EMPIRICAL EVALUATION OF THE POSSIBLE IMPACTS OF THE TRANSFORMATION OF MICROFINANCE INSTITUTIONS IN AFRICA

A Ph.D. Research Proposal Submitted by:

John King'athia Karuitha

Student Number 855810

Telephone: +27636412625

Email: diakingathia2005@gmail.com

Supervisor: Professor Kalu Ojah

A Research Proposal Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in Finance.

Graduate School of Business Administration

Faculty of Commerce, Law & Management

University of the Witwatersrand, Johannesburg

MARCH 2018

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS & ACRONYMS

EAP	East Asia and the Pacific
ECA	Eastern Europe and Central Asia
KIVA	KIVA Micro fund
LAC	Latin America and the Caribbean
MENA	Middle East and North Africa
MF	Microfinance
MFI(s)	Microfinance Institution(s)
MIX	Microfinance Information Exchange
NGO	Non-Governmental Organization
RFI	Regulated Financial Institution
OIBM	Opportunity International Bank of Malawi
OL-SASL	Opportunity International Savings and Loans Ltd

CHAPTER ONE

INTRODUCTION

1.1   Background to the Study

Advocates of Microfinance institutions (MFIs) hail the industry for availing financial services to the poor and the financially excluded. Data from 2015, for example, shows that MFIs availed $92.4 billion to 116.6 million borrowers and accepted $58.9 billion from 98.4 million depositors (MIX, 2017). Supporters of Microfinance (MF) further associate it with improved household welfare (You, 2013; Meador & Fritz, 2017), increased purchasing power and a higher employment rate (Lopatta & Tchikov, 2016; Raihan, Osmani, & Khalily, 2017). Also, MF supporters contend that it leads to improved gender parity (Mafukata, Dhlandhlara, & Kancheya, 2017; Zhang & Posso, 2017), and enables families to cope with the effects of climate change (Fenton, Paavola, & Tallontire, 2017) among other benefits. Other researchers, however, have uncovered mixed outcomes from MF interventions. For example, Ganle, Afriyie, and Segbefia (2015) found that while some women indeed get empowered as a result of access to credit, most have little control over the subsequent spending while a significant proportion suffers harassment from MF agents' for failing to repay the loans. Van Rooyen, Stewart, and De Wet (2012) also arrive at a similar conclusion.

On the other hand, some scholars dispute the benefits of MF altogether. For instance, some researchers posit that MF does not boost employment and education among the rural poor (Bauchet & Morduch, 2013). Other researchers link micro-credit to increased child labor (Hazarika & Sarangi, 2008), increased gender inequalities in access to finance (Zulfiqar, 2017), and reduced entrepreneurial spirit among the poor (Field, Pande, Papp, & Rigol, 2013). The apprehension around the high-interest rates charged by MFIs and inappropriate lending practices that fail to account for the social, cultural, and economic context of the target clients is also gaining prominence (Chester, Alam, & Haase, 2016). Taken together, the case against MF paints a bleak future of MF. Some studies recommend a reexamination of the MF business model and call for better regulation of the industry (Ghosh, 2013;

Johnson, 2013). Without reforms, conclude Chester et al. (2016), "the MF industry could not only ruin the lives of many borrowers but also ruin itself."

Despite these contradicting views, MFIs continue to attract interest from governments, state agencies, donor organizations, philanthropists and increasingly commercial providers of capital. Initially, MFIs ran on the non-governmental organization (NGO) model relying chiefly on donors to finance their operations (D'Espallier, Goedecke, Hudon, & Mersland, 2017). The NGO oriented model has evidently been emphasizing the social mission of MFIs- that is, availing financial services to the poor and the financially excluded (Ashta, Couchoro, & Musa, 2013). The model played down the profit motive. However, in the last two decades, some MFIs have been transforming their institutional structure (D'Espallier, Goedecke, et al., 2017). This transformation is a process where an MFI converts from a donor-funded NGO to a regulated financial institution (RFI) that derives its capital primarily from commercial sources. The rationale for the transformation is that it would not only enable MFIs to access commercial sources of capital but also lead to improved financial sustainability, efficiency and social performance (Louis, Seret, & Baesens, 2013).

Other benefits of the transformation include improved customer service, a more extensive range of products, and enhanced control and governance (Srnec, Divišová, & Svobodová, 2008). Consumers and other stakeholders would also reap the benefits of regulation of MFIs both directly (Meagher et al., 2006), and indirectly (Hartarska & Nadolnyak, 2007). Nevertheless, the process of transformation is complicated and dependent on the country-specific regulatory framework. Thus, although most research delineates a point in time when an MFI ceases to be an NGO and becomes a commercial entity, there are essential preparations before the transformation that are often overlooked (D'Espallier, Goedecke, et al., 2017).

The transformation of MFIs leads to a change in their capital structure. As research in corporate finance indicates, there is a link between the capital structure of corporations and their financial performance. For example, family-owned businesses that have lower leverage exhibit higher profitability (Hamid, Abdullah, & Kamaruzzaman, 2015) in line with the pecking order hypothesis. Other studies indicate that leverage is positively related

to performance (Berger & Bonaccorsi di Patti, 2006; Fosu, 2013), including that of MFIs (Kar, 2012) in line with the agency theory. Thus, the effects of capital structure on financial performance may vary across industries, regions, and even depending on the performance metric chosen. For MFIs, however, the existence of a social mission makes it harder to evaluate the effects of capital structures compared to purely commercial firms. The complexity arises because, beyond profits, MFIs must also reach the financially excluded. Thus, MFIs have a double bottom line- financial performance and social performance.

There is an extensive body of research on the effects of the transformation of MFIs. Much of this research has compared the performance of MFIs before and after the conversion. There is a consensus that the conversion of MFIs has the potential to affect both the financial and social performance of the transformed MFIs (Chahine & Tannir, 2010; Mersland & Strøm, 2010). However, there is disagreement regarding the direction and magnitude of the effects of transformation (Mersland & Strøm, 2010; D'Espallier, Goedecke, et al., 2017).

Similarly, the few studies that examine the effects of the resultant capital structures of the transformed MFIs on their performance have uncovered mixed results. For instance, Bogan (2012) established that the use of grant capital by MFIs led to decreased sustainability and operational self-sufficiency. Hoque, Chishty, and Halloway (2011) and Kar (2012) uncover a negative relationship between leverage and outreach, whereas Kyereboah-Coleman (2007) finds the opposite using data from Ghana. It is therefore paramount to reexamine the effects of the transformation on the financial performance, social performance and the efficiency of MFIs in Africa, including how the adoption of new capital structures impacts on financial inclusion. The examination of the effects of the transformation will also uncover the path of the evolution of the capital structures of transformed MFIs in Africa.

The capital structure of firms does not appear to explain the performance of MFIs fully. Hence the establishment of the factors that moderate the relationship between capital structure on the one hand, and financial performance and social performance on the other is paramount. Also, for MFIs that have transformed, researchers have yet to establish the factors that influence their level of sustainability and outreach. Moreover, although a substantial number of MFIs have transformed, the majority still operate on the NGO

model. There is little research that questions why some MFIs transform while others retain the NGO model. If sustainability is so desirable, then it is not apparent why some MFIs would stick to a model that is not sustainable.

Furthermore, as Figure 1.1 indicates, there is high variability in the financing structure of MFIs across the globe. Research has not established why such variability in financing structures exists in the context of MFIs globally. Lastly, there is scant research that calibrates a financing structure that optimizes the performance of MFIs either in Africa or globally. In light of the highlighted gaps, this study has the broad objective of evaluating the possible impacts of the institutional transformation of Microfinance institutions in Africa. The impacts include how such transformation influences sustainability and financial inclusion by MFIs in Africa. A sample of 2 countries from each of the five blocks- North Africa, West Africa, Central Africa, East Africa and Southern Africa[1] will be the source of data for the study. The research will draw sample MFIs from 2 countries in each stratum.

Critics of the NGO based model of MFIs cited its unsustainability and blamed it for crowding out alternative providers of MF services (Kota, 2007). Moreover, donors could not be relied upon to fund MFIs indefinitely. Also, dependence on donor funding left the MFIs exposed to global macroeconomic shocks (D'Espallier, Goedecke, et al., 2017), which spread across countries through the financial system (Schnabl, 2012). For instance, the global financial crisis led to a decline in development assistance and capital flows to developing countries which, in turn, affected MFI financing (Leach-Kemon et al., 2012; Wagner & Winkler, 2013).

Thus, in the absence of alternative sources of finance, MFIs are likely to experience funding shortages in crisis periods (Constantinou & Ashta, 2011). Additionally, researchers have uncovered a link between the state of bilateral political relationships between countries and the flow of funds to MFIs (Garmaise & Natividad, 2013). Consequently, a diplomatic or trade row could also affect the flow of funding to MFIs, especially in the

---

[1] The Study will adopt the United Nations Classification of Africa's regions that is available on http://www.un.org/esa/population/publications/worldageing19502050/pdf/96annexii.pdf

characteristically vulnerable developing countries. Thus, the NGO model is not only unsustainable but also susceptible to both political and economic dynamics.

On the backdrop of this, there was a realization that availing financial services to the poor could be pursued as a profit based value proposition (Rhyne & Christen, 1999). The introduction of the profit element meant that MFIs could carry out their services without relying extensively on donations (Duvendack & Maclean, 2015). In the long run, the sustainability arising from the transformation of MFIs would enable them to expand access to financial services to the poor and the financially excluded (Sarma, 2011; Brown, Guin, & Kirschenmann, 2012). However, given that the central focus of MF was the poor, researchers began to question the compatibility of the pro-poor agenda of MFIs with the profit-oriented school of thought. At the heart of the debate, which continues to date, is that commercialization of MFIs could result in mission drift[2] away from serving the poor in pursuit of profits (Im & Sun, 2015; Mia & Lee, 2017).

Literature is abundant on the question of whether the transformation of MFIs causes mission drift. Some studies take the position that the transformation results in mission drift (Wagenaar, 2012; P. W. Roberts, 2013; Lopatta, Tchikov, Jaeschke, & Lodhia, 2017; Mia & Lee, 2017). Other scholars find the transformation to be beneficial or at least not causing mission drift (Mersland & Strøm, 2010; Lutzenkirchen & Weistroffer, 2012; Quayes, 2012; Im & Sun, 2015). Another strand of related research uncovers both positive and negative results from the transformation (Caudill, Gropper, & Hartarska, 2009; Kar, 2012). There is also lots of research on the effects of the conversion on social versus financial outcomes and efficiency (Bogan, 2012; Kar, 2012; Tchakoute-Tchuigoua, 2014; Khachatryan, Hartarska, & Grigoryan, 2017). However, little research has probed the questions raised in this proposed study. An overview of the transformation of MFIs globally and in Africa is laid out in the next section.

---

[2] Mission drift occurs when, upon the conversion from the NGO to the commercial model, the MFIs place more emphasis on attaining the financial objectives. This leads to a reduced focus on the social objectives of MFI of alleviating poverty by availing financial services to the poorest of the poor and the financially excluded segments of the society.

1.2   An Overview of the Transformation of MFIs

In 1992, PRODEM, an MFI in Bolivia converted into Bancosol, a commercial bank. This change marked the beginning of the transformation of MFIs to commercial entities. Since then, numerous MFIs have transformed (Table 1.1.)[3]. Note that most of the initial MFIs transformed into commercial banks or finance companies, apart from Card Rural Bank, which changed to a rural bank and Banco ADEMI which turned into a commercial development bank. This trend has been consistent to this day. Beyond the MFIs highlighted in Table 1.1, other MFIs that have transformed outside Africa include BRAC (Bangladesh) and ACLEDA (Cambodia), among others.

In Africa, many MFIs have changed to commercial entities from the year 2000 and beyond. In Uganda, for instance, the Bank of Uganda granted an operating license to Uganda Microfinance Union (UMU). UMU was given the license three years after starting off the road to the transformation. In Kenya, several MFIs have transformed into commercial entities, including Faulu (2010) and the Kenya Women Finance Trust (2010). OIBM in Malawi (2002), PRIDE (2009) in Tanzania and OI-SASL (2013) in Ghana, have also transformed into commercial entities.

Table 1. 1: A Sample of the Initial MFIs that Transformed into Commercial Entities

NGO NAME	PRODEM	CORPOSOL	AMPES	PRO CREDITO	CARD	ADEMI	ACP	K-REP
NEW NAME	Bancosol	Finansol	Financiera Calpia	Caja Los Andes	Card Rural bank	Banco-ADEMI	MIBANCO	K-rep Bank
NEW STRUCTURE	Commercial Bank	Commercial Finance Company	Finance Company	Finance Company	Rural bank	Commercial Development bank	Commercial Bank	Commercial Bank
COUNTRY	Bolivia	Colombia	El-Salvador	Bolivia	The Philippines	Dominican Republic	Peru	Kenya
YEAR	1992	1993	1995	1995	1997	1998	1998	1999

Source: Campion and White (1999)

---

[3] Table 1.1 is a non-exhaustive listing of all MFIs that have transformed. It is a peek into the first MFIs that changed their structure in the mid to late 1990s. Since then numerous other MFIs have adopted the commercial base model of operations.

The examination of the transformation of the MF industry should sensibly start with the review of the changing landscape in the national financial sectors. Typical characteristics of financial sectors in most countries include Intense competition, increased innovation, and rapid technological changes. Consequently, the MF services space is no longer the preserve of MFIs. The industry has attracted mainstream commercial banks, MF-oriented commercial banks, credit unions, building societies, and insurance companies. Financial technology (FinTech) firms have also come in (individually or in partnership with mainstream financial institutions) by offering mobile[4] and internet-based[5] MF service, and peer-to-peer/crowd lending[6] (Table 1.2). Although some researchers have argued that the digital divide could limit the effectiveness of FinTech based MFIs outfits (Griffoli, 2017; Yartey, 2017), the prevalence of low-cost smartphones indicates that digital MF could be the future of the industry (Yum, Lee, & Chae, 2012). To sum up this point, the changing MF landscape means that MF providers have to streamline their operations to improve their efficiency and to maintain relevance in the market.

Furthermore, although MF was initially targeted at the poorest of the poor, predominantly living in remote rural villages where mainstream banks could not reach, MFIs now target all the financially excluded individuals. Thus, MFIs (and their competitors) do offer MF services in urban areas, and even operate in developed countries (Kota, 2007). This paradigm shift has had several implications. For example, there has been a rise of microfinance-oriented commercial banks that were never MFIs initially. In other cases, MFIs have been acquired by commercial banks, and thus incorporated into the mainstream commercial banking portfolio. In some other instances, there have also been mergers between an MFI and a commercial bank[7]. Moreover, there have been mergers between

---

[4] An example of this is M-Shwari, a mobile based platform operated by Safaricom and the Commercial Bank of Africa. It allows customers to save and borrow money using their mobile phones. The savings also attract interest.

[5] Kiva Microfunds (commonly referred to as kiva.org) is an example of an internet-based MF services provider. Operating in more than 80 countries, the platform aims at offering microloans to end poverty. Other examples include Branch (branch.co) and Tala (tala.co).

[6] Peer to peer lending, also called crowdlending is a system where loan applicants are connected to investors with cash to lend through an online platform. Note that the platform providers do not take deposits or lend out their money but merely link borrowers to prospective lenders. Cumplo and prosper.com are among the prominent examples of these kinds of MF services providers.

[7] Equity Bank in Kenya is an example of a microfinance oriented commercial bank. MFIs such as CONFIE in Nicaragua and Genesis in Guatemala arose from mergers between MFIs.

MFIs. In the most extreme cases, MFIs have converted entirely into commercial banks and have been duly regulated under banking laws. This rapidly shifting landscape may also inform the need for MFIs to transform to efficiently compete in a market that is gaining traction amongst players from mainstream financial industries.

Table 1. 2: Examples of Internet and Mobile MF Providers

MF PROVIDER	COUNTRY	PLATFORM
KIVA MICROFUND	Global	The Internet
STONEHENGE TELKOM	Global	The Internet/ Mobile
M-SHWARI	Kenya	Mobile
AYE MICROFINANCE	India	The Internet/ Mobile
CUMPLO	Chile	The Internet (Peer to Peer)
PROSPER.COM	The USA	The Internet (Peer to peer)
POPFUNDING.COM	South Korea	The Internet (Peer to peer)

Source: Authors compilation

The transformation of MFIs is not without its challenges. In one particularly extreme case, the conversion of MFIs to for-profit entities was declared unconstitutional in Kosovo (The Constitutional Court of the Republic of Kosovo, 2013)[8]. Also, three additional categories of problems arise in the process of converting MFIs into for-profit legal corporations: the integration into the formal financial system, ownership, and governance, and organizational development (Campion & White, 1999). The integration of the transformed MFIs into the formal financial system raises several challenges. For example, the political and economic environment determines the timing of successful transformations. Thus, the economic and political climate is an essential factor to consider (FSD-Kenya, 2012).

Transformation also implies that a board should be set up to oversee the running of the organization. The board typically sets the mission and vision of the organization as well as

---

[8] The Kosovar Civil Society Foundation (KCSF), FOL Movement, Kosovo Democratic Institute (KDI) and 55 NGOs filed a suit challenging the legality of the conversion of Microfinance NGOs into joint stock companies. In 2013, the conversion was declared unconstitutional in the Republic. The full judgement can be accessed from the following site, *http://www.gjk-ks.org/repository/docs/KO97_12_AGJ_ANG.pdf*

its investment strategy. Thus, an ineffective board could hinder the implementation of transformation (Campion & White, 1999) and even the performance of an MFI post-transformation. Lastly, issues such as the organizational culture and human resource development are critical to a successful transition. For most MFIs that have moved from the NGO model, the culture of the organization employees has had to be altered to cater for a more commercial, and thus, a more customer-centric culture (Christen & Cook, 2001). These adjustments have resulted in substantial costs of training and mentorship.

1.3   Motivation for the Study

Different schools of thought hold differing views regarding the potential consequences of the transformation of MFIs. The sustainability perspective[9] considers the transformation as desirable for MFIs to attain financial self-sufficiency. On the other hand, the welfare standpoint sees the transformation as conflicting with the social mission of MFIs. The win-win approach attempts to reconcile both the welfare and the sustainability perspectives by bringing together the potential benefits from both schools of thought (Kodongo & Kendi, 2013). The debate between the proponents of these three schools of thought has dominated the research on the institutional transformation in MFIs.

A broad range of research has documented the institutional change in the MF industry (prominent first examples include, Ledgerwood (1998) and Ledgerwood and White (2006)). The subsequent research examined the effects of the change on the trade-off between financial sustainability and social performance. A remarkable pioneering example of research in this area is that of Frank, Lynch, and Schneider-Moretto (2008), who found that transformation led to a higher client outreach, higher growth in loan portfolio, and higher product diversification. More importantly, they established that conversion allowed more women customers to access services, although the overall percentage of women receiving the services declined. Subsequent studies support their view, for example,

---

[9] The sustainability approach to the provision of microfinance is also called the financial systems approach. The approach takes the position that the integration of MF with the mainstream financial sector is the only way to ensure that MF could achieve large scale outreach without continued donor dependency (Rhyne & Christen, 1999).

Hartarska and Mersland (2012), Bos and Millone (2015), and D'Espallier, Goedecke, et al. (2017).

A substantial extension of studies on the transformation of MFIs has examined the financing structures in the transformed MFIs. However, there are mixed outcomes from the research, and hence there is no consensus on the direction and magnitude of the effects of the transformation on financial and social performance. For instance, Bogan (2012) examined the relationship between capital structure and MFI efficiency and sustainability. The study uncovers a link between capital structure, MFI size, and performance. Specifically, there is a negative relationship between the use of grants and performance. These results are close to the outcomes of the research by Hudon and Traca (2011) who also found a positive relationship between grant financing at low levels and financial performance, which turns negative beyond a certain threshold, in line with D'Espallier, Hudon, and Szafarz (2013). A related study by Kar (2012) found no relationship between debt financing and breadth of outreach and women participation as loan clients and recommended research along this line about equity financing. Subsequent research has not resolved this stalemate (Kyereboah-Coleman, 2007; Hoque et al., 2011; D'Espallier, Goedecke, et al., 2017; Khachatryan et al., 2017). The mixed outcomes from previous studies motivate the focus on the effects of capital structure on the performance of MFIs in this research.

Much of the existing strand of research on MFI transformation stems from the perceived possibility of mission drift by MFIs that have undergone the change from the NGO based model to the commercial model. The primary manifestation of the transformation has been the domination of debt, deposits, and equity in the capital structure of the transformed MFIs (The Microfinance Information Exchange, 2017). Figure 1.1 shows the funding structure of 1330 MFIs across the globe that avail their data to the MIX pooled database. The regional disparity in the financing structure is particularly striking. In Latin America and the Caribbean (LAC), Eastern Europe and Central Asia (ECA), East Asia and the Pacific (EAP), and Africa, MFI source their capital mainly from deposits. In contrast MFIs in South Asia get most of the capital from borrowings. In North Africa and the Middle East, debt and equity are equally likely to be a source of funding for MFIs.

Except for the MENA region, equity consistently consists of less than 25% of the funding of MFIs, with the figure being lowest in Africa (18%), LAC (18%), and ECA (16%). In fact, debt is a chief source of funding compared to equity with four of the six regions having debt accounting for more than 25% of the total funding. The exception is Africa and LAC where borrowings account for 11% and 18% of the total funding. Notable also is the unusually small proportion of deposits to total capital observed in the MENA region. The regional disparity in financing patterns for MFIs provokes several questions. Why is there such a regional disparity in capital structures among MFIs? Moreover, in the African setting, do such regional disparities exist? If the disparities exist, then what explains the disparities? Thus, it is paramount to establish the causes of the regional disparities in financing structures as to inform policy making not only for the MF sector but also targeting the entire capital market. This study addresses this open issue from the capital structure perspective. Answers to these questions will also uncover the factors behind the choice of financing structures by MFIs in Africa.

Figure 1. 1: Funding structure of MFIs Across the Globe by Region (2015)

FUNDING STRUCTURE OF MFIS (2015)

Region	Equity	Deposits	Borrowings
SOUTH ASIA	23%	34%	43%
MENA	43%	14%	43%
LAC	18%	64%	18%
ECA	16%	53%	31%
EAP	23%	50%	26%
AFRICA	18%	70%	11%
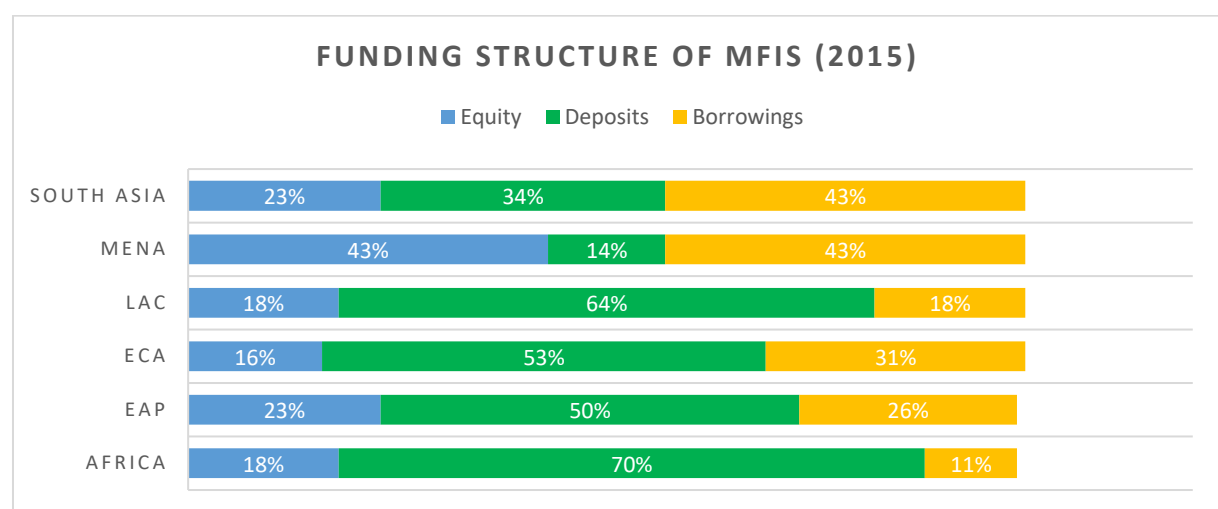
Source: MIX (2017)

Although the transformation of NGOs has its merits, most MFIs have still not transformed (D'Espallier, Goedecke, et al., 2017). Therefore, a key output of the proposed study will be the motives behind some MFIs transforming while other MFIs retain the NGO model. The current literature has been overly concerned with the transformed MFIs and not

addressed this issue. In fact, even among the transformed MFIs, the drivers of the decision to transform and the necessary preconditions for transformation have not been uncovered. The existing research takes for granted that MFIs transform to be sustainable. Given the benefits of transformation touted in the numerous studies, then most MFIs should have already transformed. However, this is not the case. It appears therefore that some additional factors influence the decision by MFI to either transform or retain the NGO model.

As noted, there is no conclusive evidence on the effects of MFI transformation on their performance. These contradicting results could be because of numerous unknown reasons. It is in order, therefore, to establish the factors that influence the sustainability and outreach of transformed MFIs. Similarly, establishing the factors that moderate the relationship between capital structure on the one hand and the financial performance and social performance of MFIs in Africa will be a novel contribution to the research. Finally, the study will further seek to calibrate the financing mix that Pareto-optimizes financial performance, social performance, and efficiency of transformed MFIs. The calibration of an optimal capital mix is a unique contribution to the literature. The examination of the capital structure of MFIs is necessary because the transformation of MFIs implies that both the proportion and the importance of donor sector funding would be declining in most MFIs. The increasing importance of commercial funding the commercial interest perspective should be the foundation from which researchers examine whether or not transformed MFIs are achieving financial sustainability and social mission. It is only when such research establishes how the business orientation affects the social mission of MFIs that the need for corrective action gets flagged timeously.

Recent literature also suggests that the performance of MFIs is dependent on the broader macroeconomic conditions as well (Ahlin, Lin, & Maio, 2011), and is country specific (D'Espallier, Goedecke, et al., 2017). Thus, in the analysis of the institutional transformation of MFIs, cross-country and regional differences must be factored in. However, most studies have not considered the cross country and regional variations. Failure to consider regional disparities means that the extant research fails to capture local contextual peculiarities. These regional differences motivate the choice of MFIs in Africa as the unit of analysis. By focusing on Africa, the study will isolate the regional and country heterogeneity of the

effects of transformation, an issue that could have affected the results of research based on pooled global datasets. Thus, the output of the study will be unique to Africa and therefore more actionable. To sum up this section, the proposed study significantly extends the existing literature on MFI transformation. The next section outlines the purpose statement.

1.4   Purpose Statement

The primary aim of this proposed research is to evaluate the possible impacts of the transformation of MFIs in Africa on their financial and social performance.

1.5   Research Questions

The study specifically seeks answers to the following research questions.

1. Why do some MFIs transform to the commercial model while others retain the NGO Model?

2. To what extent has the institutional transformation of MFIs in Africa affected financial inclusion?

3. After transformation, what factors explain the level of sustainability and outreach by MFIs in Africa?

4. How have the capital structures of MFIs in Africa evolved with the transformation from the NGO model to the reliance on commercial (profit motive) based model?

5. What are the factors that influence the choice of financing sources by transformed MFIs in Africa?

6. How is capital structure related to the performance of transformed MFIs in Africa?

7. What are the factors that moderate the relationship between capital structure, on the one hand, and financial performance, social mission attainment, and efficiency for transformed MFIs in Africa on the other?

8. What is the mix of debt and equity that Pareto optimizes financial performance and efficiency on the one hand, and social mission attainment of transformed MFIs in Africa on the other?

1.6   Significance of the Study

In pursuing the stated objectives, this study will fill a theoretical deficiency in the capital structure of quasi-commercial organizations that have a social dimension of value. The context of shareholder and debtholder primacy was the foundation of the development of capital structure theories. Arguments from this genesis of capital structure theories have failed to factor in corporations with extra dimensions of value, such as the achievement of social goals. As a case in point, Modigliani and Miller capital structure theory may not be entirely applicable to MFIs where value also has a social facet. In the Modigliani and Miller capital structure theory, the value of a firm is the sum of equity and debt components in the capital structure of a corporation. The value of a company is an increasing function of the debt proportion of capital structure up to the point where the costs of financial distress outweigh the benefits of the interest tax shield. In the process, the study will also fill an empirical deficit on the relationships between capital structure on the one hand, and financial performance, social performance, and efficiency of transformed MFIs in Africa. The empirical output has implications on policy direction relating to MFIs in Africa.

The study also has a variety of policy implications. These policy implications are related to the research objectives. For instance, what are the factors that drive MFIs to transform or fail to transform? Furthermore, what are the factors that moderate the relationship between capital structure and MFI performance? Moreover, what are the drivers of financial inclusion, outreach, and sustainability of MFIs after the transformation? Lastly, what are the determinants of the choice of financing sources? It is worth noting that if the drive for institutional transformation is to achieve the desired effects, then the change in the MFI funding structures must not compromise the achievement of social objectives. If the conversion of MFIs negatively affects social performance, the rationalization of the transformation would then lose its meaning. If indeed the transformation of MFIs was meant to improve their sustainability, this must not be to the detriment of social performance.

Also, if the transition results in the reduction in social performance, then the transformation could be treated as the transition point of transformed MFIs into the mainstream banking system (Kent & Dacin, 2013). It is crucial therefore to investigate the outcomes of the

change to inform the design of a framework that would not expose the poor and financially excluded to the same level of exclusion by the financial system that MFIs were designed to address. Doing this would be tantamount to allowing MFIs to use the underprivileged as a ladder to climb into the mainstream system, and abandoning them shortly after, which raises ethical questions. Similarly, the identification of factors that influence the choice of financing structures has implications for the design of policies aimed at the capital market. Likewise, given that most MFIs still operate on the NGO model, it is paramount to uncover the factors that hinder their transformation. For the same reasons the identification of factors that influence the social performance of transformed MFIs will also be useful, not just for policy design, but also for managerial decision making. Also, the calibration of a mix of debt and equity for transformed MFIs that optimizes financial and social performance will inform both policy-making and managerial decision making.

Finally, the efficiency of MFIs is a significant determinant of both the financial and social performance of MFIs. According to the efficiency theory, the positive relationship between concentration and profitability is indicative of the tendency of firms that are efficient to be successful and hence dominant in their industries (Lipczynski, Wilson, & Goddard, 2005). Efficiency gains could result from economies of scale and cost-saving schemes initiated by the management. Enhanced efficiency by MFIs is therefore desirable. The entry of commercial sources of capital may affect the efficiency of MFIs in line with the agency theory. It is therefore vital to establish the relationship between capital structure and efficiency to inform both the management and stakeholders of the dynamics in the MFI sector regarding effectiveness in the new era of commercial funding.

1.7   Outline of the Study

The remainder of the study will be structured as follows. Chapter two provides a brief literature review, highlighting the theoretical foundations and empirical research about the transformation of MFIs. Chapter 3 describes the methodology adopted in the study.

CHAPTER 2

A BRIEF LITERATURE REVIEW

2.10   Introduction

This chapter focuses on outlining a conceptual framework of the possible impacts of the transformation of MFIs globally and particularly in Africa. The chapter first addresses the low level of transformation of MFIs across the globe. Next, the section describes the theoretical basis for the link between MFI transformation and performance, followed by the techniques for measuring the financial and social performance of MFIs. Subsequently, the section provides a critical review of the empirical literature on the effects of the transformation of MFIs, and the relationship between ownership structure, organizational structure, and efficiency of the transformed MFIs, on the one hand and their financial and social performance, on the other. The section concludes by examining the determinants of the performance of transformed MFIs.

2.11   So Why Have Most MFIs Not Transformed into the Commercial Model?

As noted by D'Espallier, Goedecke, et al. (2017) only a few MFIs have adopted the commercial model, with most still operating as NGOs. Given the benefits that come with commercialization, it is hard to justify the low levels of transformation among MFIs. Further, MFIs seeking to transform usually have substantial access to financial and technical support before and after transformation (Campion & White, 1999; Bateman, 2010). The World Bank, USAID, and other donor agencies are the primary sources of support. If the transformation of MFIs is so desirable, what is hindering the mass transformation of MFIs to the commercial model? Put another way, what factors drive or enable (or hinder) the transformation of MFIs? The starting point for seeking answers to these questions lies in the challenges that MFIs face in the transformation process.

2.11.1 The Financial and Administrative Challenges of MFI Transformation

The costs and administrative challenges of the transformation could partly explain why so many of the MFIs continue to operate as NGOs. As Campion and White (1999) note, an MFI should only undertake to transform when it is internally capable of bearing the costs and time involved. For instance, an MFI should transform when it can navigate the

administrative pitfalls, like the process of applying for licensing and the attendant requirements. It is not clear at what point an MFI is internally capable of transforming either regarding financial resources (assets base) or length of operation or a combination of these and other factors. Campion and White further advised that MFIs should consider transformation only when it is the best strategy and the regulatory environment is conducive. Researchers have not addressed these issues comprehensively in the existing literature to pinpoint the preconditions for transformation. Alternate explanations for the failure by MFIs to transform come from the institutional theory.

2.11.2 The Institutional Theory Perspective on MFI Transformation

The institutional theory gives some useful insights regarding inertia on the transformation of MFIs. The institutional theory seeks to explain the development of the structure of rules, norms, and routines in organizations. The theory examines how such structures get accepted as the standard ways guiding social behavior, and ultimately decline and get discarded (Scott, 2004). The theory holds that the institutional environment is more influential in the development of formal structures in organizations that market pressures (DiMaggio & Powell, 1991).

The institutional environment is thus a primary source of pressure for the adoption of organizational structures. One form of pressure from the institutional environment is coercive pressure. Coercion implies some form of implicit or explicit force to conform. Coercive pressure is exceptionally high where the institution is highly dependent on the institutional environment from which the pressure to conform arises (Meyer & Rowan, 1977). As noted earlier, the World Bank and other donor agencies such as the USAID placed considerable pressure for MFIs to transform. The pressure arose from the rise of neo-liberalism (Ostry, Loungani, & Furceri, 2017). In the case of the institutional transformation of MFIs, the donors theorized against the existing, not-for-profit organizational model. The theorization included the specification of the failings of the not-for-profit model and the vindication of the practices of the commercial approach in light of pragmatic considerations (Dacin, Goodstein, & Scott, 2002).

2.12 MFI Transformation and Performance: Some Theoretical Insights

Researchers have widely explored the theme of the transformation of MFIs. The primary literature, for example, Campion and White (1999) and Mersland and Strøm (2010) mainly dealt with the implications of the transformation of MFIs regarding possible mission drift. Other studies have compared commercial MFIs against those MFIs operating as NGOs. Some researchers have welcomed the presence of NGOs in the MF industry to address market failures. However, some scholars have attacked the comparison between NGO and commercial MFIs. Central to their argument is that utility maximization, not profit maximization better explains the behavior of firms in markets with mixed preferences (Bos & Millone, 2015). This section provides a theoretical background on the link between the transformation of MFIs and their performance.

2.12.1 Agency Theory

Agency theory deals with the principal-agent relationships where one party (the principal) engages another party (the agent) to act on their behalf. The principal delegates decision making to the latter. Both the principal and the agent are interdependent but may have different goals and attitudes towards risk (Eisenhardt, 1989; Ballwieser et al., 2012). Suffice to note that the principal-agent relationships extend beyond that between shareholders and managers, and could include, among others, the relationship between shareholders and debtholders.

Agency problems arise due to information asymmetry. Ex-ante, agents may misrepresent their abilities, and the principal cannot verify their skills at the time of hiring or even when the agent is working (Eisenhardt, 1989). The unverifiability of competencies presents the adverse selection problem. On the other hand, the agents may, after hiring, exert too little effort in their work, and also undertake other activities that are harmful to the principal (Tirole, 2006). The ex-post manifestation of information asymmetry is the moral hazard problem. Thus, in an agency relationship, information asymmetry makes it difficult or expensive to verify what the agent is doing. Also, the divergence in attitude towards risk between the two parties is problematic because the objectives of both the principal and the agent may differ based on their risk preferences (Sun, Ding, Guo, & Li, 2016).

Following Smith, the study by Berle and Means (1932) confirmed the extent of the dispersion of ownership arising from the separation of ownership from control in industrial firms in the United States. They traced the separation to the industrial revolution, the rise of stock markets, and the advent of organized labor and trade unions (Bendickson, Muldoon, Liguori, & Davis, 2016). Berle and Means noted that the separation meant that the suppliers of capital essentially gave up ownership to become mere recipients of financial returns, turning private corporations into quasi-public organizations. They argued that such separation disenfranchise the owners and cede too much power to managers. Consequently, as subsequent research indicated, the dispersed ownership would result in shareholder apathy[10] in monitoring the management (Battaglini, Nunnari, & Palfrey, 2016).

With the inevitable separation of shareholding and management, monitoring by institutional and individual investors holding large blocks of shares could mitigate shareholder apathy. Large investors have the capacity and incentive to monitor the management given that the benefits they derive from monitoring exceed the costs of failing to do so. However, the shareholders holding a substantial equity stake could, on the other hand, abuse their position by extracting private benefits of control (Doidge, 2004; Dyck & Zingales, 2004). Hence, there is a trade-off between the potential advantages in the concentration of ownership and the drawbacks of near absolute dispersion. Considering their findings, Berle and Means asserted that a corporate revolution had occurred and predicted that corporations characterized by dispersed ownership would dominate economic activities. They also projected growth in the size of firms and concentration of the economy.

2.12.2 Capital Structure Theory

The capital structure theories attempt to explain the financing structure of a firm regarding the mix of debt and equity in the long-term funding. Modigliani and Miller developed the most prominent theory of capital structure. According to this theory, the choice of the mix

---

[10] The apathy arises due to the free rider problem. Where ownership is dispersed, no individual stockholder will be motivated to monitor the management because the entire cost of monitoring is borne by the individual shareholder, whereas the benefits accrue to all. This gives rise to rational apathy that allows the management to run the firm at their whims.

of debt and equity is irrelevant, that is, it does not affect the value of a firm. Later refinements of the theory to include taxation, and the costs of financial distress concluded that considering financial frictions; financing structure does matter. This section does acknowledge both the net operating income and the net income theories of capital structure. However, the section deals primarily with the Modigliani and Miller capital structure theories which dominate the thinking around capital structure. The section also provides a discussion of the pecking order theory.

2.12.2.1   The Trade-off Theory

MM IV was a refinement of the MM III, recognizing that although debt has its merits, it raises the probability of financial distress. Thus, managers must strike a balance between the tax benefits of debt against the reality that a firm increases the likelihood of default, the higher the debt in the capital structure (De Jong, Verbeek, & Verwijmeren, 2011). For this reason, MM IV is also called the trade-off theory. The costs of financial distress may be direct, for example, the legal costs of reorganization. Indirect costs may include the loss of customers, suppliers, employees, receivables, and the loss associated with the fire sale of assets (Ehrhardt & Brigham, 2016). The following equation summarizes MM IV.

$$V_l = V_u + T_s - FDC$$

Where

V_l is the value of a levered firm.

V_u is the value of an unlevered firm, that is, a firm with no debt in its capital structure.

T_s is the present value of the tax shield, the product of the interest expense and the corporation tax rate.

FDC is the present value of the financial distress costs.

The introduction of financial distress has significant implications on the capital structure of firms. With the financial distress costs, firms tend to avoid too much debt. In fact, mature, profitable firms tend to rely on internally generated funds as do corporations with little cash flows and intangible assets. Firms with tangible assets for use as collateral have high leverage as do firms with high cash flows. Also, distress costs mean that firms would favor

debt that is easily reorganizable, which favors banks loans rather than debt from mainstream capital markets. For flexibility, firms tend to deal with few banks and opt for few classes of debt (Ehrhardt & Brigham, 2016).

The trade-off theory has two important strands. As described above, the static trade-off theory seeks to balance between the tax advantage of debt and the potential costs of financial distress. However, subsequent research later demonstrated that under certain conditions, the tax disadvantage at the individual level offset the tax advantage of debt at the corporate level (Bradley, Jarrell, & Kim, 1984). The research developments led to the introduction of an array of leverage-related costs- such as bankruptcy costs themselves, agency costs of debt, loss of non-debt tax shields (e.g., accelerated depreciation and investment tax credits that reduce corporate tax liability), and the presence of personal taxes on dividends.

Thus, the calibration of the optimal capital structure must involve the balance between the tax benefits of debt on the one hand, and a range of leverage-related costs on the other. The choice of optimal capital structure then turned into an empirical issue investigating the significance of the various leverage-related costs. Much of this subsequent research indicates that the choice of an optimal capital structure is industry specific, influenced by non-debt tax shields, and financial and trade cycles (Miao, 2005). Further, the level of debt varies with industry output, plant closings, firms' entry into the industry, and even capital investments by firms (Myers, 2001).

The dynamic trade-off theory asserts that firms have a target capital structure depending on their specific characteristics. Thus, firms will issue securities that bring them closer to their target capital structures (Elsas, Flannery, & Garfinkel, 2014). In other words, the theory asserts that mean reversion to the optimal structure capital structures characterizes firms financing. Notable in this theory, though is that firms incur costs in adjusting their capital structures to their desired optimal levels. The speed of adjustment to the optimal structures is also subject to research, and a significant point of contention for the dynamic trade-off theory. There is, however, no evidence of a universal optimal or target capital structure in firms of industries (Elsas & Florysiak, 2015).

The starting point of the critique of the trade-off theory is the empirical soundness of the model. Whereas taxes are inevitable, bankruptcy is rare, and so it is not proper to give equal weights to the probabilities in the choice of capital structure. Under this scenario, firms should have much higher leverage than is observed in practice. Whereas the tradeoff theory explains why firms adjust their high leverage by buying back debt and not by issuing new equity it is weak in explaining extended under-leverage by firms. The under-leverage could be cured by issuing debt and buying back shares, an adjustment process rarely observed in practice (Myers, 1984).

In explaining the leverage level of firms, the trade-off theory has a very low coefficient of determination, and cannot satisfactorily explain differing leverage levels across apparently similar firms. Furthermore, the theory cannot explain the choice of leverage targets by firms. Lastly, Welch (2004) notes that stock returns explain about 40% of debt-equity ratio, a situation that should not occur if firms repurchased debt or issued equity to counteract the effects of stock returns of the debt-equity ratios. However, more recent empirical review of capital structure decisions points to a tendency for managers to issue stock when there has been a share price run-up, in support of the tradeoff theory and managerial market timing (Elsas et al., 2014).

2.12.2.2   The Pecking Order Theory

Donaldson (1961) laid the foundations for the pecking order theory, stating that "Management strongly favored internal generation as a source of new funds even to the exclusion of external funds except for occasional unavoidable 'bulges' in need for funds" (Myers, 1984). Myers and Majluf (1984) brought the pecking order theory to the fore. The theory contends that in raising capital, corporations are also subject to floatation costs-costs associated with the issue of financial assets. The floatation costs compound the information asymmetry faced by investors. Most corporations, therefore, issue capital in a predetermined order usually started with the cheapest. Most firms will start off by raising capital internally using their retained earnings. When retained earnings are exhausted, firms resort to short-term marketable securities. Preferred stock, debt and common stock respectively are usually the least preferable (Chirinko & Singha, 2000; Fama & French, 2002).

The assumption behind the pecking order theory is that managers have an information advantage over investors, a phenomenon referred to as information asymmetry. Under information asymmetry, managers will tend to issue risky securities when they are overpriced. Investors, aware of managers information advantage, interpret any issue of securities as a signal pointing the valuation of the company's securities. Investors thus discount the firms new and existing securities when new issues are announced (Fama & French, 2002). Usually, investors and by extension the capital markets react negatively to new stock issues (Myers & Majluf, 1984; Chirinko & Singha, 2000). The logic behind the adverse reaction is that if the prospects of the firm were positive, there would be no need to dilute the ownership structure, and hence reduce the future earnings per share of the firm. On the other hand, the capital markets usually react positively to issue of debt.

A more complex modification to the pecking order theory assumes that firms are concerned with, not just current financing costs but also with future financing costs. Thus, to balance the present and future costs of financing, firms with substantial expected investments maintain leverage. The low leverage helps firms to avoid having to forego future lucrative investments and minimize any material costs of financial distress. It also allows firms to avoid financing such future lucrative investments with new risky securities.

The leverage allowance is called the reserve borrowing capacity. The reserve borrowing capacity allows the corporations have the flexibility to issue take up attractive investment opportunities that arise by quickly issuing debt (Ehrhardt & Brigham, 2016). Furthermore, firms tend to set dividend policies that allow for the firm to meet most of its immediate financing needs using internally generated funds. In this respect, the dividend ratio maintained by firms tends to be sticky, that is, it tends to be steady, and not exhibit sudden fluctuations unless the firm is in financial distress.

Although some of the pecking order theory's predictions are valid, there is no evidence that the theory is of first-order importance in determining the capital structure of firms. For example, there is a definite relationship between expected investment and book leverage. Profitability, on the other hand, is negatively related to leverage. However, Myers (1984) cites some firms that issue stock when they could instead issue debt. Thus, the pecking order theory does not explain everything in corporate financing. Moreover, it is hard to define

the reserve borrowing capacity as this will vary from one firm to the other. Finally, the pecking order theory depends on sticky dividends but gives no hint why dividends should be sticky.

2.12.3 The Profit Incentive Theory

The profit incentive theory holds that the pressure to maximize profits and minimize costs among the transformed MFIs leads to mission drift. According to this theory, transformed MFIs cannot prioritize serving the poor. Instead, the managers drift towards meeting the expectations of the commercial providers of capital. MFIs running on Donor funding and subsidies, on the other hand, may prioritize both breadth and depth of outreach given that they are under no pressure to generate profits.

However, the theory fails to account for the drawbacks of donor funding. For instance, the amount of donor funds available is insufficient to fund the scale of projects to ensure financial inclusion for all. Also, donor funding is subject to political and economic dynamics (Garmaise & Natividad, 2013) and is hence volatile (Armendáriz, D'Espallier, Hudon, & Szafarz, 2013a; D'Espallier, Hudon, & Szafarz, 2017). Thus, although the transformation does free MFIs from donor dependence, it comes at a cost to the social mission of MFIs. Several researchers have evidence that indeed transformation leads to less focus on the poor and the financially excluded. Other researchers, however, find commercial funds to be advancing the social mission of MFIs, while other studies find mixed results. Thus, there is contention regarding the transformation of MFIs and the social performance.

2.13   Transformation and the Performance of MFIs: Is There a Mission Drift?

With time, a substantial number of MFIs converted to commercial entities, and empirical analysis on the effects of the transformation was then possible (Abeysekera, Oguzoglu, & Le, 2014; D'Espallier, Goedecke, et al., 2017; Mia & Lee, 2017). Mission drift has been a central issue in the research on the transformation of MFIs. Some researchers hold that mission drift is bound to occur in transformed MFIs as better off clients crowd out the poor in the access to MFI credit (Hishigsuren, 2006). An alternate view is that mission drift is a misinterpretation of cross-subsidization and progressive lending. Thus, MFIs may reach out to clients who are better off to cross-subsidize loans for the poor and financially excluded (Abeysekera et al., 2014). Besides, Campion and White (1999) argue that the presence or

absence of mission drift in a transformed MFI is a corporate governance issue, and also an outcome of the challenges of the scaling up of MF services.

2.14 Capital Structure and the Performance of MFIs: Empirical Evidence

In mainstream corporate finance, researchers have extensively explored the link between capital structure and financial performance with conflicting results. In the MFI space, the capital-structure versus performance relationship is more complicated. First, MFIs, unlike mainstream corporates have two measures of performance that may conflict. On the one hand, like corporations MFIs should be financially sustainable by generating revenue to cover the costs of operations, and make a return for the providers of capital. On the other hand, MFIs have a social role to play in providing access to financial services to the poor and the financially excluded.

Thus, the MF business model involves the balance between the generation of profits and the ethical issues that arise when dealing with the provision of services to the poor and the financially excluded. Finally, even after transformation, MFIs may still retain a substantial capital component from donations and grants. Thus, the analysis of the capital structure-performance nexus in MFIs involves debt, equity, and subsidies or grants, unlike the mainstream corporates that mostly operate on debt and equity. The section that follows critically analyzes the relationship between the capital structure of MFIs and both financial and social performance.

2.14.1 What are the Determinants the Capital Structures of Transformed MFIs?

Ledgerwood and White (2006) attribute the capital structure of MFIs to maturity and the institutional life cycle. The institutional life cycle theory posits that the financing stricture of an MFI varies with the stage of the MFI in the life cycle. At the early stages, the MFIs finance their operations mainly through donations and concessionary funds, given that commercial funders find MFIs too risky. At the early stage, most MFIs operate as NGOs. In the second phase, MFIs tend to focus on the expansion of operations and thus look beyond donations to meet their financing needs. The MFIs supplement their donor funding and subsidies with equity financing (from NGOs and public investors) and seed capital from international finance institutions. At the final consolidation phase, MFIs concentrate on attaining sustainability and formalizing their operations. At the consolidation phase,

MFIs raise additional capital through debt (using foreign donor funds as guarantees) and deposits (Bayai & Ikhide, 2016).

Most of the transformed MFIs are in the consolidation phase, exhibiting greater maturity. However, even among the transformed MFIs, there are significant disparities in capital structures between MFIs and across regions. Bayai and Ikhide (2016) attribute part of the disparities to regulatory provisions relating to the ways MFIs can raise capital as well as historical legacies on saving and lending in different countries and regions. Thus, the level of maturity of an MFI is likely to affect the capital structure of MFIs.

For individual sources of capital, research indicates that donors are likely to contribute more to MFIs that have verifiable accounting information (Bayai & Ikhide, 2016), and those MFIs that emphasize on their social mission (Hudon, 2010). Also, donors funding is positively correlated with the tangible assets, past due loans and the size of an MFI, indicating that even donors evaluate the riskiness of the MFIs they fund, using this information as a screening mechanism. However, donor funding is not influenced by the profitability of the MFI, meaning that indeed donors mostly have a social orientation. On the other hand, more profitable firms (with more even profit distribution) with more tangible assets (and bigger) and with a corporate organizational structure have easier access to debt capital. Moreover, the credit ratings of the MFIs do not influence their capital structure (Tchakoute-Tchuigoua, 2015).

2.14.2 The Relationship Between Capital Structure and the Performance of MFIs

The research output on the relationship between leverage and financial performance is mixed. Some researchers have found the relationship between leverage and financial performance to be positive. For instance, Detthamrong, Chancharat, and Vithessonthi (2017) find such a positive relationship in their study of Thai firms using OLS regression. Also, Abor (2007) using data for SMEs from Ghana and South Africa and applying panel regressions find that debt level is directly related to financial performance as measured by Tobin Q.

The other studies that also conclude that a positive relationship between capital structure and financial performance exists include Abor (2005), Berger and Bonaccorsi di Patti

(2006) and Gill, Biger, and Mathur (2011). For instance, Fosu (2013), using fixed effects model and GMM finds that leverage is positively related to financial performance, with competition-enhancing the relationship. Most of these studies fail short of explaining the reasons behind the relationship. The study by Chakravarty and Pylypiv (2015) that finds that MFIs with private funding are better able to screen borrowers and monitor borrower repayment rates. Consequently, such MFIs have lower portfolio risk and fewer delinquent loans. The results of this study could explain the positive relationship between capital structure and financial performance of MFIs.

Other studies, mostly based on emerging markets point to a negative relationship between debt and financial performance. The results imply that the costs of financial distress outweigh the benefits from the tax shields, at least in developing countries (Le & Phan, 2017). Similarly, Zeitun and Tian (2014) also uncovered a negative relationship between leverage and both the accounting and market measures of performance of firms in Jordan. Likewise, Hamid et al. (2015) uncover a negative relationship in their study based on family firms. These results could be indicative that for MFIs, the costs of potential financial distress exceed the benefits generated by the interest tax shields. The introduction of private capital could also make managers of MFIs risk averse and thus set aside much higher than optimal precautionary savings to deal with any potential financial distress, as do MFIs facing subsidy uncertainty (Armendáriz et al., 2013a).

Midway between the two extremes, some researchers posit that capital structure can have both positive and negative effects on a firms financial performance. Such researchers have proposed that at low levels, firms reap the benefits of the tax shield, which gets overwhelmed by the costs of financial distress beyond a limit of leverage. The study by Lin and Chang (2011) is an example of research supportive of this position. Margaritis and Psillaki (2010) also arrived at similar results by applying the quadratic functional form. From the discussion, the research on the link between capital structure and the financial performance of firms is inconclusive even in the mainstream corporate finance. The mixed results point to critical moderating variables on the link between capital structure and financial performance. The variables could relate to firm-specific factors and cross-country heterogeneity.

Nevertheless, researchers have extended the study of the link between to capital structure to financial performance to MFIs. Khachatryan et al. (2017) find a link between the level of deposits in the previous year and financial performance using data from Eastern Europe. The positive relationship indicates that deposits could lower the cost of capital and hence increase sustainability. Further, they find that concessional loans do not significantly affect financial performance. Social loans and subsidies, however, are associated with lower profitability. However, the study does not delve into the possible impacts of equity capital and debt on the financial performance of MFIs. Filling this gap, Ayele (2015), using data for MFIs operating in Ethiopia, Kenya and Uganda found a negative relationship between debt-to-equity ratio and financial viability. Although these studies differ in countries covered, institutions considered, methodologies and data representation, the lack of a consensus makes policy-making difficult at the institutional and national levels.

In their research in the context of social performance, Khachatryan et al. (2017) find a positive relationship between social grants and the depth and breadth of outreach using seemingly unrelated regressions. Further, they found that concessional loans are positively related to outreach, as do social loans and subsidies. Another study by Hoque et al. (2011) found that leverage has adverse effects on outreach, productivity, and risk. They note, for example, that although the absolute numbers of indigent clients reached by MFIs increase, the proportion goes down due to the increased cost of capital, which implies higher default rates and hence higher portfolio risk.

On the contrary, Kyereboah-Coleman (2007) applied pooled OLS and the fixed effects model on a panel dataset of MFIs in Africa and found a positive relationship between leverage and financial performance. The researcher also found that leveraged MFIs enjoys economies of scale, allowing them to deal with information asymmetry and hence lower portfolio risk. Similarly, Dorfleitner, Röhe, and Renier (2016) examined the factors that influence access to debt capital by MFIs using probit and Poisson regressions. The study uncovered a positive relationship between MFI access to MF Investment Vehicles (MIV) funding to maturity (measured by age, size of MFI and debt-to-asset ratio) and performance. For instance, more mature MFIs easily access debt capital from MIVs, as do firms with better financial performance regarding portfolio quality. Furthermore, MFIs that retain focus on their social mission have better access to debt financing. These results

indicate that mature MFIs with better financial and social performance should then have more debt in their capital structure than do firms that do not meet the criterion.

2.14.3 Equity Ownership Structure and the Performance of MFIs

Researchers have explored the link between Ownership structure and the financial performance of firms (Thomsen & Pedersen, 2000; Demsetz & Villalonga, 2001). A pivotal study by Pagano and Röell (1998) examined the decision by firms to go public in light of the monitoring effects of capital structure decisions. In their study, Pagano and Röell (1998) acknowledge that, though advantageous, the presence of a majority shareholder introduces a new agency conflict between the majority and the minority shareholders.

The authors develop a model that results in several key predictions. First, in the choice of ownership structure, the level of over-monitoring rises with the amount of outside equity to be raised. Secondly, provided the private benefits of control accruing to the controlling shareholders are not wasteful, it is beneficial for the company to go public. The decision to go public here means that the firm will have numerous small shareholders and at least one major shareholder. Lastly, if public companies are subject to more stringent reporting requirements and disclosure rules than private companies, then going public is beneficial.

The challenge of establishing the causal relationship between block-holdings and performance is difficult mainly due to the endogeneity problem. Other challenges arise due to simultaneity problems and the presence of omitted variables that affect both shareholding and performance. The initial evidence on the relationship between block-holding and financial performance was mixed. For example, studies by Holderness and Sheehan (1988), McConnell and Servaes (1990) and Mehran (1995) uncovered the insignificant relationship between block-holdings and performance. Later refinements, however, uncovered a positive relationship when the study based on long-run relationships (Cremers & Nair, 2005), as does international evidence mainly from the emerging markets (Claessens, Djankov, Fan, & Lang, 2002; Claessens & Fan, 2002; Lins, 2003).

Later researchers have uncovered a negative relationship between ownership concentration and firm performance. For instance, A meta-analysis by Wang and Shailer (2015) using 419 correlations based on 42 major studies in 18 emerging economies found

a negative relationship. The researchers attributed a large proportion of the heterogeneity in the relationships to the choices of modeling techniques, population differences and inadequate treatment of endogeneity. Bian and Deng (2017) observe that banks with lower ownership concentration have higher returns and lower non-performing loans. They attribute the poor performance of concentrated banks to the huge loans that concentrated firms issue to firms with connections to the large shareholders.

In the case of MFIs with a double bottom line, research on the effects of ownership structure has to factor in both financial and social performance. Also worth addressing is the interaction between financial and social performance. There is little research that has explicitly examined the relationship between ownership structure in general and block holding in particular and the financial and social performance of MFIs. Most of the available studies look at transformation in general and also dwells on the comparison of the performance of NGOs and transformed MFIs.

2.14.5 Subsidies and Grants and the Performance of MFIs

For MFIs, subsidies form a substantial percentage of the ownership structure of MFIs. Except for 23%, the other MFIs have a portion of subsidies and grants in their capital structure (D'Espallier et al., 2013). Analysing the effects of capital structure on the performance of MFIs is more complicated in the presence of the subsidies and grants. Research indicates that donors direct most of their funding to those MFIs that meet their social mission. Even for the MFIs that have not transformed, there is a significant reduction in the magnitude of donor support. Consequently, these NGOs have adopted various mechanisms to run their operations in the face of the reduced financial support from donors.

D'Espallier et al. (2013) note that in Africa and Asia, MFIs cope with the lack of donations by charging higher interest rates. In Latin America, on the other hand, MFIs with less donor funding tend to serve fewer women. Unsubsidized MFIs in Eastern Europe and central Asia serve less indigent individuals. Overall, the researchers find that the lack of subsidies worsens the social performance of MFIs, but the effects vary across regions. Also, they argue that there exist trade-offs even among the social measures, for instance between service to women versus interest rates charged (D'Espallier et al., 2013). However,

researchers have not arrived at a consensus regarding the existence of mission drift for transformed MFIs.

Furthermore, Cozarenco, Hudon, and Szafarz (2016) analyze the characteristics of MFIs that supply savings products on a global dataset of 722 MFIs for the years 2005-2010. They find that MFIs that receive donations and subsidies have a lower tendency to offer savings products. They conclude that subsidies and grants generate negative externalities on product diversification by MFIs.

Some research also indicates that the source of the donations matters. For instance, Chakravarty and Pylypiv (2015) find that MFIs with more private donor funds tend to have lower rates of the portfolio at risk and fewer delinquent loans. Thus, the management of such MFIs improves significantly with private funding, presumably due to the monitoring role that private funders play. In a related study, Hudon (2010) also notes that better-managed MFIs tend to attract more donations. Overall, the presence of subsidies appears to have a significant link with the social performance of MFIs. However, the presence of subsidies may discourage the development of products, such as savings. Lastly, the source of the funding matters, with MFIs relying on public subsidies faring worse on both metrics.

2.14.6 Is there an Optimal Capital Structure that Optimizes Both Social Performance and Financial Performance of MFIs

Usually, the researchers examine the influence of capital structure on financial performance, the capital structure on social performance and capital structure on efficiency separately. As highlighted in prior sections of this chapter, the results have been contradictory. It is not clear what mix of financing optimizes the balance between financial performance, social performance, and efficiency of transformed MFIs. Further, there is little evidence on the financing mix that optimizes both the financial performance and the social performance simultaneously.

Perhaps the lack of a single metric to quantify both financial performance and social performance, and efficiency and social performance inhibits research in the area. The dearth of research on these phenomena calls for the development of metrics that could

jointly handle multiple performance outcomes into a single index, which could then allow researchers to examine the trade-offs between the financial metrics and more importantly permit for optimization-based studies. The studies would allow researchers to estimate the capital structure mix that would best allow firms to maximize both financial performance and efficiency and balance between financial and social performance.

2.16   Transformation and the Efficiency MFIs

The other strand of literature has examined the relationship between efficiency and the social performance of transformed MFIs. Efficiency here refers to the ratio of output to inputs by MFIs. An efficient MFI should produce the maximum possible outputs given a set of inputs or minimize inputs for a given set of outputs. Researchers have applied several techniques to measure efficiency. However, data envelopment analysis (DEA) and stochastic frontier analysis (SFA) are the dominant techniques.

DEA is a non-parametric, a-theoretical mathematical programming technique that uses sets multiple inputs and multiple outputs to estimate the best production frontier. Researchers use DEA to develop production frontiers and measure the efficiency of entities relative to these frontiers (Fethi & Pasiouras, 2010). Initially proposed by Charnes, Cooper, and Rhodes (1978), DEA involves the construction of a virtual output over a virtual input without defining a production function.

Stochastic frontier analysis (SFA), on the other hand, is a parametric method. Aigner, Lovell, and Schmidt (1977) and Meeusen and Van den Broeck (1977) simultaneously formulated SFA. Subsequently, numerous researchers have used SFA to evaluate production, cost, revenue, profit and other models of goal attainment. The original formulation of SFA is as follows.

$$y = \beta x + v - u$$

Y is the observed outcome, and Bx + v represents the optimal (stochastic) frontier, for example, the maximum production or the minimum cost. In the optimal frontier, Bx is the deterministic part whereas $v \sim N(0, \partial_v^2)$ is the stochastic part. The amount by which an entity fails to reach the stochastic frontier is the level of inefficiency and is captured by $u \sim N(0, \partial_u^2)$. There are many extensions of SFA that are beyond the original specification.

SFA allows for technical inefficiency but also allows for random shocks beyond the control of management that may affect output (Kumbhakar, Wang, & Horncastle, 2015). The limitation of SFA is the assumption that there exists a functional form. Furthermore, it is hard to specify the error structure, especially the probability distribution. Lastly, the assumption of continuity inherent in SFA and other econometric approaches to measuring efficiency may lead to approximation errors (Cullinane, Wang, Song, & Ji, 2006).

Thus, for given MFI inputs, how much is the MFI able to generate regarding financial returns and outreach to the poor. Lebovics, Hermes, and Hudon (2016) explore whether there is a trade-off between financial efficiency and social efficiency of MFIs in Vietnam. They use DEA to quantify both financial and social efficiency. The study uses regression analysis and uncovers no trade-off between financial efficiency and social efficiency. The results do not favor either the poverty-lending view or the financial-systems view approaches to MF provision. These results are similar to those of Bédécarrats, Baur, and Lapenu (2012) who argue that MFIs could achieve both financial and social performance as long as the MFI has practical social performance management strategy. These views reinforce the argument by Abeysekera et al. (2014) that mission drift could be a corporate governance problem.

Haq, Skully, and Pathan (2010) examined the efficiency of 39 MFIs from Africa, Asia and Latin America using the DEA approach. The objective was to uncover the MFI types (Bank MFIs or NGO MFIs) that were most efficient at simultaneously minimizing costs (hence maximizing financial performance) and reaching out to poor households. Under the production approach, they found that NGO MFIs are the most efficient at reaching the dual objectives. However, under the intermediation approach, the research indicates the reverse. The results show that Bank MFIs could be better suited to lower costs associated with defaults. However, NGO MFIs achieve the dual objectives of financial sustainability and performance better.

Research by Hermes, Lensink, and Meesters (2011) used a sample 1,300 observations and measured efficiency using SFA. The study found a negative relationship between outreach and efficiency of MFIs. More specifically, the study found that those MFIs with low average loan balance- a measure of the depth of outreach, are less efficient. Moreover, the study

finds a negative relationship between breadth of outreach as measured using the number of women borrowers and the efficiency of MFIs. The argument presented to explain the negative relationship between efficiency and outreach is that transformation of MFIs generates costs which drive down outreach, especially to high-cost clients (Cull, Demirgüç-Kunt, & Morduch, 2011). P. W. Roberts (2013) also concludes that commercialization of MFIs moves them further away from their efficient frontier of social performance. Also, there is a direct relationship between commercialization, operational costs, and interest rates. Similarly, Abate, Borzaga, and Getnet (2014) also use the SFA approach and find that there is a trade-off between outreach and the efficiency of MFIs in Ethiopia. The researchers first run an SFA regression and obtain the error term, μ, which is the measure of inefficiency. Next, they regress the inefficiency score against average loan size, women borrowers, and organization form, while controlling for age and size of the MFI.

2.17 What Drives the Performance Transformed MFIs?

The available literature on MFI transformation mainly relates to the financial performance of the transformed MFIs (D'Espallier, Goedecke, et al., 2017). Few researchers have examined the drivers of both the financial and social performance of transformed MFIs. However, given the prior discussion, factors such as leverage maybe primary determinants of the performance of MFIs, with possible reverse causality. Thus, to optimize the outcomes of the transformation process, this study will also address these open research areas. The next section presents a visualization of the conceptual framework.

CHAPTER 3

METHODOLOGY

3.0   Introduction

This chapter describes the sampling technique, data sources and the data analysis techniques employed in the study. The chapter starts by laying out the research philosophy. Next, the section defines the population and the sampling frame that form the basis of data collection. The chapter also describes the sampling methodology that selects individual MFIs that are the units of analysis for the study. The section further describes the data sources. Finally, the section lays out the empirical models and the variables that relate to each objective.

3.1   Research Philosophy

The philosophy of post-positivism forms the basis of the study. However, the analysis of post-positivism is better with some background on its predecessor- positivism. Positivism assumes that researchers can objectively study all realities and facts through scientific techniques (Roth & Mehta, 2002; Creswell, 2009). Thus, beyond experience, knowledge can also be derived from observation or measurement.

The research outputs based on positivism are law-like generalizations akin to the ones in the physical sciences (Saunders, Lewis, & Thornhill, 2009). These laws are meant to be generalizable beyond the scope of the specific data that is collected and analyzed. The laws developed are subsequently tested and refined, which may also result in the development of further theories. Specifically, existing theories are used to generate further hypotheses. Upon testing the hypotheses, researchers generate new theories that researchers test and refine further in an iterative process (Saunders et al., 2009).

The advantage of positivism is that it allows for value-free research, where the feelings and perceptions of the researcher, which may cause distortion, play a minimal role and hence permit replication. However, researchers have argued that the pursuit of value-free agenda implies the existence of a value proposition (Saunders et al., 2009), meaning that it is not possible to pursue value-free research. As such, the values of the researcher directly or

indirectly influence research directions and thus influence the research output. The position is also held by the proponents of the "interpretivist" paradigm which seeks to "unravel patterns of subjective understanding" (Roth & Mehta, 2002), but falls short of giving a causal explanation.

Post-positivism aims to correct for the deficiency of positivism. To do this, post-positivism rejects some of the central tenets of positivism (Creswell, 2009). Post-positivists hold that scientific reasoning and everyday thinking differ only regarding degree. More importantly, the post-positivists posit that observation is prone to error, meaning that all theories are revisable (Hacking, 1983). While positivists hold that the goal of science is to uncover the truth, post-positivist insist that it is not possible to fully grasp reality. The goal of post-positivism is to stay on the path of getting it right about reality, although that goal is an ideal that may not be attainable (Iofrida, De Luca, Strano, & Gulisano, 2018).

A prominent variant of post-positivism is critical realism. Critical realists hold that there exists an external reality beyond our thinking that researchers could study through scientific techniques. Like other post-positivists, critical theorists hold that given that scientific measurement of phenomena is prone to error, it is critical for researchers to run multiple tests (analysis) for the same imperfect phenomenon to better grasp reality (Archer, Bhaskar, Collier, Lawson, & Norrie, 2013). Thus, triangulation is thus a central tenet in post-positivism. Robustness checks are the triangulation techniques that researchers often apply in finance and economics.

Lastly, and more importantly, most post-positivists are constructivists, who hold that individuals construct their view of the world based on their perceptions. Given that perceptions may be faulty, then the individual's view of the world is imperfect. Thus, unlike positivists, post-positivists reject the idea that scientists could set aside their bias and view the world correctly (Jonassen, 1991). Thus, according to constructivists, all research is subjective. One of the significant strengths of post-positivism is its acceptance of both qualitative and quantitative approaches to research.

3.2   Target Population of the Study

All MFIs in Africa make up the population of the study. The population includes both the transformed and untransformed MFIs. However, the target population only covers the formal MFIs (The Microfinance Information Exchange, 2017). It is noteworthy, however, that informal microfinance institutions such as merry go rounds constitute a significant yet undocumented proportion of the activities in the microfinance industry (Klapper & Singer, 2014). These will be left out given that there is no reliable data from them that would lend itself to analysis that currently exists in the MIX pooled database.

3.3   Sampling Frame

The sampling frame consists of all MFIs operating in Africa that submit their data to the MIX pooled database. The MIX pooled database comprises of voluntary, self-reported data from MFIs across the globe (The Microfinance Information Exchange, 2017). Self-reporting raises questions regarding the accuracy of the data. To address the issue of accuracy, the database awards ratings to the MFIs reporting the data with the MFIs with the highest data transparency receiving better ratings. MFIs with a diamond rating on the MIX database, usually open themselves up to scrutiny by MIX, report audited accounts and have credit ratings, as illustrated in Table 3.1 below.

Considering the data shortage that plagues Africa and given that the study examines both financial and social performance, the sampling frame is limited to MFIs with a diamond rating of 3 and above. To allow for data quality, the researcher will prioritize MFIs with the highest levels of data quality. It means, therefore, that given two MFIs in a given country the researcher will pick the one with a higher ranking. Furthermore, the sampling frame will also only consider MFIs with at least ten consecutive years of data. The relatively more extended period will allow the researcher to uncover trends among the MFIs across time. The researcher appreciates that limiting the sampling frame may cause sample selection bias.

Table 3. 1: The Disclosure Rankings Adopted by the MIX Pooled Database

DIAMOND RATING LEVEL	DISCLOSURE REQUIREMENTS

Level 1	General information regarding the MFI
Level 2	Level 1 and outreach data for two consecutive years
Level 3	Level 1-2 and financial data for two consecutive years
Level 4	Level 1-3 and audited financial statements (at a minimum, audited financial statements including auditors' opinion and notes for at least two consecutive years
Level 5	Level 1-4 and rating or other due diligence reports (at a minimum, ratings/evaluation, due diligence and other benchmarking assessment reports or studies for one of the two years reported).

The Microfinance Information Exchange (2018)

Still, self-reporting leaves a probability of sample frame bias, where some MFIs do not enlist with the database, or the database does not accurately represent the population. There is a possibility for under-representation, for instance, of small MFIs (which could be numerous), and MFIs from some geographic regions and countries (Beck, 2015). In this case, the results may not be generalizable across the under-represented countries or cases.

3.3   Sampling

The study will employ the multistage sampling technique to draw a sample of MFIs. To start with, the researcher will stratify Africa into five regions: Eastern Africa, Central Africa, Southern Africa, Western Africa, and Northern Africa. For the stratification, the study adopts the UN classification of countries in Africa along these geographic regions[11]. Next, the study will draw a sample of 2 countries from each of the regions. The selection of the countries is dependent on the number of MFIs from that country that report to the MIX pooled database. For a country to qualify for the sample, it must have at least 5 MFIs submitting their data to the MIX pooled database. A minimum of 5 MFIs will allow for

---

[11] Refer to http://www.un.org/esa/population/publications/worldageing19502050/pdf/96annexii.pdf for the details on the classification of countries in Africa.

external validity of the research output. Also, the study will use loan portfolios and deposits to discriminate countries further to refine the sample. As described in chapter 1, the researcher will prioritize countries with the highest loan portfolios and deposits.

In each country, the study will then draw on a random sample of microfinance banks that are in the sampling frame. In this case, microfinance banks that have not been in existence for at least five years after the transformation will be left out. For transformed MFIs, the firm should have availed data to the MIX database for at least five years after the transformation, and five years before. Untransformed MFIs should have data spanning ten years in the database. The time span will allow for an adequate panel data set that could be analyzed and yield viable conclusions. Given the element of purposiveness in the sampling, there is a high likelihood of sample selection bias. The researcher will run the Heckman correction test to correct for the possible sample selection bias.

3.4 Data Collection

The study will draw data from the Microfinance Information Exchange (MIX) pooled database. MIX is a not for profit organization that collates data regarding MFIs across the globe, including their financial and social performance. Numerous researchers have used the data from the MIX database, including but not limited to D'Espallier, Goedecke, et al. (2017) and Abeysekera et al. (2014). The MIX database covers approximately 2000 MFIs that serve 80% of known MFI clients across the globe (The Microfinance Information Exchange, 2017).

The MIX staff countercheck the MFI data against audit reports and other sources and standardize all the MFI data submissions to the International Financial Reporting Standards (IFRS) requirements. Furthermore, as mentioned, the database awards diamond rankings based on the quality of data submitted by MFIs, with a higher rating corresponding to better and more reliable data (The Microfinance Information Exchange, 2018). Data from the individual MFIs financial reports and websites will be the source of additional data as required. The researcher will source country-level data regarding inflation and GDP growth from the IMF and World Bank databases (International Monetary Fund (IMF), 2017).

3.5 Data Analysis: Empirical Models and Techniques for Estimation

This section presents the analytical framework for the study. For each of the objectives of the study as laid out in the introduction chapter, the section describes the variables and the primary empirical model and the additional techniques the study applies to ensure robustness of the results.

3.5.1 Why do some MFIs transform to the commercial model while others retain the NGO Model?

As noted, the relative number of transformed MFIs that have transformed to the commercial model is small (D'Espallier, Goedecke, et al., 2017). The current objective seeks to uncover the factors that hinder or drive the transformation of MFIs to the commercial model.

3.5.1.1 Analytical Framework

The study will adopt the logit model to investigate the drivers and hindrances of the transformation of MFIs in Africa. The logit model is a non-linear model that is a specialized form of the generalized linear regression model developed by Joseph Berkson in the 1940's (Cramer, 2002). As compared to the OLS, the logit model is better suited in the case where the dependent variable is not a continuous variable (but rather a dichotomous), and where the error terms are not normally distributed (Czepiel, 2002). The logit model presumes that the error term, μ, follows a logistic distribution. In this case, the study adopts the model specified below.

$$f(x) = \ln\left(\frac{P_i}{1 - P_i}\right) = \beta_0 + \beta_1 Age + \beta_2 Size + \beta_3 CAP + \beta_4 Legal + \beta_4 GDP + \beta_5 Count + \mu$$

Where $P_i = \frac{1}{1+e^{-Z_i}}$ and,

$1 - P_i = \frac{1}{1+e^{Z_i}}$, for $Z_i = f(x)$

Note the different signs for Z_i.

P_i refers to the probability that an MFI transforms from an NGO to a commercial entity. On the other hand, $(1 - P_i)$ is the probability that an MFI fails to transform. As probabilities, the values of P_i and $(1 - P_i)$ lie between zero (0) and one (1). *Age* refers to

the period for which the MFI has been offering at least one MF service like microcredit. In the case of an NGO, this will be the period from the time it was registered and started offering MF services. Size (S) refers to the magnitude of the MFI, and it is proxied by the natural logarithm of assets. The researcher expects a positive relationship between the age and size of an MFI and the probability of transformation (Campion & White, 1999).

Research shows that the legal and economic environments have a bearing on the transformation of MFIs, including the choice of organizational structure. Accordingly, the variable *Legal* stands for the given country's legal tradition, which could either be a common law or civil law system entering the model as a dichotomous variable (Pashkova et al., 2016). Research indicates that the countries operating on the civil legal system (more so the French Model prevalent in Central and West Africa) are more conservative compared to the more flexible Scandinavian model (Ayyagari, Demirguc-Kunt, & Maksimovic, 2013; La Porta, Lopez-de-Silanes, & Shleifer, 2013). Hence, the researcher expects that MFIs that are operating in civil law countries to have lower rates of transformation. The English common law countries lie in between the French and the Scandinavian models.

Moreover, the variable *GDP* stands for the growth rate of GDP, given that the economic environment has a bearing on the valuation of assets which influence the rate and timing of MFI transformation (Garmaise & Natividad, 2013). In the case of GDP growth, the researcher expects it to have a positive relationship with the probability of transformation.

The level of capital market development (CAP) refers to the level of the ease with which firms have access to and can raise long-term funds from the financial market. Researchers have used different measures to capture the level of capital market development. The proxies are used to capture the level of stock market development and the level of the debt market development (Fauver, Houston, & Naranjo, 2003). For stock market development, researchers have often used the following measures: the ratio of stock market capitalization to GDP, the ratio of the value of stocks traded domestically to GDP, the ratio of the stocks issued domestically to GDP, and the number of listed domestic firms (Ahmed & Mmolainyane, 2014). In the debt markets, researchers use the ratio of public sector debt (loans and bonds) to GDP, and the ratio of private sector debt (loans and

bonds) to GDP. The researcher also incorporates a dochotomous variable *count* that captures the country-specific unobservable characteristics.

The logit model will be estimated using the method of maximum likelihood (ML). The ordinary least squares (OLS) assumes the expected value of the error term (μ) is zero, that μ has a finite variance, and does not make any assumptions regarding the probability distribution of the error term (μ). However, in ML, the assumption is that the error term follows a probability distribution. In the classic standard linear regression, the assumption is that the error term follows a normal distribution with a zero mean and a constant (homoscedastic) variance. Taking these assumptions on the probability distribution of the error term, it is then possible to generate the sampling distribution of the estimators and test hypotheses (Wooldridge, 2010; Gujarati, 2015).

The ML function derives from the probability of the dependent variable, which in this case is the normal distribution function.

$$g(X) = \frac{1}{\partial\sqrt{2\Pi}}\exp(-\frac{1}{2\partial^2}(x-\mu)^2, \text{-}\infty{<}X{<}\infty, \partial^2 > 0$$

Suppose we have a simple function.

$h(x) = Y = B_1 + B_2X + \mu$, then, $\mu = Y - B_1 - B_2X$

it follows then that equation () becomes,

$$g(X) = \frac{1}{\partial\sqrt{2\Pi}}\exp(-\frac{1}{2\partial^2}(Y - B_1 - B_2X)^2$$

The joint probability of Y observations is the product of n terms, as follows.

$$g(X_1) = \frac{1}{\partial\sqrt{2\Pi^n}}\exp(-\frac{1}{2}\sum\frac{(Y-B_1-B_2X)^2}{\partial^2})$$

For equation $g(X_1)$, the part denoted by $(Y - B_1 - B_2X)^2$ can be extended to include additional number of coefficients so that we have $(Y - B_1 - B_2X_2 + \cdots + B_nX_n)^2$. Equation $g(X_1)$ is the likelihood function, denoted by LF (B_1, B_2, ∂^2). The method of maximum likelihood then consists of estimating $B_1, B_2, \ldots\ldots B_n$ such that the probability of observing the Y's is the maximum possible (Gujarati, 2015). By taking the logarithm of equation ()

and differentiating with respect to the intercept and slope coefficients, it is then possible to solve for these values of $B_1, B_2 \ldots \ldots \ldots B_n$.

3.5.1.2 Robustness Tests

Given the relatively small number of MFIs that have converted into legal entities, the ML estimation could give misleading inferences on the drivers of the conversion. If, as Hauser and Booth (2011) note, MFIs that transform are outliers, it poses a major violation of the assumptions underlying the logistic regression. These violations make the ML estimator for the logit model to perform poorly in modelling phenomenon characterized by outliers (Hauser & Booth, 2011). Croux, Flandre, and Haesbroeck (2002) provide proof that the ML estimator breaks down as the sample size approaches zero due to the presence of outliers.

Thus, the study will also estimate the logit model based on the weighted Bianco and Yohai (1996) robust logistic estimator, as initially implemented by Croux and Haesbroeck (2003) to cater for this possibility. Hauser and Booth (2011) demonstrate that the weighted BY estimator performs better with data containing outliers. Research indicates that the BY coefficients also follow a central chi-square distribution for hypothesis testing as does the Wald statistic in the case of ML (Hauser & Booth, 2011). Finally, the researcher will also run the probit model which is similar to the logit model except for the assumption that the error terms follow a normal distribution as detailed by Gujarati (2015).

3.5.1.3 Potential Endogeneity Concerns: Tests and Solutions

As in most econometrics models, there is a possibility of endogeneity arising from the correlation between the one or more of the independent variables and the error term. Typically, endogeneity arises from omitted variables, measurement errors and simultaneity (M. R. Roberts & Whited, 2013). For the multinomial logit model and other non-linear models, the two-stage least squares test for Endogeneity usually produces inconsistent structural parameters and other quantities such as the marginal effects, making the detection of endogeneity difficult (Wooldridge, 2014). The study will apply the control function approach to diagnose for endogeneity as suggested by Wooldridge (2014). In the control function approach, the researcher inserts the residuals from the first stage problem into the second stage, as detailed by Wooldridge and Imbens (2007).

3.5.2 How have the capital structures of MFIs in Africa evolved with the transformation from the NGO model to the reliance on commercial (profit motive) based model?

The study will adopt descriptive statistics approach to investigate this objective. The study will summarize the data in descriptive statistics tables and then plot the data observed over time on time series plots. The data captured includes leverage levels, equity value and grants and donations and subsidies. The study will capture the data at the country, regional and continental level. The segmentation of data will allow the researcher to identify the cross-country and regional similarities or variations in the financing structures of MFIs over time and at the time of the transformation.

3.5.3 What are the factors that influence the choice of financing sources by transformed MFIs in Africa?

Transformed MFIs have a choice of a variety of financing instruments, including, but not limited to debt and equity instruments to supplement subsidies and grants. The current objective seeks to model the determinants of the choice of financing by these MFIs.

3.5.3.1 Estimation Techniques

The study adopts both the fixed and random effects models for the estimations[12]. Following M. R. Roberts and Whited (2013), consider a model that follows.

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \mu_{it}$$

Further, assume that,

$$\mu_{it} = C_i + e_{it}$$

Where C_{it} captures the aggregate effects of the unobserved, time-invariant explanatory variables for Y_{it}. Further, assume that e_{it} has zero mean conditional on X_{it}. In the case where C_i and X_{it} are correlated, then C_i is a fixed effect, otherwise it is a random effect. Note that the existence of fixed effects implies the presence of endogeneity. For random

---

[12] M. R. Roberts and Whited (2013) recommends that researchers should run both the fixed effects and random effects models and test for statistical significance using the Hausman test where null is the random effects and the alternative is the fixed effects. They further note that researchers should check whether the inclusion of fixed effects changes the coefficients in an economically meaningful way, given that Fixed effects is less efficient.

effects, on the other hand, endogeneity is not a concern. However, random effects model affects the computation of standard errors (M. R. Roberts & Whited, 2013).

Thus, the fixed effects models are designed to study the causes of changes within an entity. The fixed effects model does this by controlling for all time-invariant differences between the individuals, so the estimated coefficients of the fixed-effects models cannot be biased because of omitted time-invariant characteristics, such as culture (Torres-Reyna, 2007). To deal with the endogeneity inherent in the fixed effects model, researchers recommend two strategies. The first approach involves the inclusion of firm-specific intercepts by running least squares dummy variable regression. The approach is not feasible with medium to large datasets. In the alternative within-estimator approach, researchers apply OLS to the deviations-from-the-within estimator which eliminates the fixed effect that is prone to endogeneity. The within-estimator regression is as follows[13].

$$\triangle Y_{it} = \beta_1 \triangle X_{it} + \triangle \mu_{it}$$

The model does not deal with the potential endogeneity between $\triangle X_{it}$ and $\triangle \mu_{it}$. Moreover, the differencing may reduce the efficiency of the estimates if the fixed effect (that is differenced out of the model) is correlated with the level of the dependent variable (Clark & Linzer, 2015). For these reasons, the researcher will run the fixed effect model both with the fixed effects and run the within-estimator approach at the country, regional and continental level data.

Y_{it} is the dependent variable, in this case, the financing mix, proxied by the debt to equity ratio.

B₁ is the vector coefficients for the independent variables.

X $_{it}$ represents the independent variable for the determinants of the sources of financing by transformed MFIs. First, as per the institutional lifecycle hypothesis, the stage of maturity of the MFI, as proxied by the age of the MFI, for example, could determine the capital structure of MFIs.

---

[13] For more detailed, but simplified discussion on the derivation and application of the within-estimator, please refer to M. R. Roberts and Whited (2013), Chapter 7, pp. 558.

μ_{it} is the error term.

As research indicates, the factors that affect the choice of financing sources do not differ much between financial and industrial firms. However, for financial firms, there is a dominance of debt in the capital structure, and particularly the fuzziness between deposits and pure debt funding (Ojah & Pillay, 2009). Thus, the variables included in the regression above are as described below. As described in Table 2.1 (section 2.12), the control variables are profitability, firm size and age, asset structure, growth opportunities, ownership structure and ownership type. Also, the researcher also incorporates the level of capital market development (Ehrhardt & Brigham, 2016), the legal form of the MFI and the legal tradition in the country, that is, common law or civil law (Ayyagari et al., 2013).

3.5.3.2   Robustness Checks

As Abeysekera et al. (2014) note, the initial conditions in MFIs and other time-varying characteristics play a role in explaining the extent of mission drift. It is also possible that these factors also explain the choice of financing among transformed MFIs. The static panel data techniques, especially the fixed effects model, do not capture these factors. Thus, for robustness, the researcher will also run dynamic panel regressions. As research indicates, the dynamic panel models are prone to bias for models with a unit root, predetermined and exogenous regressors, and cross-sectional error dependence (Phillips & Sul, 2007). Under cross-sectional error dependence, the probability limit of the dynamic panel regression estimator is a random variable rather than a constant, which explains the variability in dynamic panel estimates.

3.5.4 How is capital structure related to the performance of transformed MFIs in Africa?

While numerous researchers have examined the relationship between financial performance and leverage, few studies investigate such relationships for organizations that have a double bottom line, such as MFIs. This section presents the empirical model, starting with the link between performance and leverage. The section also allows for reverse causality, where performance drives capital structure.

3.5.4.1 The Relationship Between Capital Structure and the Performance of MFIs

The researcher will run two static panel regressions[14], one on financial efficiency of MFIs and the other on the social efficiency of MFIs. The study adopts the following models to examine the relationship between capital structure (leverage) and the financial and social performance of MFIs, respectively.

$$EFFF_{i,t} = a_0 + a_1 LEV_{i,t-1} + a_2 LEV_{i,t-1}^2 + a_3 S_{i,t-1} + a_4 S_{i,t-1}^2 + a_5 C_{1i,t-1} + \mu_{i,t}$$

$$EFFS_{i,t} = \beta_0 + \beta_1 LEV_{i,t-1} + \beta_2 LEV_{i,t-1}^2 + \beta_3 S_{i,t-1} + \beta_4 S_{i,t-1}^2 + \beta_5 C_{1i,t-1} + \mu_{i,t}$$

$EFFF_{i,t}$ refers to the financial performance of a given MFI at a given time. While $EFFS_{i,t}$ refers to the social performance of MFIs in Africa. The researcher will run separate regressions for financial performance and social performance of MFIs.

The study adopts the Data Envelopment Technique (DEA) technique to estimate both the financial and social efficiencies for a given MFI in each period. Unlike the other measures of financial and social performance of MFIs, DEA quantifies the (inverse) agency costs without being confounded by factors that are not related to agency costs (Berger & Bonaccorsi di Patti, 2006). As a deterministic and non-parametric enveloping technique, DEA is not prone to the standard econometric problems. In DEA, for instance, the researcher does not have to specify a functional form, estimate parameters, or specify an error term. Furthermore, DEA makes no distinction between dependent and independent variables (Zhou, Poh, & Ang, 2007). A detailed discussion of DEA is in section 2.13.3.

A principal contention in the application of DEA is the choice of inputs and outputs. There are two schools of thought in the choice of inputs: the production approach versus the intermediation approach. In the production approach, researchers assume that banks produce loans and deposit accounts, and hence use the type and amount of transactions and documents processed as inputs (Cook, Tone, & Zhu, 2014). In the intermediation approach, researchers treat banks as intermediaries between savers and borrowers.

---

[14] Based on the outcomes of the Hausmann test, the researcher will run one of either the fixed effects or the random effects regressions. The specification of the specific model can only be specified when the researcher determines the characteristics of the data.

Different researchers use a variety of inputs and outputs under the intermediation approach as described next.

A survey of the literature by Fethi and Pasiouras (2010) on the applications of DEA uncovers the controversy surrounding the choice of inputs and outputs. In their analysis of 196 journal articles, the researchers find that there is a general agreement regarding the inputs for measuring efficiency, except for the place of deposits. The researchers note that the traditional inputs are assets, personnel, while outputs consist of the various classes of earning assets such as loans (Holod & Lewis, 2011).

However, the place of bank liabilities, especially deposits is controversial. Researchers following the production approach take deposits as outputs, arguing that deposit mobilization (encouraging savings) is a service that is a central function of financial intermediaries. The financial intermediation paradigm takes deposits as inputs, which financial intermediaries then convert into loans and other earning assets. Still, there is no common ground among researchers on the choice of the two approaches, leading to inconsistent estimates. For instance, a bank with more deposits and fewer loans is considered inefficient under the intermediation approach, but efficient under the production approach (Fethi & Pasiouras, 2010).

Holod and Lewis (2011) propose a model that treats deposits as neither an input nor an output. In this model, the researchers treat deposits as an intermediate product that is output in the first stage of the financial intermediaries' production process and input into the second stage. The model poses the following question, "given a certain amount of deposits, by how much can an intermediary increase its outputs and reduce its inputs." Another variant referred to as profit-oriented approach defines outputs as the revenue components (such as interest income and non-interest income) with the cost components (such as personnel expenses and interest expenses) being inputs (Fethi & Pasiouras, 2010).

The current study follows the intermediation approach. The study takes total assets, personnel costs, and deposits as inputs, while outputs comprise of total loans, interest revenue, and non-interest revenue to measure financial efficiency. As for social performance, the study adopts the same set of inputs. However, the outputs are the average loan size, number of loans granted to women, number of loans granted to rural

dwellers, and the number of people who get a loan equal to or less than the median loan size.

In a nutshell, DEA requires the formulation and resolution of the following linear programming model.

$$MAXh_j = \frac{\sum_{r=1}^{n} u_r y_r}{\sum_{i=1}^{m} v_i x_i}$$

Subject to,

$$\frac{\sum_{r=1}^{n} u_r y_r}{\sum_{i=1}^{m} v_i x_i} \leq 1$$

$$u_r, v_i \geq 0$$

In this case, n is the output number, and m the input number. u_r is the weight of n and v_i is the weight of n. in addition, v_i and x_i represent the weight of n and output of m respectively. For each decision-making unit, the solution to the above inequality gives the respective efficiency score. When researchers run DEA assuming constant returns to scale (CRS), the resulting output represents the technical efficiency (TE). Technical efficiency stands for the efficiencies due to input-output configurations and size of operations. Under variable returns to scale, the output in the score is the pure technical efficiency (PTE)- the efficiency arising from input output configuration while ignoring the scale of operations (Staub, e Souza, & Tabak, 2010; Ulas & Keskin, 2015). For robustness, the researcher will also use the stochastic frontier approach to measure the efficiency of MFIs.

$LEV_{i,t-1}$ refers to the leverage level of a given MFI in the previous year. The level of leverage is the sum of the financing from deposits, subsidies and grants, and long-term debt. There are two contradicting theories on the effects of leverage on the efficiency of firms. On the one hand, the efficiency-risk hypothesis posits that a more efficient firm is likely to choose higher leverage given the negative relationship between efficiency, and bankruptcy and financial distress (Margaritis & Psillaki, 2007, 2010). On the other hand, Berger and Bonaccorsi di Patti (2006) argue that more efficient firms are more likely to earn a higher return, which they could use as a buffer against portfolio risk. Hence, more efficient firms are likely to substitute equity for debt.

The introduction of the lagged variable for leverage is in line with Margaritis and Psillaki (2010) who observe that the level of leverage in the past is likely to have a more significant effect on the efficiency of an MFI. On the same line, Margaritis and Psillaki (2010) observe that although the relationship between efficiency and leverage is likely to be positive at lower levels, the relationship is likely to change at higher levels, and hence the introduction of $LEV_{i,t-1}^2$. For a firm with high leverage, the costs of financial distress occasioned by the high levels of debt may outweigh the benefits of the tax shield as per the trade-off theory.

$S_{i,t-1}$ stands for the subsidy dependence index which reflects the level of donations and subsidies for a given MFI in the previous year. Unlike commercial corporations, most MFIs still rely on private donations and public subsidies. As Cull, Demirgüç-Kunt, and Morduch (2016) note, transformed MFIs, given their size have higher levels of subsidies and donations per loan granted than do untransformed MFIs, which affects leverage levels. In terms of social efficiency, donors often target the MFIs that meet their social objectives, and thus, the level of donor funding may also drive social performance (Hudon, 2010; D'Espallier et al., 2013; Cull et al., 2016). Again, the study includes $S_{i,t-1}^2$ given that the level of subsidy may have a different impact on the performance of MFIs beyond a certain threshold. Specifically, the dominance of donations may result in an MFI focusing more on social efficiency and less on financial efficiency.

$C_{i,t-1}$ stands for a set of control variables specific to individual MFIs in the previous year. The explicit control variables are profitability, firm size and age, asset structure, growth opportunities, ownership structure and ownership type. The study uses net operating income and the natural logarithm of assets as a proxy for profitability and firm size respectively (Margaritis & Psillaki, 2007, 2010; Adusei, 2015). As noted, there is a link between financial performance and leverage (Barclay & Smith, 2005). Regarding size, bigger firms are likely to be more efficient given their access to better technology and resulting from economies of scale, better management and risk diversification. However, big firms are also likely to suffer from diseconomies of scale and large monitoring costs. The study adds the square of size to allow for non-linearity in the relationship between size and performance (Margaritis & Psillaki, 2010).

The ratio of non-current assets to total assets is the proxy for asset structure (or, less aptly asset tangibility). As noted, firms with more tangible assets tend to be more levered, given that such assets can act as collateral. Debtholders who use tangible assets as collateral can easily monitor the assets, which helps mitigate agency conflicts (Campello & Giambona, 2011). Again, the study also allows for non-linearity in the relationship between asset tangibility and performance by including the square of asset structure in line with Margaritis and Psillaki (2010).

The study uses ownership concentration of the top shareholders as a proxy for the ownership structure. The study uses dummy variables to quantify ownership concentration; with a zero standing for a firm where no single equity holder has more than 25% of the shareholding. The study assigns a code of one (1) to the other two scenarios where a single equity holder has between 25% and 50% of shares, and more than 50% of shares, respectively. The proposed classification has a drawback in that it ignores the other shareholders (Kwoka Jr, 1985). However, as noted by Margaritis and Psillaki (2010), this form of classification is better than using the Herfindahl-Hirschman Index (HHI) and Concentration Ratio (CR), which perform poorly in a situation where the ownership is in favor of a few individuals or entities.

Researchers have found conflicting results on the relationship between ownership concentration and firm performance. A meta-analysis by Wang and Shailer (2015) using 419 correlations, based on 42 major studies in 18 emerging economies, found a negative relationship. The researchers attributed a large proportion of the heterogeneity in the relationships to the choices of modeling techniques, population differences and inadequate treatment of endogeneity. Bian and Deng (2017) observe that banks with lower ownership concentration have higher returns and lower non-performing loans. They attribute the poor performance of concentrated banks to the massive loans that concentrated firms issue to firms with connections to the major shareholders.

The ownership type proxy is the ratio of equity ownership held by individuals and institutions. Using a modification of the classification used by Margaritis and Psillaki (2010) that depends on the identity of the majority shareholder. In this case, the study bases the classification on three types of majority shareholding: banks and other financial institutions,

NGOs, and others. The latter includes individual shareholders and corporations that are neither NGOs nor financial institutions.

The revenue growth rate stands for the growth opportunities that MFIs face. Better growth options boost the performance of any firm, including MFIs. According to Barclay, Smith, and Morellec (2006) and Wu and Yeung (2012), firms with higher growth opportunities tend to have more debt in their capital structure. The capacity to undertake such profitable opportunities explains the maintenance of a reserve borrowing capacity by firms, in line with the dynamic trade-off theory. Furthermore, some researchers posit that MFIs experiencing high growth rates are likely to experience social failure (Jia, Cull, Guo, & Ma, 2016). The study also introduces country dummies to account for cross-country differences.

The controls described above relate to both regression models. The regression model on the social efficiency includes additional controls: GDP growth rate, MFI portfolio quality, cost efficiency, the ratio of FDI to GDP, and an aid volatility index. A dynamic economy may lead to the increased welfare of the poor and the financially excluded and hence cause an increase in loan uptake both regarding the number of people applying for loans and the average loan sizes (Mersland & Strøm, 2010). Similarly, researchers have pointed to cost efficiency as an essential driver of the social performance of MFIs, as does the portfolio quality which is inversely related to social performance(D'Espallier et al., 2013). Also, research indicates that the FDI flows are directly related to the average loan size, a commonly used proxy for social performance (Forkusam, 2014). Lastly, some research indicates that aid volatility or subsidy uncertainty (Armendáriz, D'Espallier, Hudon, & Szafarz, 2013b; D'Espallier, Hudon, et al., 2017) is inversely related to the social performance of MFIs.

3.5.4.2   Reverse Causality: From Financial Performance to Leverage in MFIs

Agency theory also posits that the financial performance of a firm may influence the level of leverage. For instance, firms with better financial performance measures have a lower cost of capital given the better credit rating, ceteris paribus. As Berger and Bonaccorsi di Patti (2006) notes, regressions of firm performance on leverage may be confounded by those between leverage on performance due to the possible existence of simultaneity, and hence reverse causality from performance to capital structure.

For instance, firms with better financial performance may have easier access to capital markets with the attendant implications on capital structure (Barclay & Smith, 2005). However, additional factors such as the growth opportunities are likely to moderate the relationship between financial performance and leverage. Also, firms with high growth prospects are likely to take up debt to take advantage of investment opportunities. On the other hand, firms experiencing low growth could utilize the profits to pay off debt or buy back shares (in place of dividends). However, little research has examined this reverse relationship.

For firms with a double bottom line, such as MFIs, research indicates that the donors direct their funding to those MFIs that meet their social goals, which directly impacts on the degree of leverage (Hudon, 2010; D'Espallier et al., 2013; Cull et al., 2016). However, it is not clear how both financial performance and social performance interact and influence the capital structure of MFIs. First, this study will run two separate regressions to examine the effects of financial performance and social performance on leverage, as specified in the model that follows.

$$LEV_{it} = \beta_0 + \beta_1 EFFF_{i,t-1} + \beta_2 EFFF_{i,t-1}^2 + \beta_3 C_{2i,t-1} + v_t$$

$$LEV_{it} = \beta_0 + \beta_1 EFFS_{i,t-1} + \beta_2 EFFS_{i,t-1}^2 + \beta_3 C_{2i,t-1} + v_t$$

Margaritis and Psillaki (2010) advance two theories regarding the relationship between leverage and capital structure. In the agency cost hypothesis, the relationship between leverage and performance is positive. On the other hand, their franchise value hypothesis predicts a negative relationship. Given the contradictions, the model follows a quadratic functional form to allow for a reversal of the relationship beyond a given level of leverage. The control variables $C_{2i,t-1}$ are as described in section 3.4.4.1 above.

The model will also allow for the interaction of financial performance and social performance. The ultimate objective of MFI transformation is to have MFIs that serve the intended clientele sustainably. Given the push by donors to transform, it is then possible that financial performance, social performance, or a mix of both could drive the flow of funds (both from donors and capital markets). The interaction between both dimensions of performance will help uncover the existence of such a link.

3.5.4.3   Robustness Tests

For robustness, the researcher will also run dynamic panel regressions, as detailed in section 3.5.3.2.

3.5.5 To what extent has the institutional transformation of MFIs in Africa affected financial inclusion?

The advocates of the institutional transformation of MFIs posit that it allows for mission expansion that comes with cross-subsidization in MF business. In this case, MFIs charge higher rates of interest on well-off customers allow MFIs to expand their services to the financially excluded clients at the base of the pyramid (Mersland, 2011). The proponents of the institutional transformation have made a case that it causes mission drift (D'Espallier, Goedecke, et al., 2017). The uncertain research outcomes call for the examination of the institutional transformation while considering the context within which the transformation happens. The setting of the transformation of MFIs includes the heterogeneity between MFIs, differences in the manifestation of the transformation across countries and regions, and cultural variances.

3.5.5.1   A Novel Measure of the Social Performance of MFIs

Section 2.17, presents the various metrics that researchers use to capture the financial performance and the social performance of MFIs. The section also highlights the merits and demerits of each measure. The current section seeks to develop and test novel measures believed to capture the degree to which MFIs meet their social and financial objectives.

First, the section begins with social performance. Table 2.3 shows the various alternative measures used to capture the social performance of MFIs. This section posits that the number of clients who receive a loan equal to or below the median loan size for a given MFI would better capture the social performance of MFIs. For comparability across firms, the suggested metric could be scaled using the total number of loans granted.

The use of median has several advantages over the mean. First, the median is not affected by extreme values, a standard feature among MFIs that attempt to cross-subsidize. Secondly, the measure is better able to deal with the increase in loan sizes resulting from improved client welfare, dynamic economy or accumulation of loan arrears that bias loan

sizes upwards. Moreover, with scaling, the metric is comparable even among firms of different sizes as it lies between zero and unity. Researchers could also use the metric for cross-country comparisons of MFIs after factoring in country specificity.

Formally, let M represent the number of clients that receive a loan equal to or less than the median loan size in a given year from a given MFI i. Further, let N be the total number of clients that receive credit from the MFI in a given year.

$$M_{si} = \frac{M_i}{N_i}$$

The new metric, however, like the others used in quantifying the social performance of MFIs, fails to factor in the provision of new products by MFIs, like savings, pension, and money transfer.

3.5.5.2 The Analytical Framework

The study will use the difference-in-differences (DD) approach to investigate the objective. Researchers use the DD estimators to uncover the effects that arise out of marked or salient changes in the economic environment, institutional environment or government policy (M. R. Roberts & Whited, 2013). Usually, the DD estimators go along with the natural- or quasi-experiments that go with these changes. In the case of some MFIs, such salient change has arisen from the change from the NGO model to the commercial model. The DD estimators fall into three categories: single cross-sectional difference after treatment, single time-series difference after treatment and the double-difference estimator (difference in differences).

The single cross-sectional difference after treatment estimator is applicable where no data is available for pre-treatment outcomes. In this case, researchers compare two groups; one that was subject to the treatment and the control group not subjected to the treatment. The cross-sectional difference avoids the problem of omitted trends by comparing two groups at the same period. One prominent application of the technique is by Garvey and Hanka (1999) who estimate the effects of anti-takeover statutes on the leverage of firms. The researchers compare the leverage of firms in states that passed the anti-takeover laws (the treatment group) and those in states that did not pass such laws. Where there are

several post-treatment periods, researchers either collapse the data into a single data point by averaging or include period dummies. However, in the case there were any permanent unobserved differences in the treatment and control groups before the treatment, then the method cannot accurately diagnose the effects of the changes.

An alternative way involves researchers comparing the same set of subjects before treatment and then after treatment. This method is the single time series difference before and after treatment. The strength of this approach is that it avoids the problem of unobserved differences by comparing the same subjects both before and after the treatment. Again, if there is more than one post-treatment period data, the researcher could assume that the post-treatment effect is constant and run a level regression or include period dummies. However, the method raises an endogeneity concern that the subjects would have changed over time, even without the treatment, a concern akin to the omitted variable problem.

The difference-in-differences (double-difference, DD) approach combines the single cross-sectional difference after treatment estimator and the single time series difference before and after treatment. Essentially, DD combines the relative strengths of both methods. Take a case of a panel dataset for two periods; one before and one after the onset of treatment. Further, the treatment only happens for some of the subjects. The treatment effect is identical to the case of the transformation of MFIs where some MFIs have transformed while others have not. The regression equation is as follows.

$$y = \beta_0 + \beta_1 d * p + \beta_2 d + \beta_3 p + \mu$$

In this case, d refers to the treatment assignment, with a value of one if an MFI transformed and zero otherwise. Similarly, p is the post-treatment indicator, being zero before the MFI transformation and one otherwise.

The level d controls account for the permanent difference between the transformed and the non-transformed MFIs, while the p level controls for the trends common to both the transformed and non-transformed MFIs. Regarding differences, some researchers express the DD estimator as follows.

$$\triangle y = \beta_0 + \beta_1 d + \triangle \mu$$

The DD method could also be obtained using differences in variables instead of levels. The estimated regression model is as follows.

$$\triangle y = \beta_0 + \beta_1 d + \triangle X\underline{\omega} + \triangle \mu$$

With a pre- and post-transformation period in MFIs, a cross-sectional regression on the change in the level of financial inclusion $\triangle y$ regressed on a treatment group indicator variable d, and a change in a set of control variables $\triangle X_1, \triangle X_2 \dots \dots \dots \triangle X_n$ uncovers the treatment effect β_1.

In the current study, y represents the number of clients that receive a loan equal to or less than the median loan size as described in section 3.5.5.1. The control variables include the profitability, firm size and age, asset structure, growth opportunities, cost efficiency, ownership structure and ownership type, as again detailed in section 3.5.3.1. Furthermore, as Forkusam (2014) illustrates, the FDI may hurt the social performance of MFIs, and thus the study also uses the ratio of FDI to GDP as a control. Lastly, the regression also includes the subsidy dependence index described in section 3.5.4.1. The study implements the DD approach using a pooled OLS at country, regional and continental levels.

Some critical assumptions underlying the DD also turn out to be its biggest weakness. For instance, the parallel trends assumption, as noted, is unobservable. Secondly, DD assumes that the treatments are random conditional on time and group fixed effects. However, some researchers have argued that the timing of the treatments could be endogenous. Furthermore, like Bertrand, Duflo, and Mullainathan (2004) note, the problem of serial correlation could be potentially severe in DD, yet most studies do not adequately correct for it. Lastly, the resulting standard errors from DD estimates are not consistent.

3.5.5.2   Robustness Tests

For robustness, the study will use various proxies for the variable y. These include the number of loans equal to the median loan size granted, the number of women borrowers granted loans, the average loan size, and the number of loans awarded to rural dwellers (D'Espallier, Goedecke, et al., 2017). The study also employs an additional robustness test

to check for the internal validity of the model: the falsification test #1. In the falsification test #1, the researcher will repeat the DD on the pre-event years. In this case, the study will falsely presume that the treatment (in this case, the transformation of MFIs), occurred a few periods before it occurred. The repeated estimation should produce a treatment effect that is statistically insignificant, meaning that the observed change (if any) in the original dataset is the result of the transformation of MFIs and not some other force. The test is especially important given that the critical assumption behind DD, the parallel trends assumption is not observable (M. R. Roberts & Whited, 2013).

3.5.6 After transformation, what factors explain the level of sustainability and outreach by MFIs in Africa?

The debate surrounding the transformation of MFIs centers around mission drift. The available studies present mixed evidence in this regard. It appears therefore that the presence or absence of mission drift could be MFI specific, or vary across countries and regions. It is paramount, therefore to uncover the characteristics of transformed MFIs that are both financially sustainable and achieve their social mission.

As per the classification model developed by Chattopadhyay and Mitra (2017), the study grants a code of one (1) to MFIs that achieve both their financial and social objectives. Otherwise, the study assigns a code of zero (0). The discussion on the technique for measuring the financial and social performance of organizations with a double bottom line developed by Chattopadhyay and Mitra (2017) is in section 2.13.3.

3.5.6.1 Analytical Framework

Again, the study uses the logit model, explained in section (), to investigate the objective.

$$f(x) = \ln\left(\frac{P_i}{1 - P_i}\right) = \beta_0 + \beta_1 Age + \beta_2 Size + \beta_3 CAP + \beta_4 Legal + \beta_4 GDP + \beta_5 Count + \mu$$

The definitions of the independent variables in section 3.5.5 above remain. The dependent variable is, however, different. P_i stands for the probability that the transformed MFI can achieve both financial sustainability and social mission. The MFIs that achieve both objectives are in the first quadrant of Figure 2.4. On the other hand, $1 - P_i$ refers to the probability that the MFI fails to achieve one of the objectives or fails to achieve any of the

objectives, as represented by quadrants 2, 3 and 4 of the figure 2.4. As in section 3.5.1, the regression is estimated using the method of maximum likelihood (ML). Similarly, to ensure robustness in the estimates, the researcher will also estimate the model using the Bianco and Yohai robust logistic estimator given that ML estimates of logit model performs poorly when there are outliers (Croux & Haesbroeck, 2003).

3.5.7 What is the mix of debt and equity that Pareto optimizes financial performance and efficiency on the one hand, and social mission attainment of transformed MFIs in Africa on the other?

Researchers often analyze the financial performance and the social performance of MFIs in isolation. As noted, there are several indices constructed that simultaneously capture both financial and social performance of MFIs. The objective of this section is to investigate the financing mix that optimizes the balance between the financial performance and the social performance of MFIs, and the other factors that are peculiar to MFIs that meet (or fail to meet) their financial and social objectives.

3.5.7.1   What is the mix of debt and equity associated with the Optimal Financial and Social Performance of Transformed MFIs in Africa

The starting point for the examination of this objective is the classification of MFIs depending on whether they can meet their financial and social objectives as described in section 3.5.6 above. The examination of the MFIs in quadrant 1 is in light of the other MFIs that do not meet one or all of their objectives. The focal point is the cluster of MFIs that meet both their financial and social objectives. Specifically, the current objective seeks to establish whether there are commonalities associated with these entities. The principal commonality under examination is the debt-equity ratios. However, the study also looks into additional factors such as the age, size, subsidy dependence, and cost efficiency.

The researcher will apply multi-dimensional scaling (MDS) technique to establish whether there is a link between the achievement or non-achievement of the given objectives on the one hand, and debt-equity ratio, age, size, cost efficiency on the other. MDS "consists of a group of methods used to discover empirical relationships among investigated objects by visualizing them and presenting their geographic representation in a low dimensional display space." ((Buja & Swayne, 2002), pp. 143). In this case, the MDS aims to uncover

commonalities, if any, between the degree of the performance of an MFI and its leverage ratio and a host of other variables described above.

As a visual technique, MDS is more intuitive and vivid than traditional data analysis techniques. Again, MDS applies to a broader range of situations as the data used is free of distribution assumptions. The typical input for MDS is a set of similarities (or dissimilarities) between of the variables under investigation in a high dimensional space. High dimensional space would refer to, for instance, a four-dimensional set capturing performance, leverage, age, and size of an MFI. Such a matrix is hard to decipher, but MDS reduces it to a low dimensional space so that the researchers could quickly examine the similarities in the data. Finally, for robustness, the researcher will use a tabular format based on descriptive statistics to summarize the variables.

REFERENCES

Abate, G. T., Borzaga, C., & Getnet, K. (2014). Cost-efficiency and outreach of microfinance institutions: Trade-offs and the role of ownership. *Journal of International Development, 26*(6), 923-932.

Abeysekera, S., Oguzoglu, U., & Le, T. (2014). Sustainability and mission drift: Do microfinance institutions in Vietnam reach the poor? In R. Mersland & R. Ø. Strøm (Eds.), *Microfinance institutions: Financial and social performance* (pp. 99-118). London: Palgrave Macmillan UK.

Abor, J. (2005). The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana. *The Journal of Risk Finance, 6*(5), 438-445.

Abor, J. (2007). Debt policy and performance of SMEs: Evidence from Ghanaian and South African firms. *The Journal of Risk Finance, 8*(4), 364-379.

Adusei, M. (2015). The impact of bank size and funding risk on bank stability. *Cogent Economics & Finance, 3*(1), 1111489.

Ahlin, C., Lin, J., & Maio, M. (2011). Where does microfinance flourish? Microfinance institution performance in macroeconomic context. *Journal of development Economics, 95*(2), 105-120.

Ahmed, A. D., & Mmolainyane, K. K. (2014). Financial integration, capital market development and economic performance: Empirical evidence from Botswana. *Economic Modelling, 42*, 1-14.

Aigner, D., Lovell, C. K., & Schmidt, P. (1977). Formulation and estimation of stochastic frontier production function models. *Journal of econometrics, 6*(1), 21-37.

Archer, M., Bhaskar, R., Collier, A., Lawson, T., & Norrie, A. (2013). *Critical realism: Essential readings*. London: Routledge.

Armendáriz, B., D'Espallier, B., Hudon, M., & Szafarz, A. (2013a). Subsidy uncertainty and microfinance mission drift. *SSRN Electronic Journal, 1*(3), 24-45.

Armendáriz, B., D'Espallier, B., Hudon, M., & Szafarz, A. (2013b). Subsidy uncertainty and microfinance mission drift. *SSRN Electronic Journal, 1*(1), 15-30.

Ashta, A., Couchoro, M., & Musa, A. S. M. (2013). Microfinance and entrepreneurship. In *Encyclopedia of creativity, invention, innovation and entrepreneurship* (pp. 1272-1278). New York: Springer.

Ayele, G. T. (2015). Microfinance Institutions in Ethiopia, Kenya and Uganda: Loan Outreach to the Poor and the Quest for Financial Viability. *African Development Review, 27*(2), 117-129.

Ayyagari, M., Demirguc-Kunt, A., & Maksimovic, V. (2013). Financing in Developing Countries In G. M. Constantinides, M. Harris, & R. M. Stulz (Eds.), *Handbook of the Economics of Finance* (Vol. 2A, pp. 683-744). Amsterdam: North Holland.

Ballwieser, W., Bamberg, G., Beckmann, M., Bester, H., Blickle, M., Ewert, R., . . . Funke, H. (2012). *Agency theory, Information, and Incentives*. New York: Springer Science & Business Media.

Barclay, M. J., & Smith, C. W. (2005). The capital structure puzzle: The evidence revisited. *Journal of Applied Corporate Finance, 17*(1), 8-17.

Barclay, M. J., Smith, J., Clifford W, & Morellec, E. (2006). On the debt capacity of growth options. *The Journal of Business, 79*(1), 37-60.

Bateman, M. (2010). *Why doesn't microfinance work?: the destructive rise of local neoliberalism.* London: Zed Books Ltd.

Battaglini, M., Nunnari, S., & Palfrey, T. R. (2016). The dynamic free rider problem: A laboratory study. *American Economic Journal: Microeconomics, 8*(4), 268-308.

Bauchet, J., & Morduch, J. (2013). Is micro too small? Microcredit vs. SME finance. *World Development, 43*, 288-297.

Bayai, I., & Ikhide, S. (2016). Financing and financial sustainability of microfinance institutions (MFIs): A conceptual view. *Banks and Bank Systems, 2*(2), 21-32.

Beck, T. (2015). Microfinance–A Critical Literature Survey. *World Bank Independent Evaluation Group Working Paper, 4.*

Bédécarrats, F., Baur, S., & Lapenu, C. (2012). Combining social and financial performance: A paradox? *Enterprise Development and Microfinance, 23*(3), 241-258.

Bendickson, J., Muldoon, J., Liguori, E., & Davis, P. E. (2016). Agency theory: the times, they are a-changin'. *Management Decision, 54*(1), 174-193.

Berger, A. N., & Bonaccorsi di Patti, E. (2006). Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry. *Journal of Banking & Finance, 30*(4), 1065-1102.

Berle, A., & Means, G. (1932). *The modern corporation and private property* New York: Macmillan.

Bertrand, M., Duflo, E., & Mullainathan, S. (2004). How much should we trust differences-in-differences estimates? *The Quarterly Journal of Economics, 119*(1), 249-275.

Bian, W., & Deng, C. (2017). Ownership dispersion and bank performance: Evidence from China. *Finance Research Letters, 22*, 49-52.

Bianco, A. M., & Yohai, V. J. (1996). Robust estimation in the logistic regression model. In H. Rieder (Ed.), *Robust Statistics, Data Analysis, and Computer Intensive Methods* (Vol. LNS 109, pp. 17-34). New York: Springer.

Bogan, V. L. (2012). Capital structure and sustainability: An empirical study of microfinance institutions. *Review of Economics and Statistics, 94*(4), 1045-1058.

Bos, J. W., & Millone, M. (2015). Practice what you preach: Microfinance business models and operational efficiency. *World Development, 70*, 28-42.

Bradley, M., Jarrell, G. A., & Kim, E. (1984). On the existence of an optimal capital structure: Theory and evidence. *The journal of finance, 39*(3), 857-878.

Brown, M., Guin, B., & Kirschenmann, K. (2012). Microfinance commercialization and mission drift. *Die Unternehmung, 66*(4), 340-357.

Buja, A., & Swayne, D. F. (2002). Visualization methodology for multidimensional scaling. *Journal of Classification, 19*(1), 7-43.

Campello, M., & Giambona, E. (2011). *Capital structure and the redeployability of tangible assets.* Retrieved from The Hague:

Campion, A., & White, V. (1999). *Institutional metamorphosis: Transformation of microfinance NGOs into regulated financial institutions.* New York: MicroFinance Network.

Caudill, S. B., Gropper, D. M., & Hartarska, V. (2009). Which microfinance institutions are becoming more cost effective with time? Evidence from a mixture model. *Journal of Money, Credit and Banking, 41*(4), 651-672.

Chahine, S., & Tannir, L. (2010). On the social and financial effects of the transformation of microfinance NGOs. *Voluntas: International Journal of Voluntary and Nonprofit Organizations, 21*(3), 440-461.

Chakravarty, S., & Pylypiv, M. I. (2015). The role of subsidization and organizational status on microfinance borrower repayment rates. *World Development, 66*, 737-748.

Charnes, A., Cooper, W. W., & Rhodes, E. (1978). Measuring the efficiency of decision making units. *European journal of operational research, 2*(6), 429-444.

Chattopadhyay, M., & Mitra, S. (2017). Applicability and effectiveness of classifications models for achieving the twin objectives of growth and outreach of microfinance institutions. *Computational Math and Organization Theory, 23*(2017), 451–474.

Chester, W. C., Alam, B. M., & Haase, D. (2016). "One slowly loses everything": Development and debt in San Antonio Aguas Calientes. *World Development Perspectives, 4*, 24-29.

Chirinko, R. S., & Singha, A. R. (2000). Testing static tradeoff against pecking order models of capital structure: a critical comment. *Journal of financial economics, 58*(3), 417-425.

Christen, R. P., & Cook, T. (2001). *Commercialization and mission drift: The transformation of microfinance in Latin America*. New York: Consultative Group to Assist the Poorest (CGAP).

Claessens, S., Djankov, S., Fan, J. P., & Lang, L. H. (2002). Disentangling the incentive and entrenchment effects of large shareholdings. *The journal of finance, 57*(6), 2741-2771.

Claessens, S., & Fan, J. P. (2002). Corporate governance in Asia: A survey. *International Review of finance, 3*(2), 71-103.

Clark, T. S., & Linzer, D. A. (2015). Should I Use Fixed or Random Effects? *Political Science Research and Methods, 3*(2), 399-408. doi:10.1017/psrm.2014.32

Constantinou, D., & Ashta, A. (2011). Financial crisis: lessons from microfinance. *Strategic Change, 20*(5-6), 187-203.

Cook, W. D., Tone, K., & Zhu, J. (2014). Data envelopment analysis: Prior to choosing a model. *Omega, 44*, 1-4.

Cozarenco, A., Hudon, M., & Szafarz, A. (2016). What type of microfinance institutions supply savings products? *Economics letters, 140*, 57-59.

Cramer, J. S. (2002). The origins of logistic regression. *Tinbergen Institute Discussion Paper, TI 2002-119/4.*

Cremers, K., & Nair, V. B. (2005). Governance mechanisms and equity prices. *The journal of finance, 60*(6), 2859-2894.

Creswell, J. (2009). *Research Design: Qualitative, Quantitative and Mixed Method Approaches, 3rd Edition*. Los Angeles: Sage Publications Inc.

Croux, C., Flandre, C., & Haesbroeck, G. (2002). The breakdown behavior of the maximum likelihood estimator in the logistic regression model. *Statistics & Probability Letters, 60*(4), 377-386.

Croux, C., & Haesbroeck, G. (2003). Implementing the Bianco and Yohai estimator for logistic regression. *Computational statistics & data analysis, 44*(1-2), 273-295.

Cull, R., Demirgüç-Kunt, A., & Morduch, J. (2011). Does regulatory supervision curtail microfinance profitability and outreach? *World Development, 39*, 949-965.

Cull, R., Demirgüç-Kunt, A., & Morduch, J. (2016). The microfinance business model: enduring subsidy and modest profit. *Policy Research Working Paper 7786, World Bank Group.*

Cullinane, K., Wang, T.-F., Song, D.-W., & Ji, P. (2006). The technical efficiency of container ports: comparing data envelopment analysis and stochastic frontier analysis. *Transportation Research Part A: Policy and Practice, 40*(4), 354-374.

Czepiel, S. A. (2002). Maximum likelihood estimation of logistic regression models: theory and implementation. *An Introduction to Data Science.* Retrieved from https://czep.net/stat/mlelr.pdf

D'Espallier, B., Goedecke, J., Hudon, M., & Mersland, R. (2017). From NGOs to banks: Does institutional transformation alter the business model of microfinance institutions? *World Development, 89*, 19-33.

D'Espallier, B., Hudon, M., & Szafarz, A. (2013). Unsubsidized microfinance institutions. *Economics letters, 120*(2), 174-176.

D'Espallier, B., Hudon, M., & Szafarz, A. (2017). Aid volatility and social performance in microfinance. *Nonprofit and Voluntary Sector Quarterly, 46*(1), 116-140.

Dacin, M. T., Goodstein, J., & Scott, W. R. (2002). Institutional theory and institutional change: Introduction to the special research forum. *Academy of Management Journal, 45*(1), 45-56.

De Jong, A., Verbeek, M., & Verwijmeren, P. (2011). Firms' debt–equity decisions when the static tradeoff theory and the pecking order theory disagree. *Journal of Banking & Finance, 35*(5), 1303-1314.

Demsetz, H., & Villalonga, B. (2001). Ownership structure and corporate performance. *Journal of corporate finance, 7*(3), 209-233.

Detthamrong, U., Chancharat, N., & Vithessonthi, C. (2017). Corporate governance, capital structure and firm performance: Evidence from Thailand. *Research in International Business and Finance, 42*(2017), 689-709.

DiMaggio, P., & Powell, W. (1991). Introduction. In *The new institutionalism and organizational analysis* (pp. 1-38). Chicago: University of Chicago Press.

Doidge, C. (2004). US cross-listings and the private benefits of control: evidence from dual-class firms. *Journal of financial economics, 72*(3), 519-553.

Dorfleitner, G., Röhe, M., & Renier, N. (2016). The access of microfinance institutions to debt capital: An empirical investigation of microfinance investment vehicles. *The quarterly review of economics and finance, 65*(2017), 1-15.

Duvendack, M., & Maclean, K. (2015). (Mis)use of evidence in microfinance programming in the global south: a critique. *Contemporary Social Science, 10*(2), 202-211.

Dyck, A., & Zingales, L. (2004). Private benefits of control: An international comparison. *The journal of finance, 59*(2), 537-600.

Ehrhardt, M. C., & Brigham, E. F. (2016). *Corporate finance: A focused approach.* New York: Cengage learning.

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of management review, 14*(1), 57-74.

Elsas, R., Flannery, M. J., & Garfinkel, J. A. (2014). Financing major investments: information about capital structure decisions. *Review of Finance, 18*(4), 1341-1386.

Elsas, R., & Florysiak, D. (2015). Dynamic capital structure adjustment and the impact of fractional dependent variables. *Journal of financial and quantitative analysis, 50*(5), 1105-1133.

Fama, E. F., & French, K. R. (2002). Testing trade-off and pecking order predictions about dividends and debt. *The Review of Financial Studies, 15*(1), 1-33.

Fauver, L., Houston, J., & Naranjo, A. (2003). Capital market development, international integration, legal systems, and the value of corporate diversification: A cross-country analysis. *Journal of financial and quantitative analysis, 38*(1), 135-158. doi:10.2307/4126767

Fenton, A., Paavola, J., & Tallontire, A. (2017). The role of microfinance in household livelihood adaptation in Satkhira District, Southwest Bangladesh. *World Development, 92*, 192-202.

Fethi, M. D., & Pasiouras, F. (2010). Assessing bank efficiency and perfromance with operational research and artificial intelligence techniques: A survey. *European journal of operational research, 204*(2010), 189-198.

Field, E., Pande, R., Papp, J., & Rigol, N. (2013). Does the classic microfinance model discourage entrepreneurship among the poor? Experimental evidence from India. *The American Economic Review, 103*(6), 2196-2226.

Forkusam, A. N. (2014). Does financial globalization affect microfinance mission drift? In R. Mersland & R. Ø. Strøm (Eds.), *Microfinance institutions: Financial and social performance* (pp. 79-98). London: Palgrave Macmillan UK.

Fosu, S. (2013). Capital structure, product market competition and firm performance: Evidence from South Africa. *The quarterly review of economics and finance, 53*(2), 140-151.

Frank, C., Lynch, E., & Schneider-Moretto, L. (2008). Stemming the tide of mission drift: Microfinance transformations and the double bottom line. *Women's World Banking Focus Note*.

FSD-Kenya. (2012). Transforming microfinance in Kenya: The experience of Faulu Kenya and Kenya Women Finance Trust. *The Journal of FSD Kenya, 1*(1), 1-18.

Ganle, J. K., Afriyie, K., & Segbefia, A. Y. (2015). Microcredit: Empowerment and disempowerment of rural women in Ghana. *World Development, 66*, 335-345.

Garmaise, M. J., & Natividad, G. (2013). Cheap credit, lending operations, and international politics: The case of global microfinance. *The journal of finance, 68*(4), 1551-1576.

Garvey, G. T., & Hanka, G. (1999). Capital structure and corporate control: The effect of antitakeover statutes on firm leverage. *The journal of finance, 54*(2), 519-546.

Ghosh, J. (2013). Microfinance and the challenge of financial inclusion for development. *Cambridge journal of economics, 37*(6), 1203-1219.

Gill, A., Biger, N., & Mathur, N. (2011). The effect of capital structure on profitability: Evidence from the United States. *International Journal of Management, 28*(4), 3.

Griffoli, T. M. (2017). Banking on change. *Finance and Development, 54*(3), 26-29.

Gujarati, D. (2015). *Econometrics by example*. New York: Palgrave-Macmillan.

Hacking, I. (1983). *Representing and intervening: Introductory topics in the philosophy of natural science (Vol. 5, No. 1)* (Vol. 5). Cambridge: Cambridge University Press.

Hamid, M. A., Abdullah, A., & Kamaruzzaman, N. A. (2015). Capital structure and profitability in family and non-family firms: Malaysian evidence. *Procedia Economics and Finance, 31*, 44-55.

Haq, M., Skully, M., & Pathan, S. (2010). Efficiency of microfinance institutions: A data envelopment analysis. *Asia-Pacific Financial Markets, 17*(1), 63-97.

Hartarska, V., & Mersland, R. (2012). Which governance mechanisms promote efficiency in reaching poor clients? Evidence from rated microfinance institutions. *European Financial Management, 18*(2), 218-239.

Hartarska, V., & Nadolnyak, D. (2007). Do regulated microfinance institutions achieve better sustainability and outreach? Cross-country evidence. *Applied Economics, 39*(10), 1207-1222.

Hauser, R. P., & Booth, D. (2011). Predicting bankruptcy with robust logistic regression. *Journal of Data Science, 9*(4), 565-584.

Hazarika, G., & Sarangi, S. (2008). Household access to microcredit and child work in rural Malawi. *World Development, 36*(5), 843-859.

Hermes, N., Lensink, R., & Meesters, A. (2011). Outreach and efficiency of microfinance institutions. *World Development, 39*(6), 938-948.

Hishigsuren, G. (2006). Transformation of Micro-finance Operations from NGO to Regulated MFI. *IDEAS, USA, 2*(1), 15-31.

Holderness, C. G., & Sheehan, D. P. (1988). The role of majority shareholders in publicly held corporations: An exploratory analysis. *Journal of financial economics, 20*, 317-346.

Holod, D., & Lewis, H. F. (2011). Resolving the deposit dilemma: A new DEA bank efficiency model. *Journal of Banking & Finance, 35*(11), 2801-2810.

Hoque, M., Chishty, M., & Halloway, R. (2011). Commercialization and changes in capital structure in microfinance institutions: An innovation or wrong turn? *Managerial finance, 37*(5), 414-425.

Hudon, M. (2010). Management of microfinance institutions: Do subsidies matter? *Journal of International Development, 22*(7), 890-905.

Hudon, M., & Traca, D. (2011). On the efficiency effects of subsidies in microfinance: An empirical inquiry. *World Development, 39*(6), 966-973.

Im, J., & Sun, S. L. (2015). Profits and outreach to the poor: The institutional logics of microfinance institutions. *Asia Pacific Journal of Management, 32*(1), 95-117.

International Monetary Fund (IMF). (2017, December 20, 2017). Financial Access Survey, 2017. *Financial Access Survey.* Retrieved from http://data.imf.org/?sk=E5DCAB7E-A5CA-4892-A6EA-598B5463A34C

Iofrida, N., De Luca, A. I., Strano, A., & Gulisano, G. (2018). Can social research paradigms justify the diversity of approaches to social life cycle assessment? *The International Journal of Life Cycle Assessment, 23*(3), 464-480.

Jia, X., Cull, R., Guo, P., & Ma, T. (2016). Commercialization and mission drift: Evidence from a large Chinese microfinance institution. *China Economic Review, 40*, 17-32.

Johnson, S. (2013). From microfinance to inclusive financial markets: the challenge of social regulation. *Oxford development studies, 41*(sup1), S35-S52.

Jonassen, D. H. (1991). Objectivism versus constructivism: Do we need a new philosophical paradigm? *Educational Technology Research and Development, 39*(3), 5-14. doi:10.1007/bf02296434

Kar, A. K. (2012). Does capital and financing structure have any relevance to the performance of microfinance institutions? *International Review of Applied Economics, 26*(3), 329-348.

Kent, D., & Dacin, M. T. (2013). Bankers at the gate: Microfinance and the high cost of borrowed logics. *Journal of Business Venturing, 28*(6), 759-773. doi:10.1016/j.jbusvent.2013.03.002

Khachatryan, K., Hartarska, V., & Grigoryan, A. (2017). Performance and capital structure of microfinance institutions in Eastern Europe and Central Asia. *Eastern European Economics, 4*, 1-25.

Klapper, L., & Singer, D. (2014). The role of informal financial services in Africa. *Journal of African Economies, 24*(suppl_1), i12-i31.

Kodongo, O., & Kendi, L. G. (2013). Individual lending versus group lending: An evaluation with Kenya's microfinance data. *Review of Development Finance, 3*(2), 99-108.

Kota, I. (2007). Microfinance: Banking for the poor. *Finance and Development, 44*(2), 44.

Kumbhakar, S. C., Wang, H.-J., & Horncastle, A. P. (2015). *A practitioner's guide to stochastic frontier analysis using Stata*. London: Cambridge University Press.

Kwoka Jr, J. E. (1985). The Herfindahl index in theory and practice. *Antitrust Bull., 30*, 915.

Kyereboah-Coleman, A. (2007). The impact of capital structure on the performance of microfinance institutions. *The Journal of Risk Finance, 8*(1), 56-71.

La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2013). Law and finance after a decade of research. In G. M. Constantinides, M. Harris, & R. M. Stulz (Eds.), *Handbook of the Economics of Finance* (Vol. 2A, pp. 426-470). Amsterdam: North Holland.

Le, T., & Phan, T. (2017). Capital structure and firm performance: Empirical evidence from a small transition country. *Research in International Business and Finance, 42*(2017), 710-726.

Leach-Kemon, K., Chou, D. P., Schneider, M. T., Tardif, A., Dieleman, J. L., Brooks, B. P., . . . Murray, C. J. (2012). The global financial crisis has led to a slowdown in growth of funding to improve health in many developing countries. *Health Affairs, 31*(1), 228-235.

Lebovics, M., Hermes, N., & Hudon, M. (2016). Are financial and social efficiency mutually exclusive? A case study of Vietnamese microfinance institutions. *Annals of Public and Cooperative Economics, 87*(1), 55-77.

Ledgerwood, J. (1998). *Microfinance handbook: An institutional and financial perspective*. New York: World Bank Publications.

Ledgerwood, J., & White, V. (2006). *Transforming microfinance institutions: providing full financial services to the poor*. New York: World Bank Publications.

Lin, F.-L., & Chang, T. (2011). Does debt affect firm value in Taiwan? A panel threshold regression analysis. *Applied Economics, 43*(1), 117-128.

Lins, K. V. (2003). Equity ownership and firm value in emerging markets. *Journal of financial and quantitative analysis, 38*(1), 159-184.

Lipczynski, J., Wilson, J., & Goddard, J. (2005). *Industrial organization: competition, strategy, policy*. London: Pearson Education Limited, Prentice Hall.

Lopatta, K., & Tchikov, M. (2016). Do microfinance institutions fulfil their promise? Evidence from cross-country data. *Applied Economics, 48*(18), 1655-1677.

Lopatta, K., Tchikov, M., Jaeschke, R., & Lodhia, S. (2017). Sustainable development and microfinance: The effect of outreach and profitability on microfinance institutions' development mission. *Sustainable Development, 10*(2017).

Louis, P., Seret, A., & Baesens, B. (2013). Financial efficiency and social impact of microfinance institutions using self-organizing maps. *World Development, 46*, 197-210.

Lutzenkirchen, C., & Weistroffer, C. (2012). Microfinance in evolution: An industry between crisis and advancement. *Deutsche Bank Research*. Retrieved from Microfinance Network website: http://www.microfinancegateway.org/sites/default/files/mfg-en-paper-microfinance-in-evolution-an-industry-between-crisis-and-advancement-sep-2012.pdf

Mafukata, M., Dhlandhlara, W., & Kancheya, G. (2017). Reciprocal relationship of social capital and microfinance activities in Nyanga, Zimbabwe. *Development in Practice, 27*(1), 77-89.

Margaritis, D., & Psillaki, M. (2007). Capital Structure and Firm Efficiency. *Journal of Business Finance & Accounting, 34*((9) & (10)), 1447–1469.

Margaritis, D., & Psillaki, M. (2010). Capital structure, equity ownership and firm performance. *Journal of Banking & Finance, 34*(3), 621-632.

McConnell, J. J., & Servaes, H. (1990). Additional evidence on equity ownership and corporate value. *Journal of financial economics, 27*(2), 595-612.

Meador, J., & Fritz, A. (2017). Food security in rural Uganda: Assessing latent effects of microfinance on pre-participation. *Development in Practice, 27*(3), 340-353.

Meagher, P., Campos, P., Christen, R. P., Druschel, K., Gallardo, J., & Martowijoyo, S. (2006). *Microfinance regulation in seven countries: A comparative study*. Retrieved from New York:

Meeusen, W., & Van den Broeck, J. (1977). Technical efficiency and dimension of the firm: Some results on the use of frontier production functions. *Empirical economics, 2*(2), 109-122.

Mehran, H. (1995). Executive compensation structure, ownership, and firm performance. *Journal of financial economics, 38*(2), 163-184.

Mersland, R. (2011). The governance of non-profit micro finance institutions: lessons from history. *Journal of Management & Governance, 15*(3), 327-348.

Mersland, R., & Strøm, R. Ø. (2010). Microfinance mission drift? *World Development, 38*, 28-36.

Meyer, J., & Rowan, B. (1977). Institutionalized Organizations: Formal Structure as Myth and Ceremony. *American Journal of Sociology, 83*, 340-363.

Mia, M. A., & Lee, H.-A. (2017). Mission drift and ethical crisis in microfinance institutions: What matters? *Journal of Cleaner Production, 164*, 102-114.

Miao, J. (2005). Optimal capital structure and industry dynamics. *The journal of finance, 60*(6), 2621-2659.

Myers, S. C. (1984). The capital structure puzzle. *The journal of finance, 39*(3), 574-592.

Myers, S. C. (2001). Capital structure. *The journal of economic perspectives, 15*(2), 81-102.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of financial economics, 13*(2), 187-221.

Ojah, K., & Pillay, K. (2009). Debt markets and corporate debt structure in an emerging market: The South African example. *Economic Modelling, 26*(6), 1215-1227.

Ostry, J., Loungani, P., & Furceri, D. (2017). Neoliberalism: Oversold? *Finance and Development, 2*(2017), 38-41.

Pagano, M., & Röell, A. (1998). The choice of stock ownership structure: Agency costs, monitoring, and the decision to go public. *The Quarterly Journal of Economics, 113*(1), 187-225.

Pashkova, N., Trujillo-Barrera, A., Apostolakis, G., Van Dijk, G., Drakos, P., & Baourakis, G. (2016). Business management models of microfinance institutions (MFIs) in Africa: A study into their enabling environments. *International Journal of Food and Beverage Manufacturing and Business Models, 2*(2), 63-82.

Phillips, P. C., & Sul, D. (2007). Bias in dynamic panel estimation with fixed effects, incidental trends and cross section dependence. *Journal of econometrics, 137*(1), 162-188.

Quayes, S. (2012). Depth of outreach and financial sustainability of microfinance institutions. *Applied Economics, 44*(26), 3421-3433.

Raihan, S., Osmani, S., & Khalily, M. B. (2017). The macro impact of microfinance in Bangladesh: A CGE analysis. *Economic Modelling, 62*, 1-15.

Rhyne, E., & Christen, R. (1999). *Microfinance enters the marketplace*. New York: USAID.

Roberts, M. R., & Whited, T. M. (2013). Endogeneity in empirical corporate finance. In G. M. Constantinides, M. Harris, & R. M. Stulz (Eds.), *Handbook of the Economics of Finance* (Vol. 2A, pp. 494-567). Amsterdam: North-Holland.

Roberts, P. W. (2013). The profit orientation of microfinance institutions and effective interest rates. *World Development, 41*, 120-131.

Roth, W. D., & Mehta, J. D. (2002). The Rashomon effect: Combining positivist and interpretivist approaches in the analysis of contested events. *Sociological Methods & Research, 31*(2), 131-173.

Sarma, S. (2011). NGO transformation: Institutional entrepreneurship in Indian microfinance. *Business Strategy Series, 12*(4), 167-176.

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for Business Students, Fifth Edition*. Harlow: Prentice Hall.

Schnabl, P. (2012). The international transmission of bank liquidity shocks: Evidence from an emerging market. *The journal of finance, 67*(3), 897-932.

Scott, W. (2004). Institutional theory. In *Encyclopaedia of social theory* (pp. 408-414). Thousand Oaks, CA.: Sage.

Srnec, K., Divišová, M., & Svobodová, E. (2008). The transformation process in microfinance institutions. *Agricultura Tropica et Subtropica, 41*(2), 84-89.

Staub, R. B., e Souza, G. d. S., & Tabak, B. M. (2010). Evolution of bank efficiency in Brazil: A DEA approach. *European journal of operational research, 202*(1), 204-213.

Sun, J., Ding, L., Guo, J. M., & Li, Y. (2016). Ownership, capital structure and financing decision: evidence from the UK. *The British Accounting Review, 48*(4), 448-463.

Tchakoute-Tchuigoua, H. (2014). Institutional framework and capital structure of microfinance institutions. *Journal of Business Research, 67*(10), 2185-2197.

Tchakoute-Tchuigoua, H. (2015). Capital structure of microfinance institutions. *Journal of Financial Services Research, 47*(2015), 313–340.

The Constitutional Court of the Republic of Kosovo. (2013). *Judgement in Case No. KO 97/12*. AGJ403/13. The Constitutional Court of the Republic of Kosovo. Pristina, Kosovo.

The Microfinance Information Exchange, I. (2017). *Global outreach & financial performance benchmark report - 2015*. Retrieved from New York:

The Microfinance Information Exchange, I. (2018). How does the MIX MARKET rank levels of disclosure? Retrieved from https://www.themix.org/resource/glossary/how-does-mix-market-rank-levels-disclosure

Thomsen, S., & Pedersen, T. (2000). Ownership structure and economic performance in the largest European companies. *Strategic Management Journal, 2*, 689-705.

Tirole, J. (2006). *The Theory of Corporate Finance*. Oxford: Princeton University Press.

Torres-Reyna, O. (2007). *Panel Data Analysis: Fixed and Random Effects Using Stata (V. 4.2)*. Princeton: Princeton University Press.

Ulas, E., & Keskin, B. (2015). Performance evaluation and ranking of Turkish banking sector. *Procedia Economics and Finance, 25*, 297-307.

Van Rooyen, C., Stewart, R., & De Wet, T. (2012). The impact of microfinance in sub-Saharan Africa: a systematic review of the evidence. *World Development, 40*, 2249-2262.

Wagenaar, K. (2012). Institutional transformation and mission drift in microfinance. *Centre of Development Studies, University of Cambridge*. Retrieved from Universite de Namur website: http://www.unamur.be/en/eco/eeco/cred/papers/economics-of-non-profits/SP3_Wagenaar_UCamb.pdf

Wagner, C., & Winkler, A. (2013). The vulnerability of microfinance to financial turmoil–evidence from the global financial crisis. *World Development, 51*, 71-90.

Wang, K., & Shailer, G. (2015). Ownership concentration and firm performance in emerging markets: a meta-analysis. *Journal of Economic Surveys, 29*(2), 199-229.

Welch, I. (2004). Capital structure and stock returns. *Journal of political economy, 112*(1), 106-131.

Wooldridge, J. (2010). *Econometric analysis of cross section and panel data, second edition*. London: The MIT Press.

Wooldridge, J. (2014). Quasi-maximum likelihood estimation and testing for nonlinear models with endogenous explanatory variables. *Journal of econometrics, 182*(1), 226-234.

Wooldridge, J., & Imbens, G. W. (2007). Control Function and Related Methods. Retrieved from National Bureau of Economic Research (NBER) website: http://www.nber.org/WNE/lect_6_controlfuncs.pdf

Wu, X., & Yeung, C. K. A. (2012). Firm growth type and capital structure persistence. *Journal of Banking & Finance, 36*(12), 3427-3443.

Yartey, F. N. A. (2017). The Subaltern speaks? Performing poverty through online microfinance: A critical analysis of Kiva. org. *Southern Communication Journal, 82*(2), 73-84.

You, J. (2013). The role of microcredit in older children's nutrition: Quasi-experimental evidence from rural China. *Food policy, 43*, 167-179.

Yum, H., Lee, B., & Chae, M. (2012). From the wisdom of crowds to my own judgment in microfinance through online peer-to-peer lending platforms. *Electronic Commerce Research and Applications, 11*(5), 469-483.

Zeitun, R., & Tian, G. G. (2014). Capital structure and corporate performance: evidence from Jordan. *Australasian Accounting, Business and Finance Journal, 1*(4), 118-132.

Zhang, Q., & Posso, A. (2017). Microfinance and gender inequality: cross-country evidence. *Applied Economics Letters, 2*(1), 1-5.

Zhou, P., Poh, K. L., & Ang, B. W. (2007). A non-radial DEA approach to measuring environmental performance. *European journal of operational research, 178*(1), 1-9.

Zulfiqar, G. (2017). Does microfinance enhance gender equity in access to finance? Evidence from Pakistan. *Feminist Economics, 23*(1), 160-185.