity evaluate and contribute to the improvement of the organisation's risk management, control, and governance processes through consulting and assurance activities (IIA, 2012). It can in addition, serve as a feedback mechanism for policies established by management to remedy any weaknesses in procedures, before these weaknesses have a significant adverse effect on the overall internal control system and the financial condition of the organisation (Sherer and Kent, 1983; Adams, 1994). An institution's management often relies on internal auditors to provide assurances that risks (including credit and portfolio) are effectively determined and then given close attention. Furthermore, IA plays a unique role in ensuring that organisational proceedings are controlled, effective and efficient (Hermanson and Rittenberg, 2003).

As the third line of defence for effectively managing and controlling the risks in an institution, the IA function is expected to provide the board and senior management with comprehensive assurance, resulting from the highest level of independence and objectivity within the organisation (IIA, 2013). The IIA position paper on the governance lines of defence (IIA, 2013) therefore recommends that a professional audit activity should be a governance requirement for all organisations, irrespective of size or complexity. Even though MFIs are small-sized institutions in comparison to commercial banks, they are therefore appropriately positioned to establish internal audit in order to provide an independent and objective level of assurance risk management in a way in which operational management (first line of defence) and risk management and compliance functions (second line of defence) cannot (IIA, 2013).

There are strong arguments for the use of IA in MFIs. For instance, Strom et al. (2014) assert that the absence of IA as a governance support mechanism in MFIs, may strengthen the CEO's power position, thus rendering the board's monitoring effort ineffective. Mersland and Strom (2009) state that the MFI board is more informed by IA presence, because a board should not rely solely on the CEO for information. Hay et al. (2008) suggest that IA could be substituted for external auditing and the board may increase investment in IA to protect their status. Thrikawala et al. (2016) see a link between firm performance and the internal audit as a governance mechanism. Ledgerwood (1999) opines that MFIs without IA are vulnerable to fraud due to weakness or absence of internal controls, while Gonzalez and Javoy (2011) suggest that MFIs operating in countries with riskier microfinance markets should mitigate risks by using IA to strengthen their risk management systems. Both the usefulness and functionality of IA are achieved by firms having in-house internal audit units or by outsourcing (Carcello et al., 2005). However, existing studies suggest that IA units in MFIs are mainly in-house (Strom et al., 2014; Beisland et al., 2015).

From a global perspective, it appears that MFIs in some developing economies where institutional internal controls are reportedly weak have set up IA units as a component of internal control to carry out financial and operational monitoring (Haq et al., 2008). Advocates of a regulated microfinance industry and risk-based MFI internal control system, say that IA provides tighter controls over compliance with credit policies and processes, by ensuring an independent and practical approach to improving credit risk management and internal governance in MFIs (Firth and Greene, 2014; Ledgerwood and White, 2006; Soh and Martinov-Bennie, 2011). In fact, the Basel Committee on banking supervision guidelines stipulates that IA should recurrently assess and address the risks affecting the quality of bank assets (BIS, 2012). In summary, the IA function is a mechanism involving the systematic and independent review of the adequacy and effectiveness of risk management processes and controls within an organisation (IIA, 2012). However, very little is known about the existence of IA function, particularly, the determinants for the establishment of IA in the microfinance industry and its role in mitigating loan losses and enhancing financial performance of MFIs.

## 2.9 Conclusion

The studies in this thesis are envisaged to contribute to existing academic literature by highlighting findings about the activities of the IA function within the microfinance arena. The studies also aim to bring to the fore, the risks faced by MFIs and a plausible control mechanism they may set up to possibly reduce their loan loss risk exposure and strengthen their internal governance. Previous literature have rightly subsumed the IA function under governance variables or analysed it as a complement of, or substitute for external audit (Beisland et al., 2015; Bassem, 2009). Other microfinance studies restrict the relevance of the IA function to when it reports to the board (Mersland and Strom, 2009) while omitting other critical IA roles such as consulting and advisory, and enterprise-wide risk management. These previous approaches to

analysing the IA function have either somewhat discounted or excluded the direct impact of IA activities in MFIs.

This chapter has discussed an abridged history and transition of IA. It has also provided an overview of the microfinance industry and its evolution, and the practice of financial service provision to poor and low-income households by MFIs. Various IA literature was critically appraised to highlight how the changing roles of the IA has influenced its definition and reason for establishment in organisations. The empirical and industry conversations about the depth of functions that can be performed by the internal auditor across a broad spectrum of roles and industries were highlighted. Furthermore, this chapter explored how the interests of stakeholders and specific regulations and frameworks all affect the roles and responsibilities of the internal auditor. The difference between MFIs and traditional banks was also highlighted in the light of the financial services gap being filled by MFIs. This chapter highlights how MFIs are established to fix the credit market failure of the formal financial system to efficiently allocate resources to the under-served poor. In addition, the different microfinance organisational types such as banks, credit cooperatives, non-governmental organisations (NGOs), non-bank financial intermediaries (NBFIs), and rural banks were considered. Further to this, studies were examined to show the lending methodologies used by MFIs in providing credit to their clients. This chapter concluded by discussing the rationale for the existence and functionality of IA function in MFIs, and in the industry.

The next chapter outlines the theoretical framework which underpins this research, with emphasis on IA establishment and existence in MFIs, and IA's role in mitigating loan losses and enhancing the financial performance of MFIs.



## CHAPTER THREE

### THEORETICAL BACKGROUND

#### 3.1 Introduction

This chapter presents the theoretical foundations that support the empirical tests carried out in this study. I use agency theory and transaction cost economic (TCE) theory to guide the research activity in this thesis. These two theories expound the roles and functionality of IA activity in institutions. These theories have also been used in explaining the principles on which IA practice in organisations is based. Using these theories, this chapter explores the nexus between the concept and practice of IA and the IA function in MFIs.

The two-fold predominant goals of MFIs make them different from regular firms. Although they are set up to provide poverty-alleviating financial services, but being lending institutions, they are still susceptible to the horizontal agency problems that exist between banks and their customers (Mersland, 2011). In addition, many MFIs do experience the vertical agency conflict in the relationship that exists between donors and managers (Mersland, 2011). Hence, the agency theory's argument that to address agency conflict and cost, institutions tend to establish suitable monitoring mechanisms for an industry contending with client information asymmetry. This is in response to a situation that can unfavourably affect the ability of MFIs to monitor borrowers' use of funds. The agency theory as well fits an industry that is recorded to lack strong monitoring incentives needed for reducing informational asymmetry between management, owners, and other stakeholders (Mersland, 2011). Further to the agency theory, the Transaction Cost Economic theory (TCE) argues that a bundle of monitoring and enforcement mechanism that can aid an institution's (MFIs') ability to reduce the transaction costs associated with small loans (D'Espallier et al., 2013; Kim and Mahoney, 2005), is required. The TCE also

underscores the essence for a governance mechanism that mitigates the negative impact of escalating MFI transaction costs on their outreach (Armendáriz and Szafarz, 2011). Therefore, this study embraces the use of these two appropriate theories following the extant literature to inform this study's research questions, review related literature, analyse data, and make recommendations and draw conclusions.

## 3.2 Theoretical review

### 3.2.1 *IA and the theory of agency relationships*

The agency relationship is defined by Jensen and Meckling (1976) as a contractual relationship by which a person(s), known as 'the principal', appoints another person(s), called 'the agent', to discharge certain duties on their behalf and in their interest, by delegating the authority to make decisions to them. Jensen and Meckling (1976) note that problems arise when there are divergences in interests being pursued by the actors in this relationship, because both parties (principal and agent) may want to maximise resources for their benefit. Specifically, agency problems become conspicuous when the principal cannot directly and fully observe the agent's actions and decisions (information asymmetry), and whether those actions/decisions are beneficial to the principal (Jensen, 1993). For MFIs, a type of agency problem created by asymmetric information is the MFI management/owners' dimension. Another type is the borrower/lender dimension (Johan and Wu, 2014; Berger and Udell, 1995). Here, the information asymmetry problem faced by MFIs emanates from the characteristics of MFI clients. They are mostly unbanked, lack credit history and financial literacy, and may have no formal education (Vanroose and D'Espallier, 2013). This situation therefore calls for a system of obtaining information that is symmetrical to all parties, and consequently enabling financial service provision to these borrowers, and integrity of reporting to owners. Hence, the principal

can decide to establish a monitoring mechanism to watch the activities of the agent in order to limit the extent of divergences from the principal's interests (Jensen and Meckling, 1976). In setting up a monitoring mechanism therefore, the principal (owners) will incur monitoring costs to ensure that a state of efficiency is achieved in the principal-agent relationship, which guarantees that the agent cannot enhance their wealth at the expense of the principal (Adams, 1994). The principal employs a monitoring mechanism and incurs a cost to ensure that the agent will make optimal decisions in favour of the principal (Jensen and Meckling, 1976), and in order to control the frictions between principal and agent caused by asymmetric information, unobservability of the agent's behaviour, and risk aversion by agents (Kim and Mahoney, 2005). This may then suggest that the MFI board, or sub-board structures should be inclined towards using the IA function as a co-monitoring mechanism. On the other hand, the agents (managers) can incur bonding costs as well, in a bid to show the principals that they are responsible and accountable to the terms of their employment contract. The bonding costs incurred by the agent are also a form of monitoring costs (Jensen and Meckling, 1976; Adams, 1994). Residual loss is the cost of divergence between decisions that will maximise the principal's wealth and those of the agent that reduce the principal's wealth (Jensen and Meckling, 1976). The agency cost is therefore the sum of the monitoring costs by the principal, the bonding expenditure by the agent, and the residual loss (Jensen and Meckling, 1976). It is then arguable that organisations having the principal/agent divergence problem would incur either or both costs (i.e., monitoring and bonding) to minimise residual loss (Fama and Jensen, 1983).

Further to the principal-agent conflict, organisations also face the principal-principal agency conflict<sup>6</sup> where organisations must manage the contractual relationships that exist among multiple principals. Ward and Filatotchev (2010) state that conflict between principals has been clearly identified among financial services firms where powerful principals (major shareholders) may misuse their influence at the expense of minority shareholders. This multiple-principal conflict means that organisations are faced with the problem of striking a balance between the heterogeneous interests of multiple stakeholders (Voorn et al., 2019). That is because rather than improve efficiency, the collective action from these relationships may be counter-productive by increasing both the related agency and transaction costs, leading to ex post inefficiency (Voorn et al., 2019). Nilakant and Rao (1994) argue that organisations with several principals are prone to goal incompatibility which can give rise to outcome uncertainty. In other words, there will be a lack of agreement about outcomes, and the type of effort required to achieve a given outcome, thus, creating uncertainty. As a result of the disagreement about goals by multiple principals, agents may find those goals significantly ambiguous to accomplish, as multiple and conflicting criteria of performance may be utilised in monitoring and incentivising the agent(s) (Nilakant and Rao, 1994).

In line with the various postulations of the theory of agency in organisations, Adams (1994) argues that the agency theory can clarify the reasons for the existence and characteristics of IA in organisations. Adams (1994) notes that IA can assist principals to solve the asymmetric information problem and serve as a mechanism for monitoring the activities of agents in a cost-efficient manner. At the same time, managers can incur bonding costs (including setting up IA),

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<sup>6</sup> The principal–principal agency conflict also known as “Type 2” agency issue is rooted in the ownership composition of firms where managers are assumed to take actions that favour the interest of controlling shareholders over minority investors (Zhou et al., 2021; Safdar et al., 2019).

to assure principals that the agents will not selfishly expropriate resources for selfish motives. Adams (1994) adds that IA is classified as a component of monitoring costs for maintaining a highly productive contracting relationship between owners and managers, hence assisting 'principals' to overcome information asymmetry and to cost-efficiently monitor the activities of agents. Jensen and Meckling (1976) and Adams (1994) view the monitoring cost involving IA as an expenditure for mitigating negative agency costs associated with the self-interested activities of the agent. Wallace and Kreutzfeldt (1991) state that agency theory explains why interested third parties and managers of organisations demand monitoring, adding that monitoring is made possible by using the internal IA function. In essence, the IA function is established as a monitoring and assurance mechanism, to reduce the divergence between the actions/decisions that serve only the interests of the agent, and the actions/decisions required to maximise the principal's interests, by aligning the interests of agents with those of principals.

In a related manner, an effective IA function can enhance audit quality in an organisation to mitigate the outcome uncertainty, inefficient relationships, or other negative effects of principal-principal agency conflict. Safdar et al. (2019) provide evidence that better audit quality can mitigate the negative effects of high principal-principal agency conflict on the information environment of non-state-owned firms in China. In other words, their result implies that better audit quality can provide qualitative information to minority shareholders, thus limiting the ability of controlling shareholders to misuse their influence. More specifically, Rönkkö et al. (2018) provide evidence that a higher level of shareholder dispersion increases the probability of the use of IA in firms. Therefore, the more principals (varied ownership and structure) a firm has, the more likely it will establish IA to mitigate information asymmetries among various owners (Rönkkö et al., 2018).

### *3.2.2 Agency theory and basis for IA in MFIs*

In principle, MFIs are like traditional financial institutions where the relationship between the owners and managers requires delegation of authority to use resources (Adams, 1994) for the provision of services to microfinance clients. Within this relationship, there are elements of agency problems owing to principal/agent utility maximization; that is, the agent has the potential of not acting in the best interests of the principal (Jensen and Meckling, 1976). The agent(s) in this case are the MFI managers and loan officers, while the principal(s) are the owners. The IA function is particularly useful for an industry like microfinance because MFI managers control resources on behalf of the owners (Beisland et al., 2015). This can create opportunistic practices and information asymmetry problems beyond the owners' control (Adams, 1994). For instance, MFI managers may discretionally advance as many loans as possible without complying with existing loan policies and procedures (Tchakoute-Tchuigoua and Soumare, 2019). This situation may be worsened if the managers' quest for unguided growth leads to reckless credit expansion, and lack of financial discipline (Mader, 2013). Hartarska (2005) adds that managers may be more interested in personal rewards than in working towards the achievement of the MFI's objectives. The possible outcomes of these self-interested decisions by managers include client selection bias, subprime lending, over-indebtedness of clients (Schicks, 2013), deterioration in loan portfolio quality (Tchakoute-Tchuigoua and Soumare, 2019), coercion of borrowers to repay, and financial system crash (Mader, 2013). To limit the divergence in interests, the owners can employ an oversight mechanism to monitor the managers' use of resources, decision-making, and compliance with established policies. The owners, therefore, incur monitoring costs in the process (Jensen and Meckling, 1976), to safeguard their economic interests (Adams, 1994). On the other hand, managers may want to prove that their actions align with the interests of the owners, therefore making them incur bonding costs (Jensen and

Meckling, 1976). The managers' incurrence of bonding costs is a signalling action that leads to investment in IA, which in a way also influences their executive compensation and secures their positions within the organisation (Adams, 1994). According to Mbeba (2007), MFI managers hire internal auditors, but they report administratively to the CEO/senior management, and report functionally to the governing board or the board's audit committee (Erasmus and Coetzee, 2018). Although it remains unclear in many MFIs who it is that establishes the IA function, following Ledgerwood et al.'s (2013) submission that the control systems and methods including the IA function are designed by the senior IA management, this study assumes that it is a bonding cost incurred by MFI management.

Laher and Proffitt (2020) provide another interesting perspective on the relevance of agency theory and its linkage with IA. They find evidence that agency conflict is innately embedded in the dual mission of MFIs, i.e., simultaneously achieving both goals of serving poor customers and profitability. They conclude that fundamentally, the agency conflict arises as managers try to balance both MFI goals. Bassem (2012) says that the dual mission of MFIs can lead to different priorities and conflicting expectations. Many MFIs are still dependent on subsidised funding from donors or governments, although they still utilise commercial sources (Tchuigoua, 2015). These subsidies from donors are in many ways associated with social objectives, while commercial investors and other providers of commercial funds would have profitability expectations (Copestake, 2007). Here, the multiple-principal agency problem arises because of the divergent interests of different principals (Voorn et al., 2019), and the attendant multidimensional actions of the agent to satisfy different principals. This situation therefore demands a robust monitoring mechanism that will take the multiplicity of interests into consideration to ensure optimality of organisational performance (Voorn et al., 2019).

Following these premises, agency theory provides the basis upon which IA can resolve owner-manager conflicts, in particular by way of internal control process reports to the board of directors (Mbeba, 2007). It also provides the basis for IA to mitigate the effects of principal-principal agency conflict by promoting symmetrical information dissemination (Rönkkö et al., 2018; Safdar et al., 2019) among controlling and minor owners of MFIs. Furthermore, Arthurs et al.'s (2008) study finds that insiders on the boards of firms making initial public offerings (IPOs), appear to decrease the incidence of under-pricing of stock (below competition) by hired underwriters, because they want to maintain a strong relationship with institutional investors. They argue that board insiders (like IA) can play a monitoring role over the activities of the agents of major stakeholders. Adams (1994) explains that within the agency theory context, IA serves as a monitoring mechanism which complements other governance mechanisms to reduce the principal-agent, and by extension, the principal-principal, agency conflict. Such mechanisms include but are not limited to the board of directors (Hartarska, 2005), the board audit committee (Adams, 1994), agent compensation incentives (Jensen and Meckling, 1976), institutional ownership type/legal status (Mersland and Strom, 2009), external auditors (Adams, 1994), and regulation (Mersland and Strom, 2009). Hence, this thesis envisages that regulatory authorities of MFIs may play the role of a moderator where the principal-principal agency conflict exists by demanding for a more diverse governance structure among which is IA (Iqbal et al., 2020; Vadasi et al., 2019).

### *3.2.3 Transaction cost economic (TCE) theory*

TCE theory is a variation of the neo-classical firm theory, which adopts a contractual approach to the study of economic entities (Williamson, 2005). The TCE theory is predominantly concerned with developing governance structures that provide ex-post monitoring measures



that enhance the reliability of contractual forms (Archer et al., 1998). Hence, the TCE theory views the firm as a governance structure having the fundamental behavioural assumptions of bounded rationality and opportunism (Archer et al., 1998). Bounded rationality places a limit on optimal contracting, while opportunism (self-interest) creates additional contractual hazards (Archer et al., 1998). At the core of TCE theory is *cost economising*, which is a condition of better internal control, incentives and contracting (Spraakman, 1997; Williamson, 2005). As transactions and activities within economic entities become more complex, their transactions costs also rise accordingly (Menard and Shirley, 2005, p. 474). Accordingly, TCE theory places emphasis on specific dimensions of transactions vis-à-vis how firms make the appropriate choice of governance mechanism, that is relevant for better internal control (Kim and Mahoney, 2005). So, for efficient contracting relations, the TCE applies alternate forms of economic systems with due consideration for their ability to cost economise, the limitations placed on them by bounded rationality, and the ability to protect transactions from the risk of opportunism as well (Archer et al., 1998). In this regard, *principals and agents*<sup>7</sup> are more inclined to choose a governance mechanism that is most suitable for adapting internal organisations to the changing conditions of activities (production of goods and/or services) in the marketplace (Spraakman, 1997). So, the most optimal governance mechanisms are chosen to maximise benefits and minimise costs. According to the TCE theory, governance mechanisms are material to achieving efficient outcomes (Kim and Mahoney, 2005). As part of governance structures for achieving efficiency, the monitoring of the internal organisation's production of goods and/or services is therefore essential for providing feedback that gives a better understanding and control of organisational activities (Menard and Shirley, 2005, p. 474). One such organisational activity is the activity of

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<sup>7</sup> Agency theory and TCE theory may overlap as they are both concerned with minimising contractual problems. While TCE theory calls those involved in the contract "parties or partners", the agency theory calls them "principals and agents" (Kim and Mahoney, 2005).

the parties (agent) to a contract. The monitoring of the activities of agents will therefore produce informative and cost-saving results, because entering and upholding contracts based on symmetric information makes both the agent and the owner better off (Spraakman, 1997). Furthermore, critical information is needed by decision-makers to write complex contracts that steer towards optimal outcomes (Menard and Shirley, 2005, p. 402). The TCE theory therefore takes a more holistic view of governance choices comprising of both ex-ante and ex-post controls (Kim and Mahoney, 2005), in addressing all types of contracting relations (Archer et al., 1998). In summary, this thesis envisages that the TCE theory can explain how IA may serve as a simplistic, internal and principles-based governance structure, that is affordable for organisations to principally facilitate the reduction of transaction costs associated with conducting a particular activity (Morrill and Morrill, 2003; Archer et al., 1998).

### *3.2.4 TCE theory and the basis for IA in MFIs*

Internal auditors have been described as providers of cost economising information, which is more relevant to managers than the financial accounting information provided by external auditors to owners and creditors (Williamson, 1975; Williamson, 1985; Sprakman, 1997). Sprakman (1997) explains that Williamson's argument is predicated on the ability of IA to gather and provide operational information, in addition to financial information. According to the TCE, it is assumed that economic actors are rationally bounded and limited in their ability to process information for comprehensive contracting. Hence, intra-organisational control mechanisms like IA are established to mitigate bounded rationality (Aikins, 2011). Mbeba (2007) documents that, management derive a good number of advantages from operational information provided by internal auditors. First, IA can identify and describe the entire system of internal controls that are in place. Second, IA is a management tool for monitoring and implementing internal controls.

Third, IA enables provision of information on internal control weaknesses. And fourth, IA can detect problems in the system before they become substantial and destructive. Spraakman (1997) succinctly describes IA's role of providing operational and financial information as cost economising, because of the part it plays in reducing transaction costs of activities. The control and monitoring attributes of IA give it the capability to review, manage, and ultimately reduce the cost of activities. This is highly important for MFIs because their cost outlay in relative terms is much higher than traditional banks, and they must also ensure they maintain a healthy balance between profitability and social impact (von Stauffenberg et al., 2014). Beisland et al. (2014) submit that lowering the cost of operations is a major concern for MFIs because their operating costs as a percentage of the total loan portfolio could be about five to ten times higher than the ratio of operating costs to total loan portfolio of commercial banks in developed markets.

Again, the transaction costs borne by MFI borrowers are historically recorded to be high as they involve the time borrowers must spend away from their businesses, transportation expenses to and from the MFIs, documentation, and the adverse impact of delays in accessing loan funds (Rosenberg et al., 2009; Schreiner, 2002). According to Schicks (2013), the costs that borrowers bear have a bearing on borrower over-indebtedness when MFIs' lending conditions (like extended group meetings at the cost of business time, interest rates, and fees), are inconducive. Indeed, MFI transaction costs can inflate interest rates and fees if the burden of MFI operational inefficiency is transferred to the borrowers (Gonzalez, 2010; D'Espallier et al., 2011). Basharat et al. (2015) find that social efficiency of MFIs is inversely associated with their interest rate. So, if IA can aid the reduction in the transaction costs of MFIs which does have a bearing on the borrowers' transaction cost, then IA would be seen to reduce fears about its cost-benefit disadvantage (Carcello et al., 2020). An alternative application of TCE theory is that if the cost-benefit outlook of IA is disadvantageous for reasons connected to the set up and/or

maintenance cost, IA then becomes an immaterial governance mechanism for achieving efficient outcomes (Kim and Mahoney, 2005). This may explain why many MFIs may not have the IA function.

Finally, these theories provide a framework for this study to ask the two research questions stated in chapter one. The first question is stated as: “What are the determinants of the internal audit function in MFIs?”. It is linked with both theories’ proposition that IA complements other intervention mechanisms to monitor organisational activities, manage risks, solve difficult problems resulting from imperfect information, and promote cost-efficiency (Adams, 1994). These mechanisms, and/or the activities which they monitor and control, may therefore determine the existence of the IA function in MFIs. The second question is: “What is the association between internal audit, and the loan losses and financial performance of MFIs?”. This is embedded in both theories’ judgement of IA as an ex-ante (monitoring) mechanism, and ex-post (governance) mechanism for achieving efficient outcomes such as maximising principals’ payoffs, mitigating (credit) risks, and minimising transactions costs (Kim and Mahoney, 2005).

### 3.3 Conclusion

This chapter has demonstrated that the IA function in MFIs can be rooted in two widely applied theoretical approaches: agency and TCE theories. These theories were used to elicit relevant information from existing research and to give validity to this study’s findings. Based on the two theories, IA can serve three main roles. First, IA can monitor both the implementation of internal controls, and the performance and responsibility of managers on behalf of MFI owners (Mori et al., 2015). IA can also serve as a monitoring mechanism for curbing clients’ moral hazards. This situation occurs when MFIs are not able to observe the actions of borrowers after the loans have been provided, but prior to when the borrower’s project begins to realise returns

(Armendáriz and Morduch, 2005). Second, IA can provide information to the board and management on matters related to compliance with policies and procedures in MFI operations (Mori et al., 2015). Third, IA can provide information on the risk assets of MFIs in a manner that can reduce losses to MFI operations. The next chapter discusses the review of related literature, the hypotheses and empirical results and findings of the essay on the *determinants of the existence of IA function in MFIs*.

## CHAPTER FOUR

### THE DETERMINANTS OF INTERNAL AUDIT FUNCTION IN MICROFINANCE INSTITUTIONS

#### 4.1 Introduction

This chapter presents a review of the existing literature on the internal audit (IA) function, by highlighting various research contributions to the factors that determine its existence and implementation in different organisations and sectors. This chapter also describes the proposed hypotheses and their rationales, following reviews of related literature of the factors that may influence the existence or not, of IA in MFIs. Furthermore, this chapter outlines the research design, sample data, estimation models, the dependent, explanatory and control variables, and the descriptive statistics of the sample data. The tests conducted, the results obtained, and the robustness tests carried out are also discussed. The next Section 4.2 provides the literature review of the determinants of the IA function in MFIs.

#### 4.2 Review of existing literature

The extant literature provides evidence of internal audit (IA) research in many sectors, for example, education (DeSimone and Rich, 2020), manufacturing, commercial banking and insurance, food and drinks, ICT, and utilities (Arena and Azzone, 2009; Goodwin-Stewart and Kent, 2006), among others. However, little is known about IA in the microfinance industry. MFIs supply an array of services, such as micro-credit, savings, term deposits, loans for both agriculture and housing, and at times financial literacy, particularly to the unbanked in developing countries. Meyer (2019) opines that because MFIs provide these unique financial services that are of significant socio-economic importance to the poor, their continued existence and growth means a lot to their clients. Mader (2013) and Schicks (2013) highlighted that there are growing concerns about the long-term sustainability of MFIs, due to the rapid growth in loans

extended by MFIs to borrowers, especially in light of client over-indebtedness risk and the soaring number of loan losses. In addition to the growing concerns over the risks of client over-indebtedness, the adequacy of the risk management mechanisms and control structures of MFIs has been called into question (Thrikawala et al., 2013; Yimga, 2016; Blanco-Oliver and Irimia-Diéguez, 2019; Gyapong and Afrifa, 2019). For instance, the crisis that rocked the Indian microfinance industry<sup>8</sup> illustrates how rapid but reckless growth, and other instances of poor governance in the industry at large (CSFI, 2014), can cause systemic instability (Mader, 2013). To ensure that MFIs deliver on their promise of substantially alleviating poverty through the provision of sustainable access to finance (Morduch, 1999), stakeholders strongly recommend that growth as recorded in the microfinance industry should be accompanied by stronger internal governance controls and risk management strategies (Galema et al., 2011). In line with these views, some studies that attribute the existence of the IA function in entities to the positive contributions that IA makes, have recommended it as a suitable governance, control and risk management mechanism. For instance, Rönkkö et al. (2018) find that the existence of IA in a firm, is positively associated with factors like foreign ownership, dispersed ownership, and state ownership. Wallace and Kreutzfeldt (1991) conducted a study on the characteristics of U.S. entities with IA departments. Using a sample of 260 firms covering banking, manufacturing, oil and gas, and public entities, they find that IA creates a quality control environment in organisations, thus making them less prone to financial statement errors, more competitive, more profitable and financially liquid, and more compliant to conservative accounting policies. Arena and Azzone (2009) researched the drivers of IA effectiveness in 153 Italian companies.

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<sup>8</sup> In October 2010, a microfinance crisis erupted in the Indian state of Andhra Pradesh and it serves as a good example of MFIs growing too fast and lending too aggressively, leading to over indebtedness and non-payment of loans. This resulted in MFI agents using coercion to get repayment from microfinance borrowers, leading to more poverty and in some cases, suicide (Mader, 2013).

They find that the increased participation of IA in risk management processes, is positively related to the effectiveness of IA. Mihret and Yismaw, (2007) examined the factors impacting the effectiveness of IA services in public sector owned higher education institutions in Ethiopia. They find that IA existence and effectiveness are strongly driven by the support it receives from management. Jiang et al. (2014) explore the determinants of the quality of the IA function using a matched sample of 268 firms from 28 countries, obtained from CBOK 2010 (the IIA's global IA survey) and the Worldscope databases. They find that IA function quality is associated with the intensity of board monitoring roles, firms' operating complexity, growth opportunity, and the need for firm-specific knowledge. Erasmus and Coetzee (2018) researched the differences in perception of the senior management and audit committee, on the drivers of IA effectiveness. They find no statistical similarities in the measurement of IA effectiveness by senior management and audit committees. So, management and audit committees view the effectiveness of IA from different perspectives, therefore, underscoring the independence of IA even though it consults for both stakeholders. DeSimone and Rich (2020) find evidence that higher undergraduate student enrolment in public universities is associated with the use IA for oversight controls. Beisland et al. (2015) examined the relationship between audit quality and corporate governance in the microfinance industry using a sample of 379 MFIs in 70 countries. They demonstrate that external audit and IA are complementary, both indicate audit quality, and that the existence of IA is associated with other indicators of stricter governance in MFIs.

However, little is known *per se*, about what influences the existence of the IA function in MFIs. This study is warranted for several reasons. The circumstances that influence IA's existence in MFIs remain unexplored in the literature and there is a distinct lack of empirical studies on IA activities in the microfinance industry. The present study has an expansive and highly diverse global dataset. This study is therefore focused on the factors that determine the existence or not



of IA in MFIs and it attempts to fill this identified gap in the IA and microfinance literature. Based on the study sample collected from the MIX Market database, there were about 25% of MFIs that had an IA function. Buttressing this point, the study by Beisland et al. (2015) uses hand-collected data of 379 MFIs in 70 developing countries over the period 2001–2009 to reveal that just 45% of the firms in the sample had an IA function. It is thus important to understand why this is the case, given the arguments that IA should be one of the core control and governance mechanisms employed by the boards and management of MFIs to prevent loss and minimize operating risks (Mbeba, 2007; Ledgerwood et al., 2013; Beisland et al., 2015).

In this chapter, I examine the governance, operational and administrative, and macroeconomic factors that determine the existence of an IA function in MFIs. The findings show that different factors influence the likelihood of IA existence in MFIs. These factors include growth in outreach to the poor (social performance), the presence of female board directors, and financial revenue from the loan portfolio of MFIs, which all have a positive and significant influence in determining the existence of IA in MFIs. The cost of operations (cost per borrower) has a negative and significant impact on IA existence. Lastly, banking regulation and staff productivity variables are insignificantly related to IA existence.<sup>9</sup>

This chapter adds to the literature on IA in the microfinance industry in several ways. First, most studies are limited to testing the determinants of IA function in settings outside microfinance (e.g., Arena and Azzone, 2007; Rönkkö et al., 2018; Baatwah and Al-Qadasi, 2020; Eulerich and Lenz, 2019; DeSimone and Rich, 2020). The microfinance industry plays a significant

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<sup>9</sup> A research paper titled “Determinants of the Internal Audit Function in Microfinance Institutions – A Global Evidence”, prepared based on this chapter was presented at the Financial Markets and Corporate Governance Virtual Conference (Emerging Markets session; 7–9 April, 2021) and at the Research Interactive Session 2 of Accounting and Finance Association of Australia and New Zealand (AFAANZ) Conference on 7 July, 2021.

role in financial intermediation to the world's poor,<sup>10</sup> and is a fertile ground for IA research (Beisland et al., 2015). This chapter therefore seeks to gain insight into the factors that determine the establishment of the IA function in MFIs. To the best of my knowledge, this study is the first empirical attempt to determine the factors influencing the existence of an IA function in MFIs.

Second, Gyapong and Afrifa (2019) argued that an MFI is a business for women. On the customer side, about 70% of MFI customers are women (Strøm et al., 2014; Armendáriz and Morduch, 2010; D'Espallier et al., 2013). Consequently, Gyapong and Afrifa (2019) suggested that appointing more women into leadership positions in MFIs was the right thing to do. This chapter contributes to the literature by showing evidence that the presence of female board directors in MFIs encourages the establishment of an IA function. The results of this study support the call for more diversity in the governance of MFIs (Mori et al., 2015). In addition, the results also imply that by appointing more female board directors, MFIs will invariably be encouraging the effective use of IA in improving their monitoring mechanisms and strengthening their internal governance systems.

Third, this chapter shows that MFIs that seriously seek to achieve their social performance objective through their outreach efforts, show a tendency for establishing an IA function. This is consistent with the literature that suggests that increased outreach without proper control measures can lead to a poor loan portfolio and have a negative effect on MFI performance (D'Espallier et al., 2011; Ledgerwood et al., 2013; Lopatta et al., 2017). This chapter thus contributes to the literature that suggests the presence of effective control systems like the IA function, mitigates portfolio quality risk in MFIs with an outreach focus, as noted by

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<sup>10</sup> By the end of 2013, MFIs had more than 211.1 million clients worldwide, with about 74.8% of them being women (Reed et al., 2015).

Tchakoute-Tchuigoua and Soumare (2019). Finally, this chapter also responds to the demand for more research on IA within the microfinance industry (Beisland et al., 2015), because the existence of the IA function is intangible in many MFIs. The gap in the literature is evident in the lack of studies on IA in MFIs. This chapter attempts to fill this gap and the results provide insights for policymakers and stakeholders in setting policy guidelines for establishing an IA function in MFIs.

### 4.3 Hypotheses development

#### 4.3.1 *Rationale and hypotheses*

##### ***Client outreach and IA***

MFI outreach refers to the social objective of reaching many unbanked poor borrowers with relevant financial services (Hartarska and Nadolnyak, 2007; Bassem, 2009). In the microfinance literature, an MFI's outreach to the poor is equated with their social responsibility performance (Lopatta et al., 2017). Specifically, the breadth of outreach or scale of an MFI's operations is the number of borrowers served, while depth of outreach implies serving a greater number of poor clients, generally comprised of women, rural dwellers, and the illiterate (Quayes, 2012; Paxton, 2002). Convergences (2019) reports that there has been considerable growth in the breadth of outreach of MFIs globally. Between 2009 and 2018, the number of MFI borrowers grew from 98 million to 140 million. Because of this achievement, stakeholders diverted their interests to focus more on depth of outreach and microfinance social performance (Quayes, 2012). This study also focuses on the depth of outreach. Here, subsequent mention of outreach refers to depth.

Several studies have examined how the changes in outreach level can impact the outlook of operational factors within MFIs. Quayes (2012) provides empirical evidence of a positive relationship between outreach and financial sustainability, while Hermes et al. (2011) provide

evidence that outreach is negatively related to MFI efficiency. Quayes (2012) observes that having a higher percentage of female borrowers increases the depth of outreach of MFIs. Therefore, following Cull et al. (2007) and Schreiner (2002), I use female borrowers as a proxy for MFI outreach. The limitation of using this approach is that women in developing economies are susceptible to loss of right of usage of borrowed funds by their husbands, fathers, or brothers, who divert these funds for other purposes (Bibi et al., 2018). Hence, leading to a failure to achieve the outreach objective of MFIs.

Lopatta et al. (2017) find evidence that the uncontrolled increase in the proportion of female clients aimed at increasing outreach, may heighten the risk of over-indebtedness due to excessive gender-based lending. It is argued that massive loan disbursement to female and poor clients in an imperfect market characterised by information asymmetry and moral hazards could distort an MFI's portfolio quality (Ledgerwood et al., 2013). Additionally, stakeholders use their MFI's outreach report to assess and rate their social performance (Quayes, 2012). The outreach efforts to provide more small-sized loans to poorer clients who characteristically do not have credit history and lack collaterals, may lead to information asymmetry problems (Schreiner, 2001; Lopatta et al., 2017), higher operating expenses (Meyer, 2019), and a greater risk of default because of poor borrowers' vulnerability to economic shocks (Quayes, 2012). The Agency theory propounds that information asymmetry can adversely affect the principals' capacity to effectively monitor the moral hazard problem of agents (Adams, 1994). MFI clients can divert loans to meet other obligations while managers can take advantage by making loans that are unfavourable to MFI owners (Kim and Mahoney, 2005). Therefore, effective controls over information asymmetry problems emanating from an increase in outreach and managerial opportunistic behaviours are thus required. Effective controls over high operating expenses would also be expedient (Meyer, 2019). That is why the TCE theory submits that certain

institutions arrangements exist for the purpose of reducing the transaction cost of a particular process or activity (Morrill and Morrill, 2003). Following Beisland et al.'s (2015) argument, full-disclosure MFIs striving to achieve both outreach and sustainability goals are more likely to adopt the use of an IA function in producing high-quality financial and social performance reports. The adoption of an IA function would, therefore, enhance transparent reporting, assure the reliability of financial statements and social performance reports used for rating MFIs, and curtail both manager and client moral hazards. Furthermore, the need to curb information asymmetry problems associated with MFI who increase outreach (Schreiner, 2001; Lopatta et al., 2017) can influence the establishment of IA. Also, the need to establish proper control measures that mitigate poor loan portfolio performance that may be exacerbated by increased outreach (D'Espallier et al., 2011) should influence MFIs to establish IA. Consequently, I hypothesise that:

*H1: Depth of outreach is positively associated with IA existence in MFIs.*

### ***Regulation and IA***

In the microfinance industry, institutions are broadly classified as regulated or unregulated. This study uses regulation to describe MFIs that are prudentially regulated and supervised by a banking supervision authority. In this way, regulated MFIs are subjected to guidelines containing detailed standards for governance and risk management systems, minimum and on-going capital requirements, shareholding structure, accounting policies, and feasibility plans, etc (Christen and Rosenberg, 2000; Ledgerwood and White, 2006). Unregulated MFIs operate under less strict guidelines for conduct of business, standards of reporting, and risk management mechanisms (Ledgerwood and White, 2006). Prudential regulation and supervision is used in governing the financial health of licensed MFIs to ensure financial system stability and for protecting

depositors' funds and money supply (Ledgerwood and White, 2006; Christen and Rosenberg, 2000).

However, the variations in institutional charter types, ownership structure, and legal environment show that not all MFIs are subject to prudential regulation and many countries' banking regulations do not supervise microfinance activities (Hartarska and Nadolnyak, 2007; Ledgerwood and White, 2006). Generally, MFIs whose central interest is in providing credit-only services, are not required to be prudentially regulated, while deposit-taking MFIs are required to be prudentially regulated (Ledgerwood and White, 2006). Following this, Ledgerwood and White (2006) further explain that before an MFI can transform from a credit-only to deposit-taking financial intermediary with access to larger loanable funds, it must fulfil certain licensor requirements. Such regulatory requirements focus on an institution's risk management mechanisms, and compliance with risk management procedures which are meant to enhance the MFI's ability to mitigate various risks (Ledgerwood and White, 2006). Further to the emphasis on institutional risk management mechanisms, regulators pay attention to whether existing IA procedures and activities are appropriate to deal with areas of greatest risks (Ledgerwood and White, 2006). Adams (1994) used the Agency theory as a basis to submit that regulators require certain institutions to meet specific conditions as a response to industry-related crisis. So, some regulators would require MFIs to establish the IA function as part of internal controls, to ensure that the entity's operations comply with the law and internal rules and regulations (CBN, 2005). For instance, in Bolivia, the *Superintendency of Banks and Financial Institutions (SBEF)* issues regulations relating to the establishment of IA in order to provide oversight to the internal control policies in cooperative/credit unions (Jansson et al., 2004). In Tanzania, the Microfinance Companies and Micro-credit Activities Regulations of 2005, as well as the Internal Control and Internal Audit Regulations of 2005, provide the regulatory framework relating to internal audit

and control (Rubambey, 2005). These regulations are to promote the quality of IA work in MFIs. They are equally established to ensure that internal auditors of MFIs possess proven skills and experience in microcredit operations, and to create accountability for internal auditors. According to Ledgerwood and White (2006), regulators would critically review how MFIs who plan to transform to regulated deposit-taking entities have designed the IA staffing, skills, audit plans, and reporting components of the transformation plan. The regulators would also review the reporting structure and interactions between IA, the board of directors, and the board audit committee (Ledgerwood and White, 2006; CBN, 2005).

Regulators understand the risks that come with licensing MFIs to collect deposits from the public, which is why they often scrutinise the risk preparedness of MFIs through different mechanisms, including IA (Ledgerwood and White, 2006). For instance, the Australian Prudential Regulatory Authority (APRA) requires all financial institutions it regulates, to have an IA function to provide fundamental risk management function for the board (Goodwin-Stewart and Kent, 2006). Wallace and Kreutzfeldt (1991) observe that companies with IA departments are more highly regulated, while Adams (1994) argues that regulators can demand certain types of organisations to have the IA function as an additional layer of beneficial regulation. It is arguable, then, that banking regulation should significantly influence the establishment of IA in MFIs, especially as many are being increasingly pressured to transform into regulated financial intermediaries (Hartarska and Nadolnyak, 2007).

However, there are other arguments that the establishment and growth of the IA function is more a function of firm size, and that regulation rather influences the growth rate and level of expenditure on an already existing IA function. According to Mbeba (2007), MFIs with 6,000 to 8,000 clients will usually request the services of an internal auditor, while MFIs with over 12,000 clients would generally establish an IA department with audit support staff in their field offices.

In addition, Calvin et al. (2012) argues that IA activities can be regarded as a costly assurance function which discourages investment in IA. It seems, therefore, that MFIs would establish IA as they grow in size and capacity to incur additional expenses, and not primarily for the sake of complying with transformation-related regulatory requirements. On the other hand, larger MFIs may be subjected to prudential regulation and supervision because of the systemic risk they can pose to the stability of the financial system if they fail (Ledgerwood and White, 2006). Regulation, institutional size, and IA, are all, therefore, interwoven.

Following these arguments, I hypothesise that:

*H2: Regulation positively influences the establishment of IA function in MFIs.*

### ***Female directorship and IA***

The influence of women in the microfinance industry is highly evidenced in empirical research (D'Espallier et al., 2013, Hartarska et al., 2014; Gudjonsson et al., 2020). Promoters of gender diversity argue that women's presence promotes organisational performance and creativity (Opstrup and Villadsen, 2015; Nielsen and Borjeson, 2019). In fact, Adams and Ferreira (2009) relay that women wield a significant influence within board governance and have a higher likelihood of being appointed as members of audit and corporate governance committees.

Female directors and internal audit have both been placed in a similar class of monitoring mechanisms (Strøm et al., 2014; Adams and Ferreira, 2009). The former is responsible for compliance monitoring of risk management practices, while the latter provides independent assurance covering monitoring of institutional risk management and the internal control framework (IIA, 2013). Female directors appear to be tougher monitors than male directors and combine with board-reporting internal auditors to improve an MFI's financial and social performance (Adams and Ferreira, 2009; Mersland and Strøm, 2009). The gender diversity of the



board has an impact on the quality of monitoring which, in turn, determines a firm's financial performance (Campbell and Mínguez-Vera, 2008). The active participation of women in these board committees appears to elevate the monitoring potency and audit focus of the board (Adams and Ferreira, 2009). This is consistent with the principal-agent theory which submits that owners can introduce monitoring mechanisms to prevent agents' opportunistic behaviour (Adams, 1994). Female directors and IA can also be placed in the same class of corporate governance mechanisms for reducing agency problems in organisations. Gyapong et al. (2021) find evidence that gender-diverse boards may serve as an effective governance tool for curbing principal and agent divergences, while Adams (1994) states that IA can reduce agency costs by aligning the interests of agents with those of the principals.

Mersland and Strøm's (2009) study further indicates that a female CEO reduces information asymmetry with regards to clients above male CEOs, considering that a higher number of MFI clients are women. Goodwin-Stewart and Kent (2006) argue that IA is more suited to complementing the monitoring role of the independent directors of a firm, because of the asymmetric information issues that exist between management and the board.

This study suggests that since female directors are more inclined to take on monitoring roles in institutional governance, they are likely to have affinity for other monitoring mechanisms, so they should favour the establishment of internal audit. Like IA, female directors perform a similar role of reducing the principal-agent conflict caused by managers' opportunistic practices.

Based on these, this study hypothesises that:

*H3: Female board members are positively associated with IA existence in MFIs.*

### ***Operating efficiency and internal audit***

The provision of microfinance services is associated with high labour input and high operational cost (von Stauffenberg et al., 2014), making operating efficiency a vital measure of MFI performance. Beisland et al. (2014) note that reducing operational cost is a priority for MFIs because their cost outlay could be as high as ten times more than the cost of operating commercial banks in developing markets. Gonzalez (2007) describes microfinance operations as a high-cost business whose business model should be to lower operating costs. One way of measuring operating efficiency in microfinance is to use the operating cost incurred by MFIs per active borrower (MIX Market, Gutiérrez-Nieto and Serrano-Cinca, 2007). MFI operating expenses include staff salaries and wages, staff logistics, interest and fees paid on debts, loan provision cost, and other operating costs (Ledgerwood et al., 2016). Because operating efficiency is associated with institutional survival (Gutiérrez-Nieto and Serrano-Cinca, 2007), Gonzalez (2007) suggests that efficiency-driven MFIs must lower operating costs, including and especially personnel expenses, because personnel expenses are the main constituents of operating expenses. Gonzalez (2007) says that the personnel and administrative costs of MFIs represent 62% of the interest rate charged to borrowers. Perhaps the important role played by MFI staff explains the reason for the high operating cost incurred in this regard. A high number of field workers/loan officers are tasked with client information gathering, follow-up, monitoring, and loan collection duties.

Internal auditors are described as being capable of improving operational efficiency through sourcing, analysing, and reporting relevant borrowers' details (McCord, 2002). Jiang et al. (2020) suggest that the IA function can detect operational inefficiencies and then provide strategic advice on cost effectiveness. According to the TCE theory, governance mechanisms are

important to achieve efficiency outcomes from incurring positive transactions costs (Kim and Mahoney, 2005). Jiang et al. (2020) also add that the IA function can provide non-financial reports through recommending ways that firms can improve efficiency thereby leading to reduction in operational cost. This research then argues that MFIs establish IA as a response to reducing operational cost per borrower, thus leading to the attainment of operational efficiency. MFIs may also establish an IA unit due to its ability to obtain critical information for operational decisions through its review and monitoring function (Chen et al., 2020). In fact, Goodwin-Stewart and Kent (2006) claim that independent directors of a firm appear to favour the hiring of IA to augment their monitoring role. From these scenarios, this thesis argues that MFIs are more prone to establishing the IA function to enhance the activities of loan officers and staff members, in terms of information gathering, loan processing and monitoring, to sustain their overall efficiency (Tchakoute-Tchuigoua and Soumare, 2019). Following Tchakoute-Tchuigoua and Soumare's (2019) submission, the need to provide cost effective but operationally efficient ex-ante and ex-post controls required for testing and verifying client information, and addressing client moral hazard, should also influence the establishment of the IA function. In addition, the need to accurately assess portfolio reports, ensure adherence to policies and procedures, while also identifying sharp practices, fraud, and portfolio quality problems, before they result in significant losses, makes the establishment of IA a necessity for MFIs (Steinwand, 2000).

However, based on the cost-benefit principle, it is debatable if managers classify IA as an administrative cost to be replaced with other internal control mechanisms, or as an integral and important component of the monitoring mechanism for achieving operating efficiency (Jensen and Payne, 2003). Managers may, on the other hand, be disinclined to establish an IA function because of escalating operational costs, unless the benefits of investing in and maintaining the IA unit exceeds the cost (Carcello et al., 2020; Raiborn et al., 2017).

Accordingly, this study proposes the following hypothesis:

*H4: Achieving operational efficiency is positively associated with the existence of internal audit in MFIs.*

### ***Staff productivity and internal audit***

In microfinance, productivity is a function of efficiency and outreach (Kinde, 2012). Outreach to a targeted number of clients is needed to achieve optimum case load per staff, while diligently keeping costs in check. This is a delicate balance for MFIs because microfinance is highly labour intensive (von Stauffenberg et al., 2014). Staff productivity therefore plays a major role in leveraging economies of scale in MFI operations (Pal and Mitra, 2017). Staff productivity in MFIs, is measured by the number of active borrowers in proportion to the number of staff members (MIX Market, Gutiérrez-Nieto and Serrano-Cinca, 2007). Studies use either borrowers per loan officer or borrowers per staff member, but von Stauffenberg et al. (2014) opines that using all staff numbers and not loan officers only, provides a wider institutional perspective on staff productivity. Productivity-driven MFIs must therefore maximise productivity by using the optimum number of staff, funds, and assets to maximise the magnitude of loans processed (von Stauffenberg et al., 2014). Therefore, MFIs may need an instrument for observing the actions of staff that can hamper its ability to maximise productivity. This is consistent with the Agency theory's postulation that the non-observability of agents' commitment to institutional goals can create moral hazard problems (Kim and Mahoney, 2005). In addition, a potential source of agency conflict arises when managers apply inadequate effort to work by indulging in self-interested preferences (Berger and Di Patti, 2006). Chaudhary and Rai (2009) argue that personnel expenses constitute about 60 percent of total operating expenses, therefore making staff productivity a key determinant of MFI operating cost. Chaudhary and Rai (2009) support

their assertion with evidence showing that as staff productivity (number of loan accounts per loan officer) increases, the transaction cost (cost of operations) as a percentage of outstanding loans falls. The IIA supposes that IA can foster staff productivity by observing and reporting on the effectiveness of business systems and processes (IIA, 2018). In conventional banks and financial institutions, staff productivity is evaluated using profitability as a measure of performance. But in MFIs where performance is measured from a dual perspective (profitability and social outreach), it will be expedient to have a performance measure that is not based on financial metrics only (Beisland et al., 2021). Dittenhofer (2001) argues that the use of IA has become critical to the performance audit of most governments given that the use of performance measures like budget compliance and efficiency are subjective. The change from classical audit to performance audit implies that the IA function acts a change agent in public sector entities (Kidron et al., 2016). This study therefore argues that as MFI staff productivity as shown by financial metrics increases, the more necessary it becomes to have a performance audit that focuses on non-financial and outreach-focused results, as well as ways of achieving them. Beisland et al. (2021) suggest that staff productivity in MFIs may be measured by staff member commitment to the achievement of social goals, and the provision of high-quality products and services that meet the needs of clients. Therefore, the demand for the use of IA for performance audit in MFIs where the number of borrowers to staff number ratio is increasing, is likely to be on the increase too. According to Carcello et al. (2005), a change in a company's characteristics such as clientele size and financial ratios can be associated with a change in IA budget and number of staff. Within the MFI context, as MFI staff increase productivity by increasing borrower enrolment, this study also argues that this increase should require the use of IA. Due to increased operational and administrative processes, the IA function is then implemented to monitor the effectiveness of the controls that guide the procedures for loan

disbursement, monitoring and collection by loan officers and staff, being the third line of defence for an effective internal control system (IIA, 2013). This is because the increase in client numbers can increase the workload of MFI staff, which may also lead to unethical practices and quality issues in loan records due to pressures of expansion (Dixon et al., 2007), and fraud (Coram et al., 2006).

This study therefore argues the following. First, an improvement in staff productivity from the perspective of an increase in number of borrowers per staff, should influence the establishment of IA function, as a commensurate control mechanism which helps to curb the risks associated with borrower expansion. Second, the increasing MFI transaction costs from expansion would require a control and performance improvement mechanism for optimising the internal processes that reduce the direct expenses from borrower expansion such as client visits, monitoring, and follow-up (Dumitrescu-Peculea and Calota, 2014).

Accordingly, this study hypothesises that:

*H5: The level of staff productivity is positively associated with internal audit existence in MFIs.*

### ***Financial performance and internal audit***

Several studies have examined the relationship between the financial performance of institutions and the presence of IA. For example, San Miguel and Govindarajan (1984) suggest that the financial performance goals of the different types of financial responsibility centres (cost, revenue, profit, and investment centres) within an organisation, may impact the design of the IA function. They argue that executives who want to provide prompt and trustworthy financial performance information are more likely to design their corporate control systems to include the IA function. The establishment of IA function is thus associated with management's design of an effective control system. Further, Al-Akra et al. (2016) claim that users' perceptions

of the reliability of financial performance reports can create the need for an IA function in two ways. First, the IA activity independently checks the accuracy of such reports, and second, IA provides assurance on the reliability and integrity of the financial reporting processes (IIA, 2013). High financial performing MFIs are strengthened by internal auditors that report to the board (Mersland and Strøm, 2009; Strøm et al., 2014), and the threat of misrepresentation of financial performance by self-seeking managers makes the IA independence assurance function a value-adding mechanism for owners (Rönkkö et al., 2018). Rönkkö et al. (2018) argue that owners of firms can use the IA function to solve the problem of information asymmetry between shareholders and managers, especially when investigating if funds have been used as planned.

Carcello et al.'s (2005) study finds a corresponding increase in investment in IA, for companies with increased operating cash flows or greater liquidity risk. Theoretically, when agents are provided with resources to achieve certain financial outcomes, they might be inclined to maximise their own wealth rather than act in the interests of their principals; the need to incur monitoring costs by establishing an IA function is thus created (Jensen and Meckling, 1976).

Additionally, public and private equity investors make investment decisions based on the financial sustainability of an MFI along with the IA structure in place (Haq et al., 2008). Kooi (2001) adds that the expansion of MFI operations due to inflow of equity investment, may necessitate upgrades to internal audit processes. This may especially be true for investors who have the objective of enhancing the financial and social performance of MFIs.

Thus, this study hypothesises that:

*H6: Financial performance has a positive relationship with the existence of an IA function in MFIs.*

## 4.4 Research design

### 4.4.1 Sample data

Data for this study were obtained from two separate sources. I obtained unique and MFI-specific data from the MIX Market database of the World Bank and data for the country-specific variables were collected from the world development indicators (WDI) of the World Bank.<sup>11</sup> The MIX Market database has been extensively used in recent microfinance industry studies (Yimga, 2016; Thrikawala et al., 2017; Gudjonsson et al., 2020; Tchuigoua, 2016; Iqbal et al., 2019; Afrifa et al., 2019). The MIX Market database contains the most comprehensive publicly available metadata of MFIs' financial information.

The timeframe of this study is based on the IA data available in the MIX Market database. IA observations were first captured in the MIX Market database in 2010, while the last observations were reported in 2018. My sample therefore initially considered all MFIs in the MIX Market Database from 2010 to 2018. Consistent with prior MFI literature, I applied several further filters. Following Ahlin et al. (2011), MFIs for which data was not annual were excluded from the sample. Second, I excluded MFIs that did not have assets reported from the sample. Lastly, following Gul et al. (2017), MFIs without at least five years of data were also dropped and MFIs whose firm-year observations were less than six were also excluded to ascertain the consistency of operations of the MFIs. Studies can be done using balanced or unbalanced panels. This thesis favours the use of unbalanced panel data for the following reasons. First, loan losses cause MFI failures which cause entry and exit of firms from the database. The heterogeneity of MFIs is therefore captured by the choice of unbalanced panel (Gyapong et al., 2021). The unbalanced panel data is also a better representation of the entire population (Gyapong et al., 2021). The

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<sup>11</sup> <https://databank.worldbank.org/source/world-development-indicators>



final sample thus consisted of an unbalanced panel of 1,025 MFIs across 63 countries over nine years (2010–2018). These 63 countries are comprised of mainly Global South economies with a high number of poor and unbanked population but having the potential of growing to become developed economies (Brickell et al., 2020). Compared to previous studies that have used MIX Market data (Tchakoute-Tchuigoua, 2010; Quayes, 2012; Kar and Swain, 2014; Yimga, 2016; Iqbal et al, 2019; Afrifa et al., 2019), my sampling approach yielded the largest number of observations, and this boded well for the analysis.

#### 4.4.2 Regression estimation model

This study uses the probit model (Nadeem, 2020; Dorfleitner et al., 2017) to examine the existence or non-existence of IA function, as a function of outreach, regulation, female directorship, efficiency/productivity, and financial performance. In probit regressions, the coefficients of the predictor variables cannot be described as having marginal effects on the dependent variable, and their signs show whether the corresponding variable positively or negatively influences the likelihood for the dependent variable to equal 1 (Mersland and Urgeghe, 2013). Coefficients are estimated using the maximum likelihood procedure. The measure of fit is based on the pseudo-R<sup>2</sup>, which compares the maximum likelihood function values of all regressors with the value of the likelihood without regressors. The model is presented by the following equation:

$$IA = \alpha_0 + \alpha_1 OUTREACH + \alpha_2 REG + \alpha_3 FEM\_DIR + \alpha_4 EFFI + \alpha_5 PROD + \alpha_6 FIN\_PERF + \alpha_7 LN\_SIZE + \alpha_8 GNI + \alpha_9 INFLATION + \alpha_{10} CAR + \alpha_{11} FIRM + \alpha_{12} YEAR + \varepsilon. \quad (4.1)$$

The model is used to test Hypotheses 1–6, where

**Dependent variable is:**

*IA* = Internal audit. A dummy variable of 1 if there is an IA function that verifies compliance with established credit/portfolio risks in MFI and 0 if otherwise.

***Independent variables are:***

*OUTREACH* = Depth of outreach, proxied by percentage of female borrowers

*REG* = Regulation. A dummy variable of 1 if MFI is subject to prudential guidelines and 0 if otherwise

*FEM\_DIR* = Female directorship, proxied by percent of female board member

*EFF* = Efficiency, proxied by cost per borrower (expressed in US\$)

*PROD* = Overall productivity of MFI's employees, proxied by borrowers per staff member

*FIN\_PERF* = Financial performance, proxied by yield on gross portfolio (nominal)

***Control variables are:***

*LN\_SIZE* = Size of MFI, proxied by natural log of assets

*GNI* = Gross National Income (current US\$)

*INFLATION* = Inflation, as a GDP deflator (annual %)

*CAR* = Bank capital to assets ratio (%)

***4.4.3 Dependent variable***

The dependent variable indicates the existence of an IA function within an MFI based on the specification provided in the MIX Market database. This dependent variable takes the value of 1,

if there is an IA function in an MFI which undertakes verification of compliance with policies for curbing credit/ portfolio risks, and 0 if an MFI does not have an IA function.

#### 4.4.4 Independent variables

This study used key operational indicators<sup>12</sup> in the MIX Market database as predictors. Based on the hypotheses developed in Section 4.2, I posit that the following MFI-specific variables determine internal audit existence:

Outreach (*OUTREACH*), especially the depth of outreach, shows the social performance of microfinance (Quayes, 2012). Outreach is measured using the percentage of female borrowers in the total loan portfolio of the MFI (Ferro-Luzzi and Weber, 2006; Hermes et al., 2011).

Regulation (*REG*) is a binary variable which takes 1 if an MFI is regulated and 0 if it is not. The regulatory status is time-invariant, although it can change from unregulated to regulated, but for some time it is fixed (Hartarska and Nadolnyak, 2007).

Female directorship (*FEM\_DIR*) signifies the proportion of women board members to the total number of MFI board members.

MFI efficiency (*EFF*) and productivity (*PROD*) indicators show how well an MFI performs operationally (von Stauffenberg et al., 2014). They are measured by cost per borrower in US\$ (von Stauffenberg et al., 2014) and borrowers per staff member (S.E.E.P Network, 2010; Mbeba, 2008), respectively.

Financial performance (*FIN\_PERF*) is measured by the yield on gross portfolio (Iqbal et al., 2019).

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<sup>12</sup> Except for percentages and number of quantities, the MIX Market financial information in the database is presented in US dollars.

#### 4.4.5 Control variables

Studies have shown that companies with internal audit are observed to be larger (Wallace and Kreutzfeldt, 1991; Arena et al., 2004), so this study controls for MFI size (*LN\_SIZE*) using the natural log of assets in US dollars.

For country-specific variables, this study controls for the economic growth and performance of the country using GNI current US\$ (*GNI*) (Yimga, 2016), being the total value-addition of resident producers and net income from abroad. In addition, this study controls for the country's purchasing power by including inflation (*INFLATION*) as a percentage of GDP (Gonzalez, 2008; Yimga, 2016). To control for the strength of a country's financial system and resilience to unexpected losses by financial institutions, this study includes bank capital to assets ratio percent (*CAR*) (Di Bella, 2011).

### 4.5 Empirical results

#### 4.5.1 Descriptive statistics

Table 4.1 presents the descriptive statistics of the variables used in the analyses. The dependent variable *IA*, ranges from 0.00 to 1.00, with a mean (median) value of 0.28 (0.00), suggesting that an average of 28% of MFIs have an IA function, suggesting a low percentage of the MFIs examined have an internal audit presence. This is even lower than in the smaller MFI sample used by Beisland et al. (2015), who found that less than 45% of MFIs have an IA presence. This may suggest that despite the advantages of an IA function, most MFIs do not have one. *OUTREACH* has a mean (median) value of 0.56 (0.56) suggesting a growing focus on client outreach by MFIs, i.e., more MFIs are tilted towards achieving their second bottom line of social performance. *REG* shows a mean (median) value of 0.66 (1.00) suggesting that about 67% of MFIs are regulated, while *FEM\_DIR* has a mean (median) value of 0.21 (0.14) indicating that about 21%

of the sampled MFIs have women on their boards. *EFF* and *PROD* have mean (median) values of 292 (162) and 132 (102) respectively. These indicate that sampled MFIs incur an average cost of US\$292 per client and have an average of 132 borrowers per staff member. We note that *FIN\_PERF* shows a mean (median) value of 0.20 (0.17), indicating that about 20% of the sampled MFIs record a yield on their gross portfolio, which is indicative of how well the examined MFIs are generating financial revenue from loans.

For the control variables, the mean (median) value of *LN\_SIZE* is 16.53 (16.50). The *GNI* and *INFLATION* macroeconomic indicators show mean (median) values of US\$580b (US\$100b) and 5.6% (4.4%) respectively. The *CAR* shows a mean (median) value of 10.5% (10.4%) suggesting that most MFIs comply with the Basel-III rules of the Basel Committee (2010), which require all banks to have a capital adequacy ratio of at least 8% (BIS, 2010).

**Table 4.1**

**Descriptive Statistics**

<b>Variable</b>	<b>Type</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>25th</b>	<b>50th</b>	<b>75<sup>th</sup></b>
<i>IA</i>	Dependent	0.2762	0.4472	0	0	1
<i>OUTREACH</i>	Independent	0.568544	0.334137	0.3511	0.5637	0.8997
<i>REG</i>	Independent	0.669681	0.470364	0	1	1
<i>FEM_DIR</i>	Independent	0.205305	0.24977	0	0.1429	0.3333
<i>EFF</i>	Independent	292.4109	820.1619	44	162	309
<i>PROD</i>	Independent	132.6313	135.8947	61	102	164
<i>FIN_PERF</i>	Independent	0.207736	0.192936	0.087	0.1679	0.2902
<i>LN_SIZE</i>	MFI-level control	16.53489	2.108358	15.08312	16.49672	17.94151
<i>GNI</i>	Country-level	580,000,000,000	1,230,000,000,000	19,400,000,000	100,000,000,000	379,000,000,000
<i>INFLATION</i>	Country-level	5.574634	5.226291	2.548569	4.423342	7.411553
<i>CAR</i>	Country-level	10.54361	3.16956	7.535117	10.3587	12.24511

**Variable definition:** *IA* is the internal audit presence proxy. A binary variable with the value of 1, if MFI has an internal audit function, and 0 otherwise. *OUTREACH* is MFI depth of outreach indicator. This is measured by percentage of female borrowers – i.e., number of active women borrowers as a percentage of total borrowers at period end. *REG* is an MFI regulation proxy. The dummy variable 1 depicts if MFI is subject to prudential guidelines and 0 if otherwise. *FEM\_DIR* is female directorship. It is measured by the percentage of female board members i.e., number of women board members as a percentage of total board members at period end. *EFF* is MFI efficiency and measured by cost per borrower i.e., total operating expense distributed among average number of borrowers, thus representing the average cost of maintaining an active borrower. *PROD* is the overall productivity of MFI employees in terms of serving borrowers. It is measured using borrowers per staff member i.e., total number of active borrowers divided by total personnel. *FIN\_PERF* is financial performance of MFI. It is measured by the nominal yield on gross portfolio i.e., financial revenue from loans compared to average gross loan portfolio. *LN\_SIZE* is the natural log of assets, which is a control variable for size of MFI. *GNI* is gross national income i.e., the sum of value addition by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in current US dollars. *INFLATION* is inflation as a GDP deflator. It measures the percentage change in the rate of prices in the economy as a whole. *CAR* is the bank capital to assets ratio (%) i.e., the ratio of bank capital and reserves to total assets.

Table 4.2 presents the Pearson (pairwise) correlation matrix of the variables used in the analysis with statistical significance shown at the 5% level. The magnitude of the Pearson correlation coefficient determines the strength of the correlation between the variables in this sample data. I conducted a variance inflation factor (VIF) test to verify the absence of multicollinearity in the data. The calculated VIF for the variables (not tabulated) are all less than  $10^{13}$  and have a mean value of 1.21. This indicates that multicollinearity is not a problem in the data.

Table 4.3 reports the results of a paired t-test (mean-comparison) conducted to determine the conditions of MFIs with an IA function, and those without. From the results of this statistical hypothesis test, this study observes in the *Mean Difference* column that MFIs that have an IA presence, statistically and significantly different from MFIs that do not have an IAF presence on different dimensions, including *OUTREACH*, *FEM\_DIR*, *FIN\_PERF*, *LN\_SIZE*, and *CAR*. This suggests that MFIs with IA and those without IA are significantly different in terms of outreach, female directorship, financial performance, and size. While the two groups are only moderately different in terms of regulation, efficiency, and productivity. This result, therefore, prompts further investigation into this phenomenon.

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<sup>13</sup> Generally, the literature considers VIF values less 10 as acceptable (O'Brien, 2007).

**Table 4.2**

Pearson (pairwise) correlations matrix for the variables included in the analysis

No	Variable	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
[1]	<i>OUTREACH</i>	1									
[2]	<i>REG</i>	-0.13*	1								
[3]	<i>FEM_DIR</i>	0.30*	-0.02	1							
[4]	<i>EFF</i>	-0.17*	-0.03	0.02	1						
[5]	<i>PROD</i>	0.26*	0.05*	-0.03	-0.19*	1					
[6]	<i>FIN_PERF</i>	0.18*	-0.18*	-0.01	-0.04*	-0.07*	1				
[7]	<i>LN_SIZE</i>	-0.13*	0.31*	-0.09*	0.03*	0.03*	-0.11*	1			
[8]	<i>GNI</i>	0.11*	-0.22*	-0.06*	0.00	0.00	-0.04*	-0.03	1		
[9]	<i>INFLATION</i>	0.03*	-0.05*	-0.02*	-0.06*	-0.01	0.10*	-0.15*	-0.02	1	
[10]	<i>CAR</i>	-0.24*	0.09*	0.00	-0.06*	-0.02	0.07*	0.03	-0.32*	0.07*	1.00

**Notes:** \* shows significance at the 5% level

**Variable definition:** *OUTREACH* is MFI depth of outreach indicator. This is measured by percentage of female borrowers i.e., number of active women borrowers as a percentage of total borrowers at period end. *REG* is an MFI regulation proxy. The dummy variable 1 depicts if MFI is subject to prudential guidelines and 0 if otherwise. *FEM\_DIR* is female directorship. It is measured by the percentage of female board members i.e., number of women board members as a percentage of total board members at period end. *EFF* is MFI efficiency and measured by cost per borrower i.e., total operating expense distributed among average number of borrowers, thus representing the average cost of maintaining an active borrower. *PROD* is the overall productivity of MFI employees in terms of serving borrowers. It is measured using borrowers per staff member i.e., total number of active borrowers divided by total personnel. *FIN\_PERF* is financial performance of MFI. It is measured by the nominal yield on gross portfolio i.e., financial revenue from loans compared to average gross loan portfolio. *LN\_SIZE* is the natural log of assets, which is a control variable for size of MFI. *GNI* is gross national income i.e., the sum of value addition by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in current US dollars. *INFLATION* is inflation as a GDP deflator. It measures the percentage change in the rate of prices in the economy as a whole. *CAR* is the bank capital to assets ratio (%) i.e., the ratio of bank capital and reserves to total assets.



**Table 4.3**  
Paired T-test full sample result

Variables	IA = 0		IA = 1		Test of Mean difference
	Obs	Mean	Obs	Mean	
<i>OUTREACH</i>	4792	0.49	1828	0.60	-0.11***
<i>REG</i>	4803	0.66	1833	0.69	-0.03
<i>FEM_DIR</i>	4792	0.19	1828	0.25	-0.06***
<i>EFF</i>	1616	266.59	539	237.53	29.06
<i>PROD</i>	1814	128.03	603	127.32	0.71
<i>FIN_PERF</i>	4803	0.18	1833	0.20	-0.02***
<i>LN_SIZE</i>	4803	16.50	1833	16.78	-0.28***
<i>GNI</i>	4753	585,000,000,000	1802	566,000,000,000	19,300,000,000
<i>INFLATION</i>	4753	5.66	1802	5.356347	0.30*
<i>CAR</i>	3505	10.70	1378	10.15099	0.55***

**Notes:** This panel provides the results when the sample is divided into two subsamples based on MFIs with and without IA. \*, \*\*, and \*\*\* indicate significance at  $p < 0.10$ , 0.05, and 0.01, respectively in tests of mean differences between the two subsamples.

**Variable definition:** *OUTREACH* is MFI depth of outreach indicator. This is measured by percentage of female borrowers i.e., number of active women borrowers as a percentage of total borrowers at period end. *REG* is an MFI regulation proxy. The dummy variable 1 depicts if MFI is subject to prudential guidelines and 0 if otherwise. *FEM\_DIR* is female directorship. It is measured by the percentage of female board members i.e., number of women board members as a percentage of total board members at period end. *EFF* is MFI efficiency and measured by cost per borrower i.e., total operating expense distributed among average number of borrowers, thus representing the average cost of maintaining an active borrower. *PROD* is the overall productivity of MFI employees in terms of serving borrowers. It is measured using borrowers per staff member i.e., total number of active borrowers divided by total personnel. *FIN\_PERF* is financial performance of MFI. It is measured by the nominal yield on gross portfolio i.e., financial revenue from loans compared to average gross loan portfolio. *LN\_SIZE* is the natural log of assets, which is a control variable for size of MFI. *GNI* is gross national income i.e., the sum of value addition by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in current US dollars. *INFLATION* is inflation as a GDP deflator. It measures the percentage change in the rate of prices in the economy as a whole. *CAR* is the bank capital to assets ratio (%) i.e., the ratio of bank capital and reserves to total assets.

#### 4.5.2 Main results

The probit estimation model results are presented in Table 4.4. In support of hypothesis 1, the analysis in column 1 shows that outreach is positively and significantly related to IA existence (co-efficient = 0.759,  $p < 0.01$ ). To test further for marginal effects of *OUTREACH*, holding all other regressors constant at some values, I run a post estimation test to indicate the conditional probability of *IAF* changes, based on a change in the value of *OUTREACH*. The result in column 8 of Table 4.4 shows that a one standard deviation change in *OUTREACH*, leads to a 14-percentage point change in *IAF* existence at the 1% significance level. This indicates that MFIs with deeper outreach are more likely to have an IA in existence in the organisation, to serve as a monitoring mechanism that helps to reduce the risk of information asymmetries (Eulerich and Eulerich, 2020) between MFIs and clients with little credit information. This study's proxy for depth of outreach is the proportion of MFIs' female clientele to total clientele. Although it is believed in the microfinance industry that women borrowers are better than men at loan repayment and compliance with contractual terms (Abdullah and Quayes, 2016; D'Espallier et al., 2011), this study's findings indicate that a higher percentage of women borrowers is associated with IA existence in MFIs. This is consistent with D'Espallier et al.'s (2011) argument that MFIs focusing on serving marginalised clients such as women borrowers, may require stronger monitoring mechanisms, because of their lower literacy level which calls for closer on-site (business) monitoring. Lopatta et al. (2017) also contend that an uncontrolled increase in outreach through excessive gender-based lending can increase information asymmetry and moral hazard problems. D'Espallier et al. (2011) further add that having more women clients is associated with higher operational expenses and administrative costs. The findings of this study can therefore indicate some good reasons why increase in outreach depth is associated with IA existence. First, MFIs

probably implement strict monitoring mechanisms like IA to properly monitor their large number of female borrowers with many small-sized loans. Second, based on the application of TCE theory, this study supposes that MFIs may establish IA as part of its governance mechanism for controlling operational costs associated with having more female borrowers. Third, as pointed out by Fernando (2007), microfinance is still a risky business, irrespective of the gender of clientele. MFIs may regard the IA function as part of a robust system for collecting and evaluating client background information which is important for efficiently monitoring and enforcing loan contracts (Armendáriz and Morduch, 2010). The study's findings therefore support hypothesis 1 and an earlier submission by Steinwand (2000) that social performance-focused MFIs recognise IA as a monitoring and control mechanism for curbing loan portfolio problems. Also, the results emphasize the agency theory's proposition that the more the information asymmetry between agents and principals (Type 1: borrowers and MFI managers; Type 2: MFI managers and owners), the more monitoring is needed, and the increase in the likelihood of the IA function existence and size (Sarens and Abdolmohammadi, 2011).

For hypothesis 2 in column 2 of Table 4.4, the coefficient on *REG* is positive but insignificant, and weakly supports this study's hypothesis. Even though there is strong evidence for a significant positive influence from banking regulation on the use of IA in financial institutions (Bassem, 2009; Eulerich and Eulerich, 2020; Bailey et al., 2012), this study does not find strong evidence of such a relationship in MFIs. Yimga (2016) asserts that since it may not be feasible for banking regulators to implement effective regulatory oversight over traditionally small, remote and rural-based MFIs, likewise, MFIs may not be under any strong obligation to establish an IA function. In fact, Hartarska and Nadolnyak (2007) find that regulatory involvement does not directly impact the financial or outreach performance of

MFIs. They conclude that MFIs' transformation into regulated financial intermediaries may not lead to improved performance. This study observes that the microfinance industry still lacks a uniform, non-discretionary and rules-based regulatory framework (Hotori and Wendschlag, 2019), and more empirical studies will be required to examine the effects of regulation. These findings of this study therefore support the view that the setting up of IA in MFIs is based on a voluntary decision as well as being a factor of specific country regulations (Rönkkö et al., 2018).

The third hypothesis in column 3 of Table 4.4 is supported by the positive and significant relationship between female directorship and IA (co-efficient = 0.757,  $p < 0.01$ ). I further test for marginal effects of *FEM\_DIR*, holding all other regressors constant. I run a post estimation test to indicate the conditional probability of *IAF* changes, based on a change in the value of *FEM\_DIR*. The result in column 8 of Table 4.4 shows that a one standard deviation change in *FEM\_DIR*, leads to a 22-percentage point change in *IAF* existence at the 1% significance level. Female directors appear to favour the use of board-reporting internal auditors in tackling the information asymmetry problems of both clientele and staff (Mersland and Strøm, 2009; Steinwand, 2000). Indeed, Jiang et al. (2014) find that the quality of IA function and board monitoring intensity are positively related, while Adams and Ferreira (2009) find that gender-diverse boards apply more effort to monitoring. This study's results therefore also suggest that a collaboration between female board directors and the IA function improves the monitoring and advisory function of the female directors on the boards of MFIs. Cooperation and collaboration are key components of the leadership approach employed by females to transform and manage organisations (Mandell and Pherwani, 2003; Jogulu and Wood, 2006; Gudjonsson et al., 2020). Perhaps, female directors use IA reports to boost their knowledge of goings-on and their competence in financial and operational

monitoring, because the internal auditor “sees and hears a lot from the floor” (Sarens et al., 2009). Female directors may also be more conservative and tend to use other better governance and controls tools at their disposal. In conclusion, because female directors of MFIs collaborate effectively with IA, they can achieve more success especially in outreach to female clients, better monitoring, and better financial performance. In this way, they are inclined to support the establishment and existence of IA in MFIs. In relation to the agency theory, extant literature comments that tougher monitoring aligns the interest of owners with that of agents (Adams and Ferreira, 2009). Female board members are described as more independent and better board monitors of the management via more sensitivity to turnover and performance (Adams and Ferreira, 2009). The agency theory therefore explains the female board member / IAF affiliation from the standpoint of a composition of value-adding and independent internal governance structure for effective monitoring (Adams and Ferreira, 2009; Thrikawala et al., 2013).

For hypothesis 4 in column 4 of Table 4.4, operating efficiency is significant but negatively related to IA (co-efficient = -0.000,  $p < 0.05$ ). This contrasts with this study’s proposed hypothesis of a significant positive correlation. Further marginal effects test on *EFF*, holding all other regressors constant was also done. The post estimation test result in column 8 indicate that a one standard deviation change in *EFF*, reduces the probability of the existence of *IAF* by a change of less than zero-percentage point, at the 10% significance level. This indicates that the higher the cost incurred in delivering services to a borrower, the less the likelihood of implementing the IA function. Lafourcade et al. (2005) state that efficient institutions minimise service delivery expenses, and MFIs strive to achieve higher efficiency levels by keeping their costs per borrower as low as possible. Mbeba (2008) states that the cost per borrower equates to the amount of income that an MFI is required to generate from

each borrower to break-even. This study's results therefore imply that efficiency-driven MFIs may not be keen on investing in IA based on the cost-benefit analysis argument. Mbeba (2007) is of the view that the majority of MFIs are highly sensitive to costs and efficiencies, and they will strongly argue against increasing internal control, including IA, unless it is cost effective. According to Conning (1999), being regarded as part of the escalating monitoring cost when MFIs deepen their outreach to poorer classes of borrowers, IA may become a burden to MFIs. Typically, MFIs categorise expenditure on providing loans to more borrowers as an important financial cost and do not classify IA as a component of financial cost but rather as an administrative cost (Hudon and Traca, 2011; Baatwah and Al-Qadasi, 2020; Rönkkö et al., 2018). Rosenberg et al. (2009) argue that the problem with MFIs' administrative costs is they add to operational expenses and are unavoidably higher than in normal bank lending. This study therefore concludes that IA, being an administrative cost, can be traded off for other organisational arrangements and pseudo-control mechanisms. In fact, Jensen and Payne (2003) find evidence of a linkage between the cost of hiring internal control mechanism and the refusal to hire internal auditors by managers. They argue that this is a conscious trade-off by managers who substitute internal audit expertise with other similar internal control mechanisms in their enterprise-wide control systems. This trade-off could cause conflict between managers and the board to whom IA reports, if the board fully sees IA as a monitoring cost, justifiably expended to reduce an agency problem. In fact, Chen et al. (2020) is of the view that emphasizing the monitoring function of IA, may put managers off from consulting internal auditors, especially if IA is thought to reveal their operationally inefficient performance. The impact of IA on operating efficiency of organisations is thereby reduced. Their study suggests that operating efficiency is strongly associated with IA in institutions where corporate governance is well developed; hence, the higher the cost of operations

especially the cost of loan administration, the lower the likelihood that MFIs would invest in IA. Furthermore, managers who are averse to being monitored by IA, perhaps for self-seeking motives (Jensen and Meckling, 1976; Adams, 1994), may trade-off IA with other less capital-intensive control mechanisms. According to the TCE, the asset specificity of IAF to lower transaction costs justifies the investment in it by management (Spraakman, 1997). Speklé et al. (2007) argues that the choice of investing in IAF expertise should be because it is better able to perform the monitoring function in comparison to other substitutes. On the other hand, Widener and Selto (1999) note that low asset specificity of the IAF can cause institutions to outsource the function to other alternatives. Therefore, the likelihood of investing in IAF is low, if it cannot be feasibly related to the achievement of management's specific aim of investment, i.e., for enhancing financial efficiency in MFIs.

In column 5 of Table 4.4, the coefficient on staff productivity (*PROD*) is positive but insignificant at conventional levels, thus, Hypothesis 5 is not supported. One interpretation of this result is that when there is growth in the number of borrowers compared to staff members, MFIs typically report it in good light but may be reluctant to set up the necessary IA function for mitigating the risks associated with growth (Berger, 2010). This study's interpretation is that the adoption of IA as a mechanism for performance audit, and the implementation of effective internal control and risk management systems only becomes a high priority when the growth in borrowers and the credit extended to them results in deterioration of loan portfolio quality. While the customer base of MFIs are growing in relation to their staff strength, their IA expertise and internal control system seem not to be growing at the same rate. This is a common scenario in other industries due to the perception that IA is expensive or of low importance, until there is a crisis that warrants a significant increase in IA budgets (Bekiaris et al., 2013). For example, large firms with seemingly healthy

growth patterns in the pre-Sarbanes-Oxley (SOX) Act era, did not consider IA as important as other internal governance and control mechanisms for managing risk. It was not until the corporate scandals and the introduction of legislation (like SOX) that many companies came to appreciate that IA expertise and resources can deal with enterprise risk, ensure internal control effectiveness, and enhance accurate performance reporting (Anderson et al., 2012; Jones et al., 2017; Chang et al., 2019).

Regarding financial performance in column 6 of Table 4.4, the coefficient on *FIN\_PERF* is positive and significant (co-efficient = 0.497,  $p < 0.01$ ). The marginal effects test result in column 8 shows that a change in *FIN\_PERF*, when holding all other regressors constant at some values, increases the conditional probability of change in *IAF*, in other words, a one standard deviation change in *FIN\_PERF*, causes a 17-percentage point change in *IAF* existence also at the 1% significance level. With this result, this study's sixth hypothesis is supported. This implies that financial performance has a significant impact on the existence of the IA function in MFIs because internal audit is a mechanism for providing reliable and timely information on an organisation's financial performance (San Miguel and Govindarajan, 1984). MFIs with elements of good financial performance would likely make IA effective, notably for their increase in economic value and development (Mbeba, 2007). The signal from this is that as MFIs move into the financial mainstream, there is a greater need for an IA function which provides assurance on the reliability and integrity of financial information (IIA, n.d). In that way, the IA function contributes to the reliability of financial statements by accurately reflecting financial performance and by strengthening controls over the top MFI risks (CSFI, 2012). Another interpretation is that the better the financial performance of MFIs, the more money and resources are available for establishing IA (Wallace and Kreutzfeldt, 1991). The positive association between financial performance and IAF evidenced in this study is



consistent with agency theory predictions that managers may employ the engagement of internal audit, as a signal for soundness of financial reporting, and achievement of projected annual financial performance (Adams, 1994). Agency theory also argues that internal audit is an intervention mechanism that helps to sustain financial performance targets as agreed between owners and managers (Adams, 1994). The results further suggest that the need to focus on compliance testing concerning the effectiveness of internal controls over financial reporting necessitates the establishment and use of IA (Anderson et al., 2012). In addition, commercial fund providers' and investors' confidence is boosted by good financial performance reports supported by the IA assurance, thus portraying a professionally controlled MFI (Mersland and Urgeghe, 2013; Natilson and Bruett, 2003). Moreover, MFIs with more resources should be able to bear the cost of setting up and maintaining an IA function (Wallace and Kreutzfeldt, 1991; Carcello et al., 2005).

Finally, in column 7 of Table 4.4 where all the variables are simultaneously run using the same model, the results reveal that outreach is positively and significantly associated with IA existence (co-efficient = 0.590,  $p < 0.01$ ). However, the co-efficient on regulation is negative but insignificant (co-efficient = -0.053). Female directorship and IA are positively and significantly related (co-efficient = 0.911,  $p < 0.01$ ), while operating efficiency and IA show a negative significant relationship (co-efficient = -0.000,  $p < 0.1$ ). Productivity and IA do show a negative insignificant association (co-efficient = -0.000), and financial performance and IA are positively and significantly correlated (co-efficient = 0.730,  $p < 0.01$ ). The results in column 7 are therefore qualitatively similar to the results in columns 1-6.

Turning to control variables, the results provided in this study suggest that the size of the MFI may influence the presence of IA. Columns 1, 3, and 6 show significant results but other columns are inconsistent. To test for consistency, I substituted the log of assets (proxy for MFI

size) (Kar, 2012), with log of the gross loan portfolio as an alternative measure. Both measures are widely used in microfinance research where “total assets” is the *total value of the resources controlled by the financial institution* (MIX Market). Also, “gross loan portfolio” is the largest component of the financial asset owned by an MFI (MIX Market). This approach follows Mersland and Beisland (2011) who used log of total assets as the primary proxy for MFI size, and for test of robustness, used the log of the loan portfolio as an alternative proxy. After using both proxies, their results remained significant. The untabulated result shows a positively significant association between size of loan portfolio and IA, i.e., larger MFIs may be more inclined to establishing IA. The results also suggest that country-specific macroeconomic indicators, which are beyond the control of the microfinance industry, have some predictive power on IA function establishment. For instance, inflation and bank capital to asset ratio are negatively and significantly associated with IA in MFIs. These factors depict the availability of capital at the disposal of MFIs and the economic purchasing value of money. Unfavourable movements in either of them would require belt-tightening by MFIs leading to cost-cutting measures to protect deposits and ultimately record a positive bottom-line.

**Table 4.4**  
**Determinants of Internal Audit function in MFIs**

Variables	Expected sign	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) Marginal effects
<i>OUTREACH</i>	+	0.759*** (0.089)						0.590*** (0.168)	0.141*** (-0.394)
<i>REG</i>	+		0.040 (0.075)					-0.053 (0.130)	-0.0125 (-0.0311)
<i>FEM_DIR</i>	+			0.757*** (0.112)				0.911*** (0.198)	0.217*** (-0.0452)
<i>EFF</i>	+				-0.000** (0.000)			-0.000* (0.000)	-6.28e-05* (-3.27e-05)
<i>PROD</i>	+					0.000 (0.000)		-0.000 (0.000)	-9.60e-05 (-0.000118)
<i>FIN_PERF</i>	+						0.497*** (0.138)	0.730*** (0.278)	0.174*** (-0.0653)
<i>LN_SIZE</i>	+	0.056*** (0.017)	0.028 (0.018)	0.047*** (0.017)	-0.017 (0.028)	0.003 (0.027)	0.037** (0.017)	0.043 (0.031)	0.0103 (-0.00752)
<i>GNI</i>	?	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000** (0.000)	-0.000* (0.000)	-0.000 (0.000)	-0.000** (0.000)	-0.000** (0.000)
<i>INFLATION</i>	?	-0.023*** (0.008)	-0.023*** (0.007)	-0.023*** (0.007)	-0.017 (0.013)	-0.023* (0.012)	-0.024*** (0.007)	-0.021 (0.014)	-0.00502 (-0.00324)
<i>CAR</i>	+	-0.022* (0.012)	-0.040*** (0.012)	-0.041*** (0.012)	-0.046** (0.019)	-0.034* (0.018)	-0.043*** (0.012)	-0.024 (0.020)	-0.00569 (-0.00475)
Constant		-3.232*** (0.395)	-2.207*** (0.361)	-2.666*** (0.369)	-1.697*** (0.638)	-2.204*** (0.617)	-2.460*** (0.364)	3.769*** (0.709)	
Year fixed-effects		YES	YES	YES	YES	YES	YES	YES	YES
Clustered - Firm level		YES	YES	YES	YES	YES	YES	YES	
Pseudo R-squared		0.202	0.178	0.192	0.211	0.198	0.182	0.260	
Observations		4,871	4,883	4,871	1,592	1,766	4,883	1,542	1,542

**Notes:** Robust standard errors shown in parentheses and clustered on MFIs. \*, \*\*, and \*\*\* represent significance at 10, 5, and 1 percent, respectively. This table reports the results from a probit specification of a determinants model of IA existence based on equation (1). The dependent variable is an indicator variable equal

to 1 for MFIs that adopt the use of IA, and 0 otherwise. In columns 1-6, IA is regressed on each explanatory variable and the control variables. Using the same model, column 7 shows results when IA is regressed simultaneously on all variables. All the results are qualitatively similar between each variable in columns 1-6 and compositely in column 7. Column 8 shows the marginal effects results after post estimation.

**Variable definition:** *OUTREACH* is MFI depth of outreach indicator. This is measured by percentage of female borrowers i.e., number of active women borrowers as a percentage of total borrowers at period end. *REG* is an MFI regulation proxy. The dummy variable 1 depicts if MFI is subject to prudential guidelines and 0 if otherwise. *FEM\_DIR* is female directorship. It is measured by the percentage of female board members i.e., number of women board members as a percentage of total board members at period end. *EFF* is MFI efficiency and measured by cost per borrower i.e., total operating expense distributed among average number of borrowers, thus representing the average cost of maintaining an active borrower. *PROD* is the overall productivity of MFI employees in terms of serving borrowers. It is measured using borrowers per staff member i.e., total number of active borrowers divided by total personnel. *FIN\_PERF* is financial performance of MFI. It is measured by the nominal yield on gross portfolio i.e., financial revenue from loans compared to average gross loan portfolio. *LN\_SIZE* is the natural log of assets, which is a control variable for size of MFI. GNI is gross national income i.e., the sum of value addition by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in current US dollars. *INFLATION* is inflation as a GDP deflator. It measures the percentage change in the rate of prices in the economy as a whole. *CAR* is the bank capital to assets ratio (%) i.e., the ratio of bank capital and reserves to total assets.

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### 4.5.3 Robustness tests

#### 4.5.3.1 Probit regression with only independent variables

To further confirm the validity and robustness of the results, some robustness tests were conducted. Table 4.5 presents the robust results of probit estimation for a different regression model using only the independent variables (Rönkkö et al., 2018). The control variables of MFI size (*LN\_SIZE*), gross national income (*GNI*), inflation (*INFLATION*), and banks' capital asset ratio (*CAR*), are exempted from the regression model. This is aimed at analysing the effects of the hypothesized correlates without the influence of size of the institution, and the macro-economic variables which are prevalent in the developing economies where the MFIs in the sample are located. In support of hypotheses 1, 3, and 5, the test results show that depth of outreach, female directorship, and financial performance is positively associated with IA. Results for efficiency (*EFF*) are counterintuitive to hypothesis 4. Efficiency measured by cost of borrowing is negatively associated with IA. This suggests that as the cost of providing loan services to borrowers increases, the investment in setting up and/or maintaining IA function is reduced. The model has a pseudo  $R^2$  of 0.199 compared to 0.260 for the full model. A pseudo  $R^2$  rule of thumb puts a very good model fit range at between 0.2 and 0.4 (McFadden, 1974). Year fixed effects were used in this study for two purposes. First, to capture unit-invariant heterogeneity due to time, by capturing various events that affected all MFI units of analysis in the same year in a similar way, and second, to control for heteroscedastic issues which may be inherent in this study's large range of observed data values.

**Table 4.5**  
**Robustness test – Probit regression using only independent variables**

Variables	Expected Sign	(1) IA
<i>OUTREACH</i>	+	0.465*** (0.141)
<i>REG</i>	+	0.105 (0.105)
<i>FEM_DIR</i>	+	0.664*** (0.166)
<i>EFF</i>	+	-0.000** (0.000)
<i>PROD</i>	+	-0.001 (0.000)
<i>FIN_PERF</i>	+	0.516** (0.237)
Constant		-2.418*** (0.203)
Year fixed-effects	?	YES
Clustered - Firm level		YES
Pseudo R-squared		0.199
Observations		2,091

Robust standard errors shown in parentheses. \*, \*\*, and \*\*\* represent significance at 10, 5, and 1 percent, respectively.

**Variable definition:** *OUTREACH* is MFI depth of outreach indicator. This is measured by percentage of female borrowers i.e., number of active women borrowers as a percentage of total borrowers at period end. *REG* is an MFI regulation proxy. The dummy variable 1 depicts if MFI is subject to prudential guidelines and 0 if otherwise. *FEM\_DIR* is female directorship. It is measured by the percentage of female board members i.e., number of women board members as a percentage of total board members at period end. *EFF* is MFI efficiency and measured by cost per borrower i.e., total operating expense distributed among average number of borrowers, thus representing the average cost of maintaining an active borrower. *PROD* is the overall productivity of MFI employees in terms of serving borrowers. It is measured using borrowers per staff member i.e., total number of active borrowers divided by total personnel. *FIN\_PERF* is financial performance of MFI. It is measured by the nominal yield on gross portfolio i.e., financial revenue from loans compared to average gross loan portfolio.

#### *4.5.3.2 Controlling for cross country-specific effects*

The second robustness test is carried out by controlling for the unobserved effects of the characteristics of countries in which the MFIs are located. In the initial probit regression, firm-specific effects were controlled. Controlling on a country-by-country basis gives this study the leverage to confirm if the effects of location have any impact on the underlying regression. I consider that the business environment and individual legal and banking laws could have an impact on the activities of MFIs. A conducive environment for businesses will facilitate the growth of micro and small enterprises who are the major customers of MFIs. A conducive business environment will also reduce MFI transaction costs and cost of enforcing loan contracts with clients (Farooq et al., 2022). The presence of banking laws and strong rule of law brings stability to financial systems resulting in higher institutional quality. Therefore, these external factors may explain why MFIs have varied performances (Barry and Tacneng, 2014). This test is very important knowing the variability of MFI type and country settings. The results in Table 4.6 are qualitatively similar to Table 4.4, thus confirming the earlier findings that outreach, female directorship, and financial performance have a positive and significant relationship with IA, regardless of the country. Similarly, efficiency is negatively but significantly more related to IA, while regulation and productivity have insignificant effects on IA.

**Table 4.6**  
**Robustness test: Internal Audit and Determinants – Clustered by Country**

DV= IA	Expected sign	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>OUTREACH</i>	+	0.759*** (0.143)						0.590*** (0.177)
<i>REG</i>	+		0.040 (0.105)					-0.053 (0.157)
<i>FEM_DIR</i>	+			0.757*** (0.182)				0.911*** (0.235)
<i>EFF</i>	+				-0.000** (0.000)			-0.000** (0.000)
<i>PROD</i>	+					0.000 (0.000)		-0.000 (0.000)
<i>FIN_PERF</i>	+						0.497*** (0.189)	0.730** (0.290)
<i>LN_SIZE</i>	+	0.056*** (0.021)	0.028 (0.022)	0.047** (0.021)	-0.017 (0.035)	0.003 (0.033)	0.037* (0.022)	0.043 (0.033)
<i>GNI</i>	?	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000* (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000* (0.000)
<i>INFLATION</i>	?	-0.023** (0.010)	-0.023** (0.010)	-0.023** (0.010)	-0.017 (0.012)	-0.023* (0.013)	-0.024** (0.010)	-0.021 (0.013)
<i>CAR</i>	+	-0.022 (0.023)	-0.040* (0.023)	-0.041* (0.024)	-0.046* (0.027)	-0.034 (0.025)	-0.043* (0.024)	-0.024 (0.032)
Constant		-3.232*** (0.505)	-2.207*** (0.441)	-2.666*** (0.468)	-1.697** (0.698)	-2.204*** (0.663)	-2.460*** (0.458)	-3.769*** (0.763)
Year effects		YES	YES	YES	YES	YES	YES	YES
Clustered – Country level		YES	YES	YES	YES	YES	YES	YES
Pseudo R-squared		0.202	0.178	0.192	0.211	0.198	0.182	0.260
Observations		4,871	4,883	4,871	1,592	1,766	4,883	1,542

**Notes:** Robust standard errors shown in parentheses. \*, \*\*, and \*\*\* represent significance at 10, 5, and 1 percent, respectively



The variables are robust-clustered by country. The baseline regression model is re-estimated by switching from the firm level clustering to country-level clustering, thus enabling the adjustment of the standard errors for the effects of geographical clustering.

**Variable definition:** *OUTREACH* is MFI depth of outreach indicator. This is measured by percentage of female borrowers i.e., number of active women borrowers as a percentage of total borrowers at period end. *REG* is an MFI regulation proxy. The dummy variable 1 depicts if MFI is subject to prudential guidelines and 0 if otherwise. *FEM\_DIR* is female directorship. It is measured by the percentage of female board members i.e., number of women board members as a percentage of total board members at period end. *EFF* is MFI efficiency and measured by cost per borrower i.e., total operating expense distributed among average number of borrowers, thus representing the average cost of maintaining an active borrower. *PROD* is the overall productivity of MFI employees in terms of serving borrowers. It is measured using borrowers per staff member i.e., total number of active borrowers divided by total personnel. *FIN\_PERF* is financial performance of MFI. It is measured by the nominal yield on gross portfolio i.e., financial revenue from loans compared to average gross loan portfolio. *LN\_SIZE* is the natural log of assets, which is a control variable for size of MFI. GNI is gross national income i.e., the sum of value addition by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in current US dollars. *INFLATION* is inflation as a GDP deflator. It measures the percentage change in the rate of prices in the economy as a whole. *CAR* is the bank capital to assets ratio (%) i.e., the ratio of bank capital and reserves to total assets.

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#### 4.5.3.3 Logistic regression model – alternative estimation technique

Thirdly, to test for the robustness of the estimation technique used in the baseline regression, the logistic regression model is employed as an alternative estimation technique to the probit model (Goodwin-Stewart and Kent, 2006). When the dependent variable is dichotomous, the choice of model to use between the probit and logit models is indistinctive in practice. The logit differs slightly from the probit model in the link function. In this alternate model, the errors are assumed to follow the cumulative distribution function of the logistic distribution, while the errors are assumed to follow a normal distribution for the probit model. To test if the baseline regression results are not driven by the estimation technique, I use the same regressors in the probit model to estimate their impact on *IA*. The coefficients in the results in Table 4.7 are qualitatively like Table 4.4, and very similar inferences can be drawn from the signs and level of significance. The results in the baseline regression are therefore not driven by the estimation technique initially used.

Similar to the marginal effects post-estimation test carried out after the probit regression in section 4.5.2, column 8 of Table 4.7 reports marginal effects of a logit regression. Marginal effects for the dependent variable *IAF* is calculated when it changes from 0 to 1. The result shows that a one standard deviation change in *OUTREACH*, leads to a 13-percentage point change in *IAF* existence at the 1% level of significance. This result is very similar to that in column 8 of Table 4.4. The result of the marginal effects of a change in *FEM\_DIR*, holding all other regressors constant, shows that a one standard deviation change in *FEM\_DIR*, leads to a 21.9-percentage point change in *IAF* existence even at the 1% significance level. This is also very close to the result in column 8 of Table 4.4. For *EFF*, holding all other regressors constant, the post estimation test result indicate that a one standard deviation change in *EFF*, reduces the probability of the existence of *IAF* by a change of less than zero-percentage point at the

10% significance level. Finally, the marginal effects test result in column 8 shows that a change in *FIN\_PERF*, when holding all other regressors constant at some values, increases the conditional probability of change in *IAF*. In other words, a one standard deviation change in *FIN\_PERF*, causes an 18.5-percentage point change in *IAF* existence, at the 1% level of significance. In general, the marginal effects from the probit and logit estimations are similar, to further confirm that the results in the baseline regression are therefore not driven by the estimation technique initially used.

<b>Table 4.7</b>									
<b>Robustness using Logit regression: Determinants of Internal Audit</b>									
Variables	Expected sign	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
									Marginal effects
<b>OUTREACH</b>	+	1.292*** (0.242)						0.950*** (0.308)	0.133*** (-0.0402)
<b>REG</b>	+		0.070 (0.180)					-0.100 (0.272)	-0.0141 (-0.0316)
<b>FEM_DIR</b>	+			1.296*** (0.313)				1.564*** (0.406)	0.219*** (-0.0456)
<b>EFF</b>	+				-0.000** (0.000)			-0.000* (0.000)	-5.97e-05* (-3.31e-05)
<b>PROD</b>	+					0.000 (0.001)		-0.001 (0.001)	-8.37e-05 (-0.000121)
<b>FIN_PERF</b>	+						0.847*** (0.313)	1.318*** (0.500)	0.185*** (-0.0659)
<b>LN_SIZE</b>	+	0.099*** (0.036)	0.050 (0.037)	0.082** (0.035)	-0.027 (0.060)	0.006 (0.057)	0.065* (0.037)	0.073 (0.058)	0.0103 (-0.00775)
<b>GNI</b>	?	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000* (0.000)	-0.000* (0.000)	-0.000 (0.000)	-0.000* (0.000)	-0.000** (0.000)
<b>INFLATION</b>	?	-0.042** (0.020)	-0.040** (0.020)	-0.041** (0.019)	-0.030 (0.021)	-0.039* (0.024)	-0.042** (0.020)	-0.040* (0.023)	-0.00566* (-0.00339)
<b>CAR</b>	+	-0.035 (0.040)	-0.066* (0.040)	-0.067 (0.042)	-0.076* (0.046)	-0.055 (0.042)	-0.072* (0.042)	-0.041 (0.055)	-0.00575 (-0.00495)
<b>Constant</b>		-6.237*** (0.969)	-4.435*** (0.854)	-5.220*** (0.875)	-3.941*** (1.392)	-4.850*** (1.357)	-4.857*** (0.888)	-7.239*** (1.539)	
<b>Year fixed effects</b>		YES	YES	YES	YES	YES	YES	YES	
<b>Clustered - Firm level</b>		YES	YES	YES	YES	YES	YES	YES	
<b>Pseudo R-squared</b>		0.202	0.178	0.193	0.211	0.198	0.182	0.261	
<b>Observations</b>		4,871	4,883	4,871	1,592	1,766	4,883	1,542	1,542

Notes: Robust standard errors shown in parentheses. \*, \*\*, and \*\*\* represent significance at 10, 5, and 1 percent, respectively  
Variable definition: *OUTREACH* is MFI depth of outreach indicator. This is measured by percentage of female borrowers i.e., number of active women borrowers as a percentage of total borrowers at period end. *REG* is an MFI regulation proxy. The dummy variable 1 depicts if MFI is subject to prudential guidelines and 0 if otherwise.

*FEM\_DIR* is female directorship. It is measured by the percentage of female board members i.e., number of women board members as a percentage of total board members at period end. *EFF* is MFI efficiency and measured by cost per borrower i.e., total operating expense distributed among average number of borrowers, thus representing the average cost of maintaining an active borrower. *PROD* is the overall productivity of MFI employees in terms of serving borrowers. It is measured using borrowers per staff member i.e., total number of active borrowers divided by total personnel. *FIN\_PERF* is financial performance of MFI. It is measured by the nominal yield on gross portfolio i.e., financial revenue from loans compared to average gross loan portfolio. *LN\_SIZE* is the natural log of assets, which is a control variable for size of MFI. GNI is gross national income i.e., the sum of value addition by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in current US dollars. *INFLATION* is inflation as a GDP deflator. It measures the percentage change in the rate of prices in the economy as a whole. *CAR* is the bank capital to assets ratio (%) i.e., the ratio of bank capital and reserves to total assets.

#### *4.5.3.4 Regional fixed effects analysis*

To account for unobserved time-invariant country characteristics, this study uses supra-national region dummies (Fischer, 2010). Such national and regional characteristics as culture, history, civilisation, and formal institutions may be correlated with MFI activities. Therefore, failing to account for these unobserved country heterogeneities in cross-regional/country analyses can cause omitted variable bias in institutional effect estimations (Fischer, 2010). The sample data includes MFIs from 63 countries and six regions (see appendix), and this can potentially create unobserved region cross-country variations that may be attributed to differences in policy variable, variety of microfinance service providers (Haq et al., 2008), and vulnerability to global financial crisis (Microbanking Bulletin, 2009). Table 4.8 reports the result of the region fixed effects analysis based on equation (4.1). Similar results to Table 4.4 are observed which indicates that the results are robust to unobserved country/regional heterogeneity.

**Table 4.8**  
**Robustness - Analysis by region fixed effects**

Variables	Expected sign	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>OUTREACH</i>	+	0.655*** (0.093)						0.526*** (0.181)
<i>REG</i>	+		-0.101 (0.083)					-0.033 (0.143)
<i>FEM_DIR</i>	+			0.681*** (0.112)				0.889*** (0.201)
<i>EFF</i>	+				-0.000** (0.000)			-0.000** (0.000)
<i>PROD</i>	+					0.000 (0.000)		-0.000 (0.001)
<i>FIN_PERF</i>	+						0.811*** (0.159)	0.869*** (0.290)
<i>LN_SIZE</i>	+	0.058*** (0.017)	0.049*** (0.018)	0.053*** (0.016)	-0.016 (0.028)	0.003 (0.027)	0.049*** (0.017)	0.039 (0.033)
<i>GNI</i>	?	-0.000*** (0.000)	-0.000*** (0.000)	-0.000** (0.000)	-0.000** (0.000)	-0.000** (0.000)	-0.000*** (0.000)	-0.000** (0.000)
<i>INFLATION</i>	?	-0.026*** (0.008)	-0.025*** (0.008)	-0.026*** (0.008)	-0.011 (0.013)	-0.019 (0.012)	-0.028*** (0.008)	-0.017 (0.014)
<i>CAR</i>	+	-0.018 (0.014)	-0.024* (0.014)	-0.022 (0.014)	-0.039 (0.024)	-0.027 (0.022)	-0.027* (0.014)	-0.019 (0.025)
Constant		-3.374*** (0.423)	-2.864*** (0.408)	-3.136*** (0.411)	-2.434*** (0.677)	-2.909*** (0.646)	-3.168*** (0.411)	-4.299*** (0.747)
Year fixed effects		YES	YES	YES	YES	YES	YES	YES
Region fixed effects		YES	YES	YES	YES	YES	YES	YES
Clustered – firm level		YES	YES	YES	YES	YES	YES	YES
Pseudo R-squared		0.217	0.202	0.212	0.223	0.211	0.211	0.269
Observations		4,866	4,878	4,866	1,592	1,766	4,878	1,542

**Notes:** Robust standard errors shown in parentheses and clustered on MFIs. \*, \*\*, and \*\*\* represent significance at 10, 5, and 1 percent, respectively.

The table presents results from the inclusion of region fixed effects based on equation (1). The dependent variable is an indicator variable equal to 1 for MFIs that adopt the use of IA, and 0 otherwise. In columns 1-6, IA is regressed on each explanatory variable and the control variables, while column 7 shows results for composite regression.

**Variable definition:** *OUTREACH* is MFI depth of outreach indicator. This is measured by percentage of female borrowers i.e., number of active women borrowers as a percentage of total borrowers at period end. *REG* is an MFI regulation proxy. The dummy variable 1 depicts if MFI is subject to prudential guidelines and 0 if otherwise. *FEM\_DIR* is female directorship. It is measured by the percentage of female board members i.e., number of women board members as a percentage of total board members at period end. *EFF* is MFI efficiency and measured by cost per borrower i.e., total operating expense distributed among average number of borrowers, thus representing the average cost of maintaining an active borrower. *PROD* is the overall productivity of MFI employees in terms of serving borrowers. It is measured using borrowers per staff member i.e., total number of active borrowers divided by total personnel. *FIN\_PERF* is financial performance of MFI. It is measured by the nominal yield on gross portfolio i.e., financial revenue from loans compared to average gross loan portfolio. *LN\_SIZE* is the natural log of assets, which is a control variable for size of MFI. *GNI* is gross national income i.e., the sum of value addition by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in current US dollars. *INFLATION* is inflation as a GDP deflator. It measures the percentage change in the rate of prices in the economy as a whole. *CAR* is the bank capital to assets ratio (%) i.e., the ratio of bank capital and reserves to total assets.

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## 4.6 Conclusion

The study in this chapter is focused on identifying the plausible factors that determine the adoption of the IA function in MFIs. This is in response to calls for the microfinance industry to assess the factors that explain the presence or absence of internal audit systems in MFIs (Adams, 1996; Beisland et al., 2015). The main results and various robustness tests, provide a number of empirical findings that can explain the existence of IA in MFIs. Starting with depth of outreach, as MFIs deepen their services to cater for the financial needs of financially excluded customers, they may be inclined to adopt IA as a monitoring and control mechanism. The presence of female directors on the boards of MFIs is also shown to be associated with IA presence. Perhaps the monitoring-related and compliance roles associated with female board members make them seek the support of similar monitoring mechanisms, like IA, to improve their effectiveness. Further evidence shown by this study is that the operating cost and particularly costs incurred by MFIs in lending to clients, is negatively associated with IA. This implies that the cost of setting-up/ maintaining IA function can be substituted with other monitoring mechanism unless benefits, higher than the investment in IA, is derived. Smaller and simpler MFIs may not consider the IA function to be cost effective (Rönkkö et al., 2018). Furthermore, the response of MFIs to a growing cost/borrower amount may be to prioritise budgetary allocation to core financial costs over other costs. This study also found evidence that the financial performance of MFIs due to positive yield on their loan portfolio, influences the presence of IA function in MFIs. This finding is consistent with Rönkkö et al. (2018) who found that a firm's profitability is positively and significantly associated with the use of IA. This finding also responds to Iqbal et al.'s (2019) request for evidence to support the reverse causality relationship between financial performance and internal control mechanisms. Banking regulation (prudential) does not appear to influence the establishment

of IA in the microfinance industry. This study argues from the viewpoint that IA set up is largely voluntary in the industry. In fact, a greater number of MFIs are not prudentially regulated (Forssbäck et al., 2014), and so the regulatory requirement of establishing an IA function adoption may not be regarded as a necessity in MFI operations.

The findings of this study are significant as they highlight useful information for stakeholders that despite the prospective advantages, the limited resources available to MFIs may influence the establishment of IA function. This study observes that the establishment of IA function is voluntary for MFIs, but it supposes that the value-adding services of IA as a reliable consultant can encourage MFIs without IA to invest in it. By this, IA would not be perceived as part of a capital-intensive administrative set-up, but as an advisory, governance monitoring, and assurance function, that generates value creating benefits (Calvin et al., 2021). The internal audit profession can contribute by tailoring its expertise towards creating domain knowledge and frameworks for IA practice in the microfinance industry. In line with this, internal auditors in the industry would need to develop assurance and consulting skills connected to the microfinance domain, that can create economic benefits for MFIs. The results could guide regulators who plan on making internal audit mandatory in MFIs. The findings of this study also draw the attention of regulators to the challenges of establishing IA in MFIs, before promoting or mandating its implementation as a reliable governance monitor (Roussy, 2013). Regulators may need to incentivise MFIs who have established IA functions, by providing subsidised capacity enhancement for IA staff. Finally, MFI board and executives may also extract useful information from the results of this study to make important decisions about board composition and establishment of the IA function. This study therefore canvasses for the recognition of the potential strengths that the existence of IA in MFIs can bring to governance, monitoring, assurance, and risk management in the microfinance industry.

The next section discusses the second essay of this thesis on the association between IA, loan losses and financial performance of MFIs.

## CHAPTER FIVE

### THE ASSOCIATION BETWEEN INTERNAL AUDIT, LOAN LOSSES, AND FINANCIAL PERFORMANCE OF MFIs<sup>14</sup>

#### 5.1 Introduction

This chapter addresses the second of the two research questions of this thesis mentioned in Chapter One. The second research question is stated as: *“Is the IA function useful in MFIs for mitigating loan losses, and in achieving healthy financial performance?”*. This chapter therefore proceeds as follows. A review of the existing literature on the global loan portfolio, credit risk and loan loss situation of MFIs is presented in Section 5.2, while Section 5.3 presents the synopsis of the study. In Section 5.4, the hypotheses which were developed from the literature review are stated. Section 5.5 provides the research design, sample data, estimation models, and explanation of various variables. Section 5.6 presents the descriptive statistics, the main results, the results of further analyses, and the results of robustness tests. In Section 5.7, the conclusion to this chapter is provided.

#### 5.2 Literature review

MFIs’ services are critical to developing economies because they provide credit and other financial services to those at the bottom of the pyramid, those often excluded from the services of conventional banks (Armendáriz de Aghion and Morduch, 2000; Zamore et al., 2019). MFIs have the social goal of reaching out to and improving the wellbeing of their unbanked and vulnerable customers (Lensink et al., 2018). MFIs differ from conventional banks because they have a different target market, and their operating environment in those localities is not attractive to conventional banks (Kebede and Berhanu, 2013). Their main aim

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<sup>14</sup> A version of this chapter was presented as a paper at the 2021 Virtual Accounting and Finance Association of Australia and New Zealand (AFAANZ) doctoral symposium on 30 June, 2021.

is to improve the living standards of the poor population by providing sustainable banking services (Bi and Pandey, 2011).

By 2018, about 140 million borrowers globally, especially in developing economies, had benefitted from a loan portfolio of US\$124.1 billion and other services provided by MFIs. A large proportion of these beneficiaries were women and rural dwellers<sup>15</sup>. Indeed, the greatest risk to an MFI's continued existence comes from their most-needed product i.e., their loans (Hardy et al., 2013; Rhyne and Otero, 2006; Hulme, 2000). Functionally, the principal earning asset of MFIs is their loan portfolio and the size of an MFI can easily be determined by its loan portfolio (Rhyne and Otero, 2006). MFI portfolios consist of short-term structured and uncollateralised micro-loan contracts<sup>16</sup> (Ledgerwood et al., 2013; Rosenberg, 1999; BCBS, 2010). However, it has been observed that the lack of conventional collateral security for these loans combined with borrower information asymmetry, can raise the credit risk problem faced by MFIs in providing loans to borrowers (Tchuigoua, 2016). Despite the considerable increase in the supply of microcredit at an annual rate of 11.5% between 2013 and 2018 (Convergences, 2019), stakeholders are still concerned about the high scale of client over-indebtedness and the associated loan losses accompanying this growth (CSFI, 2014; CSFI, 2016; Milana and Ashta, 2020). A crucial question, therefore, arises as to how MFIs may effectively reduce loan losses arising from over-indebtedness and poor institutional approaches to lending. The chain of events that leads from over-indebtedness to loan losses are identified as first involving delinquency and deterioration in portfolio quality, which then

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<sup>15</sup> According to the Microfinance Barometer 2018 report, MFIs had an estimated loan portfolio of \$124.1 billion and an annual growth of +8.5% from 2017. Women and rural dwellers constituted 80% and 65% respectively of the 140 million borrowers.

<sup>16</sup> By late 2019, borrowers in rural Bangladesh had accessed about US\$3 billion uncollateralised loans from Grameen Bank (See <https://grameenbank.org>)

requires increased provisions for impairment losses on loans, before loans are permanently written-off as lost (Hossain, 2013).

In connection with this, loan losses have serious implications for MFI financial performance. Consequently, various studies accentuate how these losses might have a negative impact on MFI financial performance. They detail the consequences of loan losses that may affect MFI performance, for example, loss of interest income, increase in operational cost, liquidity shortage, impairment of equity, hampered outreach and growth, failure to achieve institutional objectives, loss of competitive edge, and institutional reputational damage (Vogelgesang, 2003; Crabb and Keller, 2006; Schicks, 2013; Tchakoute-Tchuigoua and Soumare, 2019; Singh, 2020). Empirical evidence of the relationship between poor loan performance and financial performance exists in the microfinance literature. For instance, Daher and Le Saout (2015) provide evidence of a robust and significant negative effect of credit risk on MFI profitability. They conclude that portfolio quality is a very strong driver of financial performance in MFIs. Using the relationship between quality of loan portfolio (performing loans), real yield on loan portfolio, and financial performance, Kar and Swain (2014) show that an increase in portfolio yield resulting from loan repayment rates can have an overall positive impact on MFI financial performance. In addition, Iqbal et al. (2019) provide evidence of a link between high loan portfolio-at-risk and low portfolio returns in MFIs.

The implications of loan losses on institutional financial performance, especially in MFIs, may therefore have influenced past studies to question MFIs' internal governance and control mechanisms for managing and monitoring loan losses and delinquency risks (Lassoued, 2017; Haq et al., 2008; D'Espallier et al., 2010; Tedeschi, 2006; Tchakoute-Tchuigoua and Soumaré, 2019; Galariotis et al., 2011). They are of the view that there should

be mechanisms for preventing and detecting these problems before they result in significant losses (Mbeba, 2007; Steinwand, 2000; SEEP Network, 2011). Mbeba (2007) notes that the lack of supervision and monitoring of business processes are common symptoms of weak internal control systems in MFIs. Evaluators have observed that in some MFIs, only the loan officers are responsible for loan processing, loan disbursements issuance, loan repayment collection, updating the passbooks of clients, and banking the monies collected from clients (Mbeba, 2007), all of which suggest a deficiency in internal control system of segregation of duties. There are even instances of irregular loan tracking and fishy portfolio reports in MFIs where loan control systems and reports should be sacrosanct (Mbeba, 2007).

To rectify these deficiencies highlighted in the internal control and governance structures of MFIs, some studies suggest that the IA function is capable of minimising lending institution's exposure to loan losses (Isern et al., 2008; Steinwand, 2000), while others add that IA can cause an improvement in financial performance (Okello et al., 2019). Hutchinson and Zain (2009) explored the impact of IA quality on firm performance using a sample of 60 Malaysian public listed firms. They find empirical evidence of the ability of the IA function to manage credit risk from loan losses while also boosting financial performance. These IA functions for managing risk include providing reviews and reporting on the quality and effectiveness of internal controls (Goodwin-Stewart and Kent, 2006; Beisland et al., 2015), and providing audit assurance before loan requests are approved (Bandyopadhyay and Francis, 1995). The IA function detects weaknesses in the internal control systems of loan portfolios, provides early warning signs when the portfolio is at risk, and acts as an extra layer of controls over compliance with credit policies and processes (Mbeba, 2007; Haq et al., 2008). These arguments for the use of IA are based on its ability to use an independent and

practical approach, to improve credit risk management and internal governance in MFIs (Firth and Greene, 2014; Ledgerwood and White, 2006; Soh and Martinov-Bennie, 2011).

On the other hand, some studies challenge the notion that IA can provide the control needed for reducing loan losses and ultimately improving financial performance. For instance, Thrikawala et al. (2016) infer that IA activities in Sri Lankan MFIs may cause additional costs to the organisation, which then negates their earnings. Similarly, Bassem (2009) finds evidence that the relationship between MFI performance and IA is weak from the perspective of outreach and sustainability. Perhaps, there are issues around whether IA actually creates or adds value to MFIs (Eulerich and Eulerich, 2020). Some studies imply that MFIs adopt other control and credit risk mitigating mechanisms that may reduce the need for IA (Crabb and Keller, 2006; Tchuigoua et al., 2020; Armendáriz and Morduch, 2010; Tedeschi, 2006; Lassoued, 2017). Other research suggests that the impact of the IA function cannot be felt unless it is clearly and directly connected to the profit and loss of organisations (Lenz and Hahn, 2015). These contrary views pose the question of whether the IA function is relevant and value-adding with respect to helping MFIs to strengthen internal governance and control processes for preventing credit risks, client over-indebtedness, and ultimately loan losses. Further, these views challenge the idea that IA fulfils its expected role of bringing a structured and disciplined approach to evaluating and improving the effectiveness of risk management controls in MFIs (IIA, 2020).

### 5.3 Hypotheses development

Zhang et al. (2016) argue that poor loan performance can have many possible causes, one of which is borrowers' information gap. Access to local information networks is required by MFI management to avert adverse selection and moral hazards, emanating from



inadequate and inaccurate information about certain sets of borrowers. Steinwand (2000), Isern et al. (2008), and Tchakoute-Tchuigoua and Soumare (2019), all argue that strong internal control consisting mainly of IA can bridge the information gap by providing assurance. This IA assurance function involves testing and verifying the accuracy of borrowers' information and checking whether credit risk mitigation policies and procedures are adhered to. Mersland and Strom (2009) suggest that IA can provide the board with critical information required for achieving good financial performance. Tchakoute-Tchuigoua and Soumare (2019) assert that loan-granting decisions based on the use of hard and soft information can lead to efficient loan administration. In this light, this study described in this chapter argues that relevant hard and soft information provided by the IA function can be useful to MFIs. This is because IA's independent and objective assessment of MFI clients' repayment capacity and loan utilisation should assist in identifying portfolio quality problems before they result in significant losses (Mersland and Strom, 2009; Steinwand, 2000). Also, the same hard and soft information can help MFIs to identify and avoid risky transactions that can be detrimental to the financial health of the institution.

This study proposes that IA functions as a control mechanism for mitigating loan loss risk in the following ways. First, if IA provides relevant information to MFI leadership, then it will help to curtail both borrowers' and managers' information asymmetry problems. Second, IA function contributes to the monitoring component of the internal control systems by detecting faults in the loss-preventing and risk-minimising controls of MFIs (Mbeba, 2007). It is assumed that the presence of IA helps in detecting and deterring the risky behaviour of managers who extend loans to over-indebted clients or approve very risky projects. IA is particularly of use when reviewing the effectiveness of established loan policies and procedures. Following from the above, it can be argued that managerial moral hazard

problems can be reduced or eliminated if IA continually and carefully evaluates loan policies, procedures, and reports (Hardy et al., 2013). Third, IA is perceived to perform financial statement audit to detect any irregularities in loan contracts (Ledgerwood and White, 2006), while also testing loan loss provision transactions and balances (ISA 610, 2009). The study therefore hypothesises that:

*H1: There is a negative relationship between IA and loan losses in MFIs.*

There are conflicting views regarding the effect of IA on the financial performance of institutions. The first view asserts that the internal auditor's skills are relevant to handling significant risks that undermine MFI objectives, operations, and resources (IIA, 2012). This is because IA is described as a detective control (Mbeba, 2007) for spotting and communicating weaknesses in the internal control systems of an MFI's financial procedures (Ledgerwood and White, 2006). Following Tchakoute-Tchuigoua and Soumare's (2019) study, this study also argues that hard and soft information provided by IA can help achieve financial performance because it can identify and avoid risky transactions that can be detrimental to the financial health of the institution. The same lines of thought say that the MFI board can improve institutional financial performance when IA provides it with reliable financial information and/or reports on the weakness of internal control systems (Mersland and Strom, 2009). IA therefore contributes to the integrity and accuracy of financial information that improves financial performance. Furthermore, Alzeban (2020) tests the relationship between IA and firm performance for 119 listed companies in Saudi Arabia and the UAE. Using internal audit characteristics like independence, training, and experience and performance measures such as ROA and PAT, the study finds the IA-firm performance relationship to be positively significant for all measures.

On the contrary, a study by Bassem (2009) does not find evidence of a significant IA influence on MFI financial performance, because the internal auditors may not be providing the MFI board with information that is relevant for governance. Bassem (2009) argues that the IA function constitutes only a proportion of efficient banking supervision by assessing and reporting on the successfulness of governance mechanisms. Again, Cohen and Sayag (2010) argue that IA may not significantly influence financial performance if there is a misfit between the internal auditor's work and board goals. Ziniyel et al. (2018) argue that the challenges of IA practice can forestall its ability to improve financial performance. Despite these differing and circumstantial viewpoints, the general expectation is that IA remains a vital element of corporate governance, which assists organisations in achieving their objectives. To the extent that IA's qualities have been empirically shown to enhance firm governance and performance, this study therefore expects IA to also associate positively with the financial performance of MFIs. This study hypothesises that:

*H2: There is a positive relationship between IA and financial performance in MFIs.*

Persistent unsuccessful collection of overdue loan repayments will reduce the capacity of an MFI to earn adequate portfolio revenue (Pollinger et al., 2007; Strom et al., 2014). For MFIs, financial performance is achieved when their portfolio revenue can adequately cover financial, operational and loan loss expenses (Daher and Le Saout, 2013). To an MFI, the costs associated with loan losses are multifaceted and include loss of portfolio income, the opportunity cost of capital, loan loss expenses such as provisioning and write-offs, expenditure on repeated visits for loan collection, and possibly legal fees (Ntiamoah et al., 2014). All these can result in poor financial performance. Since this chapter's study predicts that IA should have a negative effect on loan losses and a positive effect on financial performance, then IA should be able to reduce the adverse impact that loan losses have on

financial performance. The assumption of this study is that where loan losses inevitably occur, they should be minimal if IA is present, such that its impact on the bottom line of the MFI is insignificant. This study stands on the premise that IA can provide adequate monitoring of loan processes and procedures, and by so doing, curtail moral hazards. Inadequate monitoring constitutes a moral hazard because critical information becomes asymmetric (Jensen and Meckling, 1976). Ideally, loan management policies should stipulate procedures for monitoring loans and the prompt remedial actions that should be taken when a customer defaults. Here, the detective role of IA should come into play as an ex-post assurance control for loan repayment procedures and reports (Gras-Gil et al., 2012). IA should detect default risks before they become severe and consequently have a major impact on MFI financial performance (Mbeba, 2007). This study has already noted that loan losses decrease financial performance because of their adverse effect on MFI's interest income, operating efficiency, liquidity, and lending ability. In fact, each of these critical areas should ideally have established policies. Part of the IA's activities is to review these policies for effectiveness and compliance (Mbeba, 2007). On this basis, the third hypothesis is that:

H3: *The effect of loan losses on financial performance is lower in MFIs that have IA.*

## 5.4 Research design

### *5.4.1 Data source and sample selection*

Many microfinance studies have employed data from the MIX Market database<sup>17</sup> of the World Bank. To date, the web-based platform provides the most comprehensive financial, operational, and social performance data in the world, reported by about 2,000 individual

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<sup>17</sup> MIX Market data is reported by microfinance service providers targeting the unbanked in developing markets around the globe (<https://datacatalog.worldbank.org/dataset/mix-market>)

MFIs in more than a hundred emerging markets. This database, therefore, represents the population of microfinance service providers to about 80% of all recognized microfinance clients globally (Guo and Jo, 2017). MIX Market analysts review the self-reported data in order to guarantee data quality, after they first address the problem of unusual data and outliers. Furthermore, MIX Market analysts strictly adhere to International Financial Reporting Standards (IFRS) and maintain a quality audit process during compilation, to ensure the reliability of data reported by MFIs. The MIX Market MFI data points include financial indicators and trends, social performance reports, and country-level and regional-level reports (Guo and Jo, 2017). It also contains binary variables representing internal audit presence and verification of compliance with policies and systems used to prevent over-indebtedness risk.

The MIX Market database has provided very useful data for previous studies in the microfinance industry. Following recent studies in microfinance (Tchuigoua, 2016; Quayes, 2021; Gudjonsson et al., 2020; García-Pérez et al., 2020; Dang et al., 2021; Quayes and Joseph, 2021; Djan and Mersland, 2021), I therefore sourced reliable longitudinal and continuous data on MFIs from the MIX Market database for this study.

To determine the sample size used for the analysis, I considered all MFIs in the MIX Market dataset from 2010 to 2018 given that MFI internal audit observations were reported for only those years. Like previous MFI studies, I excluded MFIs without annual data or total assets data from the sample (Ahlin et al., 2011). In order to ascertain the consistency of operations of the MFIs, I further excluded MFIs whose firm-year observations were less than six (Gul et al., 2017). I finally built an unbalanced sample panel dataset of 1,225 MFI-year observations from 1,025 MFIs across 63 countries. The sample includes MFIs from six regional groupings by MIX Market – Africa (153), East Asia and the Pacific (146), Eastern Europe and

Central Asia (138), Latin America and Caribbean (364), Middle East and North Africa (17), and South Asia (207). When compared with previous studies that have used MIX Market data (Tchuigoua, 2010; Quayes, 2012; Kar and Swain, 2014; Yimga, 2016; Iqbal et al, 2019; Afrifa et al., 2019), my sampling approach yielded the largest number of observations. The sampling approach also helped remove outliers that cause data noise.

#### 5.4.2 Regression estimation model

The emphasis of this chapter’s study is on the impact of internal audit on loan losses and the financial performance of MFIs. In order to examine the impact of IA on loan losses and financial performance as given in hypothesis 1 and 2, this study therefore uses the following equation:

$$Loan\ losses\ or\ OSS_{i,c,t} = \alpha + \beta IA_{c,t} + \delta MFIControls_{i,c,t} + \theta CountryControls_{c,t} + Year_t + \mu_{i,c,t} + \varepsilon_{i,c,t} \quad (5.1)$$

For hypothesis 3, this study examined the impact of loan losses on financial performance by dividing the sample into those MFIs with IA and those without IA, using the following equation:

$$OSS_{i,c,t} = \alpha + \lambda Loan\ losses_{i,c,t} + \delta MFIControls_{i,c,t} + \theta CountryControls_{c,t} + Year_t + \mu_{i,c,t} + \varepsilon_{i,c,t} \quad (5.2)$$

In the above models, *i* indexes MFIs, *c* indexes country and *t* indexes year. The dependent variable *Loan losses* is proxied by two measures which are:

$$Loan\ loss\ rate = \frac{(Write-offs - Value\ of\ Loans\ Recovered)}{Average\ Gross\ Loan\ Portfolio}$$

$$Impairment\ losses\ on\ loans = Impairment\ losses\ on\ loans\ (net\ of\ recoveries\ on\ loans)$$

written off)/ Average total assets. It represents the actual expense incurred due to credit losses.

The dependent variable *OSS* is a measure of operational self-sufficiency and calculated as – Financial Revenue / (Financial Expense + Net Impairment Losses on loans + Operating Expense). MFIs are rated self-insufficient if values are below 1. *MFIControls* is a vector of MFI-specific control variables consisting of:

<i>Borrowers per loan officer</i>	=	Loan officer productivity measured as: Total number of active borrowers/numbers of loan officers
<i>Cost per borrower</i>	=	Operating Expense / Average Number of Active Borrowers
<i>AOBPG</i>	=	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.
<i>Risk coverage</i>	=	Impairment Loss Allowance / PAR>30 days. Measures how much of this portfolio at risk are covered by MFI's impairment loss allowance, in estimating the institution's ability absorb credit loan losses at that point of time.
<i>Real yield</i>	=	Real yield on gross portfolio calculated as: (Yield on Gross Portfolio (nominal) - Inflation Rate) / (1 + Inflation Rate)
<i>Capital to Asset</i>	=	Total equity/ Total assets. A measure of MFI solvency and ability to meet its obligations and absorb unexpected losses.
<i>Deposits to assets</i>	=	Total deposits compared to total assets. Measures the proportion of MFI's assets that are funded by deposits.

<i>Recoveries</i>	=	Total value of principal recovered on all loans previously written off, scaled by Total assets. This includes principal on partially recovered loans and those recovered in full.
<i>GLP-delinquency</i>	=	Log of total principal value of delinquent loans, which are 30 days or more overdue.
<i>Size</i>	=	Natural log of total assets as a proxy for MFI size.

*CountryControls* is a vector of country control variables comprised of:

<i>GNIpc</i>	=	GNI per capita growth (annual %) is the annual percentage growth rate of GNI per capita.
<i>Inflation</i>	=	Inflation as measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole.
<i>Unemployment</i>	=	Total unemployment as a percentage of total labour force (modelled ILO estimate) refers to the share of the labour force that is without work but available for and seeking employment.
<i>Rule of law</i>	=	Rule of law captures perceptions the level of confidence in and compliance by the rules of society, particularly the quality of contract enforcement, property rights and law enforcement. Ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance.
<i>Corruption control</i>	=	Control of Corruption recognizes the extent to which public power is exercised for private gain, including both petty and grand forms of corruption. Ranges from approximately 0 (lowest) to 100 (strong).

I employed the fixed-effects estimation model which is suitable for controlling for all unmeasured time-variant variables, to obtain consistent estimates of *Loan losses* and *OSS* for



explanatory variables that vary over time. The within estimator therefore assists in accurately explaining the effect of changes in individual values in the independent variables, *Loan loss rate* and *OSS* (Petersen, 2004).

#### 5.4.3 Dependent variables

The investigation in this chapter's study is focused on two outcome variables: (1) Loan losses, measured by *Loan loss rate* and *Impairment losses on loans*, and (2) financial performance, measured by *Operational self-sufficiency* in MFIs. Loan loss rate and impairment losses on loans have been used by studies involving MFI loan portfolio to indicate quality of MFI portfolio (Gonzalez, 2007), loan default outcomes (Jo et al., 2014; Gyapong et al., 2021), credit risk (Lassoued, 2017), asset quality and liquidity (Klomp, 2018), and determinants of MFI interest rates (Guo and Jo, 2017). To limit the influence of outliers in the database, the *Loan loss rate values* were Winsorised to the first and 99<sup>th</sup> percentiles because high values could be a sign of sporadic changes in loan recoveries. The *Impairment losses on loans* were similarly Winsorised.

Following Mersland and Strom (2009), Dorfleitner et al. (2017) and Iqbal et al. (2019), operational self-sufficiency (*OSS*) is used in this study to measure MFI financial performance, and to demonstrate the potential impact of loan losses on the ability of MFIs to be self-sustaining (Schäfer and Fukasawa, 2011). *OSS* is defined as the ratio of portfolio revenue to operational, financial and loan expenses and is often used by management and funding agencies to assess performance (Strom et al., 2014; Rosenberg, 2009).

#### 5.4.4 Independent variable

The main explanatory variable, internal audit (*IA*), is a binary variable given by the MIX Market database as a function that verifies adherence to policies established to mitigate client

over-indebtedness and loan delinquency risk. Previous MFI studies, such as Bassem (2009) and Thrikawala et al. (2017), have used an IA dummy variable to represent a board's source of information for internal firm governance, and a corporate governance practice in Euro-Mediterranean, and Indian and Sri Lankan MFIs, respectively. Other studies have similarly used a binary variable value of 1 for IA presence as a proxy variable for control, risk management, monitoring and governance (Strom et al., 2014; Firth and Greene, 2014; Mersland and Strom, 2009; Rönkkö et al., 2018; Goodwin-Stewart and Kent, 2006).

#### *5.4.5 Control variables*

The MFI-specific variables were included to control for firm-specific heterogeneity (Strom et al., 2014). The efficiency of loan officers is measured using the *Borrowers per loan officer* variable. In a sense, loan officers can contribute to loan repayment outcomes because they intermediate between the MFI and borrowers all through the loan life cycle, from screening and selection to loan closing (Pal and Mitra, 2017). The *Average outstanding balance per GNI per capita (AOBPG)* is an indicator for depth of outreach (Dorfleitner et al., 2019; Rosenberg, 2009). Prudential management of MFI assets demands credit risk measurement and mitigation; therefore, the *Risk coverage* variable highlights the adequacy of provisioning made for anticipated losses on loans that are 30 days past due (Von Stauffenberg et al., 2014). The inflation-adjusted nominal portfolio yield indicated by the *Real yield* variable, says a lot about the interest rates charged by MFIs on loans and the frequency of loan repayments (Pignatel and Tchakoute-Tchuigoua, 2020; von Stauffenberg et al., 2014). This chapter's study includes the *Capital to asset* variable which is commonly used by MFI rating agencies to measure capital adequacy for maturing financial obligations and unanticipated loan losses (Daher and Le Saout, 2013; Lassoued, 2017). The *Deposits to assets*

variable indicates MFI liquidity (Klomp, 2018) and controls for MFI capital structure (Gul et al., 2017). Recovery efforts must continue even when loans have been deemed irrecoverable. As such, included in this chapter's study is the *Recoveries* variable, which controls for recovered loans that have a net effect of reducing loan losses and boosting financial performance. The *Cost per borrower* variable is included to control for MFI efficiency in loan administration (Kar, 2012). Finally, I include total principal value outstanding of loans that have at least one payment more than 30 days overdue (*GLP-delinquency*), and total assets (*Size*), two variables that control for current delinquent loans that have not been written off, and firm size, respectively.

For time effect control, this chapter's study controls for the years that IA was reported by the firms in the sample (2010-2018). Finally, for regional effect, this chapter's study controls for differences among MFIs because of their regional locations, as similarly applied in Zamore et al. (2019) and Strom et al. (2014).

The country-level variables were included to remove country-specific heterogeneity as much as is viable (Strom et al., 2014). To control for country-specific effects, this chapter's study includes *Annual GNI growth per capita*, *Inflation*, *Unemployment*, *Rule of Law*, and *Corruption control*. Ahlin et al. (2011) show that economic growth enhances MFI performance and limits loan loss rate. In addition, hyperinflation expands the default risk in the MFI loan portfolio, but this could be advantageous to borrowers when loans have a fixed interest rate (Crabb and Keller, 2006). Turning to unemployment, Khachatryan et al. (2017) state that an upward unemployment rate could cause growth in the degree of risks from loan default in the country where the MFI is resident. The MFIs in this chapter's study are mainly located in countries with a high level of unemployment. Finally, rule of law may create an enabling environment for MFI borrowers' enterprises to succeed, while at the same time making it

easier to deal with defaulting clients. On the other hand, lower corruption may enhance MFI financial performance and growth, because of a higher level of financially ethical practices in financial institutions in a country (Ahlin et al., 2011). By running a regression analysis that includes all these control variables, this chapter's study ensures fair comparison of test results and prevents skewness in the analysis.

## 5.5 Empirical results

### 5.5.1 Descriptive statistics

The descriptive statistics are shown in Table 5.1. The results of the dependent variables in Panel A indicate that the *Loan loss rate* and *Impairment losses on loans* of the MFIs in the sample have mean values of 0.0161 and 0.0167, respectively. For *Loan loss rate*, it indicates that about 1.61% of the MFIs' loan portfolio is written off as irrecoverable during a period (Rosenberg and Christen, 1999). A *loan loss rate* below 2% is recommended to prevent asset attrition (Ledgerwood, 1999). For *Impairment losses on loans*, the mean value indicates that MFIs incur expenses on credit losses and write-offs, of about 1.67% of the value of their average assets. The OSS result shows a mean of 1.1551, indicating that the MFIs in the sample data record operational self-sufficiency of above 1 (>100%).

In Panel B, the *IA* variable shows a mean value of 0.2463, signifying that only about 25% of the MFIs in the sample have an internal audit. This is similar to Strom et al.'s (2014) study, which reported a similar value for internal audit.

For the MFI characteristics in Panel C, the result gives the average number of *Borrowers per loan officer* as 330. This is within the recommended caseload range for MFI loan officers (von Stauffenberg et al., 2014), and similar to that reported by Gyapong et al. (2021). The *AOBPG* has a mean value of about 66% (outreach level) which indicates the social

performance level of the MFIs (Microbanking bulletin, 2009). For *Risk coverage*, the mean value of 13.36% shows the level of preparedness for loan losses by MFIs. This is a very important statistic as it underscores the credit risk exposure of MFIs to loan losses. The average cost incurred by MFIs per active borrower is \$251.02, going by the *Cost per borrower* mean value of 251.02. The *Real yield* result shows a mean value of 0.2166 indicating that MFIs annually charge an average interest rate of 22% on loans. The mean value of *Capital to Asset* is 30%. On average, then, MFIs in most countries have a capital adequacy ratio above the minimum capital adequacy ratio of 10.5% as specified under Basel III.<sup>18</sup> The mean value of *Deposits to assets* is around 24%, indicating the contribution of deposits to MFI financial structure. The mean figures for *Recoveries*, *GLP-delinquency and Size* are 0.0682, 12.83 and 16.71, respectively.

Panel D shows results for country-level variables. The mean *GNIpc growth* is about 3.35%. *Inflation* and *Unemployment* averages are 5.95% and 5.2%, respectively. These figures indicate the relatively high inflation and unemployment rates in countries where MFIs are located. The *Rule of law* and *Corruption control* means are 0.1402 and 0.1413, respectively. These figures show that good governance may be lacking in countries where MFIs are located.

Table 5.2 presents the correlations between the explanatory variables, having considered the assumptions that underpin the use of Pearson's correlation. The various magnitudes of the coefficients are significantly low. The results of the multicollinearity test also show that it is not a serious issue because all the explanatory variables display a variance

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<sup>18</sup> Bank for International Settlements. "Basel III Transitional Arrangements, 2017–2027." [https://www.bis.org/bcbs/basel3/b3\\_trans\\_arr\\_1727.pdf](https://www.bis.org/bcbs/basel3/b3_trans_arr_1727.pdf)." Accessed July, 20, 2021.

inflation factor (VIF) <1.37. In addition, all the correlations were less than 0.6, indicating no multicollinearity problems (Gyapong et al., 2021).

**Table 5.1**  
**Descriptive Statistics**

	<i>N</i>	Mean	Std. dev.	25 <sup>th</sup>	50 <sup>th</sup>	75 <sup>th</sup>	95 <sup>th</sup>
<b>Panel A - Dependent variables</b>							
<i>Loan loss rate</i>	1356	0.0161	0.0335	0.0000	0.0051	0.0209	0.0761
<i>Impairment losses on loans</i>	1345	0.0167	0.0232	0.0036	0.0105	0.0225	0.0599
<i>OSS</i>	1354	1.1551	0.3446	1.0185	1.1192	1.2567	1.6403
<b>Panel B – Main explanatory variable</b>							
<i>IA</i>	1356	0.2463	0.4310	0.0000	0.0000	0.0000	1.0000
<b>Panel C - MFI-specific variables</b>							
<i>Borrowers per loan officer</i>	1356	330.38	352.99	174.00	250.00	378.00	740.00
<i>AOBPG</i>	1348	0.6578	1.6980	0.1184	0.2718	0.6436	2.2815
<i>Cost per borrower</i>	1326	251.02	405.04	60.000	166.00	296.00	697.00
<i>Risk coverage</i>	1356	13.363	150.12	0.5558	0.9495	1.4698	8.6863
<i>Real yield</i>	1356	0.2166	0.1836	0.0933	0.1877	0.3123	0.5450
<i>Capital to asset</i>	1356	0.3015	0.2314	0.1459	0.2234	0.3992	0.8115
<i>Deposits to assets</i>	1355	0.2359	0.2979	0.0000	0.0056	0.4922	0.7863
<i>Recoveries</i>	1356	0.0682	0.6661	0.0000	0.0001	0.0056	0.1780
<i>GLP-delinquency</i>	1251	12.830	2.3644	11.455	12.862	14.392	16.508
<i>Size</i>	1356	16.713	2.0285	15.347	16.582	18.154	20.314
<b>Panel D - Country-level variables</b>							
<i>GNIpc growth</i>	1356	3.3482	2.8651	1.6648	3.3566	5.1491	7.1383
<i>Inflation</i>	1356	5.9548	4.9188	2.7874	5.0908	7.8594	15.147
<i>Unemployment</i>	1356	5.1987	3.8387	3.1850	4.3100	5.6500	12.410
<i>Rule of Law</i>	1356	0.1402	0.0096	0.1334	0.1385	0.1464	0.1588
<i>Corruption control</i>	1356	0.1413	0.0126	0.1320	0.1389	0.1502	0.1631

**Variable definition:** *Loan loss rate* is a proxy for MFI loan losses proxy. It is calculated as loan write-offs minus value of Loans recovered divided by Average Gross Loan Portfolio. *Impairment loss* is the alternate proxy for MFI loan losses. It is calculated as Impairment losses on loans (net of recoveries on loans written off)/Average total assets, thus representing the actual expense incurred due to credit losses. The operational self-sufficiency *OSS* is the proxy for MFI financial performance. It is calculated as financial revenue / (financial expense + net impairment losses on loans + operating Expense). MFIs are rated self-insufficient if values are below 1. *IA* is the proxy for internal audit presence. A binary variable of 1 if MFI internal audit verifies compliance with policies and systems used to prevent over-indebtedness risk, and 0 otherwise. *Borrowers per loan officer* represents loan officer productivity and measured as the total number of active borrowers/numbers of loan officers. *AOBPG* is 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. *Risk coverage* is depicted by impairment loss allowance / PAR>30 days. It measures how much of this portfolio at risk are covered by MFI's impairment loss allowance, in estimating the institution's ability absorb credit loan losses at that point of time. *Cost per borrower* represents MFI efficiency and is measured as operating expense / average number of active borrowers. *Real yield* represents real yield on gross portfolio and measured as yield on gross portfolio (nominal) - Inflation Rate / (1 + Inflation Rate). *Capital to asset* is total equity/ total assets. It measures MFI solvency and ability to meet its obligations and absorb unexpected losses. *Deposits to assets* is total deposits compared to total assets and measures the proportion of MFI's assets that are funded by deposits. *Recoveries* are the total value of principal recovered on all loans previously written off, scaled by total assets. This includes principal on partially recovered loans and those recovered in full. *GLP-delinquency* is the log of total principal value of delinquent loans, which are 30 days or more overdue. *Size* is the natural log of total assets as a proxy for MFI size. *GNIpc* represents GNI per capita growth (annual %) is the annual percentage growth rate of GNI per capita. *Inflation* is measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole. *Unemployment* is the total unemployment as a percentage of total labour force modelled by ILO estimate. It refers to the share of the labour force that is without work but available for and seeking employment. *Rule of law* captures perceptions of the level of confidence in and compliance by the rules of society, particularly the quality of contract enforcement, property rights and law enforcement. Ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance. *Corruption control* recognizes the extent to which public power is exercised for private gain, including both petty and grand forms of corruption. Ranges from approximately 0 (lowest) to 100 (strong).

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**Table 5.2**  
**Pearson correlation matrix**

No	Variable	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
[1]	IA	1															
[2]	Borrowers per loan officer	-0.026	1														
[3]	AOBPG	-0.036	-0.010	1													
[4]	Cost per borrower	-0.030	-0.047***	0.554***	1												
[5]	Risk coverage	0.002	0.002	-0.004	-0.020	1											
[6]	Real yield	0.048***	-0.025	-0.070***	-0.025	-0.036*	1										
[7]	Capital to assets	-0.047***	-0.034**	0.022	0.101***	-0.004	0.159***	1									
[8]	Deposits to assets	-0.002	0.053***	0.051***	0.065***	-0.021	-0.112***	-0.244***	1								
[9]	Recoveries	-0.002	0.037*	0.001	0.013	-0.004	0.022	0.037**	0.075***	1							
[10]	GLP-delinquency	-0.019	0.037**	0.057***	0.072***	-0.161***	-0.049***	-0.195***	0.367***	0.089***	1						
[11]	Size	0.059***	0.031*	0.042**	0.028*	0.027*	-0.124***	-0.340***	0.160***	-0.076***	0.517***	1					
[12]	GNIpc growth	0.068***	0.001	-0.011	-0.025	-0.028	-0.084***	-0.081***	-0.011	-0.036	-0.079***	-0.024	1				
[13]	Inflation	-0.026*	0.002	-0.021	-0.061**	-0.002	0.012	0.053***	-0.064**	-0.012	-0.066**	-0.149***	-0.025	1			
[14]	Unemployment	0.014	-0.020	0.006	0.006	-0.011	0.037***	0.099***	-0.153***	0.013	-0.010	0.007	-0.063***	0.024	1		
[15]	Rule of law	-0.096***	0.011	0.034**	-0.001	0.019	-0.142***	-0.090***	0.093***	0.008	0.086***	0.089***	-0.068***	-0.236***	-0.157***	1	
[16]	Corruption control	-0.043***	-0.010	0.027*	0.006	-0.035**	0.069***	0.010	0.072***	0.018	-0.075***	-0.184***	0.010	0.085***	-0.105***	0.166***	1

**Notes:** Statistical significance is shown at \*p<0.05, \*\*p<0.01, and \*\*\* p<0.001 levels.

**Variable definition:** *Loan loss rate is a proxy for MFI loan losses proxy. It is calculated as loan write-offs minus value of Loans recovered divided by Average Gross Loan Portfolio. Impairment loss is the alternate proxy for MFI loan losses. It is calculated as Impairment losses on loans (net of recoveries on loans written off)/ Average total assets, thus representing the actual expense incurred due to credit losses. The operational self-sufficiency OSS is the proxy for MFI financial performance. It is calculated as financial revenue / (financial expense + net impairment losses on loans + operating Expense). MFIs are rated self-insufficient if values are below 1. IA is the proxy for internal audit presence. A binary variable of 1 if MFI internal audit verifies compliance with policies and systems used to prevent over-indebtedness risk, and 0 otherwise. Borrowers per loan officer represents loan officer productivity and measured as the total number of active borrowers/numbers of loan officers. AOBPG is 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. Risk coverage is depicted by impairment loss allowance / PAR>30 days. It measures how much of this portfolio at risk are covered by MFI's impairment loss allowance, in estimating the institution's ability absorb credit loan losses at that point of time. Cost per borrower represents MFI efficiency and is measured as operating expense / average number of active borrowers. Real yield represents real yield on gross portfolio and measured as yield on gross portfolio (nominal) - Inflation Rate / (1 + Inflation Rate). Capital to asset is total equity/ total assets. It measures MFI solvency and ability to meet its obligations and absorb unexpected losses. Deposits to assets is total deposits compared to total assets and measures the proportion of MFI's assets that are funded by deposits. Recoveries are the total value of principal recovered on all loans previously written off, scaled by total assets. This includes principal on partially recovered loans and those recovered in full. GLP-delinquency is the log of total principal value of delinquent loans, which are 30 days or more overdue. Size is the natural log of total assets as a proxy for MFI size. GNIpc represents GNI per capita growth (annual %) is the annual percentage growth rate of GNI per capita. Inflation is measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole. Unemployment is the total unemployment as a percentage of total labour force modelled by ILO estimate. It refers to the share of the labour force that is without work but available for and seeking employment. Rule of Law captures perceptions of the level of confidence in and compliance by the rules of society, particularly the quality of contract enforcement, property rights and law enforcement. Ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance. Corruption control recognizes the extent to which public power is exercised for private gain, including both petty and grand forms of corruption. Ranges from approximately 0 (lowest) to 100 (strong).*

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### 5.5.2 Main results

To estimate the fixed-effects model, the robust standard error estimator was clustered at the MFI regional level. These estimates are robust to heteroskedasticity and serial correlation in the error term. The results in Table 5.3 columns 1 and 2, represent equations I and II in the model. In column 1, the estimation results for the first measure of loan losses show a negative and statistically significant relationship between *IA* and *Loan loss rate* at the five percent level (coef. = -0.008; std. error = 0.002). This implies that MFIs with *IA* record a lower ratio of loans written off (irrecoverable), to their average gross loan portfolio. In economic terms, this signals that a one standard deviation increment in the level of *IA* reduced the *Loan loss rate* by 0.003 (i.e.,  $-0.008 \times 0.4310$ ). This result supports hypothesis 1 and is consistent with the argument that *IA* presence leads to a reduction in clients' over-indebtedness (Guimares et al., 2018) and loan losses. This strong evidence is quite instructive for MFIs to implement *IA* as part of their governance and control assurance mechanism, for mitigating the risk of credit losses and a deterioration in the quality of their largest asset (Assefa et al., 2013). This finding supports the argument that both *ex-ante* assurance controls performed by *IA* on loan requests, and the efficacy of loan approval policies of MFIs (Bandyopadhyay and Francis, 1995) by way of preventing client over-indebtedness (MIX Market), can restrict the number and size of loans extended to risky borrowers (Faleye and Krishnan, 2017), and can eventually lower the rate of loan losses. This argument is supported by the theoretical orientation of agency theory, as discussed in chapter 3, which says that the focal point of implementing an *ex-ante* monitoring mechanism, is to monitor agents' behaviour, thus, minimising economic loss through the design of *ex-ante* contracts (Kim and Mahoney, 2005). In the case of MFIs, *IA*, functioning as a control mechanism, will monitor and provide reasonable assurance that management's actions align with that of the MFI's owners

based on the design of ex-ante contracts (Adams, 1994; Kim and Mahoney, 2005; Tchakoute-Tchuigoua and Soumare, 2019). In the same way, the IA function can be privy to the design of the loan contracts (Kim and Mahoney, 2005) between MFI clients and the institutions. In this way, IA facilitates adequate and direct client monitoring (Armendáriz de Aghion and Morduch, 2000) for compliance with the policies and procedures contained in the loan contracts, including loan repayment terms and conditions (Mbeba, 2007). Furthermore, it could be interpreted that due to IA intervention, MFI managers are more likely to approve loans for projects which are compatible with their objectives and evade the risky ones that harm their potentially good financial performance (Tarchouna et al., 2021). In addition, IA helps MFIs to make optimal loan decisions when selecting their customers, which in turn leads to better loan portfolio quality (Tarchouna et al., 2021). These factors support the proposition of agency theory that suggests a negative relationship between the monitoring of the activities of agents and the room for opportunistic practices (Adams, 1994). It also confirms the agency theory proposition that information asymmetry that creates moral hazards and an adverse selection problem, can be overcome when monitoring provides access to all available information (Adams, 1994).

Moreover, IA's *ex-post* assurance controls performed by reviewing accounting information (Gras-Gil et al., 2012) like loan portfolio reports, and loan loss provisioning (CGAP, 2009), can further enhance loan portfolio quality (BIS, 2010). These views and my findings corroborate TCE theory, as discussed in chapter 3. TCE theory focuses on governance mechanisms, like IA, for *ex-post* contractual problems and transactions costs. In other words, TCE theory focuses on the setup and running of governance structures that are made to correct *ex-post* loan contract misalignments (Kim and Mahoney, 2005), like loan repayments past due, and delinquency and default, so they do not result in loans becoming completely

“lost”. Agency theory suggests that both agency and operational risks determine operational losses (Rahim et al., 2018). Breuer (2006) also contends that self-interested managerial decisions in banks, can be subsequently associated with loan losses. Therefore, the agency theory recognises instances of high agency risk, thus proposing the setting up of agency mechanisms like IAF to lower the resultant agency problems. Petraşcu and Tieanu (2014) argue that IAF is an effective third line of defence against credit risk and fraud, because of the role it plays in risk prevention and detection through monitoring. Therefore, the results in columns 1 and 2 of Table 5.3 do not deviate from the agency theory’s description of IAF as a risk management system utilised by MFIs to manage loan loss risks which may arise from agency conflicts while issuing loans.

The result for the second measure in column 2, shows that *IA* has a negative and statistically significant relationship with *impairment losses on loans* at the 10 percent level (coef. = -0.003; std. error= 0.002). This is explained as a one standard deviation increment in the level of *IA*, which reduces the *Impairment losses on loans* by 0.001 (i.e.,  $-0.003 \times 0.4310$ ). This result also supports the proposition in hypothesis 1. Although the estimates show a lesser influence of *IA* on expenses incurred due to loan impairment, the point underscored here is that the implementation of *IA* can reduce the actual expenses incurred by MFIs in provisioning for credit losses and writing off loans. Indeed, this study provides evidence that supports Arena and Azzone’s (2009) proposition that *IA* contributes to systemic discipline in organisations.

The results are in consonance with the TCE theory’s proposition that internal audit will be more active in the event of uncertainty (Sprakman, 1997). Impairment losses on loans have been documented as an indication of going-concern uncertainty, and signs of impending failure of financial companies (Kabir and Laswad, 2014). Impairment losses on loans are also

defined as precursors for impending cash flow problems, escalating operational cost, and possible early signs of business distress and uncertainty (Kabir and Laswad, 2014). Therefore, the extent to which the IA function independently assesses and reports the audit concerns on the impairment losses on loans of MFIs, should have a negative effect the magnitude, and level of uncertainty attached to impairment losses on loans (Spraakman, 1997). Earlier in chapter 3, it had been stated that information gathering done by IA while monitoring agents' and clients' activities, can have a transaction cost-saving impact (Spraakman, 1997). Information asymmetry as argued by the agency theory and as propounded by the TCE, is the main cause of uncertainty and moral hazards (Adams, 1994; Kim and Mahoney, 2005). Hence, the IA function may be assisting MFIs to effect changes in their internal organisation (Kidron et al., 2016), that will enhance adaptability to uncertainty and the changing conditions of activities in the (microfinance) marketplace which may lead to impairment of loans (Spraakman, 1997). As such, MFIs are better able to deal with conditions that cause loan losses and write-offs.

In column 3, the relationship between IA and OSS is examined. Results show a positive and statistically significant relationship between *IA* and *OSS* at the 10 percent level (coef. = 0.038; std. error= 0.016). This result is comparable to Mersland and Strom's (2009) study which also shows that IA has a positive and statistically significant relationship with OSS at the 10 percent level. From the economic significance standpoint, it implies that a one standard deviation increment in the level of *IA* increases *OSS* by 0.016 (i.e.,  $0.038 \times 0.4310$ ). This evidence supports hypothesis 2 along with the proposition that IA is essential for positive MFI financial performance (Hutchinson and Zain, 2009). Egolum and Ukamaka (2021) state that when effective, IA can lessen overhead costs and the exposure to possible losses, both of which can have a substantial impact on the financial performance of a financial institution.

Given the TCE theory, diverse institutional structures e.g., the IA function, emerge specifically to reduce the transaction costs of conducting a particular activity (Morrill and Morrill, 2003). In fact, Cruz et al. (2014) using the TCE theory as a basis, argue that the combination of the IA function and other governance structures, should display financial performance benefits in transactions in which high levels of specific asset investments are required. This means that for MFIs who specific assets are loans targeted at MFI clients, IA is expected to team up with other governance mechanisms to make them profitable. According to Siqani and Sekiraca (2016), the IA function selects a sample of critical documents to analyse various types of information which can enable a financial institution to achieve its objectives. In this regard, IA analytically examines the association between organisational operational and financial information and is therefore able to provide useful findings and recommendations that can enhance financial performance. Furthermore, the result suggests that IA reduces the information asymmetry/ principal-agent problems that exist between management and the board (Adams, 1994), and promotes good corporate governance practices through the provision of independent and objective financial reports on MFI activities (Gras-Gil et al., 2012). Because the board is required to monitor the MFI's financial reporting process, Sarens et al. (2009) emphasize that the more access the board has, to inside information through interactions with IA, the better they can monitor activities (Mehran and Mollineaux, 2012) and focus on risk management. Again, the findings of this study indicate a strong association between IA and whistleblowing on matters that relate to accountability and financial irregularities (Sarens et al., 2009; Rönkkö et al., 2018; Bananuka et al., 2018). Overall, my findings agree with transaction cost theory which argues that IA's intervention may reduce the transaction costs of MFIs and, by extension, induce their financial performance (Sprakman, 1997).

Previous empirical studies show that loan losses have a negative and significant relationship with OSS (Strom et al., 2014, Gyapong et al., 2021). To extend this study's analyses and to test hypothesis 3, this study follows suit. However, I introduce a different methodology in examining the effect of loan losses on OSS from the perspective of internal audit existence, by dividing the sample into two, i.e., MFIs with IA (IA=1), and MFIs without IA (IA=0). It is expected that because IA reduces loan losses, it should also reverse the adverse effect of loan losses on financial performance in MFIs. Interestingly, the results in columns 4-7 of Table 5.3 do not support hypothesis 3. In columns 4 and 5, the *Loan loss rate* and *OSS* relationship estimates for both samples are negative and statistically significant at the five percent and 10 percent level, respectively (coef. = -2.984, where IA=1; coef. = -0.864, where IA=0). This result aligns with Okello et al. (2019) whose study shows that non-performing loans, can moderate the positively significant relationship between IA and financial performance in MFIs. Similarly, in columns 6 and 7, the *Impairment losses on loans* and *OSS* relationships for both samples are negative and statistically significant at the one percent level (coef. = -4.942, where IA=1; coef. = -2.760, where IA=0). These results may have various implications for IA. First, the effectiveness of the use of IA in offsetting the negative loan loss/OSS relationship in MFIs is weak. A possible explanation is that the impact of IA function of some MFIs on the loan losses–financial performance relationship, is neutralised by intra-firm factors (Tarchouna et al., 2021) that limit the scope of its work. Such limitations may include the level of management commitment to risk management and good internal governance (Leung et al., 2011), and the adequacy of appropriate policies and procedures for credit and accounting systems (Mbeba, 2007). IA function may not significantly affect MFI lending policy nor the loan quality of the loan portfolio if the MFI's internal control system is ineffective (Tchakoute-Tchuigoua and Soumare, 2019). Moreover, the positive relationship



between IA and financial performance is contingent on the level of risk faced by the institution and other corporate governance mechanisms (Hutchinson and Zain, 2009). Indeed, some studies find that IA's role in the governance of firm performance is significantly higher in listed firms, when the IA function has an established risk-based audit plan and when the institution has implemented an internal control framework (Sarens et al., 2012). If an MFI is exposed to high credit risk, IA may therefore have a limited positive influence on financial performance, once other controls fail because it is still contingent on the performance of other risk-mitigating controls. Again, the weak effect of IA on the loan loss and financial performance negative relationship does not contradict TCE theory. TCE theory suggests that firms cannot completely eliminate transaction costs, but can use discriminately allocated governance structures to better contain such costs, compared to other firms in the market (Menard and Shirley, 2005, p. 407)

This study reasonably assumes that internal auditors will need to gain microfinance industry specialization and knowledge of the domain in order to cope with the massive changes and complexities associated with the industry (Ramamoorti, 2003).

Summarily, results from this study confirm the first and second hypotheses in Section 5.2.1 and establishes that the existence of IA has significant negative–positive impact on loan losses and financial performance respectively. But when it comes to reducing the negative effect of loan losses on financial performance, its influence is limited. The findings also uphold the agency and transaction cost theoretical predictions of the impact of the IA function. The Agency theory lends credence to the importance of the role played by the IA function in MFIs in its relation to the robust monitoring of activities of agents and clients, as well as to the management of risks and the strengthening of governance in MFIs. Agency theory also

explains the implications and likely use of IA for ex-ante monitoring of contractual agreements between MFIs and loan clients to prevent ex-ante moral hazards (Armendáriz and Morduch, 2005, p. 58). TCE theory strongly supports the association of IA with the drive for transaction cost minimisation in MFIs, if IA is able to clearly contribute to the bottom line. The loss preventing and detecting role of the IA function is also highlighted from the TCE theory basis, as being able to provide information on detected problems before they cause significant losses to an MFI (Mbeba, 2007; Steinwand, 2000). The improvement that IA also brings to the financial performance of MFIs (Okello et al., 2019), can also be traced to TCE theory propositions, i.e., via the gathering, analysis, and dissemination of operational and financial information, and through appropriate recommendation of corrective actions.

**Table 5.3**  
**IA relationship with loan losses and financial performance**

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Loan loss rate	Impairment losses on loans	OSS	IA=1	IA=0	IA=1	IA=0
				OSS			
IA	-0.008** (0.002)	-0.003* (0.002)	0.038* (0.016)				
Loan loss rate				-2.984** (0.768)	-0.864* (0.418)		
Impairment losses on loans						-4.942*** (0.344)	-2.760*** (0.565)
Borrowers per loan officer	-0.000** (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000* (0.000)	-0.000 (0.000)	-0.000* (0.000)
AOBPG	-0.004 (0.003)	-0.004 (0.003)	0.034 (0.019)	-0.270 (0.146)	0.062* (0.031)	-0.315 (0.165)	0.052 (0.033)
Cost per borrower	0.000 (0.000)	0.000** (0.000)	-0.000*** (0.000)	-0.000 (0.000)	-0.000*** (0.000)	0.000 (0.000)	-0.000*** (0.000)
Risk coverage	0.000* (0.000)	0.000*** (0.000)	-0.000*** (0.000)	0.000 (0.000)	-0.000*** (0.000)	0.000** (0.000)	-0.000*** (0.000)
Real yield	0.016*** (0.003)	0.008* (0.004)	0.069** (0.026)	0.256** (0.095)	0.092** (0.027)	0.212* (0.087)	0.098** (0.033)
Capital to assets	-0.018** (0.005)	-0.006 (0.004)	-0.183 (0.119)	-0.437 (0.367)	-0.154 (0.077)	-0.517** (0.162)	-0.134 (0.083)
Deposits to assets	0.019** (0.007)	-0.006 (0.012)	0.134 (0.101)	0.779 (0.509)	-0.030 (0.113)	0.920 (0.468)	-0.081 (0.152)
Recoveries	-0.007 (0.005)	-0.001 (0.002)	0.002 (0.003)	-0.044*** (0.007)	-0.003 (0.003)	-0.049*** (0.007)	0.003 (0.004)
GLP-delinquency	0.004** (0.001)	0.007*** (0.001)	-0.047*** (0.006)	-0.064** (0.019)	-0.031*** (0.005)	-0.045*** (0.007)	-0.020* (0.009)
Size	-0.001 (0.002)	-0.004** (0.001)	-0.022 (0.043)	-0.145 (0.131)	0.011 (0.030)	-0.172 (0.122)	-0.005 (0.025)
GNlpc growth	-0.001	-0.000	0.005*	-0.003	-0.001	0.002	-0.000

	(0.001)	(0.000)	(0.002)	(0.006)	(0.004)	(0.006)	(0.003)
Inflation	-0.000	0.000	0.002	-0.008	0.001	-0.006	0.002
	(0.000)	(0.000)	(0.002)	(0.006)	(0.003)	(0.007)	(0.003)
Unemployment	-0.001	-0.000	0.050**	0.031**	0.050**	0.043***	0.052**
	(0.001)	(0.001)	(0.015)	(0.008)	(0.019)	(0.005)	(0.019)
Rule of law	-0.739*	0.264	0.667	3.988	0.932	8.845**	1.442
	(0.328)	(0.242)	(3.580)	(4.491)	(3.700)	(3.272)	(3.228)
Corruption control	0.244	-0.172	6.870***	-5.469**	7.843***	-4.098	7.030***
	(0.288)	(0.233)	(1.686)	(1.898)	(1.944)	(3.182)	(1.717)
Constant	0.075*	-0.003	0.724	4.699	-0.152	3.934	0.038
	(0.035)	(0.058)	(0.741)	(2.593)	(0.597)	(2.360)	(0.456)
Year fixed-effects	YES	YES	YES	YES	YES	YES	YES
Regional dummies	YES	YES	YES	YES	YES	YES	YES
R-squared	0.061	0.141	0.107	0.162	0.108	0.171	0.143
Number of MFIs	406	404	406	167	369	167	368
Observations	1,217	1,209	1,216	308	907	306	901

**Notes:** Significance levels are based on robust standard errors clustered at the regional level. Standard errors are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at 1%, 5% and 10% levels, respectively.

**Variable definition:** *Loan loss rate* is a proxy for MFI loan losses proxy. It is calculated as loan write-offs minus value of Loans recovered divided by Average Gross Loan Portfolio. *Impairment loss* is the alternate proxy for MFI loan losses. It is calculated as Impairment losses on loans (net of recoveries on loans written off)/ Average total assets, thus representing the actual expense incurred due to credit losses. The operational self-sufficiency *OSS* is the proxy for MFI financial performance. It is calculated as financial revenue / (financial expense + net impairment losses on loans + operating Expense). MFIs are rated self-insufficient if values are below 1. *IA* is the proxy for internal audit presence. A binary variable of 1 if MFI internal audit verifies compliance with policies and systems used to prevent over-indebtedness risk, and 0 otherwise. *Borrowers per loan officer* represents loan officer productivity and measured as the total number of active borrowers/numbers of loan officers. *AOBPG* is 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. *Risk coverage* is depicted by impairment loss allowance / PAR>30 days. It measures how much of this portfolio at risk are covered by MFI's impairment loss allowance, in estimating the institution's ability absorb credit loan losses at that point of time. *Cost per borrower* represents MFI efficiency and is measured as operating expense / average number of active borrowers. *Real yield* represents real yield on gross portfolio and measured as yield on gross portfolio (nominal) - Inflation Rate / (1 + Inflation Rate). *Capital to asset* is total equity/ total assets. It measures MFI solvency and ability to meet its obligations and absorb unexpected losses. *Deposits to assets* is total deposits compared to total assets and measures the proportion of MFI's assets that are funded by deposits. *Recoveries* are the total value of principal recovered on all loans previously written off, scaled by total assets. This includes principal on partially recovered loans and those recovered in full. *GLP-delinquency* is the log of total principal value of delinquent loans, which are 30 days or more overdue. *Size* is the natural log of total assets as a proxy for MFI size. *GNIpc* represents GNI per capita growth (annual %) is the annual percentage growth rate of GNI per capita. *Inflation* is measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole. *Unemployment* is the total unemployment as a percentage of total labour force modelled by ILO estimate. It refers to the share of the labour force that is without work but available for and seeking employment. *Rule of Law* captures perceptions of the level of confidence in and compliance by the rules of society, particularly the quality of contract enforcement, property rights and law enforcement. Ranges from approximately -2.5 (weak) to 2.5 (strong)

governance performance. *Corruption control* recognizes the extent to which public power is exercised for private gain, including both petty and grand forms of corruption. Ranges from approximately 0 (lowest) to 100 (strong).

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### 5.5.3 Further analyses

#### **MFI target market**

The dual objectives of MFIs will to a large extent, determine their clientele (Xu et al., 2016; Bassem, 2012). The balance and/or trade-off between the commercial and social objectives has been a subject of several studies (Cull et al., 2009; Armendáriz and Morduch, 2010). I, therefore, analyse the loan losses of MFIs based on their target market, by dividing the MFIs in the sample according to broad high-end, low-end, and small business categories. The target market based on depth of outreach (i.e., average loan balance per borrower/GNI per capita), is defined as low-end (depth < 20% and average loan size < US\$150), broad (depth  $\geq$  20%  $\leq$  149%), high-end (depth > 150% and  $\leq$  250%), and small business (depth > 250%) (Microbanking bulletin, 2009). MFIs targeting the low-end market appear to have more borrowers per loan officer than the other three categories but a similar loan loss rate (Microbanking bulletin, 2009). They are also closer to vulnerable clients (Bassem, 2012). In Table 5.4 columns 1-2, the results show that IA is negatively and significantly associated with loan losses (*loan loss rate* and *impairment losses on loans*), in MFIs targeting the low end of the market. This suggests that the influence of IA in mitigating loan loss incidence is more significant in MFIs targeting the low-end market where there are more unbanked clients. It is possible that the failure to put in place adequate risk management mechanisms like IA to address the loan delinquency risks associated with this target market, could adversely affect the sustainability of the “village banking” microfinance programs within these regions (Cull et al., 2014; Nwachukwu 2014). This finding is interesting because it is expected that more IA activities should be associated with firms targeting the higher end of the market and those that supposedly have bigger budgets for IA (Goodwin-Stewart and Kent, 2006). However, this result confirms Sarens et al.’s (2012) findings that IA functions more significantly in the internal control governance of those firms with smaller scope and better proximity to vulnerable customers (Bassem, 2012), than in

higher target-market firms who have larger scope and are more distant from vulnerable customers (Bassem, 2012). This result concurs with the views of Rahim et al. (2018) in their study of internal control systems for managing operational risks in local commercial bank branches across Malaysia. Their findings indicate that the impact of the contributions of IA to risk management in smaller establishments like local bank branches, and similarly MFIs, can be vividly felt, and is vitally important to the financial environment in which they operate.

### **MFI outreach**

The outreach effort of MFIs which has the breadth (number of clients) and the depth (serving the poor) dimensions, is often associated with MFIs' approach to providing services to their clients (Schreiner, 2002; Bassem, 2012). MFIs with a "poverty approach" target poorer clients, while MFIs with a "self-sustainability approach" target better-off clients (Schreiner, 2002). To analyse the relationship between IA and loan losses, with MFI outreach in focus, the data sample is filtered into small, medium, and large categories. MFI breadth of outreach, denoting the total number of borrowers served, ranges from small (<10,000 borrowers), medium ( $\geq 10,000$  and  $\leq 30,000$  borrowers), to large (>30,000 borrowers) (Microbanking bulletin, 2009). Rosenberg (2009) measures depth of outreach by the average outstanding loan balance amount per borrower per GNI per capita. The smaller the number of borrowers served and/or the size of loans borrowed by clients, the deeper the outreach, and the greater the social goal of the institution. Another measure of depth of outreach is where MFIs have a higher percentage of female borrowers compared to the total number of active borrowers, because targeting women borrowers is associated with lending to poor clientele (Bassem, 2012). In Table 5.4 columns 3-4, the results show that IA is negatively and significantly associated with loan losses (*Loan loss rate and Impairment losses on loans*) in MFIs with small (deep) outreach. This result contrasts with

Thrikawala et al. (2016) who find that IA is insignificantly related to outreach. One implication of this result is that IA is linked with the control of credit risk associated with loan size and poorer clients, especially in MFIs with small outreaches. Another implication is that women are more fiscally disciplined than men and consequently have higher repayment rates (Abdullah and Quayes, 2016). The high repayment rate among female clients of MFIs with a deep outreach focus complements the IA function that mitigates credit risk. For brevity, the insignificant results for the large and medium outreach categories are unreported.



Table 5.4

## Further analyses

VARIABLES	(1)	(2)	(3)	(4)
	Low-end target market		Small Outreach	
	Loan loss rate	Impairment losses on loans	Loan loss rate	Impairment losses on loans
IA	-0.011** (0.004)	-0.005* (0.003)	-0.013* (0.006)	-0.006* (0.003)
Borrowers per loan officer	-0.000* (0.000)	0.000** (0.000)	-0.000* (0.000)	-0.000** (0.000)
AOBPG	-0.009 (0.005)	-0.009* (0.004)	-0.004 (0.007)	-0.005 (0.008)
Cost per borrower	0.000 (0.000)	0.000* (0.000)	0.000** (0.000)	0.000*** (0.000)
Risk coverage	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000** (0.000)
Real yield	0.027* (0.012)	0.006 (0.008)	0.009 (0.013)	0.005 (0.005)
Capital to assets	-0.017 (0.009)	-0.007 (0.006)	0.002 (0.009)	0.008 (0.008)
Deposits to assets	0.047*** (0.008)	0.007 (0.012)	0.033* (0.015)	-0.002 (0.017)
Recoveries	0.002 (0.006)	-0.005 (0.003)	-0.007* (0.003)	-0.002** (0.001)
GLP-delinquency	0.001 (0.001)	0.005*** (0.001)	0.005*** (0.000)	0.006*** (0.001)
Size	-0.005 (0.004)	-0.010*** (0.001)	0.005 (0.007)	-0.006 (0.006)
GNIpc growth	-0.001 (0.001)	-0.000 (0.000)	-0.001 (0.001)	0.000 (0.000)
Inflation	0.000 (0.001)	0.000 (0.000)	0.001 (0.000)	0.001* (0.000)
Unemployment	-0.001 (0.002)	-0.001 (0.001)	0.002* (0.001)	0.002 (0.001)
Rule of law	-2.785* (1.153)	-0.825 (0.505)	-0.122 (0.396)	-0.087 (0.473)
Corruption control	0.482 (0.267)	0.102 (0.231)	-0.025 (0.367)	-0.213 (0.347)
Year fixed-effects	YES	YES	YES	YES
Regional dummies	YES	YES	YES	YES
R-squared	0.080	0.140	0.215	0.266
Number of MFIs	187	184	185	184
Observations	478	473	422	420

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**Notes:** Robust standard errors are clustered at the regional level and controlled for country-level and year-fixed effects. \*\*\*, \*\*, and \* indicate statistical significance at 1%, 5% and 10% levels, respectively.

**Variable definition:** *Loan loss rate* is a proxy for MFI loan losses proxy. It is calculated as loan write-offs minus value of Loans recovered divided by Average Gross Loan Portfolio. *Impairment loss* is the alternate proxy for MFI loan losses. It is calculated as Impairment losses on loans (net of recoveries on loans written off)/ Average total assets, thus representing the actual expense incurred due to credit losses. The operational self-sufficiency *OSS* is the proxy for MFI financial performance. It is calculated as financial revenue / (financial expense + net impairment losses on loans + operating Expense). MFIs are rated self-insufficient if values are below 1. *IA* is the proxy for internal audit presence. A binary variable of 1 if MFI internal audit verifies compliance with policies and systems used to prevent over-indebtedness risk, and 0 otherwise. *Borrowers per loan officer* represents loan officer productivity and measured as the total number of active borrowers/numbers of loan officers. *AOBPG* is 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. *Risk coverage* is depicted by impairment loss allowance / PAR>30 days. It measures how much of this portfolio at risk are covered by MFI's impairment loss allowance, in estimating the institution's ability absorb credit loan losses at that point of time. *Cost per borrower* represents MFI efficiency and is measured as operating expense / average number of active borrowers. *Real yield* represents real yield on gross portfolio and measured as yield on gross portfolio (nominal) - Inflation Rate / (1 + Inflation Rate). *Capital to asset* is total equity/ total assets. It measures MFI solvency and ability to meet its obligations and absorb unexpected losses. *Deposits to assets* is total deposits compared to total assets and measures the proportion of MFI's assets that are funded by deposits. *Recoveries* are the total value of principal recovered on all loans previously written off, scaled by total assets. This includes principal on partially recovered loans and those recovered in full. *GLP-delinquency* is the log of total principal value of delinquent loans, which are 30 days or more overdue. *Size* is the natural log of total assets as a proxy for MFI size. *GNIpc* represents GNI per capita growth (annual %) is the annual percentage growth rate of GNI per capita. *Inflation* is measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole. *Unemployment* is the total unemployment as a percentage of total labour force modelled by ILO estimate. It refers to the share of the labour force that is without work but available for and seeking employment. *Rule of Law* captures perceptions of the level of confidence in and compliance by the rules of society, particularly the quality of contract enforcement, property rights and law enforcement. Ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance. *Corruption control* recognizes the extent to which public power is exercised for private gain, including both petty and grand forms of corruption. Ranges from approximately 0 (lowest) to 100 (strong).

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## 5.5.4 Robustness tests

### 5.5.4.1 Endogeneity, omitted variables and 2SLS estimation

The decision by the management or board of firms to invest in IA may bring about endogeneity issues (Hay et al., 2008). There are instances where MFIs use IA as proxy for internal control or governance (Mersland and Strom, 2009). Moreover, institutions can decide to interchange IA with other governance mechanisms like external audit, or board committees (Hay et al., 2008). Other governance mechanisms that can influence MFI performance are ownership type (Servin et al., 2012) and legal form (Ledgerwood et al., 2013). This study also envisages a reverse causality case where the MFIs that are experiencing loan losses decide to establish IA to monitor loan disbursement processes (Carcello et al., 2005).

This research, therefore, recognises and controls for the possibility of the existence of endogeneity and omitted variables using the two-stage least squares (2SLS) instrumental variable (IV) method, to re-estimate the relationships between IA and loan losses. In executing this regression, I employed a suitable instrument that is correlated with the endogenous variable and orthogonal to the error term (Baum et al., 2003). Following Strom et al. (2014), *Current legal status* (ownership type)<sup>19</sup> from the MIX Market dataset, is used as an instrument because of its obvious relationship with MFI governance dimensions (Mersland and Strom, 2009; Servin et al., 2012). The MIX Market database uses the “current legal status” variable to depict the form of legal registration of an MFI, which could be bank, credit union, non-banking financial institution (NBFI), non-profit organisations (NPO), rural bank, or others.

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<sup>19</sup> Legal status and ownership type are used interchangeably in microfinance literature. According to Mersland and Strom (2009), ownership type stands for the different legal incorporations of MFIs, varying from shareholder-owned firms to credit cooperatives. In the dataset, current legal status includes cooperatives, NBFIs, NGO-MFIs, rural banks, and others.

An MFI's legal status and ownership type dictates policies for decision-making and governance mechanisms (Barry and Tacneng, 2014; Servin et al., 2012). Governance structures in MFIs are therefore often a reflection of their legal status and ownership type (Estapé-Dubreuil and Torreguitart-Mirada, 2015). This study then proposes that the ownership type of MFIs, often depicted by their legal status (Rönkkö et al., 2018), is correlated with IA being part of the corporate governance mechanism and structure. On the other hand, the impact of legal status on MFI financial performance is insignificant (Hartarska, 2005). Furthermore, the legal status of those MFIs constituted mainly of cooperatives and NGOs, is not directly associated with their portfolio quality (Tchakoute-Tchuigoua, 2010). The legal status variable is therefore suitable as an instrument because of its direct association with IA (Rönkkö et al., 2018), its exclusion restriction to loan losses and financial performance, and the measurability of its behaviour from a sufficiently large sample size (Umanitoba, n.d.).

The results from the 2SLS (second stage) regression estimates are shown in Table 5.5 (Columns 1–2). They indicate that the instrument, current legal status (*CurLegStat*), had negative and statistically significant relationships with *Loan loss rate* and *Impairment losses on loans*. These results confirm the earlier IA–loan losses relationship and imply that the results were robust to endogeneity and omitted variables.

#### *5.5.4.2 Diamond ranking greater than 3*

The MIX Market datasets comprise MFIs with large variations in financial reporting that may cause data reliability issues. The MIX Market therefore ranks the data reported by MFIs from 1 (being the lowest) to 5, based on two or more consecutive years of general and financial information disclosure (Assefa et al., 2013). Following previous MFI studies (Tchakoute-Tchuigoua, 2010; Kar and Swain, 2014; Tchuigoua et al., 2020; Gyapong et al., 2021), this test focuses only on MFIs with four or five diamonds, i.e., MFIs that report

externally audited financial statements plus ratings,<sup>20</sup> in order to examine if this study's earlier IA influence results are robust. The results are shown in Table 5.5. Columns 3-4 indicate that the IA and *Loan losses* relationship is negative and statistically significant in MFIs with a diamond rating above 3, while column 5 also shows that the IA and *OSS* relationship is positive and statistically significant. These outcomes indicate that the results for the study's full sample, still hold in this sub-sample. These findings have important implications. One, the presence of external auditors' work in diamond-rated MFIs, does not substitute or diminish the influence of the IA function in the governance and control arena. The 'substitution view' argument suggests that external audit and other mechanisms of control are substitutes and that more of one lead to less of another (Hay et al., 2008). In the case of this study's findings, IA is still relevant in diamond-rated and audit report-rendering MFIs. Second, the result suggests that the IA's work contributes (IFAC 2013) to better ratings for MFIs, as IA reports on risk management and the reliability of financial transactions, could form part of the reliable information reported. Furthermore, it may appear illogical for MFIs who are aiming for greater controls by using external audit, to downplay IA's role as a complementary control mechanism (Beisland et al., 2015)

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<sup>20</sup> Microfinance rating agencies compile independent and multidimensional information about MFIs. The most popular rating agencies are *ACCION* (USA), *Crisil* and *M-CRIL* (India), *Microfinanza* agency, *MicroRate* agency (America) and *PlaNet Rating* (France) (Hartarska and Nadolnyak, 2007; Beisland et al., 2015).

**Table 5.5**  
**Robustness Tests – Two-Stage least squares and Diamond ranking greater than 3**

	Two-Stage Least Square		Diamonds > 3		
	(1)	(2)	(3)	(4)	(5)
<b>VARIABLES</b>	Loan loss rate	Impairment losses on loans	Loan loss rate	Impairment losses on loans	OSS
<i>CurLegStat</i>	-0.059**	-0.056***			
	(0.028)	(0.021)			
IA			-0.012**	-0.007*	0.055**
			(0.004)	(0.003)	(0.019)
Borrowers per loan officer	-0.000	-0.000	-0.000**	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
AOBPG	-0.006**	-0.005*	-0.003	-0.003	0.034
	(0.003)	(0.003)	(0.002)	(0.003)	(0.022)
Cost per borrower	0.000***	0.000	0.000**	0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Risk coverage	0.000	0.000***	0.000	0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Real yield	0.018	0.007	0.012**	0.003	0.057
	(0.014)	(0.015)	(0.004)	(0.004)	(0.052)
Capital to assets	-0.013	-0.008	-0.017**	-0.003	-0.186
	(0.009)	(0.007)	(0.004)	(0.003)	(0.124)
Deposits to assets	-0.015***	-0.016***	-0.006	-0.018	0.169
	(0.004)	(0.006)	(0.009)	(0.012)	(0.128)

Recoveries	-0.000	0.000	-0.006	0.000	-0.001
	(0.002)	(0.002)	(0.005)	(0.002)	(0.006)
GLP-delinquency	0.002	0.003***	0.005**	0.008***	-0.051***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.009)
Size	-0.002	-0.001	-0.002	-0.006**	-0.012
	(0.001)	(0.001)	(0.001)	(0.002)	(0.048)
GNIpc growth	-0.004***	-0.003***	-0.001	-0.000	0.005
	(0.001)	(0.001)	(0.001)	(0.000)	(0.002)
Inflation	0.000	0.000	-0.000	0.000	0.004
	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)
Unemployment	-0.001***	-0.000**	-0.002	-0.001**	0.057**
	(0.000)	(0.000)	(0.001)	(0.000)	(0.016)
Rule of law	0.894	0.869	-0.839*	0.181	1.756
	(0.941)	(0.785)	(0.394)	(0.308)	(3.764)
Corruption control	-0.253	-0.181	0.119	-0.243	7.703***
	(0.359)	(0.363)	(0.294)	(0.215)	(1.369)
Year fixed-effects	YES	YES	YES	YES	YES
Regional Dummies	YES	YES	YES	YES	YES
R-squared			0.068	0.167	0.124
Wald Chi-squared	116.1	64.80			
Number of MFIs			391	388	390
Observations	498	494	1,043	1,036	1,041

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Notes: The table details regression estimates for (1). the 2SLS (Columns 1-2) and, loan losses (*loan loss rate and impairment losses on loans*) and (2). financial performance (*OSS*) on the internal audit proxy, *IA* using MFIs with diamond ratings greater than 3 (Columns 3-5). Included in all regressions are the same underlying MFI-level controls, Country-level controls and year-fixed effects used in Table 5.4. They are not reported for brevity. Cluster-robust standard errors are shown in parenthesis. \*\*\*, \*\*, and \* show significance at the 1%, 5%, and 10% level respectively.

Variable definition: *Loan loss rate* is a proxy for MFI loan losses proxy. It is calculated as loan write-offs minus value of Loans recovered divided by Average Gross Loan Portfolio. *Impairment loss* is the alternate proxy for MFI loan losses. It is calculated as Impairment losses on loans (net of recoveries on loans written off)/ Average total assets, thus representing the actual expense incurred due to credit losses. The operational self-sufficiency *OSS* is the proxy for MFI financial performance. It is calculated as financial revenue / (financial expense + net impairment losses on loans + operating Expense). MFIs are rated self-insufficient if values are below 1. *IA* is the proxy for internal audit presence. A binary variable of 1 if MFI internal audit verifies compliance with policies and systems used to prevent over-indebtedness risk, and 0 otherwise. *Borrowers per loan officer* represents loan officer productivity and measured as the total number of active borrowers/numbers of loan officers. *AOBPG* is 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. *Risk coverage* is depicted by impairment loss allowance / PAR>30 days. It measures how much of this portfolio at risk are covered by MFI's impairment loss allowance, in estimating the institution's ability absorb credit loan losses at that point of time. *Cost per borrower* represents MFI efficiency and is measured as operating expense / average number of active borrowers. *Real yield* represents real yield on gross portfolio and measured as yield on gross portfolio (nominal) - Inflation Rate / (1 + Inflation Rate). *Capital to asset* is total equity/ total assets. It measures MFI solvency and ability to meet its obligations and absorb unexpected losses. *Deposits to assets* is total deposits compared to total assets and measures the proportion of MFI's assets that are funded by deposits. *Recoveries* are the total value of principal recovered on all loans previously written off, scaled by total assets. This includes principal on partially recovered loans and those recovered in full. *GLP-delinquency* is the log of total principal value of delinquent loans, which are 30 days or more overdue. *Size* is the natural log of total assets as a proxy for MFI size. *GNIpc* represents GNI per capita growth (annual %) is the annual percentage growth rate of GNI per capita. *Inflation* is measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole. *Unemployment* is the total unemployment as a percentage of total labour force modelled by ILO estimate. It refers to the share of the labour force that is without work but available for and seeking employment. *Rule of Law* captures perceptions of the level of confidence in and compliance by the rules of society, particularly the quality of contract enforcement, property rights and law enforcement. Ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance. *Corruption control* recognizes the extent to which public power is exercised for private gain, including both petty and grand forms of corruption. Ranges from approximately 0 (lowest) to 100 (strong).

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#### 5.5.4.3 Test by alternative estimation technique

Given the nature of the sample panel data, this study chooses to measure the effects of both time-constant and time-varying variables. To get unbiased results and accurate estimates, it is important to use information on all MFIs and variables in individual MFIs, including those that are constant over time, in the analysis (Petersen, 2004). I also needed to deal with limited time-series variation in IA. Following Gyapong et al. (2021), I employed the random-effects estimator to deal with time-invariant covariates and to test the robustness of results obtained from the fixed-effects model. The results are shown in columns 1-2 of Table 5.6 with IA having a negative and statistically significant relationship with *Loan loss rate* and *Impairment losses on loans*. These results signify that this study's results were not driven by the applied estimation technique.

#### 5.5.4.4 Sensitivity to clustering

Given that the approach to governance and risk control in the microfinance sector is heterogenous across institutions and countries, this study tests whether the effect of IA on loan losses, is consistent across MFIs and countries. I re-estimate the baseline regression model by switching from regional-level clustering to MFI- and country-level clustering, thus enabling the adjustment to standard errors for the effects of clustering at different levels (Gyapong et al., 2021). The results shown in Table 7 columns 3-7 are qualitatively similar to the baseline estimation results. This indicates that the results are robust to MFI-specific and country-specific IA effects on loan losses.

**Table 5.6**  
**Robustness Tests – Random-effects, Firm, and Country Clustered**

VARIABLES	Random effects		Cluster by MFI		Cluster by Country	
	(1)	(2)	(3)	(4)	(5)	(6)
	Loan loss rate	Impairment losses on loans	Loan loss rate	Impairment losses on loans	Loan loss rate	Impairment losses on loans
<b>IA</b>	-0.004***	-0.003*	-0.008**	-0.003*	-0.008**	-0.003*
	(0.001)	(0.002)	(0.004)	(0.002)	(0.003)	(0.002)
<b>Borrowers per loan officer</b>	-0.000***	-0.000**	-0.000*	-0.000	-0.000***	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
<b>AOBPG</b>	-0.002***	-0.002***	-0.004	-0.004	-0.004	-0.004*
	(0.000)	(0.000)	(0.003)	(0.002)	(0.003)	(0.002)
<b>Cost per borrower</b>	0.000***	0.000***	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
<b>Risk coverage</b>	0.000	0.000***	0.000	0.000***	0.000	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
<b>Real yield</b>	0.013***	0.003	0.016	0.008	0.016*	0.008
	(0.003)	(0.002)	(0.010)	(0.005)	(0.009)	(0.005)
<b>Capital to assets</b>	0.000	-0.001	-0.018*	-0.006	-0.018**	-0.006
	(0.005)	(0.003)	(0.010)	(0.008)	(0.008)	(0.006)
<b>Deposits to assets</b>	-0.014***	-0.019***	0.019	-0.006	0.019	-0.006
	(0.004)	(0.001)	(0.019)	(0.010)	(0.023)	(0.010)
<b>Recoveries</b>	-0.001	-0.001	-0.007**	-0.001	-0.007**	-0.001
	(0.001)	(0.001)	(0.003)	(0.002)	(0.003)	(0.002)
<b>GLP-delinquency</b>	0.003***	0.004***	0.004**	0.007***	0.004**	0.007***
	(0.000)	(0.000)	(0.002)	(0.001)	(0.002)	(0.001)
<b>Size</b>	-0.001**	-0.001**	-0.001	-0.004*	-0.001	-0.004*
	(0.001)	(0.000)	(0.003)	(0.002)	(0.003)	(0.002)
<b>GNIpc growth</b>	-0.001**	-0.000	-0.001	-0.000	-0.001	-0.000
	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)

<b>Inflation</b>	0.000	0.000	-0.000	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
<b>Unemployment</b>	-0.000***	0.000	-0.001	-0.000	-0.001	-0.000
	(0.000)	(0.000)	(0.002)	(0.001)	(0.001)	(0.001)
<b>Rule of law</b>	-0.267	0.158	-0.739**	0.264	-0.739**	0.264
	(0.218)	(0.188)	(0.365)	(0.273)	(0.354)	(0.272)
<b>Corruption control</b>	0.107	-0.028	0.244	-0.172	0.244	-0.172
	(0.129)	(0.168)	(0.252)	(0.187)	(0.222)	(0.178)
<b>Year fixed-effects</b>	YES	YES	YES	YES	YES	YES
<b>Observations</b>	1,217	1,209	1,217	1,209	1,217	1,209
<b>R-squared</b>	0.043	0.124	0.061	0.141	0.061	0.141

**Notes:** Standard errors are corrected for heteroscedasticity and are shown in parentheses. \*, \*\* and \*\*\* show significance at the 10%, 5% and 1% level, respectively.

**Variable definition:** *Loan loss rate* is a proxy for MFI loan losses proxy. It is calculated as loan write-offs minus value of Loans recovered divided by Average Gross Loan Portfolio. *Impairment loss* is the alternate proxy for MFI loan losses. It is calculated as Impairment losses on loans (net of recoveries on loans written off)/ Average total assets, thus representing the actual expense incurred due to credit losses. The operational self-sufficiency *OSS* is the proxy for MFI financial performance. It is calculated as financial revenue / (financial expense + net impairment losses on loans + operating Expense). MFIs are rated self-insufficient if values are below 1. *IA* is the proxy for internal audit presence. A binary variable of 1 if MFI internal audit verifies compliance with policies and systems used to prevent over-indebtedness risk, and 0 otherwise. *Borrowers per loan officer* represents loan officer productivity and measured as the total number of active borrowers/numbers of loan officers. *AOBPG* is 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. *Risk coverage* is depicted by impairment loss allowance / PAR>30 days. It measures how much of this portfolio at risk are covered by MFI's impairment loss allowance, in estimating the institution's ability absorb credit loan losses at that point of time. *Cost per borrower* represents MFI efficiency and is measured as operating expense / average number of active borrowers. *Real yield* represents real yield on gross portfolio and measured as yield on gross portfolio (nominal) - Inflation Rate / (1 + Inflation Rate). *Capital to asset* is total equity/ total assets. It measures MFI solvency and ability to meet its obligations and absorb unexpected losses. *Deposits to assets* is total deposits compared to total assets and measures the proportion of MFI's assets that are funded by deposits. *Recoveries* are the total value of principal recovered on all loans previously written off, scaled by total assets. This includes principal on partially recovered loans and those recovered in full. *GLP-delinquency* is the log of total principal value of delinquent loans, which are 30 days or more overdue. *Size* is the natural log of total assets as a proxy for MFI size. *GNIpc* represents GNI per capita growth (annual %) is the annual percentage growth rate of GNI per capita. *Inflation* is measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole. *Unemployment* is the total unemployment as a percentage of total labour force modelled by ILO estimate. It refers to the share of the labour force that is without work but available for and seeking employment. *Rule of Law* captures perceptions of the level of confidence in and compliance by the rules of society, particularly the quality of contract enforcement, property rights and law enforcement. Ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance. *Corruption control* recognizes the extent to which public power is exercised for private gain, including both petty and grand forms of corruption. Ranges from approximately 0 (lowest) to 100 (strong).

## 5.6 Conclusion

The study in this chapter is an exploration of the extent of IA's involvement in loan loss reduction and the financial performance of MFIs. Further, the study is motivated to investigate the effect of loan losses on financial performance from the perspective of MFIs with and without IA presence. This chapter's study employs a sample of 1,025 MFIs from 63 countries, to test the relationship between IA and loan losses. The MIX Market database reports whether MFIs have (or do not have) an IA function that verifies if policies established to mitigate client over-indebtedness and loan delinquency risk are complied with. This chapter's study employs two core business metrics in microfinance namely, "loan loss rate and impairment losses on loans" which show loan loss expenses and the actual loan losses, after offsetting the value of recovered loans, against the amount of loans written off (Ledgerwood et al., 2013). This chapter's study also tests the relationship between IA and financial performance using the operational self-sufficiency (OSS) metric (Strom et al., 2014). Heterogeneity concerns due to underlying firm and country variables are controlled for. This research finds evidence that IA has a significant negative association with loan losses and a significant positive relationship with financial performance. It also finds that IA is not the universal solution for reducing the impact of credit risk and loan loss problems on MFI financial performance, especially if other risk management and internal governance controls are poorly implemented (Hutchinson and Zain, 2009).

Various robustness tests were carried out in the study detailed in this chapter. First, the study accounts for potential sources of endogeneity using two-stage least squares (2SLS) regression with an instrumental variable (Jiang et al., 2020). The 2SLS approach was selected after a thorough diagnostic test. Second, an MFI rating methodology known as 'diamonds',

which uses audit and reported financial statements as a yardstick, was applied to test the consistency of this study's baseline results. Third, the results were re-estimated using an alternative model that deals with time-invariant covariates. Fourth, the regressions at the firm and country level were robust-clustered. The results were robust to these various estimation methodologies, definition of variables, and regression parameters.

This research adds to the literature on internal audit usefulness in MFIs because it is a fundamental attempt to empirically investigate the effect of IA on loan losses and financial performance in MFIs. Until now, the effect of IA on MFI financial performance has not received the deserved attention in microfinance studies (Thrikawala et al., 2016). In accordance with this study's hypothesis 1 and theoretical predictions, the results show a negative and statistically significant relationship between IA and both indicators of loan losses. The results also show a positive and statistically significant relationship between IA and the proxy for financial performance. This confirms hypothesis 2. Although this runs contrary to Bassem (2009) whose findings show a weak relationship between MFI performance and IA, it corroborates the empirical evidence of the ability of IA function to manage loan loss risk as explored by Hutchinson and Zain (2009). Although studies linking IA with financial performance in MFIs are limited, comparisons can be drawn with studies in banking and other sectors. This study agrees with Okello et al. (2019), who find that the quality of IA can enhance financial performance in the banking sector. The results also align with Mbeba's (2007) argument that IA is possibly the most robust and effective monitoring tool in the internal control procedures of MFIs. Indeed, these findings are key to providing empirical evidence of the effect of IA on loan losses, thus serving its function as a monitoring and control mechanism, on loan losses. Previous studies have examined the relationship

between non-performing loans and financial performance and have found evidence that it is negative and significant (Okello et al., 2019). This chapter's study extends earlier research by introducing the IA dimension to this relationship by examining the effect of loan losses on financial performance when the sample data is divided into MFIs with IA, and MFIs without it. This chapter's study finds evidence of negative and significant relationships in both instances.

Furthermore, the focus of this study is the impact of IA on the real outcome of poor loan repayment: loan losses. Other MFI studies primarily used potentially-at-risk loans to indicate loan losses. These risky portfolios may end up being repaid or restructured, highlighting the fact that this measure (PaR>30days/90days), can be manipulated either by writing off bad loans, or by dilution of the gross portfolio where there is high growth in lending (von Stauffenberg et al., 2014). The loan loss rate and impairment losses on loans represent the real portion of risky MFI loans which have gone bad, and which can often be challenging for MFIs to estimate (Harris et al., 2018). The MIX Market database's application of uniform accounting policy in recognising loan losses provides a concise and realistic report of loan losses reported by MFIs (Rosenberg and Christen, 1999; Rosenberg et al., 2013).

Additionally, contrary to hypothesis 3, this study finds evidence that IA demonstrates weakness in restricting the effect of loan losses on financial performance. This chapter's result suggests two interpretations. One, IA has not been adequately and widely applied in the microfinance industry globally, thus the expected effect has not been felt. Two, the expected influence of IA in reducing the extent to which loan losses hamper the financial performance of MFIs, can be neutralised by other firm-related factors. Such factors may include MFI type and size, and governance quality (Tarchouna et al., 2021; Bassem, 2013). For

instance, (Tarchouna et al., 2021) found that the impact of corporate governance systems on the non-performing loans of some banks, and ultimately their financial performance, is neutralised by a high level of liquidity. Because of the high level of liquidity, banks may engage in risky lending practices with no cognisance of avoidable loan losses (Tarchouna et al., 2012). A high liquidity level in the short term could give a false hope of good financial performance, thus resulting in laxity of governance and control over credit risk assessment and loan repayment performance.

By and large, my findings underscore the inherent ability of the IA function to address, as practicably as possible, the occurrence of client over-indebtedness, credit risk, and eventual loan losses arising from MFIs' weak institutional approach to lending. The question of the gaps in MFIs' internal control and governance structures as has been raised in some studies, can be bridged by IA activities that minimise information asymmetry problems that exacerbate MFIs' exposure to loan losses. In addition, the role that IA plays in detecting weaknesses in systems of internal control over loan portfolios, followed by prompt warning signals when the portfolio is at risk, serve as a reinforcement for credit policies and process control mechanisms.

Indeed, the findings of this chapter's study should be of interest to microfinance service providers who are urged by stakeholders, to put a premium on risk management and governance, to address over-indebtedness and credit risk problems. This study should equally motivate the boards of MFIs to consider investing more in IA, in support of their monitoring and oversight roles. Also, investors should target MFIs with IA units who aid the improvement of financial performance and verify that the risk management and internal control procedures established to prevent loan losses, are operational and complied with. Governments and

regulators of MFIs could provide incentives to MFIs with IA units, such as continuous professional training.

The broad conclusion is that this chapter's study has made far reaching contributions to the IA literature and has provided thoughts for future possible research. It has also broadened the microfinance literature as more stakeholders call for better governance and control. Internal audit practice can use the findings in this chapter to make in-roads into specialisation and domain-knowledge of the microfinance sector.



## CHAPTER SIX

### CONCLUSION AND IMPLICATIONS

#### 6.1 Introduction

In this thesis, I explored internal audit in MFIs through two studies. I firstly examined the determinants of the IA function in MFIs, and secondly investigated the association between IA, the loan losses, and financial performance of MFIs. From both studies, I gained interesting and useful insights into the IA function in MFIs.

Until now, internal auditors had the traditional public image of “governance watchdogs” (Roussy, 2013), and “organisation police officers” (Calvin et al., 2021), in relation to their governance and audit oversight functions within organisations. This image, which is seemingly misconceived, may have presented the IA function as an inflexible and hostile activity. It may also have influenced the strategic approach to establishing the IA function in organisations (Roussy and Peron, 2018). However, that image of inflexibility and insensitivity has given way to more complimentary descriptions of internal auditors such as “consultant to top management”, “protective shield”, “keeper of secrets” (Roussy, 2013), and “trusted advisor” (IIA, 2020). These new perspectives of IA activity are closely associated with the critical importance and value-adding prospects of the IA function, to microfinance organisations (Calvin et al., 2021). This chapter provides an overall conclusion to the thesis and proceeds as follows. Section 6.2 presents a summary of the findings of both studies. Section 6.3 outlines the implications of the research findings. Section 6.4 discusses the contributions the research has made to the literature and practice. Finally, Section 6.5 highlights the limitations of the research, and then offers suggestions for future research.

## 6.2 Key findings of the thesis

From a research perspective, very important conclusions can be drawn from the empirical results of the studies in this thesis. As MFIs increase their outreach services to financially excluded customers, they tend to favour the use of IA as a monitoring and control mechanism. For internal auditors in MFIs, this role can have extensive coverage. It may be limited to just risk management with respect to the credit portfolio of MFIs and ensuring that lending policies established to mitigate client over-indebtedness are adhered to. From this thesis, this role may be specific to checking compliance with loan policies and procedures. In the same vein, it will as well include monitoring of loan disbursement and collection practices, reviewal and verification of borrower information, and monitoring of MFI manager/loan officer/field worker behaviours. On a larger scale, it may also be an all-inclusive IA function that involves performance and operational audit and being a strategic advisor to the board (Bassem, 2009; Mersland and Strom, 2009).

The results in this thesis support the argument that IA can monitor managers' behaviour, and clients' activities, as the number of borrowers without formal records and reliable credit history increases. In a way, this research corroborates the view that IA's role of monitoring and reviewing policy compliance may help to identify risky behaviour of MFI managers and the effectiveness of established loan policies and procedures. The results also imply that the IA function can enhance the achievement of the social objective of MFIs by its contribution to the improvement of MFI depth of outreach. Because gender-diverse boards are tougher monitors (Adams and Ferreira, 2009), this study's findings suggest that female directors are more likely to work in close association with a fellow monitoring mechanism like the IA function, to achieve monitoring-related board committee responsibilities. Based on the

findings that there is an inverse relationship between average cost of maintaining a borrower and IA, this study suggests that cost is a major issue for MFI operations. So, if the IA function does not overwhelmingly make MFIs appear to be more efficient, it will not be suitable to have it established by MFIs, so they may not be willing to adopt or continue investing in IA. Furthermore, MFIs may be willing to forgo investing in IA unless other growth indicators like an increase in the number of active borrowers is associated with the IA function (Von Stauffenberg et al., 2014). It does appear that MFIs may see IA as an administrative cost rather than a core operational cost. However, if the marginal cost of lending is diminishing in proportion to the number of borrowers, then MFIs do appear to be willing to invest more in IA, thus attesting to the role of IA in reducing transaction cost. This is in line with the prediction of TCE theory, that the efficiency objective of transaction cost analysis will be achieved by designating a transaction (such as procedures and cost of borrowing), to an internal governance structure like IA in a discriminatory way (Williamson, 1981). This study concludes that financial performance can determine the existence and use of IA in MFIs. This stems from the proposition that as MFI financial performance improves, IA services that enable MFIs to maximise their economic value; hence, IA is increasingly implemented. Studies have shown that profitable firms are more likely to voluntarily use the IA function (Rönkkö et al., 2018). Indeed, the findings in study one also imply that MFIs with good financial performance are associated with the existence of the IA function.

Furthermore, the expected character of the IA function, which is seen to be independent, constituting the providing objective assurance and unbiased advice to management, is value-adding to organisations. Also, the systematic and disciplined approach applied by IA in evaluating and improving the effectiveness of risk management and control,

enhances the quality of the governance process (Ramamoorti, 2003). The overriding principle is that in recent times, microfinance stakeholders, including practitioners, donors, investors, and governments, have stressed that the governance and control of MFIs should be given more attention (CSFI, 2012; CSFI, 2014). This is for reasons of risk connected to insufficient governance and control in the microfinance industry.

From the results obtained showing a positive significant association between IA and loan losses, this thesis provides evidence that the presence of IA in MFIs can lead to a lower occurrence of loan losses. So, by virtue of IA's monitoring and provision of hard and soft client-related information, IA can enhance the ability of MFIs to reduce the occurrence of client over-indebtedness. This is consistent with the argument that IA's ability to gather and provide operational information in addition to financial information (Sprakman, 1997), makes it useful for MFIs as a monitoring mechanism. It is evident that the presence of IA as monitors can deter MFI managers from making opportunistic loan-contracting decisions while also improving their optimal decision making in relation to selection of borrowers. Apparently, the IA function bridges the gap in client information that leads to moral hazard and adverse selection, which is a difficulty often faced by MFIs. Thus, the systemic discipline that IA brings to institutions is of benefit to MFIs and their ability to tackle loan delinquency problems.

### 6.3 Insignificant determinants of IA function, and the relationship between loan losses and financial performance

It is pertinent to discuss the results of unconfirmed hypothesis, as well as the counterintuitive results. Firstly, the regression estimates show the absence of a significant relationship between banking (prudential) regulation and the existence of IA in MFIs. So, the results do not reinforce my earlier suggestion that regulatory authorities may demand for IA

establishment within the governance structure of MFIs. This can be interpreted to mean that the voluntary action to establish IA in the microfinance industry is associated with the unexpectedly low-level of prudential regulation in the industry. Moreover, the geographical remoteness and size of many MFIs tend to make regulatory oversight impractical. Compliance monitoring and supervision is capital intensive from the perspective of regulators (Haq et al., 2008), so consideration of cost of monitoring versus the size of many MFIs is an issue. For instance, the informal MFIs are the highest in number, but they are very small in size and provide a narrow range of services to relatively few customers (Haq et al., 2008). Hence, their importance in relation to the financial system in a country is still a subject of debate among national banking regulatory bodies. Furthermore, the vehicle for implementing internal audit in many non-profit MFIs is through bylaws and organisational standard operational procedure, thus lacking a regulatory framework. Whereas external audit is more statutorily guided by financial system regulations (Jansson et al., 2004).

Secondly, the results show that IA's influence may be limited when it is related to moderating the negative association between loan losses and financial performance. The potency of IA in this relationship, may be weakened by intra-firm factors that limit the scope of its work (Tarchouna et al., 2021) if for instance, the implementation of internal control is poor, or there is lack of commitment from the board and senior management. This study infers that the IA function may be weakened if the internal control system that guides MFI's lending policy is ineffective. This thesis emphasizes that the entire enterprise must be fully involved in the adequate implementation of loan contracting and other organisational policies (Tchakoute-Tchuigoua and Soumare, 2019; Sukmawati et al., 2020). The role of audit committees in institutions is now coming under higher scrutiny as there are instances where

internal audit reports are not made available for audit committee consideration (Cahill, 2006). Audit committees have an important role to play in ensuring the quality of the audit process, the improvement of financial performance, and the preservation of MFIs' assets (Tchuigoua, 2015). Therefore, this thesis concludes that the presence of effective audit committees will enhance the ability of the IA function to ensure a healthy loan portfolio, and by extension financial performance of MFIs. This study further argues that the insignificant impact of IA in moderating negative loan losses and the financial performance relationship is not a contradiction to TCE theory. According to TCE theory, firms cannot eliminate their transactions costs in totality, but must responsively select effective governance structures to contain losses (Menard and Shirley, 2005, p. 407). MFIs may not, therefore, operationally avoid loan losses in their entirety but must be decisive in adopting effective governance structures, to minimise the transaction costs associated with loan losses.

### 6.3 Research implications

The combined research findings of the studies in this thesis have several practical implications. First, the IA function is useful for managing the risk of loan losses resulting from the challenge of client over-indebtedness faced by many MFIs. So, IA comes highly recommended for enhancing the financial sustainability and operational efficiency of MFIs especially as they deepen their outreach and expand performance and profitability.

Second, the existence of the IA function in an MFI can possibly be used by stakeholders such as donors, microfinance investment vehicles, venture capitalists etc., as a criterion for investing in them. According to Pouliot (2006), investors have full right of access to complete information on the integrity of fiduciary responsibility of managers of potential investment targets to objectively evaluate investment conditions. The role of IA in generating enterprise

risk assessment reports should be taken seriously by MFIs, as these reports are early warning credit risk indicators for anticipating potential loan portfolio problems.

Third, the roles and responsibilities of the internal auditor should be audit charter mandated (Adams, 1994) by MFI owners to endorse the IA activity as a core component of the MFI governance instrument. This will give the IA function an organisational status that empowers them to perform activities that enhance risk management and fraud control (Kabuye et al., 2017). In line with this, a higher level of collaboration between the board audit committee and the IA function should be encouraged by creating a direct line of reporting between them.

Fourth, the findings of this thesis can provide guidelines for setting up the IA function in MFIs with strong social performance orientation. IA function is useful as a monitoring and control mechanism for the credit and loan portfolio risks, that are associated with operating within this poor customer segment. In fact, this thesis concludes that IA can contribute to the achievement of the social mission of MFIs, as results show that IA existence is influenced by the increase in outreach of MFIs. Hence, MFI loan contracts and administration guidelines can benefit from the input of IA through its ex-ante assurance role as a mechanism for reducing moral hazard and loan loss exposure.

Fifth, the outcome of this thesis is consistent with the argument that IA establishment in MFIs is largely voluntary. However, there may be exceptions especially for MFIs that belong to a self-regulating microfinance sector or those that are prudentially regulated. In their case, the regulatory framework may make IA establishment mandatory. However, because there is incongruity in opinions about making the establishment of IA mandatory for MFIs, then regulators who wish to include IA as a regulatory requirement can provide incentives for MFIs to encourage them to invest in IA. This should be a win-win situation for both the regulators

and MFIs, because IA serves an arm of internal regulation which regulators can utilise. On the other hand, regulatory incentives can help MFIs cover the cost of hiring and training internal auditors to become industry specialists.

In addition, the existence of an IA unit that collaborates female board directors of MFIs for effective monitoring, has implications for the selection of board members of MFIs. So, the more female board directors work in alliance with internal auditors, the more MFI boards can achieve success in institutional oversight and monitoring, and outreach to female clients, resulting in the enhancement of MFI performance. Finally, I find that IA and external audit are complementary in the microfinance industry. Effective communication and between both functions and the reliance of external audit on IA can enhance the assurance framework for effective MFI governance (CIIA, 2021).

#### 6.4 Contributions of this thesis

This thesis has contributed to existing literature in various ways. It is the first empirical attempt to investigate the determinants of IA function in MFIs. The findings contribute to the literature through a better comprehension of the factors influencing the existence of IA in MFIs, and the MFI characteristics and/or conditions that hinder the implementation of the IA function. The characteristics of MFIs that determine the presence of IA function are evidenced by the findings of the first study. These characteristics are outreach, female leadership, efficiency of lending operations, and financial performance. This thesis contributes to both the IA and microfinance literature by showing that female board directorship is a key governance relationship that enhances the establishment of IA in MFIs. It brings clarity to the positioning of IA within the good governance framework of MFIs. In addition, this thesis



articulates how cost sensitivity and financial sustainability factors can deter or enhance the implementation of IA function in MFIs.

Furthermore, this thesis is also the first empirical attempt to examine the effect of the IA function on loan losses. In fact, the investigation of the association between IA and financial performance in MFIs, is uncommon in both the IA and microfinance literature. This thesis thus contributes to knowledge of the application of IA to credit risk management and the improvement of the bottom line of MFIs.

### 6.5 Limitations and suggestions for future research

The studies in this thesis like many others, have some limitations. Individual countries were not specifically examined in this thesis as the reports are aggregated. Specific types of MFIs were not also studied. Because of the level of attrition of MFIs, several MFIs disappear from year to year in the database, creating missing observations, while some important data are unavailable for others. Also, the MIX Market database does not provide information on specific characteristics of IA function in MFIs. So, this thesis does not explore aspects of IA such as management, financial, compliance and operational auditing. IA characteristics such as the presence of a Chief Audit Executive (CAE), size of the IA unit, the skills, qualification and competence level of IA staff, and level of IA interaction with board committees, were not investigated because the data are not publicly obtainable. These aspects and characteristics of IA are useful for investigating its nature and effectiveness within any institution and they are good potential subjects for future studies.

Further, this thesis can be extended in the future in different ways. First, additional IA variables including the aspects and characteristics of IA can be included to show the individual impacts of these services in reducing loan losses and enhancing financial performance of

MFIs. This research would clearly identify specific IA characteristics and functions that have an impact on institutional performance. Second, the studies in this thesis can be further extended by exploring the use of IA in only self-regulated MFIs, as most MFIs are unregulated or self-regulated. This would clarify the main reasons for the voluntary adoption of IA in such MFIs. Lastly, an empirical study showing the economic benefits of IA to MFIs would shed light on the operation-related services of IA that have significant effect on MFI operating performance. This will highlight the value-addition that IA activities and characteristics bring to MFI operations and sustainability. Future research could consider this novel area when studying the impact of operation-related service on loan losses and the financial performance of MFIs.

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## Appendices

**Appendix 1: Countries in the sample and the frequency of MFIs in each country**

No.	Country	No. of MFIs
1	Afghanistan	7
2	Argentina	10
3	Armenia	9
4	Azerbaijan	26
5	Bangladesh	34
6	Benin	11
7	Bolivia	23
8	Bosnia & Herzegovina	7
9	Brazil	22
10	Bulgaria	8
11	Burkina Faso	8
12	Burundi	13
13	Cambodia	19
14	Cameroon	7
15	China	23
16	Colombia	22
17	Congo, DR	7
18	Costa Rica	12
19	Cote d'Ivoire	4
20	Dominican Republic	12
21	Ecuador	52
22	Egypt, Arab Republic	5
23	El Salvador	12
24	Georgia	9
25	Ghana	14
26	Guatemala	18
27	Haiti	4
28	Honduras	25
29	India	108
30	Indonesia	7
31	Kazakhstan	8
32	Kenya	15

No.	Country	No. of MFIs
33	Kosovo	6
34	Kyrgyz Rep	11
35	Lao PDR	21
36	Madagascar	7
37	Mali	4
38	Mexico	67
39	Moldova	6
40	Mongolia	7
41	Morocco	6
42	Myanmar	9
43	Nepal	17
44	Nicaragua	23
45	Niger	9
46	Nigeria	11
47	Pakistan	36
48	Palestine	6
49	Panama	6
50	Papua New Guinea	10
51	Paraguay	5
52	Peru	51
53	Philippines	30
54	Russian Federation	17
55	Rwanda	9
56	Senegal	13
57	Sri Lanka	5
58	Tajikistan	20
59	Tanzania	6
60	Togo	9
61	Uganda	6
62	Uzbekistan	4
63	Vietnam	27
	<b>Total</b>	<b>1025</b>

**Appendix 2: Regions in the sample and number of MFIs per region**

<b>No.</b>	<b>Region</b>	<b>MFIs</b>
1	Africa	153
2	East Asia and the Pacific	146
3	Eastern Europe and Central Asia	138
4	Latin America and The Caribbean	364
5	Middle East and North Africa	17
6	South Asia	207
	<b>Total</b>	<b>1025</b>