

The copyright © of this thesis belongs to its rightful author and/or other copyright owner. Copies can be accessed and downloaded for non-commercial or learning purposes without any charge and permission. The thesis cannot be reproduced or quoted as a whole without the permission from its rightful owner. No alteration or changes in format is allowed without permission from its rightful owner.



UUM
Universiti Utara Malaysia

**MISSION DRIFT IN MICROFINANCE INSTITUTIONS OF
OIC COUNTRIES: THE INFLUENCE OF INSTITUTIONAL
AND MACRO RISK INDICATORS ON THE MUTUAL
EXCLUSION OF DOUBLE BOTTOM LINES**



UUM
Universiti Utara Malaysia

IFTEKHAR AHMED

**MASTER OF SCIENCE
UNIVERSITI UTARA MALAYSIA
JULY 2018**

*To my family,
whose sacrifices are ineffable...*



UUM

Universiti Utara Malaysia

**MISSION DRIFT IN MICROFINANCE INSTITUTIONS OF OIC COUNTRIES:
THE INFLUENCE OF INSTITUTIONAL AND MACRO RISK INDICATORS ON
THE MUTUAL EXCLUSION OF DOUBLE BOTTOM LINES**



By
IFTEKHAR AHMED

UUM
Universiti Utara Malaysia

**Thesis Submitted to
Othman Yeop Abdullah Graduate School of Business,
Universiti Utara Malaysia,
in Fulfillment of the Requirement for the Degree of Master of Science**



Kolej Perniagaan
(College of Business)
Universiti Utara Malaysia

PERAKUAN KERJA TESIS / DISERTASI
(Certification of thesis / dissertation)

Kami, yang bertandatangan, memperakukan bahawa
(We, the undersigned, certify that)

IFTEKHAR AHMED (818296)

calon untuk Ijazah **MASTER OF SCIENCE (FINANCE)**
(candidate for the degree of)

telah mengemukakan tesis / disertasi yang bertajuk:
(has presented his/her thesis / dissertation of the following title):

**MISSION DRIFT IN MICROFINANCE INSTITUTIONS OF OIC COUNTRIES: THE INFLUENCE OF
INSTITUTIONAL AND MACRO RISK INDICATORS ON THE MUTUAL EXCLUSION OF DOUBLE
BOTTOM LINE**

seperti yang tercatat di muka surat tajuk dan kulit tesis / disertasi.
(as it appears on the title page and front cover of the thesis / dissertation).

Bahawa tesis/disertasi tersebut boleh diterima dari segi bentuk serta kandungan dan meliputi bidang ilmu dengan memuaskan, sebagaimana yang ditunjukkan oleh calon dalam ujian lisan yang diadakan pada:
4 Disember 2017.

(That the said thesis/dissertation is acceptable in form and content and displays a satisfactory knowledge of the field of study as demonstrated by the candidate through an oral examination held on:
4 December 2017).

Pengerusi Viva : Prof. Dr. Mohd Amy Azhar Hj. Mohd Harif
(Chairman for Viva)

Tandatangan
(Signature)

Pemeriksa Luar : Assoc. Prof. Dr. Zunaidah Sulong
(External Examiner)

Tandatangan
(Signature)

Pemeriksa Dalam : Prof. Dr. Abdul Razak Chik
(Internal Examiner)

Tandatangan
(Signature)

Tarikh: **4 Disember 2017**
(Date)

Nama Pelajar
(Name of Student)

: Iftekhar Ahmed

Tajuk Tesis / Disertasi
(Title of the Thesis / Dissertation)

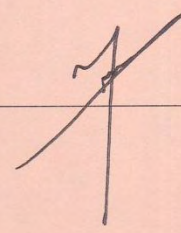
: Mission drift in microfinance institutions of OIC countries: The
Influence of Institutional and Macro Risk Indicators on The Mutual
Exclusion of Double Bottom Line

Program Pengajian
(Programme of Study)

: Master of Science (Finance)

Nama Penyelia/Penyelia-penyelia
(Name of Supervisor/Supervisors)

: Prof. Dr. Yusnidah Ibrahim



Tandatangan

PERMISSION TO USE

In presenting this thesis in fulfillment of the requirements for a Post Graduate degree from the Universiti Utara Malaysia (UUM), I agree that the Library of this university may make it freely available for inspection. I further agree that permission for copying this thesis in any manner, in whole or in part, for scholarly purposes may be granted by my supervisor(s) or in their absence, by the Dean of Othman Yeop Abdullah Graduate School of Business where I did my thesis. It is understood that any copying or publication or use of this thesis or parts of it for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the UUM in any scholarly use which may be made of any material in my thesis.

Request for permission to copy or to make other use of materials in this thesis in whole or in part should be addressed to:

Dean of Othman Yeop Abdullah Graduate School of Business
Universiti Utara Malaysia
06010 UUM Sintok
Kedah Darul Aman



ABSTRACT

With commercialization and transformation taking place in the microfinance industry, the original mission of poverty alleviation may drift toward profit maximization. This thesis thus attempts to investigate the concern of mission drift in the member states of the Organization of Islamic Cooperation (OIC) and how they are influenced by various institutional and macro risk indicators. This quantitative research approach used a panel dataset of 5 years' observation (2011-2015) of 57 MFIs of the OIC member countries. The ordinary least squares techniques with robust estimation to the general form of the cross sectional and temporal dependency was utilized. The evidence of this study should dispel the widely held apprehension of "mission drift", rather it reveals that outreach to the lowest strata of poor can actually bolster the financial viability of MFIs. However, positive evidence of mission drift was identified for the regulated and matured MFIs. The results also indicate that non-bank financial institutions and non-governmental organizations have outperformed in social outreach than their counterparts. The findings show that network affiliation has a significant positive impact on the microfinance social mission. Furthermore, the study reveals mixed findings regarding the influence of institutional and macro risk indicators. Maturity, network affiliation and Gross Domestic Product (GDP) growth rate show greater influence than others on the relationship between the financial and social performances. The study supports the implication of the trade-off paradigm and the sustainability-driven scaling up approach. Hence, this research concludes that seeking financial sustainability does not necessarily harm the social mission, however, MFIs must find an equilibrium point of balancing their double bottom lines and continue the mission of poverty alleviation in microfinance operations.

Keywords: commercialization, microfinance, mission drift, performance, sustainability

ABSTRAK

Dengan pengkomersialan dan transformasi yang berlaku dalam industri kewangan mikro ke arah, misi asal institusi kewangan mikro (MFI) khususnya untuk membasmi kemiskinan mungkin berganjak kepada memaksimakan keuntungan. Tesis ini oleh itu bertujuan untuk menyelidik perubahan misi di negara ahli dalam Pertubuhan Kerjasama Islam (OIC) dan bagaimana perubahan ini dipengaruhi oleh pelbagai faktor berkaitan institusi dan risiko makro. Kajian berbentuk kuantitatif ini mengguna pakai data panel, khususnya pemerhatian selama lima tahun (dari tahun 2011 hingga tahun 2015) terhadap 57 MFI di negara-negara OIC. Teknik kuasa dua terkecil biasa dengan penganggar teguh, tinjauan umum keratan rentas serta *temporal dependency* telah digunapakai dalam kajian ini. Hasil kajian seharusnya melenyapkan kekhuatiran tentang perubahan misi dan memperlihatkan bahawa bantuan yang diberikan kepada golongan miskin yang tegar sebenarnya boleh memperkukuh prestasi kewangan MFI. Walaubagaimanapun, dapatan yang positif tentang perubahan misi telah dikenal pasti untuk MFI yang diregulasikan dan yang matang. Dapatan juga menunjukkan bahawa institusi kewangan bukan perbankan dan organisasi bukan kerajaan memberikan lebih banyak bantuan sosial berbanding dengan institusi kewangan perbankan dan agensi kerajaan. Gabungan jaringan juga didapati memberikan impak yang positif lagi signifikan terhadap misi sosial MFI. Selain itu, kajian ini juga memaparkan dapatan yang bercampur berhubung kesan petunjuk institusi dan risiko makro. Kematangan, gabungan jaringan dan kadar pertumbuhan produk dalam negara kasar (GDP) mempunyai pengaruh yang lebih besar berbanding dengan faktor lain terhadap hubungan antara prestasi kewangan dengan prestasi sosial. Kajian ini menyokong paradigma timbal balik dan pendekatan peningkatan yang memacu kelestarian. Oleh itu, kajian merumuskan bahawa usaha untuk mencapai kelestarian kewangan tidak semestinya mengganggu misi sosial. Walaubagaimanapun, MFI perlu mengenal pasti titik keseimbangan untuk mengimbangkan matlamat berganda mereka dan meneruskan misi membasmi kemiskinan dalam operasi kewangan mikro.

Kata kunci: pengkomersialan, kewangan mikro, perubahan misi, prestasi, kelestarian

ACKNOWLEDGEMENT

The journey of studying MSc in Finance at Universiti Utara Malaysia is an unforgettable piece of memory in my life. It has given me an opportunity to learn about life from different perspectives and taught me to survive in intolerable circumstances. I would like to express my deepest appreciation to all, who supported me to complete this research.

First and foremost, I am appreciative to the Almighty for his support, provisioning, protection and unflinching love towards me throughout the period of my studies and for carrying me through the writing of this dissertation.

During the years that I have been doing my MSc about Microfinance, I have become greatly indebted to my excellent supervisor for making this journey an interesting and unforgettable one. I am grateful to my supervisor, Professor Dr. Yusnidah Ibrahim, for her unwavering dedication and enormous enthusiasm shown in my work. Her astute querying and insights into my work have helped strengthen my confidence in the study. I really admire her immense knowledge in the research area which has driven me to mastering the use of finance research approaches throughout my thesis.

I greatly appreciate Professor Emeritus Dr. Salim Rashid, for allowing me to work as his Research Assistant after reviewing my proposal defense, and for his impassioned encouragement, constructive criticisms, invaluable comments and extensive discussions about my work that led me to improve my research ability and Econometrics skill.

I would particularly like to thank all the staff in the School of Economics, Finance and Banking at the Universiti Utara Malaysia, my fellow colleagues and various university faculties, especially Professor Dr. Mohd Sobri Minai and Dr. Irwan Shah Zainal Abidin who discussed and shared their great experiences of research. I would also like to thank Dr. Abul Bashar Bhuiyan, for his guidance during the early stage of this research.

I am greatly thankful for the generous support from Associate Professor Dr. Zuraidah Mohd Sanusi and Associate Professor Dr. Jamaliah Said of Accounting Research Institute at Universiti Teknologi MARA, for giving me an opportunity to work as Visiting Research Assistant at their excellent research institute that enhance my research knowledge in multi-disciplinary field and enlarge my professional network.

I owe my deepest gratitude to my beloved parents, who made a lot of sacrifices so I could fulfill my dreams. I owe the most to my dearest father, for the endless love, sympathy, moral support, patience and sacrifices that he has made to bring me up here, where I am today. I would like to express my gratitude to my lovely mother, dearest sister and my brother-in-law for their unconditional love, great encouragement and support on this journey to make this research a reality.

Finally, I would like to particularly acknowledge my friends and benevolent in Malaysia for their enormous support in many ways. I appreciate their cordiality to keep me energized and active which has reflected in achieving this great expectation in my life.

Iftekhar Ahmed, October 2017

TABLE OF CONTENTS

TITLE PAGE	i
CERTIFICATION OF THESIS WORK.....	ii
PERMISSION TO USE.....	iv
ABSTRACT.....	v
ABSTRAK.....	vi
ACKNOWLEDGEMENT.....	vii
TABLE OF CONTENTS	viii
LIST OF TABLES	xi
LIST OF FIGURES	xiii
LIST OF ACRONYMS	xiv
CHAPTER 1: INTRODUCTION.....	1
1.0 Background of the Study.....	1
1.1 Problem Statement	5
1.2 Research Questions	12
1.3 Research Objectives	12
1.4 Significance of the Study	13
1.4.1 Academic Contribution	13
1.4.2 Policy Development.....	14
1.4.3 Theoretical Implication	14
1.5 Scope of the Study.....	15
1.6 Structure of the Study.....	16
CHAPTER 2: LITERATURE REVIEW	18
2.0 Introduction	18
2.1 Historical Evolution of Microfinance Industry	18
2.2 Microfinance Institutions in OIC countries.....	23
2.2.1 Organization of Islamic Cooperation (OIC).....	23
2.2.2 OIC-Microfinance Institutions: An Overview	25
2.3 Current Developments in Microfinance	27

2.3.1 Transformation and Commercialization in the Microfinance Industry	27
2.4 Mission Drift: A Growing Concern	29
2.4.1 The Profit-orientation versus the Welfare-orientation	31
2.4.2 Mission Drift in Microfinance Institutions	34
2.5 Microfinance Institutions and Dual Performance	44
2.5.1 The Financial Performance of Microfinance Institutions	45
2.5.2 The Social Performance of Microfinance Institutions	53
2.6 Theoretical Underpinnings	60
2.6.1 The Stakeholder Theory	60
2.6.2 Stakeholder Networks in MFIs	62
2.6.3 Stakeholder Perception and Mutual Value Creation	64
2.7 Literature Gaps	66
2.8 Chapter Summary	71
CHAPTER 3: RESEARCH METHODOLOGY	72
3.0 Introduction	72
3.1 Theoretical Framework	72
3.3 Hypothesis Development	74
3.3.1 Role of Risk Indicators on the Financial Performance	74
3.3.2 Role of Risk Indicators on the Social Performance.....	76
3.3.3 Relationship Between the Financial and Social Performance Indicators	77
3.3.4 Moderating Influence of Risk Indicators	79
3.4 Research Design	79
3.4.1 Population and Sample.....	79
3.4.2 Data Collection.....	92
3.5 Measurement of the Variables.....	93
3.5.1 Measurement of the Financial Performance Indicators	95
3.5.2 Measurement of the Social Performance Indicators.....	97
3.5.3 Measurement of the Institutional Risk Indicators.....	98
3.5.4 Measurement of the Macro Risk Indicators	101
3.5.5 Measurement of the Control Variables	101
3.6 Techniques of Data Analysis.....	104
3.7 Design of Empirical Models	105
3.8 Chapter Summary.....	107

CHAPTER 4: RESULTS AND DISCUSSION	109
4.0 Introduction	109
4.1 Descriptive Statistics	109
4.2 Regression Assumptions	113
4.2.1 Multicollinearity Diagnostics	114
4.2.2 Outliers	118
4.2.3 Normality Diagnostics.....	119
4.2.4 Heteroscedasticity Test	121
4.2.5 Autocorrelation Test.....	122
4.3 Panel Data Analysis	123
4.3.1 Panel Estimation with Driscoll-Kraay Standard Errors	124
4.3.2 Regression Models.....	126
4.4 Hypotheses Testing	130
4.4.1 The Financial Performance of MFIs.....	137
4.4.2 The Social Performance of MFIs.....	141
4.4.3 The Mission Drift in MFIs.....	145
4.4.4 Interactions of Institutional and Macro Risk Indicators.....	149
4.4.5 Summary of Hypotheses	164
4.5 Discussion of Findings	166
4.6 Chapter Summary.....	184
CHAPTER 5: CONCLUSION AND RECOMMENDATION	187
5.0 Introduction	187
5.1 Overview of the Study.....	187
5.2 Implications of the Study	189
5.2.1 Methodological Perspectives.....	190
5.2.2 Theoretical Perspectives.....	191
5.2.3 Practical Perspectives	193
5.2.4 Government Perspectives.....	195
5.3 Limitations of the Study	196
5.4 Recommendations of the study	196
5.5 Future Research Direction.....	199
REFERENCES	201
APPENDICES.....	215

LIST OF TABLES

Table No.	Title	Page No.
Table 2.1	Number of OIC-MFIs by regions and institutional type	25
Table 2.2	Microfinance consensus guidelines on financial ratios	53
Table 2.3	Social performance standards report	59
Table 3.1	Number of OIC-MFIs by legal status and regions	80
Table 3.2	Level of disclosure for MFI based on the Mix diamond system	81
Table 3.3	Distribution of selected MFIs by institutional type	82
Table 3.4	Distribution of selected MFIs across regions	83
Table 3.5	List of study variables	94
Table 3.6	Measurement of selected variables	95
Table 4.1	Descriptive statistics	110
Table 4.2	Correlation table	115
Table 4.3	Variance of inflation factor (VIF)	117
Table 4.4	Normality of residuals	120
Table 4.5	Equations of estimation	126
Table 4.6	Summary findings of the financial performance	137
Table 4.7	Summary findings of the social performance	142
Table 4.8	Summary findings of the mission drift (GNIALS)	146
Table 4.9	Summary findings of the mission drift (FFB)	146
Table 4.10	Summary findings of the interactions	149
Table 4.11	Summary of hypotheses findings	165
Table A-1	Normality plot	214
Table B-1	Heteroscedasticity test results	223
Table C-1	Autocorrelation test results	231
Table D-1	Estimations of the financial performance	237

Table D-2	Estimations of the social performance	239
Table D-3	Estimations of the mission drift (dependent variable: GNIALS)	240
Table D-4	Estimations of the mission drift (dependent variable: FFB)	241
Table D-5	Estimations of the mission drift and regulation status (dependent variable: GNIALS)	242
Table D-6	Estimations of the mission drift and regulation status (dependent variable: FFB)	244
Table D-7	Estimations of mission drift and the size of MFIs (dependent variable: GNIALS)	246
Table D-8	Estimations of the mission drift and the size of MFIs (dependent variable: FFB)	248
Table D-9	Estimations of the mission drift and the maturity of MFIs (dependent variable: GNIALS)	250
Table D-10	Estimations of the mission drift and the maturity of MFIs (dependent variable: FFB)	252
Table D-11	Estimations of the mission drift and the types of MFIs (dependent variable: GNIALS)	254
Table D-12	Estimations of the mission drift and the types of MFIs (dependent variable: FFB)	256
Table D-13	Estimations of the mission drift and network membership (dependent variable: GNIALS)	258
Table D-14	Estimations of the mission drift and network membership (dependent variable: FFB)	260
Table D-15	Estimations of the mission drift and inflation rate (dependent variable: GNIALS)	262
Table D-16	Estimations of the mission drift and inflation rate (dependent variable: FFB)	264
Table D-17	Estimations of the mission drift and GDP growth rate (dependent variable: GNIALS)	266
Table D-18	Estimations of the mission drift and GDP growth rate (dependent variable: FFB)	268

LIST OF FIGURES

Figure No.	Title	Page No.
Figure 2.1	Map of OIC member countries	25
Figure 2.2	Scale and outreach of MFIs by region in the OIC	26
Figure 2.3	Stakeholder network of microfinance institutions (MFIs)	63
Figure 2.4	Stakeholder perceptions shaping mutual value creation	65
Figure 3.1	Theoretical framework of the study	73
Figure 3.2	Distribution of the gross loan portfolio across region	84
Figure 3.3	Trend of the Gross Loan Portfolio in different type of MFIs over the period	85
Figure 3.4	Total asset of MFIs across the OIC countries and different institution types	86
Figure 3.5	Distribution of the total asset of MFIs across the region	86
Figure 3.6	Liabilities and equity of OIC-MFIs over the period	87
Figure 3.7	Distribution of liabilities and equity across different regions	88
Figure 3.8	Number of borrowers in different types of institutions over the period	89
Figure 3.9	Number of female borrowers in different types of institutions over the period	90
Figure 3.10	Percentage of female borrowers in different institutions types	91
Figure 3.11	Distribution of selected MFIs across different regions	92

LIST OF ACRONYMS

Acronyms	Descriptions
ACCION	ACCION Internation, A Global Non-profit Organization
ASA	Association for Social Advancement
BancoSol	Banco Solidario, S.A. (Bolivia)
BRAC	Bangladesh Rural Advancement Committee
BoP	Bottom of the Pyramid
CGAP	Consultative Group to Assist the Poor
CUC	Credit Union and Cooperatives
DBL	Double Bottom Lines
EAP	East Asia and Pacific
EECA	East Europe and Central Asia
EKI	Microcredit Foundation EKI
EU	European Union
FBPMC	Fondation Banque Populaire Micro-Credit
FFB	Fraction of Female Borrowers
FINCA	Foundation for International Community Assistance
FONDEP	Fondation pour le Développement Local et le Partenariat
FSS	Financial Self-sufficiency
GDP	Gross Domestic Product
GLP	Gross Loan Portfolio
GLS	Generalized Least Squares
GNI	Gross National Income
GNIALS	Gross National Income per Capita Adjusted Average Loan Size
ICFM	Islamic Conference by Foreign Minister
IMF	International Monetary Fund

IPO	Initial Public Offering
ISV	Industry Structure View
MENA	Middle-East and North Africa
MFI	Microfinance Institution
MFO	Microfinance Organization
MIX	Microfinance Information Exchange
NAB	Number of Active Borrowers
NBFI	Non-bank Financial Institution
NGO	Non-Governmental Organization
OIC	Organization of Islamic Cooperation
OLS	Ordinary Least Squares
OSS	Operational Self-sufficiency
PM	Profit Margin
RBV	Resource Based View
ROA	Return on Assets
ROE	Return on Equity
SA	South Asia
SACCOs	Savings and Credit Cooperative Societies
SHV	Stakeholder View
SPTF	Social Performance Task Force
SSA	Sub-Saharan Africa
TMFI	Transformed Microfinance Institution
WDI	World Development Indicators

CHAPTER 1: INTRODUCTION

1.0 Background of the Study

The journey of *microfinance* commenced from an initiative of Mohammad Yunus in a small rural community of Bangladesh. Subsequently, he provided formal financial institution structure to microfinance while he founded the Grameen Bank in 1983. The prime objective of microfinance was to provide small scale loans to women of the rural society and educate them to participate in income generating activities. These initiatives of microfinance can reduce poverty, promote well-being and contribute in development. Therefore, it is often considered as one of the most widely used development tools in many developing societies (Ayele, 2015; Quayes & Khalily, 2014).

However, Muhammad Yunus came up with the concept known as *microcredit* since at the beginning it was only providing small loans to the rural poor. Later microcredit extended its financial services and became more innovative in product development due to market demands (Chan & Lin, 2015; Cull, Demirgüç-Kunt, & Morduch, 2011) and eventually it has started recognizing as microfinance. This continuous development in microfinance industry had been only to achieve its prime objective of poverty reduction in different aspects (Chowdhury, 2009; Copestake, 2007).

Notwithstanding, delivering micro loan in a very rural area to the extreme poor is neither easy task, nor inexpensive (Abate, Borzaga, & Getnet, 2014; Dehem & Hudon, 2013). The institutions can only hire self-motivated personnel for the work, but the deficit of

funds can slow down the project. Hence, MFIs predominantly depends on external donors for large funds and technical assistance (Lacalle-Calderón, Chasco, Alfonso-Gil, & Neira, 2015; Ronzoni & Valentini, 2015). However, there is always a hidden dread of funding dry or complete halt (Armendáriz, D'Espallier, Hudon, & Szafarz, 2011). Due to high competition and the increasing number of new entries made funding more competitive. Therefore, MFIs intends to find its own way to financial self-reliance that may secure their long term existence. Hence, the major potential approach applied was the commercialization of microfinance (Butcher & Galbraith, 2015; Pinz & Helmig, 2015).

Since the industry showed its potentiality, new entries increased rapidly and most of them were emphasizing to reach in scale (Beisland, Mersland, & Strøm, 2015; Robinson, 2001). In early 1990s, the first commercialization of microfinance history took place in Latin America (Abrar & Javaid, 2014; Battiliana, Lee, Walker, & Dorsey, 2012; Ledgerwood & White, 2006). The commercialization process attracted private equity from institutional investors and ACCION, an institutional investor bought the largest share during the first commercialization in Bolivia (Ledgerwood & White, 2006). As a result, microfinance started to turn into a profitable business venture to many private equity investors and has classified as *Double Bottom Lines* (DBL) industry¹.

MFIs therefore, need to attain both social and profit mission to meet its double bottom line (Hermes, Lensink, & Meesters, 2011; Meyer, 2015). It invents a fascinating dual

¹ Double Bottom Lines (DBL or 2BL) generally refers to measuring both financial profit and loss (fiscal performance) and the impact in society. In microfinance, double bottom lines means obtaining financial self-sufficiency and reaching out to the extreme poor to eradicate poverty (Kar, 2013a; Wilburn & Wilburn, 2014).

return opportunity for foreign institutional investors (Briere & Szafarz, 2015; Janda, Rausser, & Svárovská, 2014). Moreover, institutional investors are very aware about their dual motives and institutions must obtain that. However, there was always concern about mutual coexistence of financial and social motives (Ibrahim, Ahmed, & Minai, 2018; Lebovics, Hermes, & Hudon, 2015; Nurmakhanova, Kretzschmar, & Fedhila, 2015).

Generally *mission drift* refers to the situation when the institution incessantly drives into a new direction. On the case of MFIs, mission drift takes place when the institutions emigrate away from its original objective of poverty eradication to scaling up profit. The argument about the financial and social performance comes repeatedly throughout the mission drift discussion. Due to double bottom lines organization, MFIs need to meet its financial and social performance at the same time. The institution can't give more priority to its profitability and forget to perform socially. Therefore, a trade-off between these double bottom lines (financial and social performance) should always be maintained by MFIs (Hermes, et al., 2011). In case of converse result, mission drift occurs.

Cull et al. (2007) defined mission drift as the situation when MFI moves toward a composition of new clients or a readjustment from poorer to wealthier clients among present clients. The reorientation from poorer to wealthier clients or targeting new wealthier clients makes average loan size higher. Likewise, Armendáriz and Szafarz (2011) explained that mission drift is a circumstance whereby an MFI reaches out wealthier clients to extent its average loan size without the reason of progressive landing

and cross subsidization. Serving wealthier clients with bigger loans can reduce costs, increase the number of clients and support financial performance.

Mersland and Strøm (2010) asserted that, the occurrence of mission drift in an MFI decreases the outreach to poor clients and weakens its depth of outreach. An MFI that is increasingly serving wealthier clients will show extension in total number of clients. But it will limit to serve poorer clients. That phenomenon in microfinance represents as depth of outreach (serving the poorest strata) and breadth of outreach (serving wealthier clients). Ignoring depth of outreach and focusing breadth of outreach, enhance the financial performance of an MFI, thus mission drift occurs.

Obtaining financial self-reliance took critical attention from academic researchers and policy planners, especially right after the commercialization in the microfinance industry (Mersland & Strøm, 2014; Piot-Lepetit & Nzongang, 2014). Later, social impact and poverty reduction promise of MFIs return into the limelight of discussion (Mazumder & Lu, 2015; Quayes, 2012). Therefore, these studies reignited the heart of tension, mutual exclusion of double bottom lines in microfinance; attaining both financial and social performance at a balance level (Lebovics, et al., 2015; Nurmakhanova, et al., 2015).

Acquiring the criteria of financial performance is important, but it was never been the ultimate objective in microfinance operations (Yunus, 2015). Microfinance institutions (MFIs) must reach out to the lowest strata of the poor population in order to avoid mission drift. That reinforces making more depth of outreach. The poorest generally can

afford only small loan. Institutions that serve really the poorest and focus on outreach depth tend to have smaller average loan size (Meyer, 2015). Alternatively, increasing the depth of outreach implies increasing the outreach to women clients (Quayes, 2012). An MFI that continuously secures its depth of outreach can usually prevail against mission drift (Annim, 2012b; Ibrahim, et al., 2018; Quayes, 2012).

However, the post-commercialization scenario of microfinance operation has changed and the concern of mission drift reignited (Kar, 2013b; Mia & Lee, 2017; Quayes, 2015). Foreign institutional investors were started participating in the institution's operations from stakeholder legitimacy. Therefore, the MFIs tend to be more profit oriented than socially performing (Cull, Demirgüç-Kunt, & Morduch, 2007). However, institutional investors invest in microfinance for dual return, not only for financial return. But the institution sometimes faces a dilemma to follow the right path. If institution performs more financially by any mean and social outcomes found negative or disappointing, the mission drift concern will be alive (Bassem, 2012; Piot-Lepetit & Nzongang, 2014).

1.1 Problem Statement

The inception of microfinance project was with the noble intention of enhancing financial inclusion through serving credit to the poorest productive women without collateral and covers its cost through involving them in income generating activities, thus, alleviate the poverty (Abed, 2000; Armendáriz & Morduch, 2010; Yunus, 2010). However, in early 1990s, it was the first time that profit orientation took place in the microfinance industry

and an NGO named PRODEM transformed and commercialized into shareholder based Banco Solidario, SA (BancoSol) in Bolivia (Ledgerwood & White, 2006; Rhyne, 2008).

This is followed by the release of secondary offering of the IPO by Mexican MFI Banco Compartamos in April 2007, the first time ever in the history of microfinance (Rosenberg, 2007). Finally, the criticism found the way of perfection with the debut of SKS Microfinance in India on the Bombay Stock Exchange in August, 2010 (Chen, Rasmussen, Reille, & Rozas, 2010). Those are the major three events took place in the microfinance industry that reignited the question of coexistence of financial and social objectives of MFIs. Finally, the criticism got full attention when the microfinance crisis in Andhra Pradesh occurred and many believe that took place due to drift of MFIs' objectives and ethical operations (Augsburg & Fouillet, 2010; Mader, 2013).

Microfinance practitioners claimed that the commercial market is the only place to access the fund that needed to support the world's countless million poor (Akula, 2010). However, the pioneer of microcredit Muhammad Yunus manifest his anxiety that profit orientation would give priority to the interest of shareholders (Salmon, 2011) and it is not considered as microcredit that saves poor from the loan shark (Economist, 2008; Malkin, 2008; Yunus, 2010). Studies indeed infer that if MFIs exclude the poorer clients, mission drift befalls (Woller, 2002; Woller, Dunford, & Woodworth, 1999).

Some of the leading newspapers (e.g. The Wall street Journal, The Financial Times and The Economist) have reported related issues of transformation or commercialization and

concern of mission drift since 2009. Gokhale (2009b) revealed that the microfinance institutions are now a profitable industry to invest for institutional investors. MFIs has also competed to attract foreign capital through maximizing profit. Evans (2010) reported that microfinance industry attracted \$14.8 billion of private capital in 2008, that was an increase of 24 percent than the previous year and freed many from donor dependency.

As a result, many MFIs transform, or commercialize from not-for-profit to for-profit institutions for broader credit access in a different region (Ledgerwood & White, 2006; Nestor, 2011; Olivares-Polanco, 2005). Despite some believe that those MFIs are in danger as they act nearly predatory moneylenders and fear of losing original mission through chasing profits (Economist, 2009; Evans, 2010; Iskenderian, 2011). Moreover, scholars argued that the impact of micro-loan from commercial MFI on poverty reduction has been so far disappointing (Wright, 2015) and some say microfinance fails to increase the income of the poor and unable to lift many them out of poverty (Bellman, 2015).

The last Microcredit Summit admitted that MFIs continued to express downfall of the number of the poorest clients, though the total number of clients reinforced its swelling trajectory (Reed, Marsden, Rogers, Rivera, & Ortega, 2014). It is a strong sign of drift from its key objective. This phenomenon may damage the dynamic social impact, knock off the poverty reduction potential that microfinance aimed in the debut (Kar, 2013a).

Conversely, some studies believe that ongoing commercialization and transformation process can lead MFIs to the mutual exclusion of financial and social mission (Hermes, et

al., 2011). Studies also advocate that introducing commercial capital for microfinance service enhance the poverty reduction instruments and outreach (Christen & Cook, 2001; Hermes, et al., 2011; Ledgerwood & White, 2006; Tucker, 2001). It also strengthens the financial ability of MFI to cover its operational costs and limit risks, and able to sustain for the long term in the market (Dacheva, 2009; Kar, 2013a; Olivares-Polanco, 2005).

Moreover, Christen and Cook (2001) argued that commercial microfinance attains a high level of profit and often more regulated than non-profit MFIs. Sometime they intend to provide larger size of loan, however, the author has not found any compelling evidence of a drift in the institutions' missions (Christen & Cook, 2001). Similarly, Dacheva (2009) and Olivares-Polanco (2005) also concluded that commercialization does not affect on the coexistence of dual objectives rather the author found a trade-off between financial and social returns. In addition, Hermes et al. (2011) found the similar results of negative correlation between outreach and profitability and supported the trade-off paradigm.

Likewise, Cull et al. (2007) concluded that MFIs that offer smaller size loans are not necessarily less economical and their findings did not support the mission drift event. Correspondingly, another study confirmed that there are no MFIs that financially unprofitable, but socially impactful (Gutiérrez-Nieto, Serrano-Cinca, & Mar Molinero, 2009). Thus, it supports an inverse relationship between the profitability and outreach. Hence, the study suggested that MFIs need to be financially sound, because weak institutions are unable to obtain a viable social return (Gutiérrez-Nieto, et al., 2009).

In addition, a study found commercialization is not the only reason for lower outreach depth, but there are other factors too, that are also associated (Gonzalez, 2007a), such as; regulation, size of MFI, maturity of MFI, types of MFI and network membership. Studies argued MFI that is more regulated tending to expand its service wide and earn high profits, however, it curtails social motive because operating under regulation, sometime very costly (Cull, et al., 2007; Cull, et al., 2011). Conversely, different study admitted that MFIs operating in countries that provide strong regulatory and supervisory legislation are obtaining better social performance (Hartarska & Nadolnyak, 2007).

Size of MFI has associated with both financial and social achievements (Meyer, 2015). More specifically, larger MFI tend to have more clients, but only minimal of them are the poorest, thus it endangers its social promise (Mersland & Strøm, 2010; Nurmakhanova, et al., 2015). On the other hand, MFI can obtain a better economic situation and efficiency over time or through getting more experience and maturity (Caudill, Gropper, & Hartarska, 2009). However, it sometimes depends on the size of institutions (Hermes, et al., 2011). Additionally, some studies claimed that older MFI achieves better outreach (Lebovics, et al., 2015; Olivares-Polanco, 2005), the other argued that experienced MFI serves wealthier poor than the poorest (Kar, 2013a; Nurmakhanova, et al., 2015).

Moreover, types of institution influences on the performance of MFIs. Studies found that non-governmental organization (NGOs) perform better socially through creating more depth of outreach (Cull, et al., 2007; Mersland & Strøm, 2010). On the other hand, an MFI that has Bank structure and running under banking regulation, used to have better

financial performance (Hartarska & Nadolnyak, 2007; Hermes, et al., 2011). Moreover, membership in the international network enhances MFIs' performance and easier international funding. International network requires globally accepted financial reporting system, accountability and ethical practice in MFIs (Mersland, Randøy, & Strøm, 2011).

On the other hand, country level indicators, such as; GDP growth rate and inflation status are commonly used in the performance analysis of MFIs (Assefa, Hermes, & Meesters, 2013; Kai, 2009; Mersland & Strøm, 2009). Higher GDP growth rate influence to attain better social performance, but weaker financial return and inflation rate endangers institutions' outreach (Nurmakhanova, et al., 2015). But different studies found that inflation has a positive association with financial achievement (Hartarska & Nadolnyak, 2007; Nurmakhanova, et al., 2015). GDP growth rate and inflation rate vary widely from country to country (Mersland & Strøm, 2009) and the accomplishment of microfinance program largely depends on country level context (Ahlin, Lin, & Maio, 2011).

The OIC is the home of 1.563 billion population that represent 22.7 percent of the total global population (WDI, 2010). It is also reported that about half of its total population still living under the poverty (PED, 2010). Therefore, MFIs of OIC region usually has better opportunities to demonstrate its impact within society. However, the outcomes as a whole so far not satisfactory. Nonetheless, some OIC-MFIs have awarded as the world's most financially viable institutions (e.g. ASA, FONDEP, Al Amana, FBPMC, EKI, Jagorani, Grameen, Partner etc. all of them within world's top 20 MFIs) (Swibel, 2007). Thus, the concern of mission drift in the region has reignited.

Generally, MFI covers its expenses from interest earned on its lending that may vary from 20-85 percent (Evans, 2010). Many studies argued on ethical operations and fair pricing of microfinance products and services (Ashta & Bush, 2009; Ashta & Hudon, 2009, 2012). However, in the case of Muslim majority countries (OIC member states), there should have a strong regulatory framework for MFIs, for an instant; Malaysia. Indeed, Islamic Shariah does not permit to practice usury based credit system. However, immense profitability of OIC-MFIs, yet thriving poverty in the region attract the attention on the implementation of the proper Shariah regulatory framework.

This study aims to investigate the mission drift of OIC-MFIs and the moderating impact of institutional and macro risk indicators. Mission drift in microfinance is a timely and ongoing debate (Huq, Azad, Masum, Wanke, & Rahman, 2017; Lopatta, Tchikov, Jaeschke, & Lodhia, 2017; Mia & Lee, 2017) and it has been a growing concern since last decade. However, this is yet to finalize that the concern is true (Ghosh & Van Tassel, 2008). Several studies have attempted to justify the issue, but the results show a puzzling portrait. Some studies found evidence of mission drift (Abrar & Javaid, 2014; Adhikary & Papachristou, 2014; Piot-Lepetit & Nzongang, 2014), conversely, others found a trade-off between MFI's dual missions (Hermes, et al., 2011; Kar, 2013b; Quayes, 2015).

Most importantly, still now there is a lack of studies that solely concentrate on the OIC region and address the issue of mission drift. There is also a limitation of study that has conducted from the institutional investor's perspective. Merely studies used institutional

and macroeconomic factors as risk variables and analyses their moderating influence on mission drift concern. Hence, the burning yet unanswered tension of mission drift and the scarcity of cross-country longitudinal investigations, focusing especially on MFIs operating in OIC member countries, justify the need of this empirical study.

1.2 Research Questions

The present research is carried out based on four primary questions:

1. What is the function of the institutional and macro risk indicators for attaining the financial performance of microfinance institution in the OIC countries?
2. What is the role of the institutional and macro risk indicators for accomplishing the social performance of microfinance institution in the OIC countries?
3. Has there been a trade-off between the financial and social performance of microfinance institution in the OIC countries?
4. How do institutional and macro risk indicators moderate the relationship between the financial and social performance of microfinance institution in the OIC countries?

1.3 Research Objectives

The study is based on four key objectives as follows:

1. To assess the impact of the institutional and macro risk indicators for obtaining the financial performance of microfinance institution in the OIC countries.
2. To quantify the effect of the institutional and macro risk indicators for achieving the social performance of microfinance institution in the OIC countries.

3. To investigate the trade-off between financial and social performance of microfinance institution in the OIC countries.
4. To enumerate the moderating influence of institutional and macro risk indicators on the relationship between the financial and social performance of microfinance institution in the OIC countries.

1.4 Significance of the Study

This study will avail in many folds, but most importantly, it will illuminate on the functions and responsibilities of foreign institutional investors to prevent mission drift.

Apart from that, other significance discusses bellow:

1.4.1 Academic Contribution

The study will shed light on the development of academic research in microfinance and mutual exclusion of its double bottom line. Since the previous studies found mixed results, the picture of mission drift has been yet gloomy. It will also brighten previous discussions of trade-off between financial and social objectives and contribute to the progression of mission drift argument. Prospective researcher will be also benefited from the findings of this study. This inquiry undertakes the perspective of institutional investors that merely used in existing research. Therefore, prospective research can find a new dimension of mission drift investigation.

Moreover, this study can make its contribution in the arguments pointed by the leading media. Reports in the newspapers are often unjustified scientifically or empirically.

However, they have convicted institutional investors for the reason behind the shifting toward more profit orientation that leads a low social performance of MFIs. They also took the first radical movement against microfinance commercialization and raised questions on mutual existence of double bottom line of MFIs. The findings of this study, therefore, contribute to this argument with empirical results.

1.4.2 Policy Development

The study wishes to contribute of various policy developments. *First*, the findings of the study will provide guidelines to improve investment policy. That will ameliorate the decision making process and duties of institutional investors to prevent possible thread of mission drift. *Second*, the results will also support to develop governance policy, investor and donor policy and financial policy of MFIs. That will improve strategic planning and management of the institution for the better performance and efficiency. *Third*, the government and public planner will be also supported by the findings. The results will shed light on the implication of regulatory and supervisory framework of OIC-MFIs. That will guide related authority to improve their regulatory policy.

1.4.3 Theoretical Implication

This study develops a theoretical framework based on the guideline of the stakeholder theory. The stakeholder theory is widely used associated theory for investment analysis. However, it merely used in the microfinance investment study. Therefore, the findings of this inquiry will provide inside view of the stakeholder theory implication in the microfinance investment research. The study does not expect for further development of

the stakeholder theory. However, the findings can suggest a new angle based on microfinance stakeholder nature. Since the interest of the microfinance stakeholder is to attain dual returns from their investment in the microfinance project, the results of this study will provide a new dimension of the theoretical implication.

1.5 Scope of the Study

The study concentrates on MFIs that were founded or registered or operate in OIC countries. There are 57 member states of the OIC, however; only 36 member countries have MFIs operate in the country. Among all MFIs, 430 MFIs report in the MIX Market global profiles and only 165 MFIs are able to maintain global ranking criteria as per the ranking list of the *MIX market* and the *Forbes*. Those MFIs spread over in Asia, East Europe and Central Asia (EECA), Middle East and North Africa (MENA) and Sub-Saharan Africa (SSA). Therefore, these 165 global ranked MFIs will be analyzed to quantify mission drift concern in this investigation.

The Asian MFIs dominates in both the depth and breadth performance. Therefore, Asian countries achieved 86 percent of the total number of active borrowers within the OIC region. Most of the MFIs in the region uses the group lending method that escalates their operation faster than their counterparts. So far, 131 MFIs has reported in the MIX market from the Asian region. However, MFIs in the EECA region has lower performing in outreach with larger loan size. The reasons for the lower performance are higher income levels of citizen and lower population density than other region of the OIC countries. The EECA region has a total of 114 MFIs that report in the MIX market.

Moreover, the MENA region has 41 MFIs and due to limited regulation these MFIs attained high growth in the previous years. The MENA-MFIs employs both group and individual lending methodologies that support its high market penetration. On the other hand, the deposit mobilization has prioritized in the SSA region and MFIs in this region obtained a distinction in providing deposit service. To date, there are 144 MFIs in the SSA region that report in the MIX. The OIC member states host the world's top rank MFIs, such as; ASA, FONDEP, Al Amana, FBPMC, EKI, Jagorani, Grameen, Partner and all of them within top 20 MFIs in the planet, also within the sample of this study.

1.6 Structure of the Study

This dissertation comprises of five chapters, a reference and relevant appendices. The first chapter provides background, motivation and problem statement of the study. It addresses the emergence of the microfinance industry since its inception to present status. The mission drift issue has explored by underling the transformation and commercialization of the industry and addressing the involvement of the institutional investors. It enunciates the major objectives, specifies the research questions, states significance and scope of the study.

The chapter two discusses the historical evolution of the global microfinance industry, commercialization and transformation of major MFIs. It argues how private equity has attracted through issuing IPOs and listing in the commercial capital market. The literature review explores the double bottom line concept of MFIs and interprets the influence of

institutional and macro risk indicators on the trade-off of the financial and social performance. Eventually, the chapter logically argues the research gaps that have identified from the wide-ranging literature review.

The chapter three describes the methodological aspect of the study. The chapter explains the theoretical aspect, design research framework and develops hypotheses. The chapter broadly discusses about research design, where sampling and data collection method have discussed. Moreover, the chapter defines the variables along with their measurement technique and provides the justification of employing them. Finally, the chapter puts forward the design of models and analysis technique to inspect the study hypotheses.

The chapter four discusses the results and elaborates evidences in regard to the hypotheses. The first section provides summary statistics. The following section presents all the diagnostic test results that include; multicollinearity, outliers, data normality, heteroscedasticity and autocorrelation test and explains the solutions. The chapter puts forward the panel data estimations with standard errors and the econometric model and argues the rationality of estimations. Finally, the chapter broadly discusses the hypothesis testing, findings and summary table.

The chapter five of this dissertation provides the conclusion and recommendation. The first section presents an overview of the study and then implication of this research have explained precisely. At the end, the chapter wraps up by stating some limitation and providing the direction for future researches.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

This chapter reveals the extensive review of literature on the importance of financial and social mission of microfinance institutions (MFIs) and the mutual exclusion of double bottom line. The chapter has categorized in various sections. Section 2.1 describes the historical evolution of microfinance industry while 2.2 thinly focus on the development of microfinance in the OIC member countries. However, the current development of commercialization and transformation portrays in the section 2.3. The section 2.4 broadly illustrates the concern of mission drift in global microfinance operations. It imprints how profit-orientation overshadows the welfare-orientation. Subsequently, to understand the double bottom line issue, it discusses the importance of financial and social performance of MFIs in section 2.5. Later 2.6 discusses the theoretical underpinnings and section 2.7 explains the gap of the study. The last section 2.8 summarizes the chapter 2.

2.1 Historical Evolution of Microfinance Industry

(Microcredit) is based on the premise that the poor have skills which remain unutilized on underutilized. It is definitely not the lack of skills which make poor people poor. (...) Unleashing of energy and creativity in each human being is the answer to poverty (Yunus, 2003).

In 1970s, where the battle against hunger was being lost, new warriors were recruited for the cause. They were the poorest, most down triangle and mostly women. A handful of pioneers recognized their worth that with fair access to credit another financial services these warriors could fight poverty on their own feet. Muhammad Yunus has initiated this battle against poverty in his motherland in Bangladesh right after its bloody birth from

nine months of freedom fight. Moreover, after a few years of the program he established the Grameen Bank in 1983 where microcredit received an institutional structure.

The inauguration of microfinance was with the noble intention of creating scope of financial access for the poorest productive women without collateral and covers its cost through involving them in income generating activities (Abed, 2000; Armendáriz & Morduch, 2010; Yunus, 2010). During the inception it was called microcredit because its service was limited within providing small loans to the vulnerable unbanked poor.² Microfinance made the extension of micro-lending with other financial services, for an instance; savings facilities, micro-insurance, deposit scheme, health care, education and trainings, peer support, networking and so on. It inspires its clients to pursue entrepreneurial activities that guaranty investment return with profit, thus helping them to find an exit path from poverty for themselves with families.

Conventional banking system always looks for the rich people. The richer you are, higher priority will be given. Microcredit says completely opposite, poorer you are more priority will be given. If you have absolutely nothing, you will have the highest priority in this financial system (Yunus, 2015). Microcredit provides small loan for productive poor to be self-employed and put client as in-charge of their own development. It has shown revolutionary results to better-off people living in rural areas. Additionally, microfinance program using various models and lending methods around the world, has shown strong repayment record from poor clients. Somewhere it's relatively much higher than a

² "Unbanked poor" is often use term in the research of microfinance and financial inclusion which drawn attention to the people in developing or emerging countries who are poor and have not access to traditional formal financial system (Armendariz & Labie, 2011).

borrower from the conventional financial system. Grameen Bank in Bangladesh is lending money to beggars and it even works with beggars (Yunus, 2015).

Moreover Muhammad Yunus said, microcredit is not charity, it's a business; business to help people (Yunus, 2015). It empowers women and educates them to take a financial decision about their lives. It also promotes economic empowerment, leadership, building assets, education, health, nutrition and democracy. Microfinance is playing a significant role in to implement efficient and sustainable strategies to eradicate poverty along with three other development pillars; education, democracy and infrastructure (Attali, 2015). Therefore microfinance has to be for social purpose, but follow business fundamentals. However, microfinance institutions have to cover their cost for being sustainable, but cannot make commercial profit by lending money to poor as loan sharks do, its exploiting poor and abusing their vulnerable situation (Yunus, 2015).

Before the inauguration of microfinance, the government and donors, mainly involved providing subsidies to various rural credit programs. However, it often founded in high loan default, high lose and most importantly the inability to reach very poor (Robinson, 2001). But, during 1980s Grameen Bank and Bank Rakyat Indonesia proved they can provide micro loan and deposit services in large scale. They receive minimal subsidies, but financially funded, achieve sustainability and reach out to a wide number of rural clients (Robinson, 2001). The motivation behind these achievements was, microfinance do care about repayment, they start covering the costs through earnings from interest and focusing on productive poor women who has no access to the formal financial system. So

this new development tool made it clear that it's able to generate profit while creating root level social impact. Later, the scenario of microfinance has started to change.

The 1990s consider as the decade of microfinance (Dichter, 1999). Microfinance had turned into a huge financial industry within this decade. New entry in the microfinance industry grows dramatically and starts emphasis to reach in scale (Robinson, 2001). Microfinance institutions changed its intention from only lending money to innovative and potential financial products and services to the bottom of the pyramid (BoP) as it was demanded by clients, such as savings, insurance, pension (Cull, et al., 2011).³ Thus, the continuous success of microfinance program uncovered as a dual return opportunity for international investors. Therefore, investor injected large volume of money in the microfinance industry and reporters of the Financial Times and the Wall Street Journal claimed that step influence the commercialization process of microfinance and shift toward for-profit industry (Burgis, 2008; Gokhale, 2009b).

In recent years, the microfinance industry develops so drastically. There are many government and commercial bank entry in this industry, the transformation took place in an existing organization, competition is very high and investor attention on commercial microfinance institutions and many more. However handful of studies also supported the commercial transition of microfinance program and claimed that it's not necessarily for microfinance institutions to exclude very poor clients for seeking profitability due to institution's scaling up or commercial transition (Christen & Cook, 2001; Hermes, et al.,

³ -Bottom of the pyramid" or (BoP) is an economic term refers to the largest but the poorest population in the world that is included in the public economic sector and excluded from private (Prahald, 2006).

2011; Rhyne, 1998; Tucker, 2001).⁴ CGAP analyst asserted financial and social goals not only can coexist, but it can reinforce mutually if it operates rightly and also can develop sustainable business model for both investor and clients (Nestor, 2011). The right thing is MFIs always needed to operate by avowing the mentality of loan sharks.

Surprisingly, after the 1st Microcredit Summit in 1997, the importance of microfinance as a development tool to fight poverty was reinforced. They established a bold global goal to work to ensure that 100 million of world's very poor families, especially women will have access to credit and other financial services by the end to 2005. This has achieved in just one additional year. Microcredit Summit committed to reach two new goals by the end of 2015. First, providing financial and credit services to 175 million of the global poorest families for self-improvement. Second, assuring above \$1 will be per day income for 100 million families of the poorest (Daley-Harris, 2005). The United Nation (UN) sets the Millennium Development Goals in 2000 (Summit, 2000) and poverty issue has been given the top priority.

Finally, the UN declared 2005 as the International Year of Microcredit. In the following year 2006, the Nobel Prize committee recognized the tremendous initiative of Yunus and the Grameen Bank's effort for "a world without poverty" by granting the Nobel Peace Prize. The recognition even continues till today. It is expected that the microfinance industry will achieve its 15-20% growth again in 2015 and Asian region already has shown the strongest momentum of growth (Etzensperger, 2015). Moreover, GDP of the

⁴ Scaling up in microfinance refers to the "growth" or "expansion" in the operation of microfinance institutions. It is more related to the operational expansion for financial growth.

most emerging 20 microfinance markets will grow from 4.4 percent to 4.8 percent at the end of 2015 (IMF, 2014). Similarly, economies that host microfinance operation might be growing at the double rate than developed economies (Etzensperger, 2015). Therefore, international investor provides more funds to this emerging industry and MFIs need to find a way to ensure their money back. Thus, MFIs might reinforce institutional efficiency of reaching to the wealthier poor that overshadows social impact and secure their financial self-sufficiency (FSS), the study will discover it in further.

2.2 Microfinance Institutions in OIC countries

2.2.1 Organization of Islamic Cooperation (OIC)

Today's Organization of Islamic Cooperation was known as the Organization of the Islamic Conference.⁵ It is an intergovernmental organization and has 57 member countries spread in four continents that make it the second largest of its kind after the United Nations. It was established on 25 September 1969 after a historical summit decision that was held in Rabat, the capital city of the Kingdom of Morocco with only 25 member states. The first meeting of the Islamic Conference by Foreign Minister (ICFM) took place in Jeddah and decision has made to establish a permanent secretariat in Jeddah. The organization headed by a Secretary General, elected for five years by the Council of Foreign Ministers and currently it has its 10th Secretary General assumed office since January 2014. It has three official languages; Arabic, English and French.

⁵ The former name Organization of the Islamic Conference has been changed to current name during the 38th Council of Foreign Ministers meeting (CFM) that took place in Astana, Kazakhstan in June 28, 2011 (The Pakistan Observer, 2011).

The OIC is the collective voice of the Muslim world. The OIC has politically, ethnically, economically and geographically diverse population of 1.5 billion in total; however, Islam is the prime commonality (Johnson, 2010). The organization was established to secure the interest and safeguard of the Muslim world in the spirit of spreading global peace and harmony among various citizens of the world. The current charter of the organization was adopted at the 11th Islamic Summit took place in Dakar in March 2008 which set up the objectives and purposes to harden the solidarity and cooperation among the member states. Moreover the organization revised its previous charter and has started backing the Universal Declaration of Human Rights and international law. The OIC also maintains delegation and cooperative connection with the European Union (EU) and the United States to resolve the controversies and conflicts associated with member states.

To deal with the challenges of 21 century OIC set up a blueprint called the Ten-Year Program of Action by the 3rd extraordinary session of the Islamic Summit took place in Makkah in 2005. Member countries will ensure their joint action to meet the program which includes; enhancement of trade, modernization, the development of science and technology, reduce illiteracy, promote tolerance and modesty, serve human rights and practice good governance. It has provided a broaden charter over three years later and a major concern has given to deal with the growing poverty issue. As the majority of member countries of OIC either the least developed or developing countries, therefore poverty, lack of education, corruption, pestilences, and inequality of wealth and social livings push people to search different places for answers (Ihsanoglu, 2005). The OIC has to find the way to address those by legitimate means.

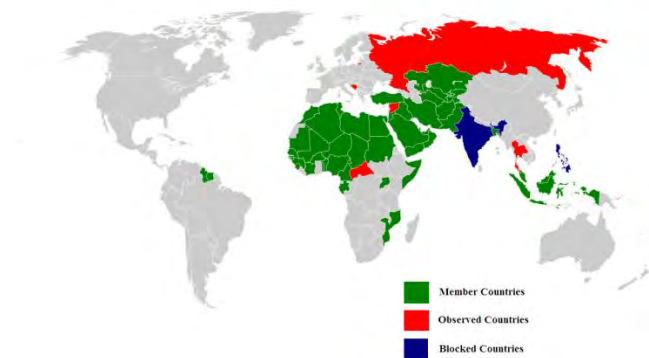


Figure 2.1
Map of OIC member countries
 Source: Wikipedia, 2017

2.2.2 OIC-Microfinance Institutions: An Overview

Among 57 OIC Member countries 36 have 430 MFIs that have reported in MIX Market global profiles. These MFIs served 33.769 million clients with US \$8.272 billion in loans. Table 2.1 presents an overview of OIC-MFIs by region and institution types.

Table 2.1
Number of OIC-MFIs by regions and institution types

Regions	NGO	NBFI	CUC	Bank	Rural Bank	Other	Total	As a % of Total
Asia	91	10	3	5	18	4	131	30.47
EECA	15	65	24	10	0	0	114	26.51
MENA	28	6	0	1	0	6	41	9.53
SSA	37	28	66	6	1	6	144	33.49
Total	171	109	93	22	19	16	430	100
As a % of Total	39.77	25.35	21.63	5.12	4.42	3.72	100	

Source: MIX market dataset, 2017

The OIC-MFIs are spread in four regions; those are Asia, East Europe and Central Asia (EECA) and Sub-Saharan Africa (SSA). Minimal number of MFIs operates in the Middle East and North Africa (MENA) region. The highest amount of MFIs are located in SSA and Asian member states. However, the majority of those are NGOs. Thus, it takes the highest share of about 40% of the total number. Moreover, together with Non-Bank Financial Institutions, Credit Union and Cooperatives account the significant number of 47% MFIs, while Banks and Rural Banks share only less than 10% of the total number.

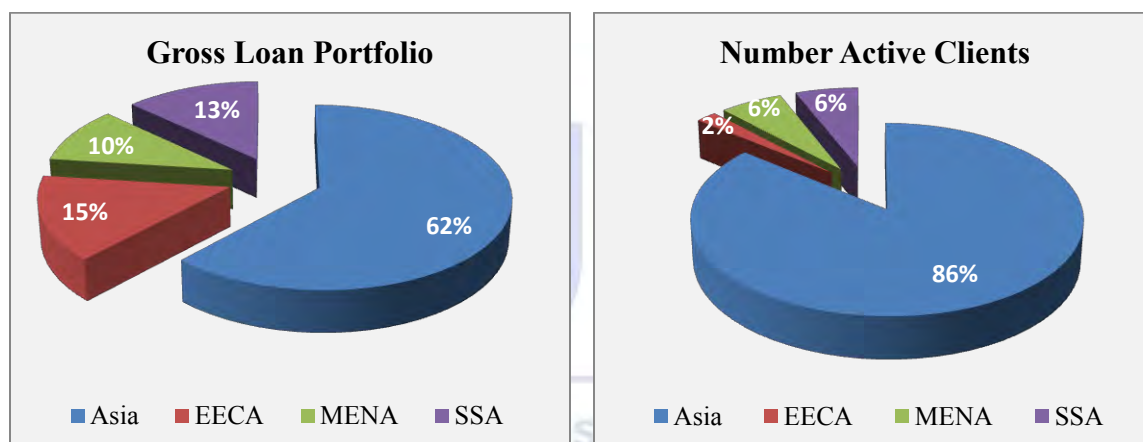


Figure 2.2
Scale and outreach of MFIs by region in the OIC
 Source: Graphical output using dataset from MIX market, 2017

Figure 2.2 presents the distribution of the data of gross loan portfolio (GLP) and number of active clients of MFIs operating in different region of OIC. Asian microfinance institutions dominate in term of both scale and outreach. They account maximum share of 62% in gross loan portfolio and overwhelming share of 86% in the number of active clients among all regions. MIX Market produces a global ranking of 614 different types MFIs of the world. Only 165 out of 430 OIC-MFIs have shared their place in the global

ranking from SA, EAP, EECA, MENA and SSA regions. The ranking took place based on various outreach, efficiency performance indicators and transparency of MFIs.

2.3 Current Developments in Microfinance

The industry has witnessed of dramatic development in last two and half decades. The rapid growth surely proved that it's a huge profitable industry and significantly working in the rural development. Foreign investors who are fascinated to get involved in the part of development in low income community without losing their investment, it was a real opportunity for them. Commercialization in the industry made the wish easier through unlocking the door for foreign investors and classified as a double bottom line industry.

2.3.1 Transformation and Commercialization in the Microfinance Industry

According to World Bank's most recent estimation, nearly half of the world's adult has no bank account that is about 2.5 billion, 60 percent of people in the developing economies verses 11 percent of developed one (Wright, 2015). Poor people often live in a deeply rural area that usually uncovered by traditional banking services. The study found people that don't have bank account, they don't save much or cut their ability to proceed and unable to finance for education, nutrition and healthcare (Wright, 2015). Small enterprises with access to the credit pass difficult time to spread and create employment. Despite traditional banking system required collateral for lending money. Microfinance therefore, made the breakthrough in the capitalistic financial market with the intention of financial inclusion for the poor. Further development in the microfinance industry was incredible and many realized the scope of making the industry profitable.

One of the major media, the Wall Street Journal has been reporting issues of transformation and commercialization in the microfinance industry since 2009. Microfinance institutions proves as a profitable industry to investment for institutional investors (Gokhale, 2009b). Researcher of Indian Institute of Management in Bangalore Mr. Arnab Mukherji asserted to the reporter Indian microfinance industry turned from the social agency to lending agency that intend to maximize its profits (Gokhale, 2009b). Many Indian MFIs founded as non-profit organization registered as for-profit under Reserve Bank of India, the Indian central bank to have wider access to funds, however, their rivals (traditional moneylenders) also found thriving (Gokhale, 2009a). In 2008 microfinance industry attracted \$14.8 billion in foreign capital that was above 24 percent of the previous year and many MFIs have freed their dependency on donor's fundings (Evans, 2010). Despite some believe that those MFIs are in danger as they act nearly predatory moneylenders and fear of losing original mission as chasing profits for institutional investors (Evans, 2010).

One of the major arguments is the interest rate charged by MFIs. High interest rate in microfinance industry was always at the heart of the debate. MFIs charge high interest from low income people and secure profit, though this program helps poor to bring them out of the poverty (Yee, 2015). Banco Compartamos in Mexico, a largest microfinance institution issued their shares in IPO and raised \$400 million in 2007. The average global interest rate is 26 percent, however Compartamos charges around 85 percent, while their ROE is around 40 percent (Evans, 2010). That kind of high interest rate does not make

repaying the loan easier for the poor clients, therefore sometimes it turns its evil face. The study asserted that the commit suicide occurred in the Indian state of Andhra Pradesh was due to counter guarantee that make them ashamed and pressured within the community (Iskenderian, 2011). It is called group based lending, where money loaned to individuals, but they must form a group and the group takes the guarantee of repay.

Some believe the bubble is in visible form in the industry, many institutions were shown extreme growth in a short period of time in different region, such as SKS Microfinance in India (Evans, 2010; Saltmarsh & Contiguglia, 2009). The rapid growth of this industry force by billion dollar investment from private equity firm, those identified microfinance industry as dual return investment policy. CGAP reported that investment from private and public donors crossed \$10 billion in December 2009 and BlueOrchard the largest intermediary of commercial microfinance calculated, there will be need of \$10-\$20 billion to meet the projected demand of micro-banks (Saltmarsh & Contiguglia, 2009). Till to date, the institutional investors keep injecting a large amount of funds in the microfinance industry. However, the return is yet moderate and transformation of poverty to better living does not seem tangible, therefore the major question arises on clients target and program design process (Saltmarsh & Contiguglia, 2009).

2.4 Mission Drift: A Growing Concern

Usually microfinance institutions are double bottom line enterprise by nature. A double bottom line phenomenon represents, the way an institution measure its financial income or loss and the level of positive social impact created in the same period. Even for-profit

institutions have responsibilities to support social issues beyond their immediate interest and these social interests can uphold organization's long term sustainability (Norman & MacDonald, 2004). However, the effective idea of double bottom lines came much earlier in the corporate world (Emerson & Twersky, 1996). MFIs play very crucial role for both its investors and clients. To make sure the investor's interest in microfinance program and believe of safe returns, MFIs have to secure its financial viability. On the other hand, to keep their social promise of poverty reduction MFIs need to ensure they are serving to appropriate clients or the poorer clients.

Nevertheless, at the heart of the debate and the most growing concern is the mutual exclusion of double bottom lines in MFIs. Or in a different way, the tension reveals whether or not, there is a trade-off between the profit and the welfare motive of MFIs. The occurrences of mutual exclusion of economic and social impact usually demanded by both institutions and its equity investors. However, if MFIs unable to balance its dual objectives and moved away from its main objective of poverty reduction to scaling up profit, then mission drift might take place within the institution.

Mission drift is defined by scholars as "a phenomenon whereby an MFI increases its average loan size by reaching out wealthier clients neither for progressive lending nor for cross subsidization reasons" (Armendáriz & Szafarz, 2011). On the other hand, MFIs may reach out to clients who want a bigger size of credit for showing better performance or to fulfill demand. Therefore, MFIs sometimes chose to carry progressive lending

method and the average loan size goes up. Similarly, cross-subsidization also can increase the size of average loans.

Cross-subsidization refers the phenomenon where MFI serves wealthier clients through providing larger size of loans in order to distribute smaller size of loans to a wider pool of the poorest. That means, the institution making breadth to support in creating depth. Moreover, Armendariz and Szafarz (2011) asserts that outreach to the wealthier and avoiding the lowest strata of the poor is more profitable for MFIs and when the institution realizes it, mission drift may occur. However, the authors, particularly affixed that it can be only happened if the institution's poverty alleviation objective is not aligned with the institution's profit orientation motive.

In a different study found that mission drift takes place if an MFI presents "a shift in the composition of new clients, or a reorientation from poorer to wealthier clients among existing clients" (Cull, et al., 2007). Similarly, another study claimed that "if mission drift occurs, the MFI's outreach to poor customers, its depth of outreach, is weakened" (Mersland & Strøm, 2010). The more outreach depth will be performed with small loans, the more women will be served. Moreover, switching lending method, especially from a group based to individual lending also could be a mission drift signal in the MFI.

2.4.1 The Profit-orientation versus the Welfare-orientation

The continuous reinforcement on the profitability in microfinance operation is reigniting the heart of concern that the social promise might be overshadowed. In other word, MFIs

may limit its social scope and outreach to the poorest clients. As a result, an argument arises on the performance assessment based on the *Profit-orientation* and *Welfare-orientation* in MFIs.

The *Profit-orientation* holds the main sight in the argument (Gutiérrez-Nieto, et al., 2009). Generally, each position differs in their views: (1) on how microfinance services should be delivered (NGO versus commercial banks), (2) on the technology that should be used (a ‘minimalist’ approach versus an ‘integrated’ service approach), and (3) on how their performance should be assessed” (Olivares-Polanco, 2005). Profit-orientation believes that the financial self-reliance should be the key indicator to measure the performance of MFIs. In a research author revealed that “the sustainability group argues that any future which continues dependence on donor and governments is a future in which few microfinance clients will be reached” (Rhyne, 1998).

It used to believe that the commercialization in microfinance industry increases private equity flows and improve the poverty outreach through including new clients (Hermes, et al., 2011). Conversely, studies found that reason behind the coalescence of financial self-sufficiency and breadth of outreach is the Profit-orientation approach (Olivares-Polanco, 2005; Rhyne, 1998). Though the objective of this approach is to serve whole spectrum of poor population in the globe. However, study asserted that the technique sometime miss target wealthier poor clients (Schreiner, 2002).

Welfare-orientation refers that the key measurement indicator of MFIs' performance is the accomplishment of social mission (poverty alleviation). Research found that the major advantage of this method is to obtain inside message about social impact potentiality of MFIs (Olivares-Polanco, 2005).

It has reported that ~~the~~ methods used by the Welfare-orientation assesses the impact of the program on their clients, by measuring changes in dependent variables such as the level of income, the level of production, sales, assets or the general well-being of the clients" (Olivares-Polanco, 2005). According to Schreiner (2002), the Welfare-orientation approach is expected to target the very poor clients, compared to the less-poor clients targeted by the Profit-orientation approach.

Alternatively, some are advocating the *win-win proposition* of microfinance. For example, Yaron (1994) proposed a framework combining the assessment of the financial self-sufficiency and outreach of MFIs. On the one hand, the author argued that states support and donations are a fundamental source of resources for newly established MFIs initially facing a negative cash flow. The author also claimed that the mobilization of savings is fundamental in the support of the expansion of more-mature MFIs, allowing for less government support and donations. The study suggested, ~~one~~ key to success appears to be the introduction of a social mechanism that lowers transaction costs, while supplying effective peer pressure for screening loan applications and collecting loans".

In addition, Morduch (2000) stated that for the win-win proposition –a key tenet is that poor households demand *access* to credit, not *cheap* credit”. The author identifies a number of assumptions underlying the win-win proposition. First, raising the costs of financial services will not negatively affect the demand of microfinance. Second, financially sustainable MFIs can achieve a greater scale and outreach than subsidized MFIs. Third, subsidies reduce the scope for savings mobilization. Fourth, financial sustainability is critical for the access of MFIs to commercial financial markets. Fifth, –microfinance has been and should continue to be a movement with minimal governmental involvement”.

2.4.2 Mission Drift in Microfinance Institutions

Commercialization or transformation in microfinance industry usually emphasis on earning profit. Thus, some microfinance institutions rediscover their operating efficiency through earning profit while some chose to serve better-off clients with bigger loan to manage their various costs (Cull, et al., 2007; Guntz, 2011; Hermes, et al., 2011). The concern of mission drift revealed in early 1990’s with the transformation of an NGO named PRODEM into shareholder owned organization BancoSol in Bolivia and considered as the major case of its kind (Rosenberg, 2014). That emerge the tension of possible trade-off between serving the poor and seeking financial viability (Kar, 2012).

Consequently an MFI named Banco Compartamos of Maxico released their shares in a secondary offering IPO in April 2007, the first time ever in the history of microfinance (Rosenberg, 2007). This case unraveled only a handful of people that proceed

enormously and it has reignited not only the tension of mission drift, but some ethical practices (Ashta & Bush, 2009; Ashta & Hudon, 2012). Some studies indicated that excess interest rate imposed on poverty by the institution for showing impressive ROE to attract wealthy investors (Ashta & Hudon, 2009). Muhammad Yunus criticized the initiative and claimed it should not compare with microcredit program that he initiated as this initiative creates fear for rebirth of new loan shark (Economist, 2008; Malkin, 2008).

Subsequently, SKS Microfinance, the biggest such institution in India debuted on the Bombay Stock Exchange in August, 2010 (Chen, et al., 2010). SKS Microfinance displayed sharp growth in share price at 60 percent and reached the market cap of \$2 billion (Bajaj, 2010). However, the financial performance of SKS Microfinance had gone downhill during the few quarters of 2011 (Khandelwal, 2012). Yunus expressed his deep concern about this case, said this type of initiatives might put shareholder's demand ahead than its clients. He added profit oriented MFIs can name their program as the bottom of the pyramid credit (Yunus, 2010).

Microfinance pioneer Muhammad Yunus and Indian for-profit microfinance initiator Vikram Akula fall in a debate at Clinton Global Initiative in 2010. Yunus strongly criticized the initiative of making microfinance profitable and expressed his concern of losing sight on poverty reduction (Yunus, 2010). Conversely, Akula argued that commercial capital market is the only way to generate required finance that is demanded by the market and his ultimate goal is to bring credit service to the poor as Muhammad Yunus initiated, but in a different approach. However, during Harvard Social Enterprise

Conference in 2012, Akula admitted that his approach was wrong, rather Muhammad Yunus is right. Allowing private capital into microfinance and turn it for-profit while pursuing dual goals is a tough job (Akula, 2012).

Annim (2012) uses both non-parametric and parametric efficiency measurement techniques to test trade-off between the social and financial efficiency through employing balanced panel data from 164 microfinance institutions for the period of 2004 to 2008. The study concluded that, microfinance institutions those efficient in financial performance fail to reach root level poor clients (Annim, 2012a). However, the study recommended for external institutions' effectiveness and dismissal of information barriers to poverty eradication of microfinance program.

In a different study Annim (2012) investigated on the MFIs' concentration on financial performance gain causes firms to focus on non-poor borrower. To revisit the tension of trade-off in microfinance the study use data of 2691 microfinance clients and also non-clients. The results of the regression asserted that operationally self-sufficient MFIs only able to reach out to poorer clients (Annim, 2012b). Moreover, the study also examined on the impact of institutional types and funding source to the dual objectives of MFIs and found formal MFIs employing their own funds focus on non-poor clients.

Arena (2008) conducted field research and case studies to examine the structure of governance. The study revealed that practicing social corporate governance can minimize the debate between financial and social goals of MFIs with the solution of microfinance

mission drift. The study also aimed for further development of social corporate governance concept.

Armendáriz and Szafarz (2011) reviewed various MFIs and identified a tendency of expanding larger average loan sizes in scaling-up process which lead them to target wealthier clients among poor and deviate their poverty reduction mission. However, the study confirmed that, it is not because of progressive lending or cross-subsidization, but a differential of cost between poor and non-poor targeted people, also specific regional characteristics regarding borrowers' heterogeneity. The study found a thin line in their between cross-subsidization and mission drift, which also confuse the researcher to conclude at MFIs' deviation. Moreover, there are contrasting evidences found from Latin America and South Asia to tear apart microfinance mission drift and cross-subsidization, thus, the investors would be unguided for their resource allocation. The authors claimed that the lack of a very poor population may influence MFIs to shift its mission.

Armendariz et al. (2011) argued that the uncertainties of donation or subsidy from external sources can cause of mission drift; even it could be increased by this uncertainty. MFIs operates with dual objectives of serving poor clients and achieving required financial self- reliance, however dry up of external financial support tend them to target non-poor borrower and form salvation fund (Armendáriz, D'Espallier, Hudon, & Szafarz, 2011). The study used both panel and cross-section data regressions on the original data from 230 MFIs of 60 nations for the period of 7 years on predictive models. The findings of the study revealed that higher interest rate has a positive effect of uncertainty of

subsidies. However, smaller loan sizes are related with more subsidies, though negative relations found between outreach and subsidy uncertainty (Armendáriz, et al., 2011).

Augsburg and Fouillet (2010) investigated from an Indian context and found donors and foreign organizations influence MFIs to shift from their poverty alleviation mission. That raises the concern of mission drift including several questions about good management practices. After reviewing Indian microfinance crisis in March 2006, the authors found difficulties to relate the motives of both government and non-government sector involvement and poverty eradication, rather it was a new business sector to invest and vote banks for others (Augsburg & Fouillet, 2010). The evaluation of this problem expected to limit and evaluate of microfinance reach.

Even in a recent study of 2015 scholar asserts the tension of institutional sustainability and reach out to the poor is still alive (Ayele, 2015). The author implemented Hausman-Taylor and Generalized Structural Equation Models to investigate 31 microfinance institutions' unbalanced panel data from Kenya, Uganda and Ethiopia. The study argued these three countries has an extreme demand market in Africa yet loan distribution falls short. The results concluded that the viability of institutions has a direct positive effect as well indirect negative effect from outreach depth. However, mission drift can be prevail through reducing operating cost with the help of external funds (Ayele, 2015).

Strong financial performance in an MFI can also exhibit better result of social impact if the institution sets well-planned strategies (Bédécarrats, Baur, & Lapenu, 2012). The

study has concluded, based on data of 344 evaluations from 295 microfinance institutions in 51 countries which cover over 12 million MFIs' clients. The results suggested that reaching toward dual objectives is well possible through well-planned strategy for social performance, clever combinations of synergies and trade-offs.

Recent development in microfinance industry has raised the idea of transformation, commercialization and eventually profit orientation, which raised deep concern of trade-off in dual objectives of MFIs. However, there are study also proved that profit oriented microfinance institutions can lend to poor client on the joint liability contract basis, on the other hand wealthier client can borrow on the individual liability contract basis (Caserta & Reito, 2013). Therefore, for-profit MFIs may target the poor borrower besides wealthier borrower through changing the lending model.

Chahine and Tannir (2010) examined the financial and social performance of transformed-MFIs or TMFIs which previously were NGOs. The study revealed that financial independence and breadth of outreach has improved from the transformation of NGOs into (TMFIs). However, depth of outreach has obstructed due to this transformation of NGOs and it is significant at bank-TMFIs (Chahine & Tannir, 2010). The study, therefore, suggested that the financial self-sufficiency might get better through NGOs transforming into transformed MFIs, but a mission drift may occur.

Conning (1999) conducted a study on the problem of contract design for microfinance lending organizations (MFOs) that wish to increase outreach of their service to poor

targeted client while staying financially viable. The study analyzed data from 72 MFOs. The findings of the study asserted that sustainability, outreach and financial leverage trade-off due to endogenous observing and delegation expenses which also arise inside of the agency relationship chain and create moral hazard between loan staff, borrowers, investors and equity owners (Conning, 1999). However, the study also revealed that viable MFOs that look for poorer clients should charge high rate of interest, have lower leveraged and suffered higher staff costs per dollar lend.

Cull et al. (2007) argued that microfinance institutions aim to eradicate poverty through providing profit oriented banking services to low earning countries. However, several MFIs have succeeded to manage high loan repayment rates, but very minimal earn profit thus this study took place to answer those questions using data from 124 MFIs of 49 countries. The study revealed profitability patterns, cost reduction and loan repayment of selected MFIs and evidence exerted MFIs might be earning profit while reaching out to poor, but a trade-off may occur between sustainability and outreach to the poorest client (Cull, et al., 2007). The authors concluded, both greater profitability and cost-cutting benefits cannot be secure by raising fees at high and serving better-off client.

However, regulated microfinance institutions can expand financial activities and allow borrowers to deposit, though maintaining the regulation is the costly part of institutions. Cull et al. (2011) used 245 institutions' dataset and investigated the implications for financial performance and social outreach to female borrowers. The study found, profit-focused MFIs sustain their profit earning though female and costly reachable client

reduces for replying to supervision. The study further resolved that less orientation to the profit will strengthen MFI's social outreach, but tend to curtail profitability.

Based on comprehensive field experience, Epstein and Yuthas (2011) examined sources, consequences and remedies of drift and diffusion in microfinance institution's mission. The findings of the study bloomed that various approaches of poverty reduction, employing inequality and stakeholder's interest instability causes mission diffusion. However, MFIs switch their activities and commercialize their services to achieve better rating and profit scale and their mission drift arises (Epstein & Yuthas, 2011b). The study further recommended for effective good governance and performance management system practices along with more specific on a mission to regain mission clarity.

MFIs have inaugurated as the special banking format with dual objectives in the financial arena and to achieve their success, double bottom lines have to be efficient. Gutiérrez-Nieto et al. (2009) relied on traditional financial institutions for financial efficiency and added impact on female borrower and poverty reach index. This paper studied divers relationship between financial and social performance, between institution's types and social outreach, between efficiency and profitability and the gravity of the geographical region of microfinance operations (Gutiérrez-Nieto, et al., 2009). Authors eventually found the assessment of social efficiency in MFIs is important and meaningful.

Gutiérrez and Goitisoló (2011) asserted in their study, MFIs are a unique type of financial services provider who is within the industry of double bottom lines, therefore, parallel

activities important for the institutions on both of their financial and social promise. Using wide database their study explored the linkage between financial and social aims of MFIs. Microfinance programs are special due to its extensive social value and considered one of the key development tools. The results indicated large variation among the entities; however, negative linkage identified among the profitability, size and social reach out of microfinance institutions (Gutiérrez & Goitisoló, 2011).

Hermes et al. (2011) examined the trade-off between efficiency and poverty outreach of microfinance institutions and they convinced with the results that showed outreach has negative relation with efficiency. Using various control variables the study represented robustly significant findings that, institutions which have a lower average loan balance and/or higher number of female clients are not efficient enough (Hermes, et al., 2011). However, both of those are outreach depth measurement indicators.

Hishigsuren (2007) argued that microfinance program with the mission of poverty reduction may drift from its mission due to scaling up the pressure and to analyze the study used field survey on its proposed methodology from one microfinance institution. The results of the study confirmed that mission drift occurs due to scaling up process, not because of the board or management decision which has taken deliberately.

Im and Sun (2015) illustrated that as institutions with dual objectives if microfinance institution's pursuit commercial logic, the institution can secure more profits rather enhance social outreach similarly if institution pursuit welfare logic than an institution

can extend its poverty outreach but will reduce profit margin. The study employs multilevel mixed model and used dataset of 1,129 microfinance institutions of 98 nations. Based on these logical aspects, the study claimed inverted U-shaped relationship found between earning profits and social outreach in the distribution curve of profitability and the relationship also affected by the state institutions and regulations (Im & Sun, 2015).

Kar (2012) investigated trade-off between profitability and depth of outreach in MFIs using 4-6 years observations of the panel database from 409 MFIs in 71 nations. The study found a significant positive relationship between MFI-size and average loan size; alike results of the outreach indicator percentage of women borrowers presented the similar evidences. However, the profitability and outreach trade-off concerns seemed invalid when scaling-up indicators of MFI-age and MFI-size is excluded and it's defined as a distinguishable trade-off between MFI's dual objectives (Kar, 2012).

More recent studies found more complex scenario. Mia and Lee (20017) claimed that using commercial funds in microfinance operations is susceptible to mission drift. The authors argued that patronizing commercial interest harms outreach to the poorest clients. In contrast, Huq et al (2017) found a neutral trade-off in achieving the double bottom lines. Additionally, the authors claimed higher portfolio at risk limits MFI's ability to reach the in targeting the poorest segment of the population. On the other hand, Lopatta et al. (2017) proposed a model and found that the concern of a mission drift is especially pronounced for non-profit-oriented MFIs, which is surprising and obscure.

2.5 Microfinance Institutions and Dual Performance

Today's modern economic sectors have driven mostly based on financial institutions, e.g. financial intermediaries' influence on the functionality of capital market (Merton & Bodie, 1995). It is no more surprising that the state of art service economies were employing a higher number of people than manufacturing or the mining industry. Performance assessment for financial institutions, therefore, receives extensive importance from both academic researcher and policy maker. Moreover, institutions itself are pushed to analyze carefully their performance and sustainability under the intense competition to perform well in the economies of a globalization era (Harker & Zenios, 2000). However, depending on types of financial intermediaries the performance assessments will differ, along with size, ownership structure, geographic positioning, complexity, governance, technology adaptation, regulation, culture and historical background (Chaganti & Damanpour, 1991; Saunders, Cornett, & McGraw, 2006).

MFI is a unique and alternative approach of credit with double bottom lines. The prime concentration in microfinance program is to eradicate poverty through providing financial service to rural poor women (D'Espallier, Guérin, & Mersland, 2011; Marr & Awaworyi, 2012), at the same time achieving financial viability for long time sustainability in the market of operations (Cull, et al., 2007; Guntz, 2011; Kar, 2011).

Therefore, scholars, investors as well policy makers have given priority to assess both financial and social performance while analyses performance of MFIs. To analyze performance of MFIs some studies look into financial performance (Tucker, 2001;

Tucker & Miles, 2004). In contrast, some works look into social performance (Lapenu, Zeller, Greeley, Chao-Béroff, & Verhagen, 2004; Zeller & Johannsen, 2006) and others have done an impact analysis of microfinance program (Imai, Gaiha, Thapa, & Annim, 2012; Morduch & Haley, 2002). Apart from that, studies also identified various determinants that influence dual performance of MFIs, e.g. subsidization, governance, lending method, capital structure, gender, interest rate (Barry & Tacneng, 2014; Kar & Swain, 2014b; Mersland & Strøm, 2009).

However, in recent days academic research and policy executor want to see all views in the same window. That shows the present dimension of microfinance performance research on both sides of financial and social at the same time. Plenty of studies have been conducted on performance analysis of MFIs in the last decade, but only a mixed results have identified (D'Espallier, Hudon, & Szafarz, 2013; Quayes, 2015; Strøm, D'Espallier, & Mersland, 2014). In addition, scholars who have used global dataset or different regional dataset to measure MFIs' performance have also used macroeconomic factors in their studies, but the numbers are few (Ahlin, et al., 2011; Kar, 2011; Kar & Swain, 2014b). Therefore, questions are yet arising from a different angle and keeping the plot alive. Though an abundant number of empirical studies have conducted, however, there are not yet any convincing conclusion.

2.5.1 The Financial Performance of Microfinance Institutions

Microfinance, the most successful and powerful weapon in the war of poverty alleviation (Yunus & Abed, 2004). The journey of microfinance program started as an alternative

type of credit institution for rural populations who has no other option. Small credit loan has given to a very poor group of people and involve them in micro-business which generate income. Though the uniqueness of microfinance ideology is its dual objective nature; (i) profit making and (ii) social (Hartarska & Nadolnyak, 2007). Therefore, an efficient MFIs have to cover all administrative expenses, loan losses, financing capital and surplus for further expenses from operating income (profit making objective) and operational efficiency to reach the poorest (social objective) (Thapa, 2007). Consequently MFIs attracts its client through innovative approaches such as progressive lending, group lending, collateral substitutes and regular repayment schedules (Thapa, 2007).

In the earlier of 2000s, the issue of financial viability focused for the first time by academic scholar and policy makers (Robinson, 2001; Tucker, 2001). Later, a number of studies have conducted, policies and strategies have changed; issues have taken under consideration. However, the utmost importance of financial viability of MFIs for its long term existence is yet unavoidable (Cull, Demirgüç-Kunt, & Morduch, 2009; Gutiérrez-Nieto, Serrano-Cinca, & Mar Molinero, 2007; Hermes, et al., 2011). A number of issues have identified for the increasing interest on efficiency and financial viability, alike the commercialization or transformation of MFIs, competition among existing MFIs, economic liberalization, government regulating policies and most importantly technological revolution in recent era (Rhyne & Otero, 2006).

The early emergence of microcredit program has focused on poverty eradication from society. Therefore, female demography has chosen as target client. The microcredit has

given to them and involved them in entrepreneurial activities for better living. Therefore MFIs need major capital to cover various informal costs to reach out the poorest. MFIs greatly depend on external subsidies from government or donor to cover those costs and keeping their services active. The common goal perception worked well during that period and it has also supported microfinance institutions to achieve social bottom frontier and serve very remote demography (Hudon & Traca, 2011). However, scholar proved that donor dependency cannot make sure institutional sustainability or financial viability (Tucker & Miles, 2004). Furthermore, greater obedience on external funding lead to less efficiency and sustainability (Rhyne, 1998). Hence the growing concern of MFI's sustainability has arisen after 1990s.

More than US \$ 1 billion per year has received by MFIs in donation from both public and private sectors in the last 20 years (CGAP, 2005). However, about 5% of global MFIs found working efficiently without external subsidies conversely rest of them extremely depend on it (UNCDF, 2005). The subsidy also provided in various forms (i) direct (i.e. cash, donations) (ii) indirect (i.e. asset, soft-skill, training, technology). Armendáriz & Morduch (2010) argued that beyond mentioning forms, there are a few more forms (i.e. tax holidays, loan guarantees, soft equity, or public goods) of subsidies also have practiced, but this information might not place open to the data collector. However, in a previous study Morduch identified this huge adjustment difference where he calculated the total direct and indirect subsidies of Grameen Bank for 1985-1996 was US\$ 144 million, while it was reported only US\$ 1.5 million (Morduch, 1999).

Such comprehensive donor dependency of MFIs has raised several arguments on sustainability and efficiency of MFIs. Hollis & Sweetman (1998) addressed that the financial sustainability of MFIs is a very important matter that should be kept MFIs sustainable. Financial sustainability of MFI defined as the ability to cover all costs with its generated revenue and also able to finance future growth (Ayayi & Sene, 2010). Lack of these capabilities are some reasons why MFIs that are strongly dependent on external subsidies generally less sustainable and efficient (Rhyne, 1998). Various studies found the number of clients enhance the deposit and internal cash flow, which brings financial viability in MFIs. Therefore, MFIs should practice fair pricing and offer a competitive interest rate that reduces loan default, and rises client's number (Acclassato, 2008).

Several previous studies explained that there are a significant relation between financial self-sufficiency and operating efficiency. Although the prime tensions are subsidies undercut both efficiency and scale within the microfinance institution, and pervert the market by supporting more inefficient institutions (Hudon & Traca, 2011). In a different study found that smart subsidies enhance microfinance institution's efficiency and help to develop better infrastructure (Armendáriz & Morduch, 2010). However, it is surprising that only limited studies have identified evidence of subsidies impact on the microfinance performance (Cull, Demirgüç-Kunt, & Morduch, 2006; Hudon, 2006). MFIs is a special form of financial service provider, but it doesn't mean that operational efficiency and sustainability are not important to them like traditional bank. However, assessment and measurement mechanism may vary for MFIs. Production oriented non-government MFIs have revealed as the most efficient in previous studies (Gutiérrez-Nieto, et al., 2007).

Acclassato (2008) revealed that interest rate ceilings do not protect small businesses. In actual practice, interest rate ceilings damage MFIs (Acclassato, 2008). The findings also mentioned that MFIs need to price loans in a realistic way to be sustainable and to reach a large number of clients. The study has recommended the promotion of transparency on interest rates to stimulate competition among MFIs as a way of protecting borrowers. Moreover, the financial sustainability of MFIs is based on the capability to meet all costs on an adjusted basis and alludes to the use of the institution's own available sources in operating without ongoing subsidies from donors or losses (Guntz, 2011).

Furthermore, a different examination by Agbodjan on the results of the prudential regulations showed that the non-observance of some "prudential ratios" by MFIs did not adversely affect their financial and organizational performance. Moreover, in view of the very strong correlation between the sustainability and the profitability of these institutions, the recommended strategy should consist of the removal of the framing of lending rates to make these neighborhood credit institutions more profitable (Agbodjan, 2002). In addition, the cost efficiency of MFIs is affected by average loan size, proportion of net assets, financial sufficiency, financial leverage, business experience, and proportion of farm loans (Gregoire & Ramirez Tuya, 2006).

Kinde (2012) showed that the financial sustainability of Ethiopian MFIs has affected by the breadth and depth of outreach, dependency ratio, and cost per borrower. He has also concluded that during the study periods, the microfinance capital structure and staff

productivity have insignificant effects on the financial sustainability of MFIs in Ethiopia (Kinde, 2012). Thapa (2007) showed that MFIs is considered as financially self-contained if their operating incomes are able to sustain all loan losses, administrative costs, and financing costs after synthesizing inflation rates and subsidies from donors and treating all funding as if it had a commercial cost.

The financial self-sufficiency of MFIs depends on the performance of the return on assets and return on equity (Tucker & Miles, 2004). The authors concluded that providing financial service to the poor is an expensive proposition, which can be a deterrent for numerous MFIs to reach self-sufficiency, and may require them to acquire continued subsidies. The cost argument has an important flaw: client retention, which is a critical aspect of financial sustainability and a key measure of social influence, is significantly higher in rural markets (Epstein & Yuthas, 2013). The study suggested that by operating in rural markets, MFIs may be able to increase both social impact and financial performance. However, in a different study, the authors asserted that MFIs can significantly improve their financial sustainability and social influence by increasing the focus on trust (Epstein & Yuthas, 2011a).

Without maximizing the loan size and increasing the cost of monitoring, the difficulties to meet expenses on partial unsecured and small loan can be covered. Therefore, to develop better financial situation MFIs should improve the policy and standardize interest rate threshold or maximize the number of borrowers per loan office based on collective delivery method (De Crombrughe, Tenikue, & Sureda, 2008). MFIs operate primarily in

nations with a relative minimum degree of overall economic independence and where government intervention in the economy can reduce their sustainability (Crabb, 2008). His observation has resolved the issue with regard to how remarkable is the economic environment of countries as a factor in MFIs' ability to reach their goal.

Al Atoom and Abu Zerr (2012) conducted three phases of analysis: taking four financial factors of financial sustainability, introducing the countries' macroeconomic regime factors, and integrating both micro- and macro-factors together. Results showed that Jordanian MFIs has more financial sustainability than those of other Arab and Asian countries (Al Atoom & Abu Zerr, 2012). Moreover, these MFIs have a less significant effect on the financial sustainability of the world's MFIs. Their study recommended that the government should improve the macroeconomic regime policies, financial policies, and monetary policies to help MFIs achieve sustainability. This recommendation finds support in the observation that the country-level context is an important determinant of performance of microfinance institutions and a continues defects for the environment where it has pointed (Ahlin, et al., 2011).

Profit margin, operational self-sufficiency (OSS), ROA, and gross loan portfolio-to-total asset ratio considerably affects the other components by establishing the financial sustainability dimension (Anduanbessa, 2009). Borrowers' outreach is growing as evidenced by the opening of branches in almost all regions of Tanzania; nevertheless, lending activities are still brought to around city areas (Chijoriga, 2000). His study concluded that operational performance demonstrates less loan repayment rates.

Conversely, capital structure reveals a high dependence on donor or government subsidy. Moreover, financial sustainability increases through good practice of external governance in MFIs (Bassem, 2009). The study also proposed that other factors, such as regulation and the use of the individual lending methodology, can lead to sustainability.

Interest rates, administrative efficiency, loan officer productivity, and staff salaries are significant determinants of financial self-sufficiency (FSS), but staff productivity measures and institutional scale are unrelated to FSS (Woller & Schreiner, 2002). The study found a statistically significant and positive relationship between FSS and depth of outreach. However, earning profits is possible while serving the poor, but a trade-off emerges between profitability and serving the core-poor (Cull & Morduch, 2007). They concluded that raising fees to extremely high levels does not ensure higher profitability, and the benefits of cost-cutting diminish when serving better-off customers.

Consultative Group to Assist the Poor (CGAP) came up with the guidelines for MFIs on the financial terms' definitions, ratios and adjustments in 2003 and other rating agencies, multinational banks, donors, NGOs, private voluntary organizations etc. agreed on that guideline as presented in Table 2.2. The guidelines generally divided in four categories of financial ratios: (i) profitability/sustainability, (ii) liability/asset management, (iii) portfolio quality, and (iv) productivity/efficiency.

Table 2.2

Microfinance consensus guidelines on financial ratios

Categories	Financial ratios
Profitability/Sustainability	Return on assets Return on equity Financial self-sufficiency Operational self-sufficiency Profit margin
Liability/Asset Management	Yield gap Current ratio Cost-of-fund ratio Funding expense ratio Yield on gross loan portfolio
Portfolio Quality	Write-off ratio Risk coverage ratio Portfolio at risk ratio > 30 days
Productivity/Efficiency	Cost per borrower Other expense ratios Personnel productivity Operating expense ratio Loan officer productivity Average disbursed loan size Average outstanding loan size

Source: Consultative Group to Assist the Poor, 2003

2.5.2 The Social Performance of Microfinance Institutions

"Poor people didn't create poverty. It's the system that created the poverty. And, if we want to end poverty, we have to change the system." (Yunus, 2014).

Microfinance is the alternative approach of collateral free loan service provider to the poorest populations in rural area. Traditional bank has ignored these populations because the lack of collateral and the weak legitimate practice will be unable to secure loans repayment if the client reneges on loan. The borrowing options, therefore, was shut down for the poor from the traditional credit service provider and the circumstances lead to the continuous poverty and economic inequality. Collateral free micro-credit loan service, therefore, received enthusiastic acceptance (Beck, Demirgüç-Kunt, & Levine, 2007).

Moreover, the innovative approach of micro-lending to the social bottom line (reach out to the poor) and client's involvement in profit generating micro-enterprise ensure comparatively very high loan repayment (Armendáriz & Morduch, 2010).

Nevertheless, the high repayment of loans yet unable to make sure the profitability for MFIs. Therefore, they still extensively depend on various local and international donors. As a result, the great debate on microfinance sustainability yet to be solved (Morduch, 1999). In a different perspective, there is a call for commercialization of microfinance program to access the available large asset and finance their further operational expenses, thus a greater number of poor populations will be served (Ghosh & Van Tassel, 2008; Morduch, 2000). Once MFIs able to reach their profitability from their own operations, they can start borrowing from the commercial sector and reduce donor dependency. Pursuing the profitability will increase outreach to the poorest clients (Kar, 2013a).

However, the controversy arises here too on whom to serve (target group), and the level of poor people to serve (poverty level). Navajas et al. (2000) argued that MFI's lending credit to the households, those are nearly to the poverty line, but, most of them are the richest among the poor. In contrast, some are living under lower subsistence frontier. Few of them employed, few might involved in setting up micro-venture and others are unemployed. The very poor can realize the benefit of microfinance from its consumption smoothness (Morduch, 1998; Zeller & Johannsen, 2006). Several studies also confirmed that competition in microfinance industry also affects outreach of MFIs in different regions (Hartarska & Nadolnyak, 2007; Olivares-Polanco, 2005).

Muhammad Yunus invested his idea of micro-lending to the poor who are unserve by commercial banks because of their poverty in 1970s in Bangladesh. The poor commonly considered as a proper client for microfinance because they can involve in profit making venture and repay their interest for loan have taken (Morduch, 2000). Poverty and vulnerability create an entrepreneurial spirit in the mind of poor people and influence them to change their destiny (Im & Sun, 2014). However, they need law enforcement to protect private properties; thus the poor borrower will have incentives to generate wealth and enrich prosperity (Ding, Sun, & Au, 2014; Peng, Sun, Pinkham, & Chen, 2009).

From the sustainability perspective, profitability of MFIs could be a very close issue to the outreach of social bottom line as it will keep sustaining the institutions to serve more client (Yunus, 2007). Conversely, profit seeking for MFIs also has a negative impact on outreach as it increases operational cost to serve poorer populations (Cull, Demirgüç-Kunt, & Morduch, 2007; Mersland & Strøm, 2010). However, a recent study proposed a comprehensive model that includes financial sustainability and outreach as endogenous variables and the results discloses that financial sustainability does not badly affect the depth or breadth of outreach (Nurmakhanova, et al., 2015).

Another examination of Meyer (2015), where she analyzed the interaction between social and financial returns in MFI. A multivariate regression models has ran using 1,508 observations on MFIs for the period of 2004 to 2010. The result found strong evidence that MFIs can achieve higher portfolio yields from more social outreach (Meyer, 2015).

In addition, Quayes (2015) has conducted a panel investigation on possible trade-offs between outreach and profitability using 764 MFIs from 87 countries. The empirical results of this study revealed that the financial performance of MFIs can be boosted by the reach out to the poor (Quayes, 2015). Though, both of these recent studies confirm MFIs can achieve better financial performance from their social outreach, however, some market oriented strategies need to be applied.

A study on Savings and Credit Cooperative Societies (SACCOs) of Tanzania revealed that both product development and market development have significant contribution in outreach performance (Jeje, 2014). However, sometime this relationship of outreach and profitability can be found negative from the country context. Indeed a study has taken place with an assumption that financial performance and outreach in Ethiopian MFIs is not related. Finally, the study concluded with negative trade-offs between financial performance and outreach in Ethiopian MFIs (Gashayie, 2014).

Governance and board composition are new concern of MFIs' performance. In some region such as Central and Eastern Europe and New Independent Nations; external governance mechanisms played minimal role in MFIs (Hartarska, 2005). However, sustainability and outreach also have tradeoff based on stakeholder representation on the board, therefore independent boards with limited employee participation is advised (Hartarska, 2005). A recent study identified board composition and outreach to the poor of MFIs appear to be related. If the MFI has an independent higher share, foreign, and/or women member of the board, then the outreach of that institution will improve (Mori,

Golesorkhi, Randøy, & Hermes, 2015). Several studies have conducted in the last few years to integrate the measurement of social performance with microfinance business practice or performance assessment (Ahmed, Bhuiyan, Ibrahim, Said, & Salleh, 2016; Hashemi, 2007). Moreover, various frameworks have proposed by scholars for the social performance measurement of MFIs (Schreiner, 2002; Zeller, Lapenu, & Greeley, 2003).

Schreiner (2002) proposed an outreach framework, where the author mentioned there are six aspects of the social benefits of microfinance program for its poor clients, such as (i) cost of outreach to clients, (ii) worth of outreach to clients, (iii) depth of outreach, (iv) breath of outreach, (v) length of outreach and (vi) scope of outreach. The costs of outreach to clients define the transaction costs and price costs charged to the clients of microfinance program. However, the worth of outreach to clients entails the willingness of microfinance clients to pay. On the other hand, the depth of outreach represents the added value of active microfinance clients to the society. Welfare theory claims that depth is the weight of a client in the social welfare function, therefore weight depends on the preference of the society (Schreiner, 2002).

The most popular proxy for depth of outreach is average loan size. Smaller average loan size proclaims that microfinance reaching out to the poorer clients, showing greater outreach depth. Alternatively, indirect proxies of depth of outreach could be: (i) location, with rural areas preferred to urban areas; (ii) gender, with outreach to women preferred; (iii) ethnicity, minorities are preferred; (iv) education, less education is preferred; (v) access to public services, whereby a lack of access is preferred; and (vi) housing; with

small and vulnerable houses preferred. Conversely breath of outreach measured by the number of clients has served by the MFIs or the active number of borrowers. The future time frame or the duration of the supply of microfinance services refers to the length of outreach. And lastly, the number of microcredit products or services provided to the clients will represent the scope of outreach of MFIs.

After considering various scholarly works CGAP, the Ford Foundation, and the Argidius Foundation came together to establish the Social Performance Task Force (SPTF) in 2005 with the aim to standardize the social performance measurement of MFIs. The SPTF staff made up with globe's top 350 microfinance leaders and a social performance standard report has developed and distributed in 2009, as reported in Table 2.3. According to the report of SPTF (2009); the social performance is the efficient transformation of social promise of an MFI into action in line with accurate social values, which also include increasing of service viability to the poor and excluded demography, flourish the quality and usefulness of services, enhance the household economy and the social condition of borrowers, and assure the social obligations to its clients, employees, and the society.

A difference has made between the achievement of social promise and the poverty alleviation of MFIs by the standard report of the Social Performance Task Force (SPTF, 2009). Conversely, Zeller et al. (2003) argued that social performance measurement and social impact measurement is not the same. Social performance measurement should concentrate to the reach out measurement of microfinance program, whereas social

impact measurement is associated with the outreach to poverty, the development in welfare, and the enhancement of quality of life of poorer clients (Zeller, et al., 2003).

Table 2.3
Social performance standards report

Dimension	Sub-dimension	Indicators
Intent & design		Mission and social goals Governance
Internal systems & activities	Strategies & systems	Range of products and services (financial and nonfinancial) Training of staff on social performance Staff performance appraisal and incentives Market research about clients Measuring client retention Poverty assessment Social Responsibility to clients Cost of services to clients Social Responsibility for staff Social Responsibility to community Social Responsibility to environment
Outputs, outcomes & Impact	Policies & compliance	
	Achievement of social goals	Geographic outreach Women outreach Clients outreach by lending methodologies and other client outreach Outputs Employment (family and hired in credit supported small enterprises) Children in school Poor and very poor clients at entry Clients in poverty after 3 or 5 years Clients out of poverty after 3 or 5 years
	Poverty measurement	

Source: Social Performance Task Force, 2009

2.6 Theoretical Underpinnings

2.6.1 The Stakeholder Theory

The term stakeholder refers as any group of individual who can influence or is influenced by the attainment of the organization's mission (Freeman, 2010), despite it came out half a century earlier (Friedman & Miles, 2006). Since that stakeholder interest in the firm took attention as part of the strategy theory, due to the seminal work of researcher (Ansoff, 1965). Notwithstanding, the study by Freeman (2010) is considered as the groundbreaking in the respective field. From the managerial point of view group of stakeholder became organization's decision makers and responsible to obtain corporation's objectives by mean of stakeholder management (Freeman & Evan, 1991). The environment of the firm that strategically associate with stakeholders is the context sketch, inasmuch as organization's focal hub and spoke paradigm have interactions within individual players (Freeman, 2010). This ideology of stakeholder paradigm aggravated a continuous debate on the strategic management (Friedman & Miles, 2006).

Post, Preston, & Sachs (2002) claimed a broader stakeholder approach that stated stakeholders are responsible to redefine the organization's mission in their *Stakeholder View* or SHV. The SHV impersonates an extensive stakeholder oriented framework that fabricates based on two main traditional methods of strategic management; the Resource Based View (RBV) (Penrose, 1995; Prahalad & Hamel, 2006; Wernerfelt, 1984) and the Industry Structure View (ISV) (Porter, 1985; 2008). However, the authors asserted that these thoughts are evolved from the economic analysis in reality and limited to capture complete strategic environment. Therefore, they include the social and political sphere to

limit above deficiency and enhance the scope. As a result, stakeholder arises from all three crucial domains; resource base of firm, industry structure and social-political zone (Post, et al., 2002). This study has two main implications in the context that relevant to the understanding of the extended stakeholder environment of an organization.

It is necessary to create the adjusted notion of value creation. A firm can increase its long run value or organization wealth through strategic relationships with relevant stakeholder (Sveiby, 1997). Consequently, scholars argue that auspicious and reciprocal helpful relationships with stakeholder qualify the firm to enhance wealth, whereas quarrelling relationships can moderates or shatters the wealth creation (Sachs & Rühli, 2011). Thereby, firm's wealth covers both tangible and intangible assets of the organization, as well as the firm's reputation and valuable external association. Beside that stakeholder term needs more specific definition as the firm's stakeholder environment is kept widening. Post et al. (2002) define the stakeholder as ~~the~~ individuals and constituencies that contribute, either voluntarily or involuntarily to its wealth creating capacity and activities and that are therefore its potential beneficiaries and/or risk bearer".

However, the emerging stakeholder model has established based on the basic assumption that in a knowledge-based, networked society the objective of the institution is mutual economic and social value creation, with and for stakeholders (Sachs & Rühli, 2011). As a matter of fact, the existence of an institution can depend on its ability to support in social needs through balanced activities. As human beings with same interest, it's natural that they pursue a common mission. Common mission refers the natural motives of

engagement in the side of institution or stakeholder in mutual value creation process (Freeman, Harrison, & Wicks, 2007). On the other hand, a normative approach of the stakeholder theory is how organizations and stakeholders should function and prospect the objective of the firm, an instrumental approach asserts what initiative should be taken from a stakeholder management view to attain success and a descriptive approach proposes how organizations and stakeholder should react to their roles, responsibilities and functions (Friedman & Miles, 2006).

As an empirical investigation in the microfinance and its investment industry, this study understands that stakeholder-oriented concept should be given importance. Therefore, stakeholder theory has included as a guideline for a theoretical framework that is proven and useful to explain the empirical result of organization and stakeholder engagement in networked-based value creation issues.

2.6.2 Stakeholder Networks in MFIs

The Industry Structure View (ISV) has an original niche strategy that can increase the benefit and limit risk for specific segments of stakeholder, such as microfinance investors. These investors get less information before, but have unique network importance or special issues. A microfinance financing approach often refers as focus strategy or focus financing as it offers credit services to a special segment of clients. This strategy can reform new groups of stakeholder who tied into mutual value creation and in an MFI value has to be created both from economic and social aspects. That has provided access into a neglected yet a large market niche.

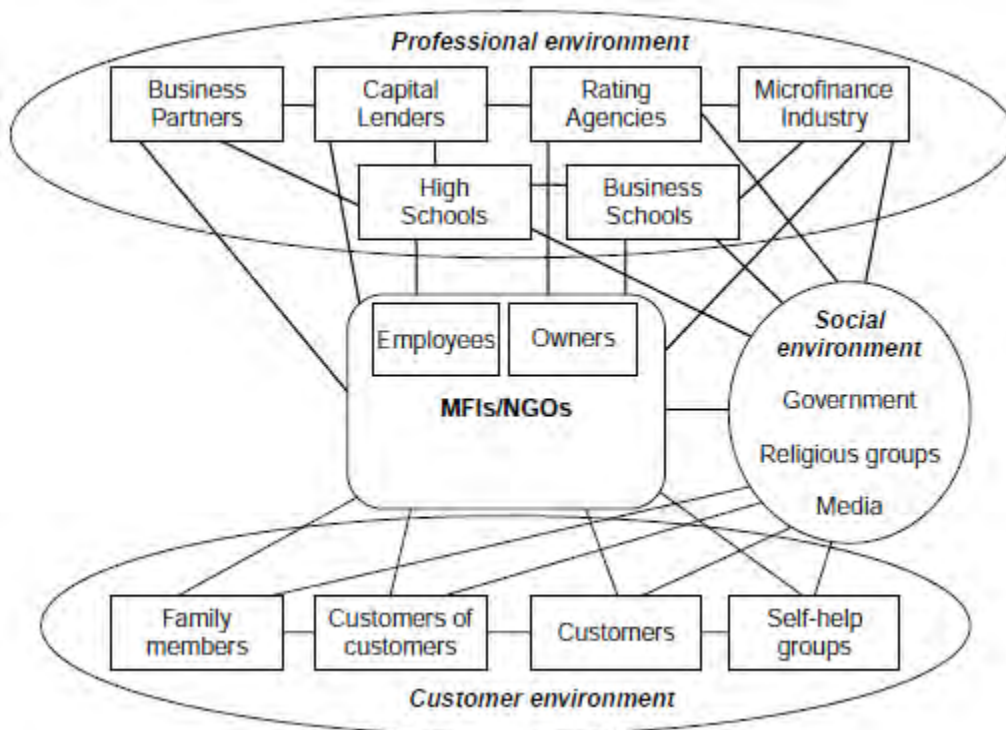


Figure 2.3
Stakeholder network of microfinance institutions (MFIs)
 Source: Adopted from Sachs and Rühli (2011)

Microfinance industry is usually associated with the very specific stakeholder network. So far three separate stakeholder environment sectors can be characterized in the microfinance stakeholder network (see Figure 2.3). First, the professional environment refers to the business world that helps the activities of MFIs to provide loans to the poor. Second, the customer's environment, that represent the self-helped groups and other member of the families. Last, the social stakeholders in the network who are ambassadors or representatives of the society in large, such as; government, media and others.

2.6.3 Stakeholder Perception and Mutual Value Creation

In today's knowledge based environment, individual often acts professional rather just drive with the flow and actively involved in value creation or show own interests. Thereby, every individual share distinct characteristics such as family profile, education, experience, knowledge, values, group affiliation and personal profile in the organization to attain common mission. The organizations received those distinct features and capabilities that are highly affected by the individual involved. In present time, stakeholder has improved organization's capacities and they can contribute in the value creation process more stronger and different ways than earlier (Sachs, Groth, & Schmitt, 2010; Sachs & Rühli, 2011; Sachs, Schmitt, & Perrin, 2008), as per Figure 2.4 below.

Although there are both similarities and differences of organization and stakeholder perception in mutual value creation process, nevertheless, neither organization, nor stakeholder can always dominate the value creation process (Sachs & Rühli, 2011). Therefore, organization and stakeholder may have multiple, even contradictory roles that can change over period of value creation process which also may impact their perception (Freeman, et al., 2007; Post, et al., 2002; Winn, 2001). In over all, both firm and stakeholder shape the possibilities of mutual value creation process. Engagement of different features (education, knowledge, experience, etc. that shape individual perception) in the organization also supports to recognize potential benefit and risk between firms and its extended stakeholder network (Sachs & Rühli, 2011).

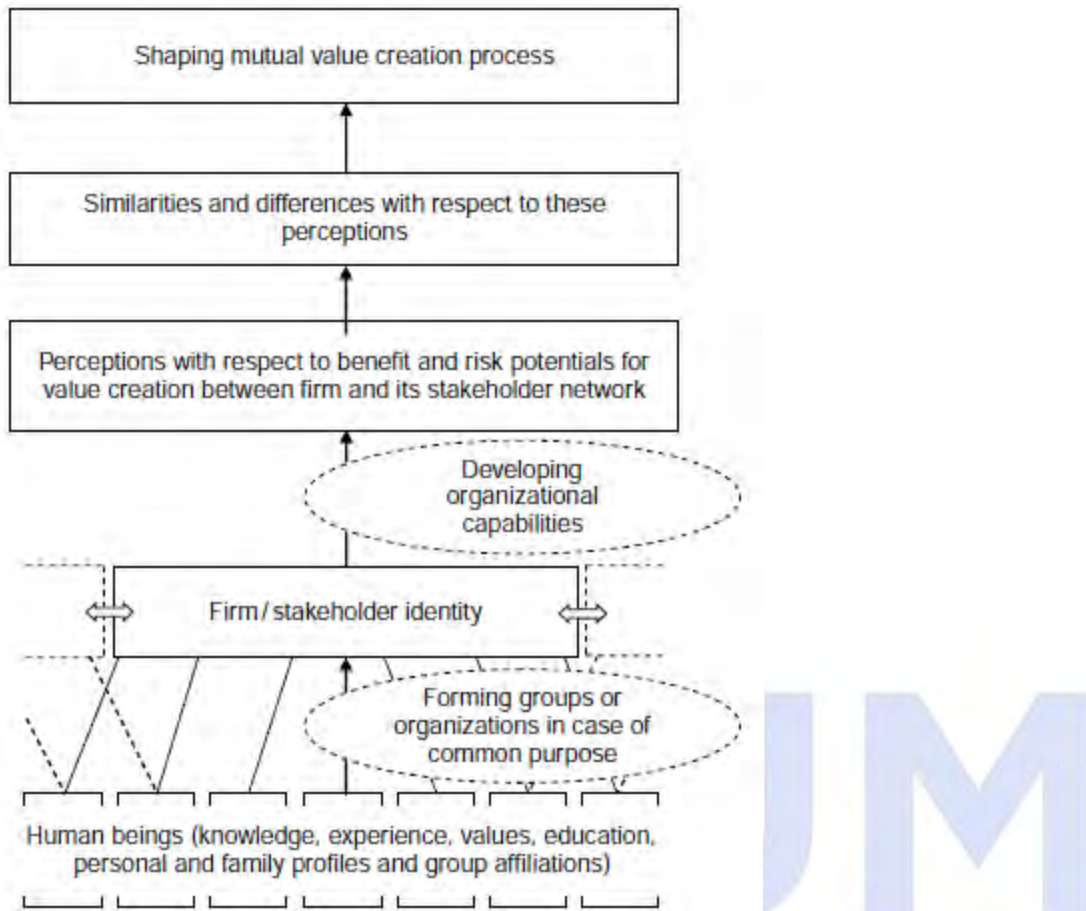


Figure 2.4
Stakeholder perceptions shaping mutual value creation
 Source: Adopted from Sachs and Rühli (2011)

The relationships between theoretical concepts have shown in the above diagram are ambiguous and hardly ascertained by empirical study, thus this research includes them in an explanatory format. Moreover, the study tries to provide more clarification about upper section of the pictured line of debate and their conceptual interrelation. Furthermore, the illustration also argues the desire of individual stakeholder to involve in value creation, insofar as this view noticed how the theoretical concepts are distinguished in application. As a result, it is also very important to justify the stakeholder engagement motives earlier to dive in the concept of mutual value creation.

2.7 Literature Gaps

The study has figured out that investment interest of institutional investor has been increasing in microfinance due to its dual objectives which are securing profit through creating social change. It is a unique opportunity for them too to get dual returns from single investment; profitability and impact. Therefore investor's interest on dual return might also affect to the institution's objective. However, academics and policy thinkers argue on mission drift as a growing concern in the microfinance industry, but unfortunately the accurate answer and solution are unknown.

Double bottom line objectives are an attractive win-win proposition for microfinance institutions and its investors, but it often questioned by others. Some believe that it is the way the social mission of poverty alleviation has overshadowed by profit motive. As a result microfinance institution tends to deliver larger loan to the wealthier client rather supporting their novel mission. Though sometimes it is not the wish of the management of MFIs, but the pressure of prioritizing the interest of investors. Since the MFI intake private investment, thus institutional investors have exhibited their interest of balancing between profit and welfare from the possession of stakeholders.

There are critics who believe that outreach of microfinance institution might decrease due to increase motivation of earning profit. They argued institution that highly motivated to profit usually leads to weaker outreach to the poor. Conversely, others disagree with the point and asserted institution that has more profit orientation is better able to serve their

novel mission of poverty reduction. Because they believe that profit oriented MIs are more efficient and enthusiastic for seeking other prospective market. Though their studies found negative relation of the profit motive with outreach to the poor, it is remained unclear that institutional investors have any role to influence mission drift in MFIs. More especially the way they stimulate interest to invest and later the duties they perform to lead the institution in a delicate balance between financial and social mission is often observed with critical eyes.

Commercialization in the microfinance industry also put emphasis on profit maximizing. Thus, some MFIs rediscover their operating efficiency through earning profit while some chose to serve better-off clients with larger loan to manage their various expenses. The concern of mission drift revealed in early 1990's with the transformation of an NGO named PRODEM into shareholder owned organization BancoSol in Bolivia and remained as the major case of its kind. Whenever such transformation occurred in the microfinance industry afterward, the tension of the mission drift has remained high. Journey of this emerging financial industry from nonprofit into capitalism is yet burning topic of today.

Consequently an MFI named Banco Compartamos of Mexico released their shares in a secondary offering IPO in April 2007, the first time ever in the history of microfinance. This case unraveled only a handful of people that proceed enormously and it has reignited not only the tension of mission drift but some ethical practices. Some studies indicated that excess interest rate imposed on poverty by the institution for showing impressive ROE to attract wealthy investors. Microfinance pioneer Muhammad Yunus commented,

Compartamos should not compare with microcredit program that he initiated. Yet, Banco Compartamos is the largest commercial microfinance bank in Latin America providing services to above 2.5 million clients today and consider as one of the most sustainable MFI in the region balancing their financial and social objectives properly.

The second key event of such transformation arrived in mid-August 2010 in Asia, when SKS Microfinance, the biggest such institution in India debuted on the Bombay Stock Exchange and displayed sharp growth in share price at 60 percent and reached the market cap of \$2 billion. The father of microfinance Muhammad Yunus expressed his deep concern about this case, said this type of initiatives might put shareholder's demand ahead than its poor clients. He added profit oriented MFIs can name their program as BoP credit which stands for Bottom of the Pyramid. However, the founder of SKS Microfinance argued that the commercial capital market is the only way to unite fund that MFI needs to serve the demand of all the poor.

All of the above cases have drawn a contrast result with the view of some policy maker, even with microfinance pioneer. However, those institutions have triggered by the funds from institutional investors. There are certain matters that institutional investors may consider before injecting their fund in microfinance program. Regulation is one of them. Some studies indicated that appropriate regulatory and supervisory framework for MFIs are equally important as traditional banks. However, it is also difficult to apply the same regulation for all countries. For an instant; regulatory legislation in Bangladesh allows taking deposits from borrowers, in contrast, no such laws available in India. Therefore,

SKS Microfinance calls for their journey into commercial capital market for an inclusive access to funds. Besides getting banking license is nearly impossible.

Types of institution also an issue that institutional investors observed before invest. It disclosed that the institutions are pursuing only social welfare or they also take profit earning under their consideration. Notable previous studies found that typically NGOs performing better in creating social impact, however bank and non-bank financial institution displayed better financial performance. This finding might put institutional investors in dilemma. However, if profit orientation takes place in different institution's type, then mission drift might occur, but it's yet to confirm through empirical studies. On the other hand, MFIs that has network affiliation trend to be more transparent and ethical in their operations, thus attracts more outsiders to invest in the program. However, this matter was nearly missing in previous studies.

Regulation, institution's type and network membership are institutional risk for investors. Other than those, size and experience of the institution also come under the risk for institutions that widely used in various studies. The institutional investors also analyze country level elements to take their investment decision, such as; GDP growth rate and inflation rate, consider as the macroeconomic risk for a country. Notably independent use of mentioned factors can be found in various studies. Some studies used those factors as independent variables while the other used as a control variable. Very few studies considered those as risk factors as there are lacks of studies from the institutional investor's perspective. However, using those factors as a package of risk variable is rare

to address the issue. Moreover, the study that especially concentrating on mutual exclusion of financial and social objectives with the moderating effect of institutional and macro risk factors are not plenty. Only a handful of studies has attempted to address the issue rigorously despite none of them solely focused on the OIC member countries.

Furthermore, some studies claimed that commercialization of MFIs forces the interest rate increment to earn adequate profit to adhere shareholder demand. Logically lower interest rate helps poor to manage their repayment. However, managing small loan in rural area is also a matter of high operating cost. Some studies, therefore, indicated that MFIs often serves better-off poor clients and charge high rate of interest to meet its costs. On the other hand, interest practice is strictly prohibited under the Shariah laws. As a result, a strong contextual gap has discovered in regard to the OIC member countries.

The OIC member countries spread in four continents of the world and home of 1.563 billion populations that is 22.7 percent of the whole world according to 2010 estimates, and nearly half of its population is still living under the poverty line. Therefore, OIC-MFIs have a huge scope of creating impact in poverty alleviation in their region. Despite the only limited such result has identified. Thus, the concern of mission drift in the region has reignited. Hence, the burning yet unanswered tension of mission drift and the scarcity of cross-country longitudinal investigations focusing especially on MFIs operating in the OIC member countries justify the need of this empirical study.

2.8 Chapter Summary

This chapter provides a review of the literature concerning financial performance, social performance and mission drift occurrence in MFIs. The comprehensive review looks into both the global and the OIC microfinance market. The chapter discusses widely since the evolution of microfinance through the transformation and commercialization to present dual mission industry. Prior studies asserted various factors that influence both the financial and social performance in microfinance industry. Conversely, only a handful of studies has strongly addressed the issue of mission drift.

However, we only have puzzled scenario from those findings. Hence, the literature gap pointed that the issue is yet to be addressed in existing literature. In addition, a number of institutional and country context indicators also found to have an impact on the relationship between the financial and social performance. Only limited studies have found that examined from the perspective of institutional investors.

Therefore, the chapter presents a detail argument on the utilization of stakeholder theory for mutual value creation that can avoid mission drift. In addition, most of the previous studies have conducted with global or specific country dataset; however, we argued that there is still need to examine in the issue from different regional perspective. As a result, this research chooses to carry out a cross-country longitudinal investigation in the OIC member countries.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction

This chapter scrutinizes the theoretical framework and research hypothesis, data collection, sampling technique and data analysis method that will be needed to be used in this study. The chapter is arranged into seven sections. Section 3.1 briefly describes the stakeholder theory that has included as a guideline for this investigation. Following that section 3.2 represents the theoretical framework of the study. The hypothesis development presents in the section 3.3. The section 3.4 explains sampling method, data collection sources and process of the study. The following section 3.5 explains about the measurement of variables. Design of empirical models and technique of data analysis is reported in the section 3.6 and 3.7 respectively. Lastly, a summary is presented in 3.8.

3.1 Theoretical Framework

Microfinance literature has provided the contextual background and specific issue that needed to address, however this part of the dissertation justifies the theoretical substance of stakeholder literature. The prime aim of the stakeholder theory is to guide the inquiry, inasmuch as it stands as a parent theoretical discipline. In short, a batch of chosen theoretical concepts from the emerging stakeholder model pointed and explained within the study, have illuminated the research question and regulated the analytical approach selected in this empirical examination. However, this study does not claim to further development of stakeholder theory in a generic sense from a conceptual standpoint.

In harmonization to the research objectives, this study scrutinizes the theoretical framework based on stakeholder theory (Donaldson & Preston, 1995; Freeman, 2010; Freeman, et al., 2007; Friedman & Miles, 2006; Post, et al., 2002; Sachs, et al., 2010; Sachs & Rühli, 2011). The theoretical framework for the study as per Figure 3.1 below:

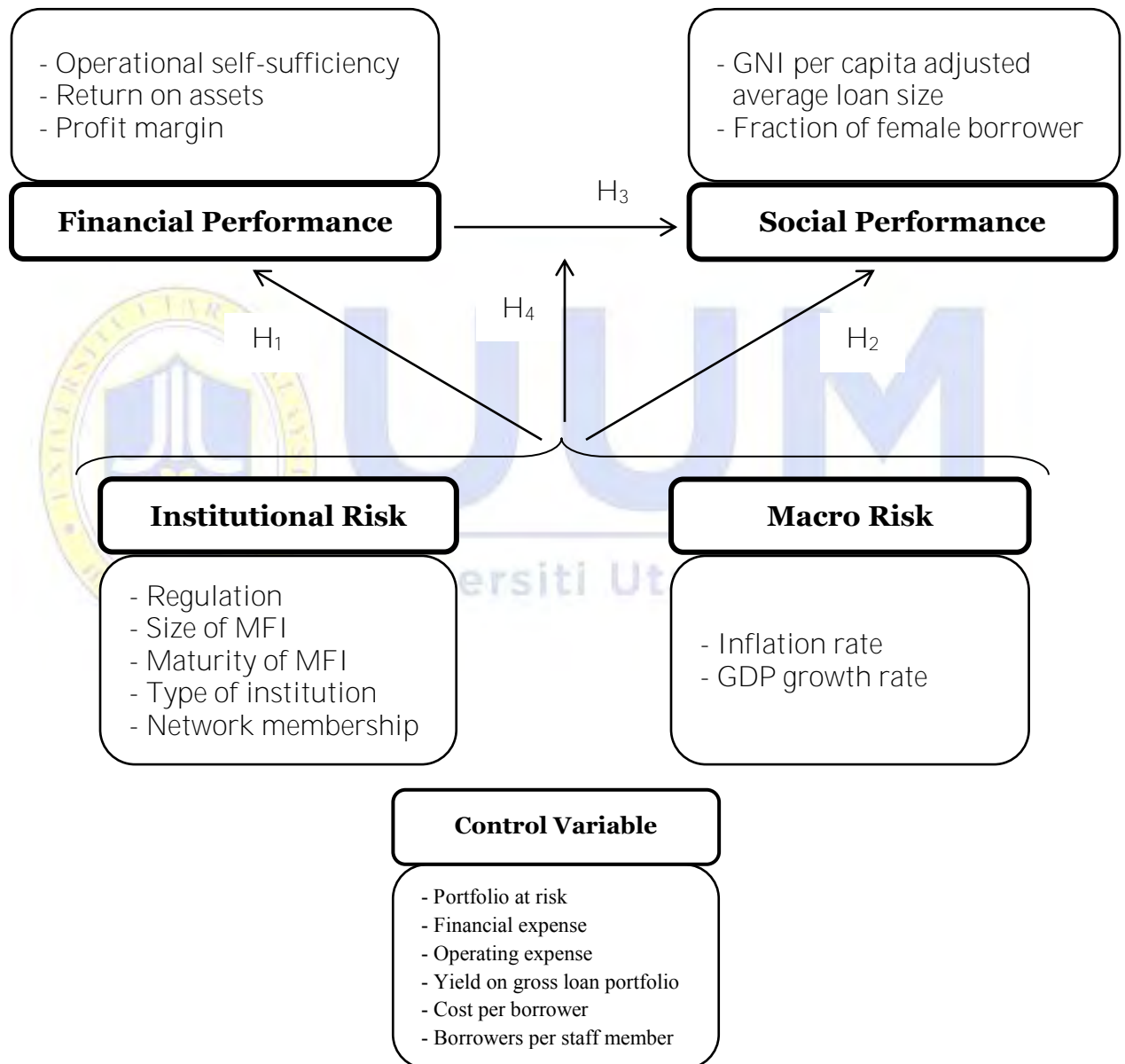


Figure 3.1
Theoretical framework of the study

The Figure 3.1 proposed four dimensions of relationship. First dimension examines the effects of institutional risk indicators (regulation, MFI-size, MFI-maturity, institution types and network membership) and macro risk indicators (inflation rate and GDP growth rate) on the financial performance indicators (operational self-sufficiency, return on assets and profit margin) of OIC-MFIs which present as H1. Second dimension measures the role of institutional risk indicators and macro risk indicators on the social performance indicators (GNI per capita adjusted average loan size and the fraction of female borrowers) of OIC-MFIs which refers as H2. Third dimension investigates the trade-off between the financial and social performance indicators which presents as H3. Finally, fourth dimension refers to the moderating effects of institutional and macro risk indicators on the relationship between the financial and social performance indicators.

3.3 Hypothesis Development

3.3.1 Role of Risk Indicators on the Financial Performance

The research firstly analyses the impact of risk indicators on the financial performance of MFIs. There are relationship between a high risk profile and self-dependent MFIs, larger size MFIs and well established MFIs (Mersland & Strøm, 2010; Nurmakhanova, et al., 2015; Quayes, 2015). Size and maturity of MFI have significant importance in regards to the financial performance of MFIs. Larger and more established MFIs tend to achieve better financial growth compare to smaller and relatively new MFIs.

Alternatively, previous research suggested for further inquiry to clarify the financial performance of both regulated and unregulated MFIs (Arvelo, Bell, Novak, Rose, &

Venugopal, 2008; Biener, Eling, & Schmit, 2014). Fitch ratings claimed that regulation should be considered equally important for the MFIs (Fitch, 2009). On the other hand, the financial performance of MFIs based of types on institution may differ. Cull et al. (2007) found that microfinance banks outperform financially compared to its counterpart. NGOs, on the other hand, has better financial ability to manage its expenses that leads them toward financial self-sufficiency (Ahmed, Bhuiyan, Ibrahim, & Said, 2016).

Alternatively, various MFIs depend on the networks, associations and stakeholders for funds, technical and strategic facilitation due to their short track record in the microfinance industry (Arvelo, et al., 2008). In addition, the development in the financial market relies on the macroeconomic risk indicators (Ahlin, et al., 2011). Therefore, a positive association between the financial performance and macroeconomic risk indicators may cause by commercialization or transformation in today's MFIs, highly competitive market, increasing demand and equity investment. Therefore, the study assumes that higher risk indicators imply MFIs' higher financial performance and develops following hypotheses.

***Hypothesis 1:** There is a significant relationship between the risk indicators and the financial performance of microfinance institutions in the OIC countries.*

To justify above ***hypothesis 1***, following direct propositions has developed;

- *Hypothesis 1a: Institutional risk indicators have a significant positive relationship with the financial performance of microfinance institution in the OIC countries.*
- *Hypothesis 1b: Macro risk indicators have a significant positive relationship with the financial performance of microfinance institution in the OIC countries.*

3.3.2 Role of Risk Indicators on the Social Performance

The study secondly examines the effect of risk indicators on the social performance of MFIs. Commercialized MFIs or profit oriented institutions, large institutions, institution with a long track record associated with a high risk profile. Studies found a significant relationship between a high risk profile and the social performance of MFIs (Mersland & Strøm, 2010; Nurmakhanova, et al., 2015; Quayes, 2015). Alternatively, the association between regulation and network membership is still need to quantify (Arvelo, et al., 2008; Biener, et al., 2014). As a result, the study presumes that higher risk indicators imply MFIs' higher social performance and develops following hypotheses.

For an instant, NGO-MFIs can achieve their social goals easily since they do not face heavy taxation and frequent intervention from the government regulatory and supervisory agencies (Arvelo, et al., 2008). Cull et al. (2007) found that it is not necessary for profitable MFIs to operate as for-profit type of institutions. Even the author argued that continues growing profit orientation does not imply to ongoing commercialization. However, few existing findings show a significant negative association between the institutional types and the average loan size measure (Olivares-Polanco, 2005). On the

contrary, Gutiérrez-Nieto et al. (2009) observed NGO-MFIs purely outperform in female serving activities and attain better social efficiency.

MFIs can be benefited by policy advocacy, performance monitoring, capacity building, financial intermediation and information dissemination form having a network affiliation (Helms, 2006). An MFI that is affiliated with a membership network focuses on social impact. Though few studies found a negative or an insignificant relationship between the economic changes and the financial performance of MFIs (Gonzalez, 2007b), however, it is expected that the macroeconomic risk indicators have a positive impact on the social performance, though the actual results from this assumption are still ambiguous.

Hypothesis 2: *There is a significant relationship between the risk indicators and the social performance of microfinance institutions in the OIC countries.*

To justify above ***hypothesis 2***, following direct assumptions have developed;

- ***Hypothesis 2a:*** *Institutional risk indicators have a significant positive relationship with the social performance of microfinance institution in the OIC countries.*
- ***Hypothesis 2b:*** *Macro risk indicators have a significant positive relationship with the social performance of microfinance institution in the OIC countries.*

3.3.3 Relationship Between the Financial and Social Performance Indicators

The study then investigates the actual situation of mission drift occurrence in MFIs. Microfinance literature argues that the mission drift will occur if a negative correlation

found between the financial and social performance (Quayes, 2015). In other words, no trade-off occurs between the financial and social performance (Hermes, et al., 2011). Therefore, understanding mission drift is little tricky. Since this research includes two separate indicators of the social performance; the GNI per capita adjusted average loan size and the fraction of female borrowers, hence, a positive effect of the financial performance refers to the lowering in average loan and increasing in women percentage (Mersland & Strøm, 2010). Therefore, the financial performance indicators need to have an inverse relationship with the GNI per capita adjusted average loan size and a positive association with the fraction of female clients (Kar, 2013b; Meyer, 2015; Quayes, 2015).

After an extensive review on the microfinance mission drift, this study argues that MFIs have to be financially self-sufficient in order to avoid immense donor dependency and sudden subsidy dry (Armendáriz & Szafarz, 2011). Hence, MFIs should scale up their profit orientation in order to serve their clients better with various financial products and services. Today's microfinance industry and the demand of financial services for the poor are very diverse and increasing every day (Ashta & Hudon, 2012). As a result, MFIs can only meet that huge demand of credit and serve billions of unbanked poor by profit acceleration at certain levels. Consequently, the study proposition predicts that the concern of mission drift is invalid in this context and develops following hypothesis.

Hypothesis 3: *The financial performance has a significant positive relationship with the social performance of microfinance institutions in the OIC countries.*

3.3.4 Moderating Influence of Risk Indicators

The inquiry also examines the influence of institutional and Marco risk indicators in the occurrence of mission drift. Studies strongly argued that institutional characteristics, such as; size, experience, affiliation and legal status can influence the relationship between the financial and social performance (Kar, 2013b; Mersland, et al., 2011; Tchakoute-Tchuigoua, 2010). In addition, having regulatory monitoring also influence MFI's dual performance (Ndambu, 2011). Moreover, macroeconomic factors found to have a significant influence on the dual performance of MFIs (Kar & Swain, 2014a; Nurmakhanova, et al., 2015). Therefore, the fourth proposition expects that the risk indicators play a moderating influence and develops following hypothesis.

***Hypothesis 4:** The institutional and macro risk indicators have a moderating influence on the relationship between the financial and social performance indicators of microfinance institution in the OIC countries.*

3.4 Research Design

After explaining the framework of the study and formulating the hypotheses, this section illustrates the sample selection process, sources of data collection and measurement of variables of the study.

3.4.1 Population and Sample

As shown in Table 3.1, there are 430 MFIs in 36 countries, among 57 OIC member countries that reported in MIX market global profiles. OIC-MFIs are spread over four

continents of the world those are Sub-Sahara Africa (SSA), East Asia and Pacific (EAP), East Europe and Central Asia (EECA) Middle East and North Africa (MENA) and South Asia (SA). About 40 per cent of total MFIs are NGOs, 47 percent includes Non-Bank Financial Institutions (NBFI), Credit Union and Cooperatives (CUC) and about 10 percent are Banks and Rural Banks. However, not all MFIs are sound enough to provide study related data. Many unregulated MFIs available within the region while many others have no international network membership. Notwithstanding, regulation and network membership are some primary evaluation criteria for foreign investors.

Table 3.1
Number of OIC-MFIs by legal status and regions

Legal Status	Asia	EECA	MENA	SSA	Total	As a % of Total
NGO	91	15	28	37	171	39.77
NBFI	10	65	6	28	109	25.35
CUC	3	24	0	66	93	21.63
Bank	5	10	1	6	22	5.12
Rural Bank	18	0	0	1	19	4.42
Other	4	0	6	6	16	3.72
Total	131	114	41	144	430	100
As a % of Total	30.47	26.51	9.53	33.49	100	

Source: MIX market dataset, 2017

MIX produces a global ranking of 614 different types MFIs and only 165 out of 430 OIC-MFIs have fit in that list. The ranking took place based on various financial and social performance indicators and transparency of MFIs. The database of MIX also uses a diamond rating system reflecting the level of disclosure and transparency of an MFI (see Table 3.2). These ratings range from 1 through 5 and the MFIs retained in the sample have a rating of 3 diamonds or more. Out of the initial 430 MFIs, only 165 MFIs met the

selection criterion of having information on the variables required for this study. However, due to the high volume of missing data, this study employs a purposive sampling approach to determine the final sample and ended up with 57 MFIs.

Table 3.2
Level of disclosure for MFI based on the Mix diamond system

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

Source: MIX market database, 2017

The dataset contains general information, financial performance data and social performance data of 57 MFIs. All the observations are from the period of 2011-2015. The 57 MFIs reaches out to 15,087,636 microfinance clients around the world, of whom 12,163,897 are female clients. This number refers that MFIs in the OIC has made it 80.62 percent outreach to the female clients. Moreover, the OIC-MFIs have \$5.6 billion of the Gross Loan Portfolio to make this notable amount of outreach. In addition, the sampled MFIs holds more than \$8.9 billion of total asset, whereas their liabilities and equity are reported over \$4.4 billion and \$1.4 billion respectively. The MFIs are active in 23

countries of the OIC member states, which are located in 5 regions.⁶ In addition, the MFIs is categorized by five institutional types.⁷

Table 3.3
Distribution of selected MFIs by institutional type

	Selected MFIs	Institutions	Assets	Total Borrowers	Female Borrowers
		%	%	%	%
Bank	9	15.79	22.57	6.91	5.98
CUC	9	15.78	9.54	3.21	2.26
NBFIs	19	33.33	13.80	8.04	6.94
NGOs	19	33.33	53.87	81.75	84.78
Other	1	1.75	0.22	0.09	0.04
Total	57	100	100	100	100

Source: MIX market dataset, 2017

Table 3.3 shows the distribution of the selected 57 MFIs, total assets, and active borrowers and women borrowers in the dataset by institutional type. Most of the institutions in the dataset are NBFIs and NGOs. Hence, the highest portion of assets holds by NGOs in this dataset at 53 percent. The dataset contains relatively fewer microfinance banks, though, as a profit oriented organization bank should have the highest asset, but the banks hold only 22 percent of the assets. NGOs reach out to the highest number of active microfinance clients, while cooperatives and credit unions reach out to relatively few borrowers. Also, NGOs reach out to the highest percentage of women borrowers, 84 percent of the total number of women clients.

⁶ Namely: (1) Sab Saharan Africa (SSA), (2) East Asia and Pacific (EAP), (3) Eastern Europe and Central Asia (EECA), (4) Middle East and North Africa (MENA), and (5) South Asia (SA)

⁷ Namely: (1) microfinance banks (banks), (2) credit unions and cooperatives (CU/Coop), (3) non-bank financial institutions (NBFIs), (4) non-profit organizations (NGOs), and (5) other institutions

Table 3.4 shows the distribution of the MFIs, total assets, and active borrowers and women borrowers in the dataset by region. Most MFIs in the dataset are located in the EECA region, and most of the total assets are found in the SA region. MFIs in the EAP region hold relatively few assets. As expected, MFIs in the South Asia region reaches out to the highest percentage of total borrowers, and to the highest percentage of women borrowers respectively. Alternatively, 8.46 percent of the borrowers reached in Sub Saharan Africa are at the lower end. Although, the total asset portion is higher in EECA than SSA, however, MFIs in SSA is dealing fewer borrowers in total as well as minimum women clients which indicates less focus on the program outreach mission.

Table 3.4
Distribution of selected MFIs across regions

	Selected MFIs	Institutions	Assets	Total Borrowers	Female Borrowers
		%	%	%	%
SSA	11	19.30	12.68	8.46	8.26
EAP	2	3.51	1.13	2.37	2.93
EECA	22	38.60	29.46	6.62	3.54
MENA	14	24.56	13.64	10.19	8.00
SA	8	14.04	43.09	72.37	77.27
Total	57	100	100	100	100

Source: MIX market dataset, 2017

Distribution of the Gross Loan Portfolio across the regions has illustrated in the Figure 3.2 below. As evidenced in the Figure, the largest portion of the Gross Loan Portfolio has shared by the South Asian region at 42.15 percent. Conversely, the lowest share holds by the East Asia and Pacific region at only 0.76 percent. However, the second largest share accounts by the Eastern Europe and Central Asian region at 30.33 percent. In addition, Middle East and North Africa and Sub Saharan Africa share 15.94 percent and 10.82

percent of GLP respectively in the dataset. Therefore, the figure refers that MFIs in SA is providing the highest amount loan and MFIs in EAP are the lowest. Additionally, the percentage of SSA region is complying the evidence of previous table that MFIs in this region is reaching out to less clients.

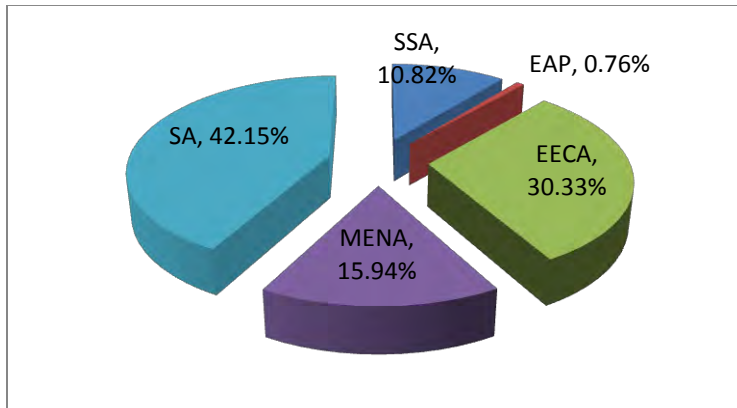


Figure 3.2
Distribution of the gross loan portfolio across region
 Source: Graphical output using dataset from MIX market, 2017

The tendency of GLP in different types of MFIs has captured in the following Figure. The Figure 3.3 indicates that the increment of GLP is visible for all types of MFIs from 2011 to 2014. Within this 4 year period, both NGO-MFIs and microfinance banks have steadily increased their GLP. Particularly, NGO-MFIs increase from \$2.1 billion to \$3.2 billion and microfinance banks increase from \$937 million to \$1.9 billion. However, the flow took down term for both types of MFIs in 2015, while it decreased badly for microfinance banks and ended up with \$1.2 billion of GLP in the year 2015, more than \$726 million less compare to the previous year. The rest of the types of MFIs also experience the same, decrease in their GLP in 2015 compare to the previous year.

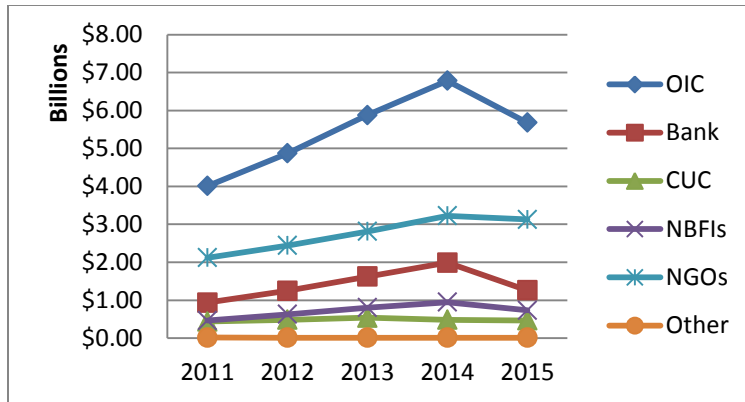


Figure 3.3

Trend of the gross loan portfolio in different type of MFIs over the period

Source: Graphical output using dataset from MIX market, 2017

Figure 3.4 shows the increasing trend of total asset of MFIs in the OIC countries. We can see the sharp increase in the total asset from 2011 to 2014. Within this period the total asset of the OIC region increased from \$5.01 billion to nearly \$8.86 billion. However, the increment was not that progressive between the years 2014-2015 and ended at nearly \$8.99 billion at the end of 2015. Slowing down in the total asset is one of the indications of funding or subsidy dry. These circumstances put pressure on MFI's management, including board to seek alternative approaches of financial viability. Moreover, the Figure also explains, although the overall increment of total asset has slowed down in 2014-2015 period, the total asset of NGO-MFIs has still grown at the same pace. The total asset of NGO-MFIs has grown from \$2.5 billion in 2011 to \$4.8 billion in 2015. There was also increased in the total asset of CUC while both microfinance banks and NBFIs decrease their total asset in the last year.

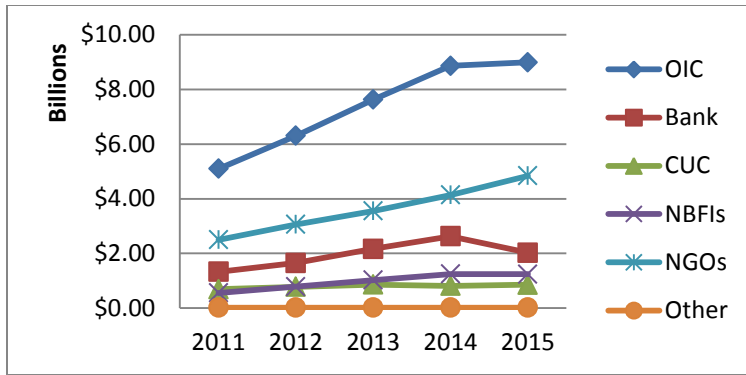


Figure 3.4
Total asset of MFIs across the OIC countries and different institution types
 Source: Graphical output using dataset from MIX market, 2017

The following Figure 3.5 shows the distribution of the total asset over the region. The largest share of the total asset holds by the South Asian MFIs at 43 percent. Conversely, the lowest portion shared by the EAP region at only 1 percent due to only two MFIs in the dataset. The second highest share has noted in the EECA region at 29 percent, while the SSA and MENA region represent 13 and 14 percent of shares respectively as seen in the following Figure.

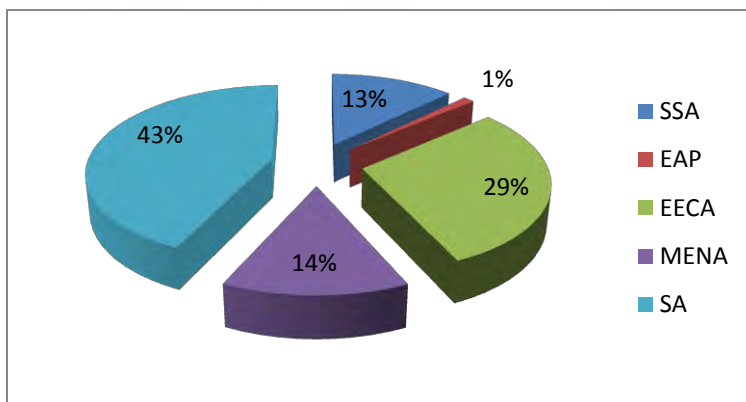


Figure 3.5
Distribution of the total asset of MFIs across the region
 Source: Graphical output using dataset from MIX market, 2017

Moreover, the liabilities and equity of OIC-MFIs have reported in the Figure 3.6. Liabilities are institutions' debt or obligations that may arise due to institutions' borrowing from investors. Investors' money need to be payable at the end of the contract period. On the other hand, equity is the stock of the institution that holds by the legitimate owners. The institutional investors may acquire that equity ownership by investing in MFIs. In general, it reflects how much obligations a MFIs has toward its investors, thus put pressure on MFIs for financial sustainability. The Figure shows that the liabilities of OIC-MFIs has gradually increased from 2011 to 2014, but dropped in 2015. The liabilities were \$3.3 billion in 2011 that took the highest pick in 2014 at \$5.7 billion. However, OIC-MFIs able to reduce their liabilities in 2015 as reported the liabilities were \$4.4 billion at this phase. On the other hand, the equity flows as same as liability. There was an increase in the equity between the period of 2011-2014 and dropped in 2015. The equity investment about \$1 billion in 2011 has increased at \$1.7 billion in 2014. However, it shifted downward in 2015 at \$1.4 billion.

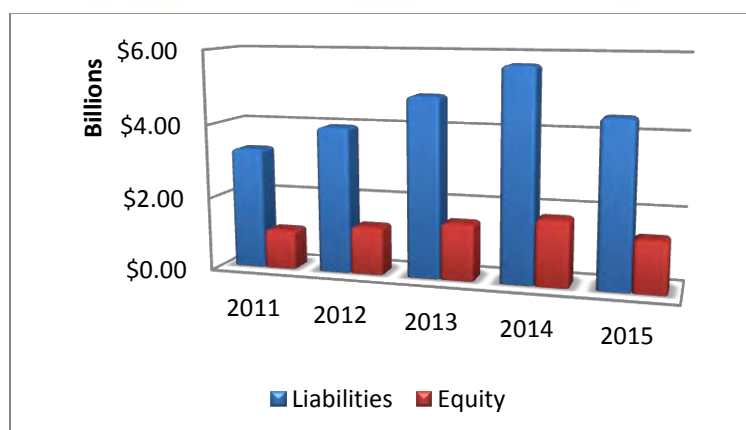


Figure 3.6

Liabilities and equity of OIC-MFIs over the period

Source: Graphical output using dataset from MIX market, 2017

In addition, the following Figure 3.7 refers to the geography that has received the largest portion of investment and donation by looking into the liabilities and equity distribution over different region. Though MFIs in SA region hold the largest share in both GLP and total asset, MFIs in EECA has the highest liabilities and equity in the sample. As evidenced in the Figure the column is indicated to EECA presenting 42 percent liabilities and 31 percent equity. The SA region holds the second biggest piece in liabilities that is referring 25 percent, but in term of equity SA lagged behind by MENA region at 26 percent, whereas MENA represents a 28 percent share in equity and the fourth highest, 15 percent in liabilities. The SSA region holds 17 percent of liabilities and 14 percent of equity shares in the sample. The remaining 1 percent share in both liabilities and equity belong the EAP region with only 2 MFIs in the selected sample.

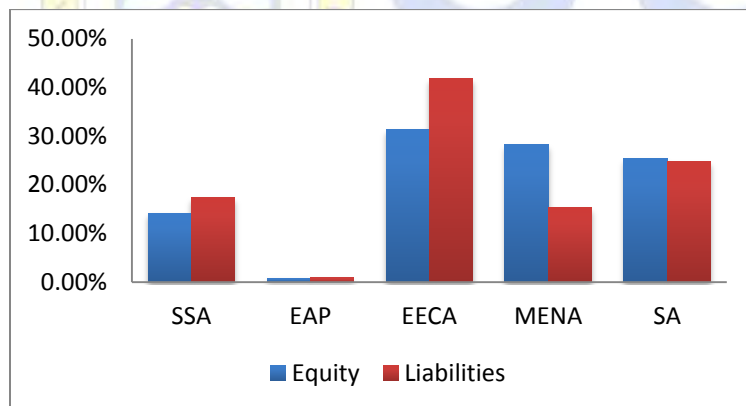


Figure 3.7

Distribution of liabilities and equity across different regions

Source: Graphical output using dataset from MIX market, 2017

The selected MFIs have served over 15 million clients in total with various financial services, but it was 16.5 million clients in the previous year. The journey of this service to clients has illustrated in the following Figure 3.8. As evidenced in the Figure, the

highest amount of borrowers has served by the NGO-MFIs. The NGO-MFIs reach out to more than 12 million borrowers in 2011 that the decrease in 2012 at 11.5 million, but again slightly increase in 2013. However, the highest portion of clients served by the NGO-MFIs recorded in 2014 at 13.2 million, which again fall down in 2015 at 12.3 million. NBFIs are the second highest outreach MFIs in the sample. They have served 875797 borrowers in 2011 that reached at the top 1.4 million borrowers, but have declined slightly in 2015 and wrapped up at 1.2 million borrowers. The third highest number of borrowers has served by microfinance banks. As evidenced in the following Figure, microfinance banks have served 844801 clients in 2011, which gradually increase over the years until 2014 and ended up at 1.2 million borrowers. However, more than 200 thousand clients have excluded from microfinance banks in the following year. Credit unions and cooperatives have reached to fewer borrowers, compared to its counterparts. They have served 310290 borrowers in 2011 and gently increase until 2014 at 497864 borrowers before it fall again in 2015 at 484489 borrowers.

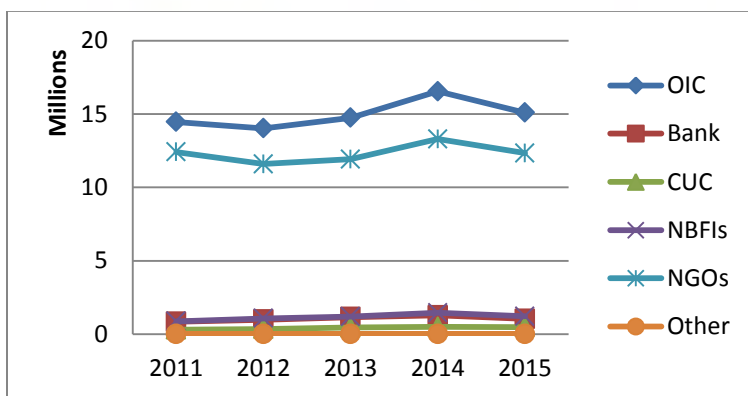


Figure 3.8

Number of borrowers in different types of institutions over the period

Source: Graphical output using dataset from MIX market, 2017

However, serving the number of poor would not be enough in order to meet microfinance key mission of poverty alleviation. MFIs must deal with the most vulnerable and excluded person from economic activities, the female client. Hence, the following Figure 3.9 portrays the outreach of OIC-MFIs to the women borrowers and its flow over the period. The OIC-MFIs have served 11.7 million women borrowers in 2011 that has declined in both 2012 and 2013. It then again pushed up and reached the highest in 2014 at nearly 13.7 million female clients, but again, they lost over 1 million borrowers in the following year. The influence of NGO-MFIs having the highest number of borrowers can be seen on serving the female borrowers as well. NGOs are dealing with the most of the women clients in the sample.

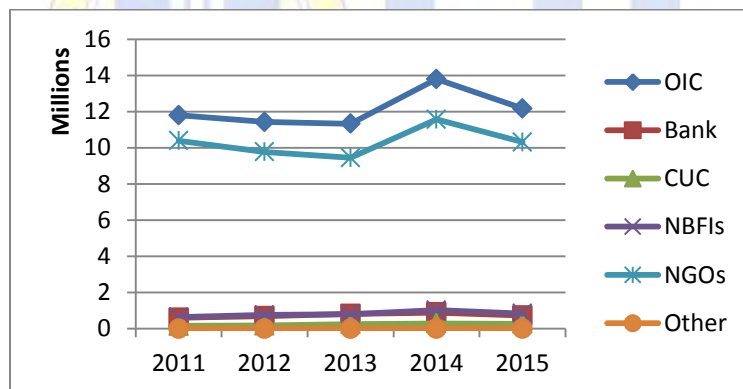


Figure 3.9

Number of female borrowers in different types of institutions over the period

Source: Graphical output using dataset from MIX market, 2017

Though they have served over 10 million borrowers in 2015, it was much higher in 2014 at 11.5 million clients. Hence, they lost nearly 1.5 million clients in this one year. The similar effect of dealing with more clients also can be witnessed in the case of a microfinance bank, CUC and NBFIs. Although NBFIs, microfinance banks and CUC

have served 843809, 727064 and 275275 respectively in 2015, all types of MFIs served their best amount of female borrowers in 2014. Therefore, a common trend has noticed in Figure 3.9 above that all types of MFIs lost their clients in 2015, eventually it has also reflected in the overall trend of OIC-MFIs.

In addition, the Figure 3.10 presents the actual percentage of female borrowers served by the different types of MFIs in the sample. As evidenced in the Figure, NGO-MFIs have served the highest percentage of female borrowers at nearly 85 percent. That refers to a dominating presence of outreach to female clients. On the other hand, NBFIs and microfinance bank holds nearly 7 and 6 percent share respectively in the population, referring the second and third biggest piece in the doughnut. Additionally, CUC accounts 2 percent of shares, whereas due to singularity other type MFI represents the lowest.

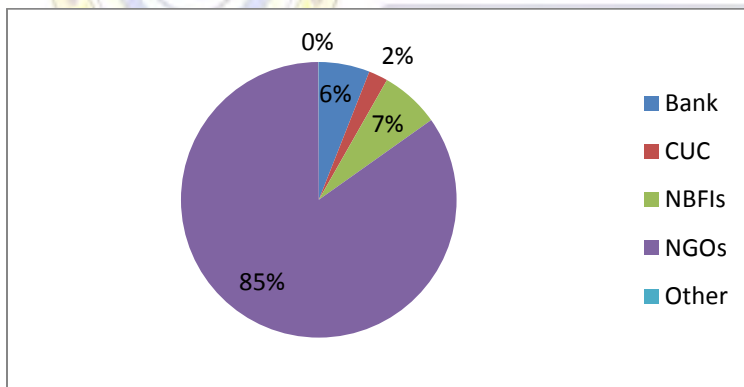


Figure 3.10
Percentage of female borrowers in different institutions types
 Source: Graphical output using dataset from MIX market, 2017

Figure 3.11 provides an insight in the distribution of the MFIs over five regions. The Figure refers the study sample is reasonably balanced across the region with the possible

exception of East Asia and Pacific. The highest percentage, 39 percent MFIs have chosen from Eastern Europe and Central Asia and 25 per cent institutions have retrieved from Middle–East and Northern African region. Besides, 19 per cent firms have extracted from the Sub-Saharan Africa, while MFIs from South Asia comprised 14 percent of the sample. Institutions from East Asia and Pacific shared the lowest, only 3 per cent of the study sample. Notably, the study considers regional dummies in the empirical estimations to justify the profitability and outreach of MFIs in different geographic context.

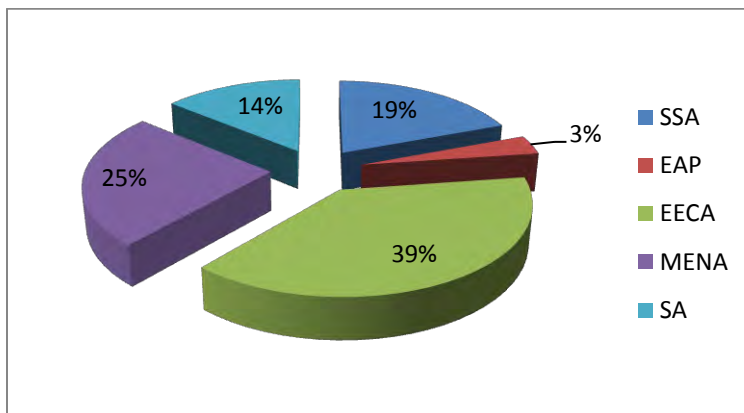


Figure 3.11
Distribution of selected MFIs across different regions
 Source: Graphical output using dataset from MIX market, 2017

3.4.2 Data Collection

This study takes a quantitative research approach to investigate the concern of mission drift and the moderating influence of institutional and macro risk indicators on the mutual exclusion of double bottom line in the MFIs of the OIC member countries. To estimate the models, cross-sectional data of MFIs are pooled for the years 2011 to 2015, resulting in a panel dataset. As panel data are collected at different points in time, this analysis includes more than one observation per MFI.

The data have retrieved from various sources. In association with this inquiry, most of the financial and social performance data will be obtained from the Microfinance Information eXchange (MIX), which is the most extensive and reliable source of the microfinance information platform. The database is monitored by World Bank hosted organization CGAP. The database provides: (i) background and general information, (ii) audited financial statements (iii) financial data (iv) information on the institution's outreach and impact, and (v) rating reports.

Apart from that, data regarding institutional risk indicators have extracted from both the MIX market and the MicroBanking Bullentin database. Additionally, regulation and network membership information have evaluated through rating reports from various rating agencies. Furthermore, the data related to macro risk indicators have attained from the World Development Indicators (WDI) of the World Bank database. In addition, data collected from all mentioned sources have justified through rating agency reports, which includes; MicroRate, Microfinanza, Planet Rating, Crisil and M-Cril. These five organizations are officially approved microfinance rating firms by the CGAP.

3.5 Measurement of the Variables

To quantify the questions and problems that arise in the inquiry, appropriate variables and indicators have to be selected. It requires financial and social performance indicators, concurrently it also required a set of institutional and macro risk indicators to measure the mission drift concern. Therefore, variables and indicators have selected based upon the

literature review, CGAP and rating agency guideline. The following Table 3.5 and Table 3.6 describes briefly about selected indicators and their measurement in this study.

Table 3.5

List of study variables

Dependent variables	Unit
<i>Financial performance</i>	
Operational self-sufficiency	%
Return on assets	%
Profit margins	%
<i>Social performance</i>	
GNI per capita adjusted average loan size	%
Fraction of female borrower	%
Independent variables	Unit
<i>Institutional risk</i>	
Size of MFI (Total Assets)	US \$
Maturity of MFI (Age of MFI)	Years
Regulation	Dummy: yes = 1; no = 0
Network membership	Dummy: yes = 1; no = 0
Institutional type bank	Dummy: yes = 1; no = 0
Institutional type cooperative/credit union	Dummy: yes = 1; no = 0
Institutional type non-bank financial institution	Dummy: yes = 1; no = 0
Institutional type non-governmental organization	Dummy: yes = 1; no = 0
Institutional type rural bank	Dummy: yes = 1; no = 0
Institutional type other	Dummy: yes = 1; no = 0
<i>Macro risk</i>	
Inflation rate	%
GDP growth rate	%
Control variable	
Yield on gross loan portfolio (nominal)	%
Portfolio at risk > 30 days	%
Financial expense/assets	%
Operating expense/assets	%
Cost per borrower	US \$
Borrowers per staff member	Number
Region South Asia	Dummy: yes = 1; no = 0
Region East Asia and the Pacific	Dummy: yes = 1; no = 0
Region Eastern Europe and Central Asia	Dummy: yes = 1; no = 0
Region Middle East and North Africa	Dummy: yes = 1; no = 0
Region Sub Sahara Africa	Dummy: yes = 1; no = 0

Table 3.6
Measurement of selected variables

Dependent variables	Equations
<i>Financial Performance</i>	
Operational self-sufficiency	$\frac{\text{Financial Revenue}}{(\text{Financial Expense} + \text{Impairment Losses on Loans} + \text{Operating Expense})}$
Return on assets	$\frac{(\text{Adjusted Net Operating Income} - \text{Taxes})}{\text{Adjusted Average Total Assets}}$
Profit Margin	$\frac{\text{Adjusted New Operating Income}}{\text{Adjusted Financial Revenue}}$
<i>Social Performance</i>	
Average loan size per GNI per capita	$\frac{\text{Adjusted Average Loan Balance per Borrower}}{\text{GNI per Capita}}$
Fraction of female borrower	$\frac{\text{Number of active women borrowers}}{\text{Adjusted Number of Active Borrowers}}$
Control Variables	
Yield on gross loan portfolio (nominal)	$\frac{\text{Adjusted Financial Revenue from Loan Portfolio}}{\text{Adjusted Average Gross Loan Portfolio}}$
Portfolio at risk > 30 days	$\frac{(\text{Outstanding balance, portfolio overdue} > 30 \text{ days} + \text{renegotiated portfolio})}{\text{Adjusted Gross Loan Portfolio}}$
Financial expense/assets	$\frac{\text{Adjusted Financial Expense}}{\text{Adjusted Average Total Assets}}$
Operating expense/assets	$\frac{\text{Adjusted Operating Expense}}{\text{Adjusted Average Total Assets}}$
Cost per borrower	$\frac{\text{Adjusted Operating Expense}}{\text{Adjusted Average Number of Active Borrowers}}$
Borrowers per staff member	$\frac{\text{Adjusted Number of Active Borrowers}}{\text{Number of Personnel}}$

Source: MIX market database, 2017 and Consultative Group to Assist the Poor, 2003

3.5.1 Measurement of the Financial Performance Indicators

This research employs the (i) operational self-sufficiency ratio, the (ii) return on assets ratio, and the (iii) profit margin ratio as the key indicators of financial performance. Indicators that selected to assess the financial performance are also considered by the investors to understand the institution's financial achievements, thus it's easier their investment decision making process.

Operational self-sufficiency

The MicroBanking Bulletin defines the operational self-sufficiency (OSS) as the ratio of unadjusted operating income to unadjusted operating expenses that includes financial expense, loan loss reserve expense and operating expense. Essentially, the ratio measures how well an MFI is able to cover the institution's total costs of operating. Morgan Stanley and Fitch implicitly included the OSS ratio in their rating methodologies to assess the financial sustainability of MFIs (Arvelo, et al., 2008; Fitch, 2009). Fitch ratings measured the OSS ratio to assess the 'adequacy' of an MFI's cost and revenue structure" (Fitch, 2009). The ratio measured by adjusting financial revenue with financial and operating expense and other losses on loans. MFI reports its OSS ratio in the MIX database and it has utilized in various researches (Meyer, 2015; Quayes, 2015).

Return on asset

The return on assets (ROA) ratio refers to the institution's capability of earning profit through using total asset of the institution. ROA has employed in various studies to measure the financial performance and sustainability as a proxy indicator (Kar, 2012; Quayes, 2015; Strøm, et al., 2014). MFI is pursuing lucrative business activities can be assessed through evaluating ROA value, thus profit-oriented MFIs generally has ROA more than zero (Mersland & Strøm, 2014). If institution has 100 percent of ROA will be considered fully financially sustainable, thus positive net income, disregarding donor support to compensate potential operational losses (Bassem, 2012).

Profit margin

The profit margin measures what percentage of operating revenue remains after all financial, loan-loss provision, and operating expenses are paid. The profit margin ratio is also considered as the financial performance indicator by the CGAP's microfinance consensus guidelines (CGAP, 2003). Moreover, various previous studies also employed profit margin to analyze the financial performance of MFI as it represents the percentage of remaining operating revenue (Quayes, 2015; Tchakoute-Tchuigoua, 2010).

3.5.2 Measurement of the Social Performance Indicators

It is a tough task to analyze the impact of microfinance in the society. However, analyzing outreach of MFI is more familiar and data availability predominantly allows for the measurement and assessment of the outreach to microfinance clients for a large sample of MFIs. The average loan size and the fraction of female borrowers are widely used proxy to assess the social performance by many previous studies.

GNI per capita adjusted average loan size

To measure the social performance or reach out to the poorest (depth of outreach) of MFIs, many existing literature employed the average loan size widely as a proxy indicator (Hermes, et al., 2011; Mersland & Strøm, 2010). Standard and poor's rating agency assess MFIs' management and strategies based on the average loan size (S&P, 2007). The use of GNI per capita adjusted average loan size even wider and more precise (Ayele, 2015; Kar, 2013b; Meyer, 2015; Quayes, 2015).

If this is deflated by GNI per capita, for example, the study first gets the normalization benefit that guarantees that it is no longer in terms of domestic currency. Second, this adjustment eventually portrays the wealth of the nation (Cull, et al., 2007). So, quite clearly an increase in average loan size indicates worsening of outreach to the poor and the respective MFI's move towards better-off and/or successful client segments. However, average loan size may also increase over time due to other reasons, including progressive lending and cross-subsidization. Mission drift occurs if an MFI increases its average loan size by reaching out to wealthier clients neither for progressive lending nor for cross-subsidization reasons (Armendáriz & Szafarz, 2011).

Fraction of female borrower

Reasonably, the share of loans extended to women borrowers is another important indicator of MFIs' depth of outreach (Ayele, 2015; Cull, et al., 2007; Kar, 2012; Mersland & Strøm, 2010; Meyer, 2015; Quayes, 2015). The SPTF report asserted that reach out to the poor women is an important factor to measure the social performance of MFIs (SPTF, 2009). For an instance, in poor countries, women are largely over represented among the hard-core poor. In addition, female borrowers have high repayment rates on loans and they are likely to be more concerned over their children's health and education (Armendáriz & Morduch, 2010).

3.5.3 Measurement of the Institutional Risk Indicators

There are a number of institutional risk indicators that effect on the performance of MFIs either negatively or positively, moreover, those are also highly associated with the

investment decision-making process of institutional investors. Indicators employed as the institutional risk in this inquiry are (i) regulation, (ii) size of MFI, (iii) maturity of MFI, (iv) type of institution, (v) network membership.

Regulation

MFIs mostly operate in the developing and emerging economy, however, those have relatively weaker regulation. As a result, Fitch ratings claimed that regulation should be considered important for the MFIs (Fitch, 2009). The agency also argued that regulation sets by the government, usually has a positive effect on the potential development of MFIs. On the other hand, Standard & Poor's argued that the government has a critical duty to build suitable regulatory framework for country's microfinance development (S&P, 2007). The agency specifically emphasized on the regulation and supervision that provides political independent to MFIs. Despite regulation is not easy to distinguish between the type of institution, between countries and geographic region (Arvelo, et al., 2008). Regulation uses here as a dummy variable.

Size of MFI

The size of MFI measured by institution's total assets and loan portfolio in the assessment of Fitch rating and Morgan Stanley (Arvelo, et al., 2008; Fitch, 2009). Both agencies claimed that the portfolio size of MFIs directly affected by the regional demography and the size of the economy. Moreover, the portfolio size also shows an insight of growth, experience and stability of MFIs (Arvelo, et al., 2008). Conversely, Standard & Poor's used the total asset of MFIs to assess the institution's capability to

absorb sudden losses and its capitalization (S&P, 2007). Hence, the study employs a logarithmic form of the total asset.

Maturity of MFI

The MFI-maturity measures by the age or establishment year of the institution. Christen and Cook (2001) claimed that growing and maturing MFIs have higher average loan size. A different study found a significant positive association between MFIs' maturity and financial performance indicators (Cull, et al., 2007). According to Standard & Poor's, Fitch ratings and Morgan Stanley a less experienced and immature MFI cannot weigh positively on the institution's risk rating (Arvelo, et al., 2008; Fitch, 2009; S&P, 2007).

Type of institution

The different types of institution and legal status have distinct advantages and disadvantages. The optimal legal structure of MFIs is claimed to be associated with the maturity of the institution (Arvelo, et al., 2008). Morgan Stanley claimed that after understanding the profitability of growing microfinance activities, a transformation process may take place. To sync with the process, MFIs need to restructure both financial and social missions. Therefore, this study uses bank, CUC, NBFIs and NGOs as dummy variables to distinguish their performance.

Network membership

The growth and development of MFIs can be motivated by a formal or informal connection between an international or national network and MFIs (Mersland, et al.,

2011). Members of the network exchange their resources, technologies and share strategic policies for mutual improvement. MFIs can use the reputation and the face value of the network to drag down supports from the third party. According to Fitch ratings, being affiliated with national or regional or international network can positively impact on the ratings of MFIs (Fitch, 2009). Hence, the study employs it as a dummy variable.

3.5.4 Measurement of the Macro Risk Indicators

This selection of the domestic macro risk indicators highly associated with the selection of indicators considered by most of the institutional investors in their investment decision-making process. Naturally, the institutional investors don't make any investment in the fragile and unrest states. Therefore, the study chose to use (i) Inflation rate and (ii) GDP growth rate. This study utilizes these macro variables as per the report of the World Development Indicators. These indicators are closely associated with very important national risks, namely; sovereign risk, transfer risk, political and economic risk (Bouchet, Clark, & Gros Lambert, 2003; Busse & Hefeker, 2007; Eaton, Gersovitz, & Stiglitz, 1986; Erb, Harvey, & Viskanta, 1996). Notwithstanding, macro risk indicators have used in various previous microfinance research with precise importance (Ahlin, et al., 2011; Kar & Swain, 2014a; Mersland & Strøm, 2010; Nurmakhanova, et al., 2015).

3.5.5 Measurement of the Control Variables

After reviewing existing literatures, it is important to employ few control variables in the inquiry to get robust findings. This study, therefore, includes four control variables in the regression model to quantify the financial performance of MFIs: (i) operating expense,

(ii) financial expense, (iii) portfolio at risk, and (iv) yield on the gross loan portfolio. Moreover, two control variables have also chosen in the regression model to assess the social performance of MFIs: (i) borrowers per staff member and (ii) cost per borrower. Furthermore, the study uses regional dummies to capture the financial and social performance differences among various geographic regions.

Operating and financial expense

The operating expenses refer administrative and personal expenses of MFIs, however, it does not include loan loss provision and the financial expenses (CGAP, 2003; MIX, 2009b). Alternatively, the financial expenses refer commissions earned from deposits, fees and interest charged by institutions. Both of these expenses give the critical view of the cost structure of MFIs. Considering the issue of different institutional size, both the operational and financial expenses have divided by the average periodic total assets of institutions (Arvelo, et al., 2008; Cull, et al., 2007; Fitch, 2009).

Portfolio at risk

The portfolio at risk (PAR) ratio is the most accepted measures of loan portfolio quality and widely used in the microfinance industry (Arvelo, et al., 2008). According to Morgan Stanley to assess micro loans with short term maturity and infancy industry microfinance, PAR is the most appropriate conservative ratio that fits into the measurement. This study uses $PAR > 30$ days. The PAR has to be divided by the gross loan portfolio to calculate this $PAR > 30$ days ratio. This indicator will quantify the effect of loan portfolio quality on the financial performance of MFIs.

Yield on gross loan portfolio

The nominal yield on gross loan portfolio refers to the ability of portfolio to earn financial revenue from commission, fees and interest. In addition, it also used widely as a proxy indicator of interest rate in many research (Kar & Swain, 2014b). MFIs relatively have a higher portfolio yield ratio than other financial institutions (CGAP, 2003; Fitch, 2009). Both real and nominal yield on gross loan portfolio have reported in the CGAP affiliated microfinance information database MIX market, however information about real yield data is finite in various cases (MIX, 2009b).

Borrowers per staff member

Various microfinance research includes borrowers per staff member as a proxy indicator of productivity (Kar, 2011). According to CGAP (2003), the borrowers per staff member refers to the level of interaction and personal attention of a loan officer with clients, load of activities and work. A higher ratio of borrowers per staff member represents that the MFI needs lesser staff to produce a given amount of clients. Therefore, MFIs may attain a high productivity level by lowering client number per staff member since this step will shift institution's intension from choosing poorer to wealthier clients.

Cost per borrower

As a widely included efficiency indicator the cost per borrower measures the average expense to maintain an active borrower. MFIs that have better cost efficiency are also capable to provide advance loans to poorer clients (Mersland & Strøm, 2010).

Alternatively, the study argued that MFIs that tend to shift in their mission through providing larger average loan size are usually inefficient. Thus, the authors claimed the cost per borrower has a larger influence on the happening of mission drift. However, the study concluded that the mission drift will not take place, if the average profit of MFIs maintain lower than the cost efficiency (Mersland & Strøm, 2010).

Region

Ahlin et al. (2011) identified that country level context has an influence on the financial and social performance of MFIs. The study found, MFIs in the strongly growing economy usually cover its cost; on the other hand, MFIs in deeper financial economy has lower default and interest rate, less operating costs. The country level context is an important indicator for the performance assessment of MFIs (Kar, 2013b; Quayes, 2015). Therefore, the study includes regional dummy to provide regional level findings.

3.6 Techniques of Data Analysis

This investigation aims to investigate the concern of mission drift occurrence in MFIs and examine the moderating effect of institutional and macro risk indicators on the debate. To quantify the inquiry, the study follows the work of Quayes (2015), Cull et al. (2007) and Olivares-Polanco (2005). Therefore, the ordinary least squares (OLS) regression approach employs in this investigation. To investigate the study hypothesis and to answer the research question, this inquiry separately needs (i) the financial performance regression, (ii) the social performance regression, (iii) the mission drift regression and (ii) the interaction regression.

To examine the explanatory function and the relationship of independent variables and control variables the study employs general multiple regression. For *hypothesis 1* the financial performance indicators use as the dependent variable. On the other hand, the social performance indicators function as the dependent variable in the *hypothesis 2*. Alternatively, selected institutional and macro risk indicators include as independent variables in both the financial and social performance regressions. Moreover, the financial performance indicators apply as the independent variable and the social performance indicators use as the dependent variable in mission drift regression to justify the *hypothesis 3*.

In addition, the interaction regression also includes the institutional and macro risk indicators to investigate the moderating influence in the relationship between the financial and social performance and justify the *hypothesis 4*. If the violation of the basic regression assumption has identified the model may adopt robust standard errors for the OLS regression. Robust standard errors produce more normally distributed standard errors. The most appropriate standard errors for this study and rational behind to use that have discussed in section 4.4 of chapter 4.

3.7 Design of Empirical Models

The study aims to quantify the moderating effect of institutional and macro risk indicators on the possible mission drift occurrence in MFIs of OIC countries. Thus, to assess this relationship, the study has to be conducted from various angles. These angles

show how the institution is performing financially and socially moreover, has there been a mutual exclusion or inclusion. The study further predicts that the cross-sectional variation of institutional and macro risk indications could be influenced by idiosyncratic characteristics of MFI. Therefore, this inquiry applies some control indicators that associated respectively, with financial and social performance. Apart from that, mission drift concern will be enumerated from the perspective of institutional investors, including risk variables as moderator in this investigation.

The basic Econometrics textbooks explained various options of panel data regression approach, fixed effects, random effects, OLS, GLS and a dynamic panel (Kyereboah-Coleman & Osei, 2008). A general panel data regression model is written as:

$$y_{it} = \alpha + \beta'X_{it} + U_{it}$$

Where ($i = 1 \dots, N$) and ($t = 1 \dots, T$) and X_{it} is a K -dimensional vector of explanatory variables not including the constant and U_{it} is the error term. In estimating a panel data model, it's taken into account the behavior of the components of the disturbance U_{it} . In the regression model, the error term consists of two components: a time invariant individual effect and a remaining white noise error term. In this specification, the disturbance term U_{it} further decomposed. Hence,

$$U_{it} = \mu_i + V_{it}$$

Where μ_i denotes the unobservable individual specific effect and V_{it} denotes the remainder disturbance. μ_i is time invariant and essentially accounts for any unobserved effect that is not captured in the specification. V_{it} on the other hand varies with both the cross-sectional variables and time and could even be considered as the usual disturbance in the regression. After considering previous microfinance literature and reviewing various econometric approaches, the suitable approach for this study has briefly explained in chapter 4 section 4.4.

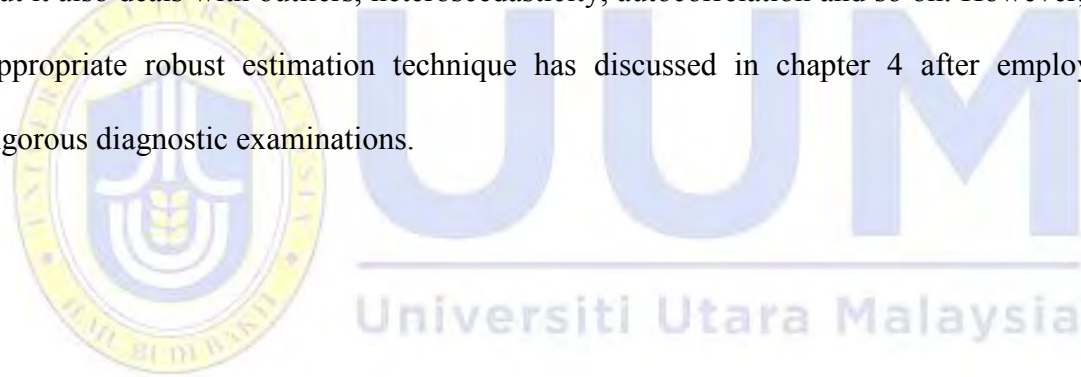
3.8 Chapter Summary

This chapter discusses the research methodology. The chapter provides a glimpse of underpinning theory and theoretical framework of the study. Additionally, the development of hypotheses has also discussed broadly here. This research proposes four major hypotheses. All propositions expect that a significant positive relationship between explanatory and dependent variables. To design this research, the study considers 165 MFIs from the member states of the OIC. Only ranked MFIs has taken under consideration among the total population through purposive sampling approach.

In the further step, data from the sampled institutions has retrieved for the period of five year's observations from 2011-2015 resulting a balanced panel dataset. The MIX is the main source of both financial and social performance data. The data available at the MIX are the self-reported, hence the study also utilizes MicroBanking Bullentin database and data from rating agencies. In addition, micro risk indicators data have collected from the

WDI of the World bank database. The chapter later broadly discusses about the measurement of variables.

Moreover, a brief discussion on designing of empirical model has also presented in the chapter. A general econometric equation of panel data modeling has explained in this section. The extended estimation strategy has provided in the chapter 4. The study employs ordinary least squares (OLS) technique as per the reference of previous literature and it is believed that OLS would be the most appropriate approach in regard to this dataset. Furthermore, utilizing the robust estimation not only provides accurate results, but it also deals with outliers, heteroscedasticity, autocorrelation and so on. However, the appropriate robust estimation technique has discussed in chapter 4 after employing rigorous diagnostic examinations.



CHAPTER 4: RESULTS AND DISCUSSION

4.0 Introduction

The main objective of this chapter is to provide the empirical evidences of the data analysis related to the models of this study. It also reports the moderating effect of the institutional and macro risk indicators on the mutual exclusion of double bottom lines. This chapter is divided into seven sections, organized as follows: Section 4.1 shows the descriptive statistics. The regression assumptions are presented in Section 4.2, followed by Section 4.3 on the panel data analysis. Section 4.4 presents the results of the hypothesis testing and Section 4.5 reviews the summary of findings and discussion. Finally, a summary of the chapter is offered in Section 4.6.

4.1 Descriptive Statistics

The descriptive statistics for the variables used in the research are presented in Table 4.1. First, the *mean* and *standard deviations* found in the variables and indicators are similar to the findings of Cull et al. (2007), Kar (2013b) and Quayes (2015). In addition, the descriptive statistics seem to correspond to the financial and social information discussed in earlier chapters.

The social performance variables, such as; GNI per capita adjusted average loan size (GNIALS) and the fraction of female borrowers (FFB), are relatively encouraging, suggesting that the institutions under survey are evenly matched. The mean GNI per capita adjusted average loan size (0.699) is slightly higher than Cull et al. (2007) findings

(0.676). The mean value for the *GNIALS* confirms that the average loan size of MFIs is about 69.9% of respective country's GNI per capita. On the other hand, the mean of *FFB* is (0.593), whereas Cull et al. (2007) found it little higher (0.649) and Kar (2013b) found (0.658). The value represents that 59.3% of the total borrowers are female in the sampled MFIs. Hence, we understand sampled MFIs generally focus more on female clients.

Table 4.1
Descriptive statistics

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
GNIALS	285	0.70	0.86	0.03	4.29
FFB	285	0.59	0.27	0.00	1
OSS	285	1.22	0.27	0.59	2.63
ROA	285	0.04	0.05	-0.18	.18
PM	285	0.14	0.19	-0.54	.62
Regulated	285	0.82	0.38	0	1
lnSize	285	17.71	1.40	14.23	21.24
Maturity	285	17.72	10.22	5.00	65
Bank	285	0.16	0.37	0	1
CUC	285	0.16	0.37	0	1
NBFI	285	0.33	0.47	0	1
NGO	285	0.33	0.47	0	1
Network	285	0.98	0.13	0	1
Inflation	285	5.41	3.77	-3.75	18.69
GDP	285	4.61	2.67	-4.15	14.43
SSA	285	0.19	0.40	0	1
EAP	285	0.04	0.18	0	1
EECA	285	0.39	0.49	0	1
MENA	285	0.25	0.43	0	1
SA	285	0.14	0.35	0	1

Source: Statistical outputs based on data collected from MIX, 2017; World Bank databank, 2017; MicroBank bulletin, 2017 and MFIs' Annual Report, 2016.

The mean of the operational self-sufficiency (OSS) ratio is positive (1.223), and the standard deviation is (0.268). The mean value of *OSS* is above 1, suggesting that the microfinance institutions in the OIC countries are doing well in terms of earning

expenses-covering revenue. The mean *ROA* ratio is positive (0.036), and the standard deviation is half of the standard deviation found by Cull et al. (2007). Alternatively, Cull et al. (2007) found a negative mean of *ROA* (-0.270). The summarized values of *ROA* vary between (-0.18) to (0.18) and the mean value of 3.6% clearly indicates that the return on assets of a majority of the sampled MFIs is on the low end. The study finds positive mean (0.139) for profit margin (*PM*), which is nearly similar to the findings of Quayes (2015) that was (0.110). The *PM* ratio ranges within (-0.54) to (0.61) and the mean value of 13.9% shows that the selected MFIs are attaining lower profit margin.

The mean value of *Size* variable indicates that almost 18% of all microfinance institution owns fixed assets. Hence, a remarkable number of MFIs assets are current and intangible in nature. In addition, the average functioning years as MFI in the sample are little over 17.5 years. Therefore, it is assumed that the majority of sampled MFIs is relatively matured. In addition, an average of 4.6% GDP growth rate and 5.4% inflation rate are reflected toward economic normality of the nations, where sampled MFIs are located. On the other hand, the mean borrower per staff member indicates that each staff of the MFIs is responsible for 134 loan borrowers. Hence the ratio stands at 1:134 in this case. Moreover, the mean cost per borrower is shows that approximately MFIs spend US \$184 per borrower's loan. Generally, the cost amount is high since MFIs need to reach ultra-rural areas to extend their financial services to the ultimate poor families.

In terms of institutions' types, this study sample comprises equal shares for both NBFIs and NGOs at above 33% each. Similarly, both the bank and credit union/co-operative

also account equal portion in the sampled MFI at above 15% each, while other type of legal status shares less than 2% of the sample. The summary statistics also show that over 82% of sampled MFIs are regulated by either banking or specialized supervisory laws. The descriptive statistics also report that 98% of sampled MFIs have membership in either national or international network.

Furthermore, the study sample is reasonably balanced across the region showed in the summary statistics of Table 4.1 with the possible exception of East Asia and Pacific (EAP). The highest percentage, 38% MFIs have chosen from Eastern Europe and Central Asia (EECA) and 25% institutions come from Middle-East and Northern African region. Besides, 19% firms comprise from the Sub-Saharan African (SSA), while MFIs from South Asia (SA) comprise 14% of the sample. Institutions from East Asia and Pacific (EAP) comprise 4% of the study sample.

Second, the *minimum* and *maximum* values for some variables may indicate that little presence of outliers; however, values do not pointed it as a high concern. For example, the *ROA* and profit margin ratios in the dataset show low minimum values (-0.182) and (-0.543) respectively. However, the minimum value for the *ROA* ratios (-0.182) is significantly larger than the size of the minimum value (-154.1) found by Cull et al. (2007). In addition, the average loan size measure shows high maximum value (4.290), although it is significantly below the value found by Cull et al. (2007). The maximum value of the total assets held by a number of MFIs is very high. More specifically, three MFIs report a significantly larger average base of assets.

Moreover, the *minimum* and *maximum* values of maturity show that MFIs in the sample is well distributed since the dataset contains new, moderate and old MFIs. Additionally, maximum of cost per borrower also found very high, approximately US \$1030. MFIs that reach to ultimate poor in the most rural area and do not have adequate infrastructural supports may cause this high amount of cost for each borrower. Similarly, maximum value of borrower per staff member is also relatively very high; above 1001 borrowers that are because MFIs which have a large number of borrowers, but to limit the cost the institution might not hire sufficient employees and the ratio shows like each staff need to handle more than 1 thousand borrowers. Lastly, the minimum and maximum of macro-economic factors (inflation and GDP) show the economic differences between various OIC member countries.

4.2 Regression Assumptions

This section focuses on examining whether the variables in the regression models meets these assumptions (Hair, Anderson, Babin, & Black, 2010). These assumptions need to be met for the regression equation to precisely, predict the actual association between the variables (Hair, et al., 2010). In particular, these assumptions are essential when estimating the regression coefficients and dependent variable prediction (Hair, et al., 2010). The assumptions include linearity of the relationship between independent variables and dependent variables, the normality of the error term, independence of the error terms and constant variance of the error term.

4.2.1 Multicollinearity Diagnostics

A correlation coefficient measures the linear relationship between two variables that does not depend on the variables' unit of measurement. Following Table 4.2 shows the correlation between the selected variables and indicators used in the research. Before running the regression analysis, we performed the pairwise correlation analysis. The analysis was meant to first, indicate whether variables were correlated or not. However, the results show the variables were correlated.

The correlation analysis also helped to determine the extent of multicollinearity for the variables. Multicollinearity condition exists where there is high, but not perfect, correlation between two or more explanatory variables (Cameron & Trivedi, 2009; Johnston & Dinardo, 2007; Wooldridge, 2001). The cutoff point is a 0.9 correlation coefficient to determine the effect of multicollinearity (Bagheri & Midi, 2009; Hair, et al., 2010). However, Wooldridge (2015) argues that there is no absolute number.

This study took an approach in assessing, determining the multicollinearity and applying the remedies thereof (Hair, et al., 2010). Though correlation coefficient in Table 4.2 revealed a high correlation between *ROA* and *OSS* at 0.8381; *PM* and *OSS* at 0.8519; *PM* and *OSS* at 0.8683, respectively, however, the correlation coefficient between independent variables is lower than the suggested cutoff point of 0.9 (Hair, et al., 2010).

Table 4.2
Correlation table

	GNIALS	FFB	OSS	ROA	PM	Regulated	lnSize	lnMaturity	Bank	CUC
GNIALS	1									
FFB	-0.4881***	1								
OSS	-0.2988***	0.1452**	1							
ROA	-0.3436***	0.2131***	0.8381***	1						
PM	-0.2668***	0.1146*	0.8519***	0.8683***	1					
Regulated	0.2612***	-0.2532***	-0.1522**	-0.1846***	-0.0977*	1				
lnSize	0.1475**	-0.1070*	-0.0822	-0.0594	-0.0017	0.2266***	1			
lnMaturity	-0.1335**	0.1904***	0.1364**	0.1017*	0.0108	-0.0998*	0.1408**	1		
Bank	0.3560***	-0.3094***	-0.1367**	-0.2433***	-0.1461**	0.1997***	0.2924***	-0.3800***	1	
CUC	0.1764***	-0.081	-0.2927***	-0.3161***	-0.2954***	0.0732	-0.0588	0.2150***	-0.1875***	1
NBFI	0.0235	-0.1074*	-0.0092	0.1112*	0.0525	0.1305**	-0.2790***	-0.2332***	-0.3062***	-0.3062***
NGO	-0.4278***	0.4428***	0.3624***	0.3394***	0.3081***	-0.2609***	0.1227**	0.3354***	-0.3062***	-0.3062***
Network	0.0409	0.0415	0.0629	0.0638	0.0359	0.2897***	0.1760***	-0.1142*	0.0579	-0.3086***
Inflation	0.0643	0.1867***	0.2554***	0.2506***	0.2041***	-0.0448	-0.0704	-0.1929***	0.2084***	-0.3674***
GDP	0.3141***	0.0108	-0.0874	-0.1083*	-0.0825	0.2313***	0.0487	-0.0567	0.1532***	0.0034
SSA	0.1342**	0.1340**	-0.4013***	-0.4514***	-0.4645***	0.1087*	-0.0463	0.1249**	0.0321	0.6417***
EAP	-0.1033*	0.1123*	-0.014	0.029	0.0172	-0.1627***	-0.1256**	-0.002	-0.0826	0.1789***
EECA	0.2548***	-0.4693***	0.0351	0.0803	0.1086*	0.3657***	-0.0709	-0.5089***	0.2497***	-0.2445***
MENA	-0.2870***	0.0905	0.2027***	0.2233***	0.1566***	-0.5941***	-0.0226	0.2012***	-0.2471***	-0.2471***
SA	-0.0992*	0.3340***	0.1629***	0.1083*	0.1724***	0.1864***	0.2465***	0.3230***	-0.0365	-0.1750***

Note: Statistically significant at the level where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.

Table 4.6 (Continued)

	NBFI	NGO	Network	Inflation	GDP	SSA	EAP	EECA	MENA	SA
GNIALS										
FFB										
OSS										
ROA										
PM										
Regulated										
lnSize										
lnMaturity										
Bank										
CUC										
NBFI	1									
NGO	-0.5000***	1								
Network	0.0945	0.0945	1							
Inflation	-0.0224	0.1781***	-0.0124	1						
GDP	-0.0155	-0.0935	-0.0448	0.2296***	1					
SSA	-0.2515***	-0.2515***	0.0653	-0.2739***	0.0894	1				
EAP	0.0674	-0.1348**	-0.7008***	0.0176	0.0639	-0.0933	1			
EECA	0.5096***	-0.4842***	0.1059*	0.1960***	0.074	-0.3877***	-0.1512**	1		
MENA	-0.1441**	0.4611***	0.0762	-0.1438**	-0.3471***	-0.2790***	-0.1088*	-0.4524***	1	
SA	-0.2857***	0.4643***	0.054	0.2053***	0.1910***	-0.1976***	-0.0771	-0.3203***	-0.2306***	1

Note: Statistically significant at the level where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.

This correlation coefficient provides a hint of no problem of multicollinearity. Moreover, multicollinearity can also be detected by calculating variance of inflation factor (VIF) for each coefficient. This test statistic is used as a diagnostic tool to detect the seriousness of the multicollinearity problem (Mansfield & Helms, 1982). There is no consensus for a cutoff point for VIF, for example Curto and Pinto (2011), Gujarati & Porter (2009) and Hair et al. (2010) argued that VIF above 10.0 means there is a multicollinearity problem while Greene (2012) argued that VIF below 20.0, there is no multicollinearity problem. Furthermore, Hair et al. (2010) argue that there is 0.9 cutoff for tolerance value which corresponds to VIF of 10.0.

Table 4.3
Variance of inflation factor (VIF)

Variable	VIF	1/VIF
NBFI	16.80	0.060
NGO	16.06	0.062
CUC	12.44	0.080
Bank	11.92	0.084
PM	6.32	0.158
ROA	5.82	0.172
EECA	5.26	0.190
OSS	5.07	0.197
SSA	4.51	0.222
MENA	3.47	0.288
Network	3.07	0.326
EAP	2.86	0.350
Regulated	2.37	0.421
lnMaturity	2.10	0.476
Inflation	1.63	0.614
lnSize	1.53	0.655
GDP	1.24	0.808
Mean VIF	6.03	

Source: Statistical outputs of the study dataset

To see if there is a multicollinearity problem, variance of inflation factor (VIF) was calculated in the statistical software. The results show in Table 4.3, *OSS* has the VIF value of 5.47; *ROA* has VIF of 6.24 and *PM* has VIF of 7.46 which implies that they all below the VIF value of 10 suggested by Hair et al. (2010). Moreover, the mean VIF is 5.73, which is also below the threshold suggested by Hair et al. (2010). On the other hand, the sample size is large enough (285 observations) and the use of panel data analysis offer more options that lead to reduced multicollinearity problems (Mersland & Strøm, 2008). The VIF test for individual model of the study also shows that none of the models found to have a mean VIF score above the threshold.

4.2.2 Outliers

Outliers are observations which have unique characteristics that make them different from other observations (Hair, et al., 2010). Standardized residual, which is a widely used method to detect any outliers, is used in this study. Observations with a high standardized residual, which have the potential to be influential outliers, are identified and removed based on explanations of Hair et al. (2010).

Econometric literature asserted that the $-OLS$ is susceptible to outlying observations, because it minimizes the sum of squared residuals: large residuals (positive or negative) receive a lot of weight in the least squares minimization problem” (Wooldridge, 2012). In addition, this same problem faced by the study of Cull et al. (2007), therefore, they resorted a robust estimation technique. As a result, the finding shows a minor changes, though the major results were remained similar as the previous results.

4.2.3 Normality Diagnostics

After the data has been screened, further examination is done to determine whether the data is suitable for the selected statistical technique. Hair et al. (2010) asserted that the most fundamental assumption in multivariate analysis is normality. This assumption refers to the shape of data distribution to an individual metric variable and its correspondence to the normal distribution, which is the benchmark for statistical method.

For the purpose of this study, the measure for skewness and kurtosis is employed to determine the data normality. Skewness refers to the balance of the data distribution compared to the normal distribution, while kurtosis refers to the —peakedness or —flatness of the data distribution compared to the normal distribution (Hair, et al., 2010). The econometric literature suggests that the rule of thumb for checking the univariate normality can be based on the measure of skewness of ± 3.00 and kurtosis of ± 10.00 (Kline, 2015).

As evidenced in Table 4.4, all kurtosis values of all the variables are lower than 10; and skewness values of all the variables are lower than 3. Therefore, the data has no serious violation of the normality assumption. Only two variables (i.e., Network and EAP) have a skewness value more than (± 3.00) and kurtosis above (± 10.00). In fact, modest violations of univariate normality are not a problem if the violations are due to skewness and not outliers (Hair, et al., 2010). Moreover, this study covers a large population and involves a

large amount of data (285 observations), thus, the normality assumption is probably not seriously affected (Mersland & Strøm, 2008).

Table 4.4
Normality of residuals

Variable	Observations	Skewness	Kurtosis
GNIALS	285	1.912	6.243
FFB	285	0.161	1.720
OSS	285	1.144	6.628
ROA	285	-0.873	6.038
PM	285	-1.026	5.095
Regulated	285	-1.707	3.913
lnSize	285	0.063	2.799
lnMaturity	285	0.204	2.962
Bank	285	1.876	4.521
CUC	285	1.876	4.521
NBFI	285	0.707	1.500
NGO	285	0.707	1.500
Network	285	-7.350	55.018
Inflation	285	0.625	3.517
GDP	285	0.267	4.553
Africa	285	1.556	3.421
EAP	285	5.053	26.536
EECA	285	0.468	1.219
MENA	285	1.182	2.397
SA	285	2.071	5.288

Source: Statistical outputs of the study dataset

Additionally, the normal probability plot, a graphical technique for normality testing, is used to assess the dataset's approximate normal distribution (Chambers, Cleveland, Kleiner, & Tukey, 1983). For this, data was plotted against a theoretical normal distribution in a manner that the points form an almost straight line. Deviations from this straight line show deviations from normality. The normality diagnostics of graphical presentation have reported in Table A-1 as presented in the Appendix A.

As per the suggestion of Hair et al. (2010), this study utilizes data transformation as the means to correct the situation of non-normality. A number of transformation techniques may be chosen to improve the normality of a distribution, such as square root, log, inverse, arcsine and Box-Cox transformations (Hair, et al., 2010; Osborne, 2005, 2010). This study firstly applies the natural log (ln) transformation. This study transformed total assets (as a measure of institution's size) and years of operations (as a measure of institution's maturity) by using the natural log to ensure that the variables are normally distributed. Nevertheless, the logarithm of a number equal to or less than 0 is undefined; as such, before the transformation, the data distribution of the non-normal variables with 0 or negative values is firstly anchored at 1.00, as suggested by Osborne (2010).

4.2.4 Heteroscedasticity Test

The OLS regression assumes that the independent variable is independent so that the assumption of homoscedasticity to be fulfilled. Homoscedasticity refers to the assumption where the dependent variable exhibits equal levels of variance across the range of the independent variables (Hair, et al., 2010). Independence of the error term variance of the independent variables can be seen from the data homoscedasticity. If the data used in the regression analysis heteroscedastic it will give results biased estimates for relationships between predictor variables and standard errors, thus the conclusions derived from the data analysis is doubtful. The latter condition has a tendency to make the coefficient estimate to be underestimated, and in some cases, it makes insignificant variables seem significant (Hair, et al., 2010).

To test for heteroscedasticity, this study uses Breusch-Pagan test which offer a test of a null hypothesis that there is no heteroscedasticity across the range of independent variables. As evidenced in Table D-1, the study rejects the null hypothesis, **H_0** : constant variance. Therefore, concludes that, the residuals of the data are not homogeneous in another word there is a heteroscedasticity problem for some models. Therefore, the error term(s) of an individual entity influences the independent variables of another entity. Hence, there is not a constant variance in the distribution. The detail results have presented in Table B-1 of the Appendix B. The presence of unequal variance, made this study run these regression models with constant errors as suggested by the econometric literature (Greene, 2012; Studenmund, 2016; Verbeek, 2013).

4.2.5 Autocorrelation Test

Statistical tests (e.g. Wooldridge test, Durbin-Watson test) were used to identify the presence of autocorrelation among the residuals (errors predictions) in the regression analysis. Autocorrelation is the relationship between values separated from each other with a certain lag period. Autocorrelation deals with correlations between the errors that occur in time series, so that it is crucial for ensuring the model built reasonable and representative. However, when a data panel is given, the autocorrelation test is not required. Some studies argue that testing for serial correlation has not been a standard practice in research that uses panel data (Hong & Kao, 2004a; Inoue & Solon, 2006).

However, this study tests the autocorrelation of the error term by using Wooldridge test for autocorrelation in panel data which test the null hypothesis that there is no first order

autocorrelation. The test results show that the probability value is significant in some models, thus the study rejects the null hypothesis. As a result, the first order correlation is present here, means that error term of the first period influences the error term in the subsequent period(s). The detailed findings have presented in Table C-1 of the Appendix C. The presence of first order autocorrelation, made this study run the regression models with robust standard errors as suggested in the econometric literature (Gujarati & Porter, 2010; Stock & Watson, 2011).

4.3 Panel Data Analysis

This study aims to examine the concern of possible mission drift occurrence in MFIs and the moderating effect of institutional and macro risk indicators on the debate. To analyze panel data in this study, we assume the models are exogenous, homoscedastic, not stochastic, linear in function, but do not have an exact linear relationship among explanatory predictors, hence the ordinary least squares are preferred, as suggested by the econometric literature (Greene, 2008; Kennedy, 2008), and previous studies in microfinance (Cull, et al., 2007; Olivares-Polanco, 2005; Quayes, 2015).

Therefore, based on the econometric literature and following the works of Quayes (2015), Cull et al. (2007) and Olivares-Polanco (2005), the ordinary least square regression approach has used in this investigation. Furthermore, to enumerate the study hypothesis and to answer the research question, this inquiry separately needs; (i) the financial performance regression, (ii) the social performance regression, (iii) the mission drift regression and (iv) mission drift regression with the interaction of risk indicators.

4.3.1 Panel Estimation with Driscoll-Kraay Standard Errors

Using panel datasets has become common in today's finance research. To increase the precision in the estimation, panel datasets are more attractive than single cross-sectional data, since panels often absorb more comprehensive information. However, due to exhibit all sorts of cross-sectional and temporal dependencies in microeconomic data, actual information about datasets is often overstated. According to Cameron and Trivedi (2005), *"NT correlated observations have less information than NT independent observations"*. Hence, a biased statistical inference may emerge by causing of ignoring possible correlation of regression disturbances over time and between subjects.

Therefore, to ensure validity of the statistical results, the standard errors of the coefficient estimates are adjusted for possible dependence in the residuals in recent panel data used studies. Unfortunately, a number of published articles in recent time in leading finance journals still fail to adjust the standard errors appropriately (Petersen, 2009). In addition, most empirical studies of present time investigated with standard error estimates that are heteroscedasticity and/or autocorrelation consistent, but cross-sectional or *"spatial"* dependence is still largely ignored (Hoechle, 2007).

To facilitate the today's commonly used approach of standard error, Eicker (1967), Huber (1967) and White (1980, 2014) developed the alternative covariance matrix estimators, which provide the residuals are independently distributed and standard errors obtained by the estimations are consistent even if the residuals are heteroscedastic. Afterward,

Arellano (1987), Froot (1989) and Rogers (1993) extended the works of Huber (1967) and White (1980, 2014) and showed that relaxing the assumption of independently distributed residuals are possible in some extend.

Their generalized estimator provides consistent standard errors if the residuals are uncorrelated between clusters, but, correlated within (Arellano, 1987; Froot, 1989; Rogers, 1994). Newey and West (1987) developed another approach to get heteroscedasticity and autocorrelation (up to some lag) consistent standard errors. It is also an extension of White's estimator, since their generalized method of moments based covariance matrix estimator with lag length zero is identical to the White estimator.

All above discussed techniques of estimating the covariance matrix are robust to certain violations of assumptions in the regression models; however, they do not consider the cross-sectional correlation. Because of social norms and psychological behavior patterns, spatial dependence can be a problematic feature of any micro-econometric panel dataset even if the cross-sectional units (e.g., individuals or firms) have randomly sampled. As a result, presuming that the residuals of a panel model are correlated within but uncorrelated between groups of individuals often imposes an artificial and inappropriate constraint on empirical models. Hence, ~~standard error estimates of commonly applied covariance matrix estimation techniques—e.g., OLS, White, and Rogers or clustered standard errors—are biased, and hence statistical inference based on such standard errors is invalid~~" (Hoechle, 2007). Luckily, a nonparametric covariance matrix estimator proposed by Driscoll and Kraay (1998), which produces heteroscedasticity and

autocorrelation consistent standard errors that are robust to general forms of spatial and temporal dependence.

In addition, the presence of autocorrelation is not a serious matter in panel data analysis, especially with only five year sample period. According to Hong and Kao (2004b) and Inoue and Solon (2006), testing for autocorrelation has not been a standard practice in research that uses panel data. Nevertheless, the issue should be addressed in order to obtain the Best Linear Unbiased Estimators (BLUE) for the coefficients. Conversely, heteroscedasticity issue in the model would be a serious problem that needs to solve. Hence, in addressing the problem of heteroscedasticity and autocorrelation discovered in the underlying data, this study has employed the *Driscoll and Kraay (1998) standard errors* in all estimations,⁸ that is robust to heteroscedasticity, autocorrelation and the general form of cross-sectional and temporal dependency (Driscoll & Kraay, 1998).

4.3.2 Regression Models

This study employs OLS estimation with DK standard errors. The following Table 4.5 presents the regression models of the study, which is estimated separately:

Table 4.5

Equations of estimation

Equations of the financial performance	#
$OSS_{it} = a + \beta_1 IR'_{it} + \beta_2 MR'_{it} + \beta_3 Control_{it} + \beta_4 Region_i + u_{it}$	(1)
$ROA_{it} = a + \beta_1 IR'_{it} + \beta_2 MR'_{it} + \beta_3 Control_{it} + \beta_4 Region_i + u_{it}$	(2)

⁸ Ordinary least squares with robust clustered standard error, Huber-White standard errors, and Newey-West standard errors have ran as well, but all of them came up with mostly similar coefficients. Hence, robust estimation with DK standard errors only reported.

Table 4.5 (Continued)

$PM_{it} = a + \beta_1 IR'_{it} + \beta_2 MR'_{it} + \beta_3 Control_{it} + \beta_4 Region_i + u_{it}$	(3)
Equations of the social performance	#
$GNIALS_{it} = a + \beta_1 IR'_{it} + \beta_2 MR'_{it} + \beta_3 Control_{it} + \beta_4 Region_i + u_{it}$	(4)
$FFB_{it} = a + \beta_1 IR'_{it} + \beta_2 MR'_{it} + \beta_3 Control_{it} + \beta_4 Region_i + u_{it}$	(5)
Equations of the mission drift	#
$GNIALS_{it} = a + \beta_1 OSS_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(6)
$GNIALS_{it} = a + \beta_1 ROA_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(7)
$GNIALS_{it} = a + \beta_1 PM_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(8)
$FFB_{it} = a + \beta_1 OSS_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(9)
$FFB_{it} = a + \beta_1 ROA_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(10)
$FFB_{it} = a + \beta_1 PM_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(11)
Equations of interaction models	#
$GNIALS_{it} = a + \beta_1 OSS*Regulated_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(12)
$GNIALS_{it} = a + \beta_1 ROA*Regulated_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(13)
$GNIALS_{it} = a + \beta_1 PM*Regulated_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(14)
$FFB_{it} = a + \beta_1 OSS*Regulated_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(15)
$FFB_{it} = a + \beta_1 ROA*Regulated_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(16)
$FFB_{it} = a + \beta_1 PM*Regulated_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(17)
$GNIALS_{it} = a + \beta_1 OSS*lnSize_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(18)
$GNIALS_{it} = a + \beta_1 ROA*lnSize_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(19)
$GNIALS_{it} = a + \beta_1 PM*lnSize_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(20)
$FFB_{it} = a + \beta_1 OSS*lnSize_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(21)
$FFB_{it} = a + \beta_1 ROA*lnSize_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(22)
$FFB_{it} = a + \beta_1 PM*lnSize_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(23)
$GNIALS_{it} = a + \beta_1 OSS*lnMaturity_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(24)
$GNIALS_{it} = a + \beta_1 ROA*lnMaturity_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(25)
$GNIALS_{it} = a + \beta_1 PM*lnMaturity_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(26)

Table 4.5 (Continued)

$FFB_{it} = a + \beta_1 OSS * \ln Maturity_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(27)
$FFB_{it} = a + \beta_1 ROA * \ln Maturity_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(28)
$FFB_{it} = a + \beta_1 PM * \ln Maturity_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(29)
$GNIALS_{it} = a + \beta_1 OSS + \beta_2 OSS * Bank_{it} + \beta_3 OSS * CUC_{it} + \beta_4 OSS * NBF_{it} + \beta_5 OSS * NGO_{it} + \beta_6 IR'_{it} + \beta_7 MR'_{it} + \beta_8 Region_i + u_{it}$	(30)
$GNIALS_{it} = a + \beta_1 ROA + \beta_2 ROA * Bank_{it} + \beta_3 ROA * CUC_{it} + \beta_4 ROA * NBF_{it} + \beta_5 ROA * NGO_{it} + \beta_6 IR'_{it} + \beta_7 MR'_{it} + \beta_8 Region_i + u_{it}$	(31)
$GNIALS_{it} = a + \beta_1 PM + \beta_2 PM * Bank_{it} + \beta_3 PM * CUC_{it} + \beta_4 PM * NBF_{it} + \beta_5 PM * NGO_{it} + \beta_6 IR'_{it} + \beta_7 MR'_{it} + \beta_8 Region_i + u_{it}$	(32)
$FFB_{it} = a + \beta_1 OSS + \beta_2 OSS * Bank_{it} + \beta_3 OSS * CUC_{it} + \beta_4 OSS * NBF_{it} + \beta_5 OSS * NGO_{it} + \beta_6 IR'_{it} + \beta_7 MR'_{it} + \beta_8 Region_i + u_{it}$	(33)
$FFB_{it} = a + \beta_1 ROA + \beta_2 ROA * Bank_{it} + \beta_3 ROA * CUC_{it} + \beta_4 ROA * NBF_{it} + \beta_5 ROA * NGO_{it} + \beta_6 IR'_{it} + \beta_7 MR'_{it} + \beta_8 Region_i + u_{it}$	(34)
$FFB_{it} = a + \beta_1 PM + \beta_2 PM * Bank_{it} + \beta_3 PM * CUC_{it} + \beta_4 PM * NBF_{it} + \beta_5 PM * NGO_{it} + \beta_6 IR'_{it} + \beta_7 MR'_{it} + \beta_8 Region_i + u_{it}$	(35)
$GNIALS_{it} = a + \beta_1 OSS * Network_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(36)
$GNIALS_{it} = a + \beta_1 ROA * Network_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(37)
$GNIALS_{it} = a + \beta_1 PM * Network_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(38)
$FFB_{it} = a + \beta_1 OSS * Network_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(39)
$FFB_{it} = a + \beta_1 ROA * Network_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(40)
$FFB_{it} = a + \beta_1 PM * Network_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(41)
$GNIALS_{it} = a + \beta_1 OSS * Inflation_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(42)
$GNIALS_{it} = a + \beta_1 ROA * Inflation_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(43)
$GNIALS_{it} = a + \beta_1 PM * Inflation_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(44)
$FFB_{it} = a + \beta_1 OSS * Inflation_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(45)
$FFB_{it} = a + \beta_1 ROA * Inflation_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(46)
$FFB_{it} = a + \beta_1 PM * Inflation_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(47)
$GNIALS_{it} = a + \beta_1 OSS * GDP_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it}$	(48)

Table 4.5 (Continued)

$$GNIALS_{it} = a + \beta_1 ROA * GDP_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it} \quad (49)$$

$$GNIALS_{it} = a + \beta_1 PM * GDP_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it} \quad (50)$$

$$FFB_{it} = a + \beta_1 OSS * GDP_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it} \quad (51)$$

$$FFB_{it} = a + \beta_1 ROA * GDP_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it} \quad (52)$$

$$FFB_{it} = a + \beta_1 PM * GDP_{it} + \beta_2 IR'_{it} + \beta_3 MR'_{it} + \beta_4 Region_i + u_{it} \quad (53)$$

Where ($i = 1 \dots, 57$ MFIs) and ($t = 1 \dots, 5$ years). *OSS* represents operational self-sufficiency for the microfinance institution. *ROA* represents return on assets respectively. *PM* stands for the evaluation of the profit margin of the institution. On the other hand, *GNIALS* has included in the model for evaluation of average loan size that further divided by GNI per capita. Moreover, *FFB* represents the fraction of female borrower or the female client's percentage of the total active clients.

IR is a vector of the institutional risk indicators such as regulation, size, maturity, types and membership of the network. *MR* is representing for the vector of macroeconomic indicators that are often considered in advance evaluation in any form of international investment that includes poverty rate, inflation rate and GDP growth rate. Moreover, control is a vector of control variables or indicators that predicted have influence in the relation of both financial and social performance measurement.

Control variables include operating expenses/assets, financial expense/assets, portfolio at risk > 30 days, yield on gross loan portfolio (nominal), borrowers per staff member and cost per borrower. Finally, the *region* has added as a dummy variable that covers South

Asia, East Asia and Pacific, Eastern Europe and Central Asia, Middle East and North Africa and Sub-Saharan Africa to justify regional performance of MFIs in this investigation. On the other hand, u_{it} is representing the disturbance terms for the study.

4.4 Hypotheses Testing

The results of the regression analysis between explanatory variables and dependent variables across estimations are discussed in this section. The findings are based on four major hypotheses that involves: (i) **H1** –the positive role of the institutional and macro risk indicators comprise of regulatory status, MFI-size, MFI-maturity, institution type, network membership, inflation rate and GDP growth rate on the attainment of the financial performance which are comprised of operational self-sufficiency, return on assets and profit margin in answering the first question of this study, (ii) **H2** –the positive function of the institutional and macro risk indicators on the accomplishment of the social performance which includes GNI per capita adjusted average loan size and the fraction of female borrowers in addressing the second question of this study, (iii) **H3** –the positive impact of the financial performance indicators on the achievement of the social performance in answering the third question of this study, and (iv) **H4** –moderating influence of risk indicators which includes institutional risk and Macroeconomic risk on the relationship between double bottom lines in addressing the fourth question of this research. The results of regression analysis to comply with the research objectives are presented in Appendix D, Table D-1 to Table D-18.

A total of 53 estimations have ran to justify all four hypotheses where control variables have employed based on the interest and objective of the models. Results reported in the Table D-1 from model 1 to 3 describe the role of risk indicators in attaining the financial performance in MFIs and represent **H1**. Additionally, the findings of the study stated in the Table D-2 for model 4 and 5 explain the function of risk indicators in accomplishing the social performance in MFIs and refer **H2**. The evidences found from model 6 to 11 reported in the Table D-3 and Table D-4 describes the relationship between the financial and social performance indicators that generally refers to **H3**. On the other hand, the findings revealed from the rest of the estimations noted in Table D-5 to Table D-18 address the moderating role of seven risk indicators in the relationship between the financial and social performance indicators that simply alludes to **H4**.

Table D-1 shows, the R^2 values in the model 1, 2 and 3 are 0.603, 0.605 and 0.543 respectively. This indicates that these models are able to interpret 60.3%, 60.5% and 54.3% of the variability of the financial performance indicators. All three models are significant (F-statistic of model 1= 1787.329; F-statistic of model 2= 500.332; and F-statistic of model 3= 2301.138, while all cases $p < 0.05$), indicating that these models significantly explain the difference separately in OSS, ROA and PM among OIC-MFIs.

In addition, Table D-2 asserts the R^2 values in the model 4 and 5 are 0.677 and 0.667 respectively. This indicates that these models are able to explain 67.7% and 66.7% of the variability of the social performance indicators. Moreover, both models are significant (F-statistic of model 4= 164.789 and F-statistic of model 5= 628.122, while all cases $p <$

0.05), suggesting that these models significantly describe the variations separately in GNIALS and FFB among OIC-MFIs.

As evidenced in Table D-3, the R^2 values in the model 6, 7 and 8 are 0.552, 0.574 and 0.539 respectively. This indicates that these models are able to interpret 55.2%, 57.4% and 53.9% of the variability of the social performance's indicator GNIALS. Moreover, all three models are significant (F-statistic of model 6= 6352.111; F-statistic of model 7= 741.928; and F-statistic of model 8= 544.951, while all cases $p < 0.05$), indicating that these models significantly explain the difference in GNIALS among OIC-MFIs.

In addition, Table D-4 asserts the R^2 values in the model 9, 10 and 11 are 0.548, 0.557 and 0.548 respectively. This indicates that these models are able to explain 54.8%, 55.7% and 54.8% of the variability of the social performance's indicator FFB. Moreover, all three models are significant (F-statistic of model 9= 872.071; F-statistic of model 10= 102.088; and F-statistic of model 11= 294.706, while all cases $p < 0.05$), suggesting that these models significantly describe the variations in FFB among OIC-MFIs.

As noted in Table D-5, the R^2 values in the model 12, 13 and 14 are 0.555, 0.462 and 0.401 respectively. This indicates that these models are able to interpret 55.5%, 46.2% and 40.1% of the variability of the social performance's indicator GNIALS. Moreover, all three models are significant (F-statistic of model 12= 47.673; F-statistic of model 13= 160.334; and F-statistic of model 14= 8.090, while all cases $p < 0.05$), indicating that these models significantly explain the difference in GNIALS among OIC-MFIs.

Moreover, Table D-6 shows the R^2 values in the model 15, 16 and 17 are 0.541, 0.601 and 0.595 respectively. This indicates that these models are able to explain 54.1%, 60.1% and 59.5% of the variability of the social performance's indicator FFB. Moreover, all three models are significant (F-statistic of model 15= 555.973; F-statistic of model 16= 8.063; and F-statistic of model 17= 938.008, while all cases $p < 0.05$), suggesting that these models significantly describe the variations in FFB among OIC-MFIs.

Table D-7, besides, reports the R^2 values in the model 18, 19 and 20 are 0.560, 0.452 and 0.401 respectively. This indicates that these models are able to interpret 56%, 45.2% and 40.1% of the variability of the social performance's indicator GNIALS. Moreover, all three models are significant (F-statistic of model 18= 121.700; F-statistic of model 19= 16.621; and F-statistic of model 20= 27.923, while all cases $p < 0.05$), indicating that these models significantly explain the difference in GNIALS among OIC-MFIs.

Table D-8, in addition, records the R^2 values in the model 21, 22 and 23 are 0.548, 0.601 and 0.595 respectively. This indicates that these models are able to explain 54.8%, 60.1% and 59.5% of the variability of the social performance's indicator FFB. Moreover, all three models are significant (F-statistic of model 21= 186.765; F-statistic of model 22= 1578.254; and F-statistic of model 23= 1108.443, while all cases $p < 0.05$), suggesting that these models significantly describe the variations in FFB among OIC-MFIs.

Table D-9 drafts the R^2 values in the model 24, 25 and 26 are 0.406, 0.455 and 0.400 respectively. This indicates that these models are able to interpret 40.6%, 45.5% and 40% of the variability of the social performance's indicator GNIALS. Moreover, all three models are significant (F-statistic of model 24= 74.510; F-statistic of model 25= 49.138; and F-statistic of model 26= 982.274, while all cases $p < 0.05$), indicating that these models significantly explain the difference in GNIALS among OIC-MFIs.

As evidenced in Table D-10, the R^2 values in the model 27, 28 and 29 are 0.548, 0.601 and 0.595 respectively. This indicates that these models are able to explain 54.8%, 60.1% and 59.5% of the variability of the social performance's indicator FFB. Moreover, all three models are significant (F-statistic of model 27= 233.661; F-statistic of model 28= 8.288; and F-statistic of model 29= 197.346, while all cases $p < 0.05$), suggesting that these models significantly describe the variations in FFB among OIC-MFIs.

Table D-11 shows the R^2 values in the model 30, 31 and 32 are 0.435, 0.448 and 0.443 respectively. This indicates that these models are able to interpret 43.5%, 44.8% and 44.3% of the variability of the social performance's indicator GNIALS. Moreover, all three models are significant (F-statistic of model 30= 108.847; F-statistic of model 31= 25.892; and F-statistic of model 32= 448.914, while all cases $p < 0.05$), indicating that these models significantly explain the difference in GNIALS among OIC-MFIs.

Table D-12, moreover, presents the R^2 values in the model 33, 34 and 35 are 0.387, 0.622 and 0.600 respectively. This indicates that these models are able to explain 38.7%, 62.2%

and 60% of the variability of the social performance's indicator FFB. Moreover, all three models are significant (F-statistic of model 33= 55.376; F-statistic of model 34= 156.324; and F-statistic of model 35= 325.367, while all cases $p < 0.05$), suggesting that these models significantly describe the variations in FFB among OIC-MFIs.

As reported in Table D-13, the R^2 values in the model 36, 37 and 38 are 0.414, 0.452 and 0.401 respectively. This indicates that these models are able to interpret 41.4%, 45.2% and 40.1% of the variability of the social performance's indicator GNIALS. Moreover, all three models are significant (F-statistic of model 36= 564.710; F-statistic of model 37= 52.082; and F-statistic of model 38= 8.090, while all cases $p < 0.05$), indicating that these models significantly explain the difference in GNIALS among OIC-MFIs.

Besides, Table D-14 reveals the R^2 values in the model 39, 40 and 41 are 0.538, 0.576 and 0.595 respectively. This indicates that these models are able to explain 38.7%, 62.2% and 60% of the variability of the social performance's indicator FFB. Moreover, all three models are significant (F-statistic of model 39= 606.015; F-statistic of model 40= 176.632; and F-statistic of model 41= 938.008, while all cases $p < 0.05$), suggesting that these models significantly describe the variations in FFB among OIC-MFIs.

As reported in Table D-15, the R^2 values in the model 42, 43 and 44 are 0.426, 0.613 and 0.574 respectively. This indicates that these models are able to interpret 42.6%, 61.3% and 57.4% of the variability of the social performance's indicator GNIALS. Moreover, all three models are significant (F-statistic of model 42= 62.976; F-statistic of model 43=

114.266; and F-statistic of model 44= 105.297, while all cases $p < 0.05$), indicating that these models significantly explain the difference in GNIALS among OIC-MFIs.

In addition, Table D-16 shows the R^2 values in the model 45, 46 and 47 are 0.547, 0.604 and 0.595 respectively. This indicates that these models are able to explain 54.7%, 60.4% and 59.5% of the variability of the social performance's indicator FFB. Moreover, all three models are significant (F-statistic of model 45= 305.898; F-statistic of model 46= 1385.437; and F-statistic of model 47= 2031.310, while all cases $p < 0.05$), suggesting that these models significantly describe the variations in FFB among OIC-MFIs.

Table D-17 reports the R^2 values in the model 48, 49 and 50 are 0.592, 0.608 and 0.573 respectively. This indicates that these models are able to interpret 59.2%, 60.8% and 57.3% of the variability of the social performance's indicator GNIALS. Moreover, all three models are significant (F-statistic of model 48= 181.416; F-statistic of model 49= 558.254; and F-statistic of model 50= 376.680, while all cases $p < 0.05$), indicating that these models significantly explain the difference in GNIALS among OIC-MFIs.

Finally, Table D-18 asserts the R^2 values in the model 51, 52 and 53 are 0.553, 0.601 and 0.601 respectively. This indicates that these models are able to explain 55.3%, 60.1% and 60.1% of the variability of the social performance's indicator FFB. Moreover, all three models are significant (F-statistic of model 51= 478.634; F-statistic of model 52= 1175.819; and F-statistic of model 53= 756.613, while all cases $p < 0.05$), suggesting that these models significantly describe the variations in FFB among OIC-MFIs.

4.4.1 The Financial Performance of MFIs

The first study hypothesis have justified by two sub-propositions that assumed both the institutional and macro risk indicators have a significant positive relationship with the financial performance of MFIs. To examine these hypotheses, this study examined three different models where operational self-sufficiency, return on assets and profit margin have employed as the dependent variable and risk indicators, such as; regulation, MFI-size, MFI-maturity, MFI-types, network membership, inflation rate and GDP growth rate have included as independent variables with the control variables of operative expenses ratio, financial expenses ratio, portfolio at risk and yield on gross loan portfolio. The regional dummies also added to obtain additional geographic accomplishment. Table 4.6 presents the summary of findings. The results for each risk indicator in justification of *hypothesis 1* are discussed with regard to the financial performance afterwards.

Table 4.6
Summary findings of the financial performance

Relationship	OSS	ROA	PM	Hypothesis Remark
Significantly (+)	Maturity, Bank, CUC, NBFI, NGO, Network, Yield, EAP, ECA	Size, Maturity, CUC, NBFI, NGO, Network, Inflation, Yield, EAP, EECA,	Size, Bank, CUC, NBFI, NGO, Yield,	
Significantly (-)	Regulation, Size, OE, FE, PAR, SSA	Regulation, OE, FE, PAR, SSA	Regulation, OE, FE, PAR, SSA	Accepted
Insignificantly (+)	Inflation	Bank, MENA	Maturity, Network, EAP, EECA	
Insignificantly (-)	Size, GDP, MENA	GDP	Inflation, GDP,	

Source: Evidences found in this study

The institutional risk indicators and the financial performance

The study expects a positive relationship between the institutional risk indicators and the financial performance indicators in model 1, 2 and 3. The results of regression analysis have reported in the Table D-1 where regulation found to have a negative association with the financial performance indicators and the coefficients reported (-0.055) in model 1, (-0.013) in model 2 and (-0.011) in model 3. The coefficients of model 1 and 2 are significant at the level, where $p < 0.01$ that means for each unit change in regulation, there is an inverse change in OSS and ROA respectively by the value similar to the coefficient. Conversely, the coefficient of model 3 is insignificant in regard with profit margin. Therefore, the evidences indicate that regulated MFIs financially less performing since regulatory status decreasing both OSS and ROA.

Size of MFIs found to have an insignificant negative coefficient in model 1 at (-0.006). However, the MFI-size has a significant positive relation with both ROA and PM with the coefficient value of 0.003 in model 2 and 0.012 in model 3 respectively. The coefficients of model 2 and 3 are significant at the level, where $p < 0.01$ that means for each unit increase in MFI-size followed by an increase in return on assets and profit margin respectively by the value similar to the coefficient. Hence, the results pointed that larger MFIs perform better financially, especially in term of greater ROA and larger PM.

The study found that MFI-maturity have a significant positive association with OSS and ROA and insignificant relation to PM. The coefficients reported in the Table D-1 are

0.142, 0.025 and 0.027 respectively. However, coefficients of only model 1 and 2 are statistically significant at the level, where $p < 0.01$ that means for each unit increase in MFI-maturity, there is an increase in OSS and ROA respectively by the value similar to the coefficient. As a result, the findings show that MFIs with more maturity or experience have better financial performance in term of better OSS and greater ROA.

As for the MFI-types, the study found detail results for microfinance banks, CUC, NBFIs and NGOs. As evidenced in Table D-1, all types of MFIs have a positive linkage with the financial performance indicators across all models 1, 2 and 3. The coefficients of microfinance bank are 0.275, 0.023 and 0.078 respectively. However, the coefficient of only model 1 is significant at the level, where $p < 0.01$ that means for each unit increase in microfinance bank followed by an increase in operational self-sufficiency by the value similar to the coefficient. Conversely, CUC, NBFIs and NGOs found to have a significant positive relation with the financial performance indicators across all models.

The coefficients of CUC are 0.253, 0.053 and 0.138 respectively. In addition, the coefficients of NBFIs are 0.250, 0.039 and 0.111 respectively. Moreover, the coefficients of NGOs are 0.345, 0.043 and 0.133 respectively. All coefficients of CUC, NBFIs and NGOs are significant at the level, where $p < 0.05$ that means for each unit increase in CUC, NBFIs and NGOs followed by an increase in OSS, ROA and PM by the value similar to the coefficient. Therefore, the evidences indicate that CUC, NBFIs and NGOs outperform financially in all indicators, while microfinance bank perform better in term of only operational self-sufficiency.

The final indicator of institutional risk, network membership found to have a significant positive association with OSS and ROA and insignificant relation to PM. The coefficients reported in the Table D-1 are 0.391, 0.066 and 0.086 respectively. However, coefficients of only model 1 and 2 are statistically significant at the level, where $p < 0.01$ that means for each unit increase in network affiliation, followed by an increase in OSS and ROA respectively by the value similar to the coefficient. Hence, the findings show that MFIs with local or international affiliation have positive financial performance in term of better operational self-sufficiency and greater return on assets.

Based on the evidences found from the relationship between institutional risk indicators and the financial performance indicators, it is obviously can be summarized that *the acceptance of the hypothesis 1a is justified*.

The macro risk indicators and the financial performance

The study imagines a positive relationship between the macro risk indicators and the financial performance indicators in model 1, 2 and 3. The results of regression analysis have reported in Table D-1 where inflation rate found to have a positive association in model 1 and 2 while a negative relationship in model 3 with the coefficients of 0.005, 0.001 and (-0.001) respectively. The coefficient of only model 2 is significant at the level, where $p < 0.1$ that means for each unit increase in inflation rate, there is an increase in return on assets by the value similar to the coefficient. Therefore, the results indicate that higher rate of inflation facilitates MFIs to achieve higher return on assets.

The study found that GDP growth rate has a negative association with operational self-sufficiency, return on assets and profit margin. The coefficients reported in the Table D-1 are (-0.001), (-0.000) and (-0.000) respectively. However, none of the coefficients are statistically significant. However, the evidences may summarize as the high growth in GDP curtails the financial performance of MFIs.

As a result, based on the evidences discussed above regarding the association between macro risk indicators and the financial performance, it is apparently can be asserted that *the acceptance of the hypothesis 1b is justified.*

4.4.2 The Social Performance of MFIs

The second research hypothesis has also justified by two sub-propositions that presumed both the institutional and macro risk indicators have a significant positive relationship with the social performance of MFIs. To scrutinize these hypotheses, this study examined two dissimilar models where GNI per capita adjusted average loan size and the fraction of female borrowers have engaged as the dependent variable and risk indicators, such as; regulation, MFI-size, MFI-maturity, MFI-types, network membership, inflation rate and GDP growth rate have involved as independent variables with the control variables of borrower per staff members and cost per borrowers. The regional dummies also added to get the supplementary geographic achievement. Table 4.7 presents the summary of findings. The results for each risk indicator in justification of *hypothesis 2* are deliberated with regard to the social performance afterwards.

Table 4.7
Summary findings of the social performance

Relationship	GNIALS	FFB	Hypothesis Remark
Significantly (+)	Maturity, Bank, CUC, NBFI, NGO, Network, Inflation, GDP, CPB	Size, NBFI, NGO, Network, Inflation, BPSM, SSA, EAP,	Accepted
Significantly (-)	BPSM, SSA, EAP, EECA, MENA	Regulation, Maturity, CPB, EECA, MENA	
Insignificantly (+)	Regulation,	Bank, NGO	
Insignificantly (-)	Size,	CUC,	

Source: Evidences found in this study

The institutional risk indicators and the social performance

The study presumes a positive relationship between the institutional risk indicators and the social performance indicators in model 4 and 5. The results of regression analysis have reported in the Table D-2 where regulation found to have an insignificant positive relation with GNIALS at 0.055 and a significant negative association with the FFB at (-0.198). The coefficient of model 5 is significant at the level, where $p < 0.01$ that means for each unit change in regulation, there is an inverse change in the women borrowers' percentage by the value similar to the coefficient. Therefore, the evidences indicate that regulatory status curtails the outreach to women clients.

Size of MFIs found to have an insignificant negative coefficient in model 4 at (-0.010). However, the MFI-size has a significant positive relationship with the FFB with the coefficient value noted is 0.007. The coefficient of model 5 is significant at the level, where $p < 0.01$ that means for each unit increase in MFI-size followed by an increase in

the FFB by the value similar to the coefficient. Hence, the results show that large MFIs able to serve the greater amount of women clients with their financial services.

The study found that MFI-maturity have a significant positive association with GNIALS and a significant negative relationship with the FFB. The coefficients reported in the Table D-2 are 0.070 and (-0.039) respectively. Both coefficients are statistically significant at the level, where $p < 0.05$ that means for each unit increase in MFI-maturity, there is an increase in GNIALS and a decrease in the FFB by the value similar to the coefficient. Based on the findings, it can be asserted that MFIs with a long track record limit their reach out to the ultra-poor and reduce their service to women clients.

As for the MFI-types, the study found detail results for microfinance banks, CUC, NBFIs and NGOs. As evidenced in the Table D-2, all types of MFIs have a positive association with the social performance indicators across all models, except the relationship between CUC and FFB. The coefficients of microfinance bank are 1.062 and 0.002 respectively. However, the coefficient of only model 4 is significant at the level, where $p < 0.01$ that means for each unit increase in microfinance bank followed by an increase in GNIALS by the value similar to the coefficient. On the other hand, CUC has a significant positive relation with GNIALS where the coefficient is 1.361 and an insignificant negative relation with FFB where coefficient has noted is (-0.002). However, the coefficient of only model 4 is significant at the level, where $p < 0.01$ that means for each unit increase in CUC, there is an increase in GNIALS by the value similar to the coefficient. In addition, both NBFIs and NGOs found to have a significant positive relation with the

social performance indicators across models 4 and 5 reported in the Table D-2. The coefficients of NBFIs are 0.685 and 0.188 respectively. Moreover, the coefficients of NGOs are 0.404 and 0.219 respectively. All coefficients of NBFIs and NGOs are significant at the level, where $p < 0.01$ that means for each unit increase in NBFIs and NGOs followed by an increase in GNIALS and FFB by the value similar to the coefficient. The evidences indicate that all types of MFIs limit their service to the lowest strata of the poor, however, NBFIs and NGOs serve greater percentage of women clients.

The last indicator of institutional risk, network affiliation found to have a significant positive association with both indicators of the social performance. The coefficients reported in the Table D-2 are 0.951 and 0.277 respectively. The coefficients are statistically significant at the level, where $p < 0.01$ that means for each unit increase in network affiliation, followed by an increase in GNIALS and FFB by the value similar to the coefficient. Hence, the findings assert that MFIs with network affiliation serve more in breadth of outreach, but serve the large number of women borrowers.

After considering the evidences originated from the relationship between institutional risk indicators and the social performance indicators, it is evidently can be proclaimed that *the acceptance of the hypothesis 2a is justified.*

The macro risk indicators and the social performance

The study assumes a positive relationship between the macro risk indicators and the social performance indicators in model 4 and 5. The results of regression analysis have

reported in the Table D-2 where inflation rate found to have a significant positive association in both models with the coefficients of 0.038 and 0.011 respectively. The coefficients in both models are significant at the level, where $p < 0.1$ that means for each unit increase in inflation rate, there is an increase in GNIALS and FFB by the value similar to the coefficient. Therefore, the results indicate that higher rate of inflation facilitates MFIs to more women clients, but it reduces MFIs' outreach the ultra-poor.

Moreover, the study found that GDP growth rate has a positive association with the social performance indicators. The coefficients reported in the Table D-2 are 0.052 and 0.003 respectively. However, the coefficients in model 4 is significant at the level, where $p < 0.1$ that means for each unit increase in GDP growth rate followed by an increase in GNIALS by the value similar to the coefficient. Hence, the evidences refer that MFIs located in countries with higher growth in GDP have tended to serve wealthier clients.

Therefore, based on the evidences discussed above regarding the association between macro risk indicators and the social performance, it is seemingly can be affirmed that *the acceptance of the hypothesis 2b is justified.*

4.4.3 The Mission Drift in MFIs

The major hypothesis are developed to measure mutual exclusion of double bottom lines that involves OSS, ROA and PM as the financial performance indicators and GNIALS and FFB as the social performance indicators. The risk indicators have utilized as control variables. Table 4.8 and 4.9 presents the summary of findings. The results for each

financial performance indicator in justification of *hypothesis 3* are discussed with regard to the social performance indicators afterwards.

Table 4.8
Summary findings of the mission drift (GNIALS)

Relationship	Dependent Variable: GNIALS			Hypothesis Remark
Significantly (+)	Regulation, Maturity, CUC, GDP	Regulation, GDP	Regulation, GDP	
Significantly (-)	OSS, NGO, Network, SSA, EAP	ROA, Size, Maturity, NBFI, NGO, Network, SSA, EAP, EECA	PM, Size, Maturity, NBFI, NGO, Network, SSA, EAP, EECA	Accepted
Insignificantly (+)	Bank, Inflation, EECA			
Insignificantly (-)	Size, MENA	Bank, CUC, Inflation, MENA	Bank, CUC, Inflation, MENA	

Source: Evidences found in this study

Table 4.9
Summary findings of the mission drift (FFB)

Relationship	Dependent Variable: FFB			Hypothesis Remark
Significantly (+)	OSS, Bank, CUC, NBFI, NGO, Network, Inflation, GDP, EAP	ROA, Bank, CUC, NBFI, NGO, Network, Inflation, GDP, EAP	PM, Bank, CUC, NBFI, NGO, Network, Inflation, GDP, EAP	
Significantly (-)	Regulation, Size, Maturity, EECA, MENA	Regulation, Size, Maturity, EECA, MENA	Regulation, Size, Maturity, EECA, MENA	Accepted
Insignificantly (+)	SSA	SSA	SSA	
Insignificantly (-)	–	–	–	

Source: Evidences found in this study

The financial performance indicators to the GNI per capita adjusted average loan

The study expects a negative relationship between all the financial performance indicators and GNIALS in model 6, 7 and 8. The results of regression analysis in the Table D-3 comply with the assumption and shows that OSS has a significant and negative relationship with GNIALS with the coefficient of (-0.955) in model 6. The coefficient is significant at the level, where $p < 0.01$ that means for each unit increase in OSS, there is a decrease in GNIALS by the value of (-0.955). Hence, the result indicates that attaining positive OSS significantly contributes to the improvement of average loan size, since it's lowering the size of average loans. It is in line with the justification of *hypothesis 3*.

The results of model 7 in the Table D-3 also comply with the proposition and presents that ROA has a significant negative association with the GNIALS with the coefficient of (-0.333) and the coefficient is significant at the level, where $p < 0.01$. It means that for each unit increase in ROA there is a decrease in GNIALS by the value similar to the coefficient. Hence, the result indicates that gaining positive ROA significantly contributes to the development of average loan size, since it's lowering the size of average loans. It is again in line with the justification of *hypothesis 3*.

As evidenced in Table D-3, the results of model 8 also represents the expected assumption and reveals that PM has a significant negative relation with GNIALS with the coefficient of (-0.231). The coefficient is significant at the level, where $p < 0.01$, which means that for each unit increase in PM there is a decrease in GNIALS by the value of (-0.231). Hence, the result alludes that achieving positive profit margin significantly

contributes to the betterment of average loan size, since it's lowering the size of average loans. It is in line with the justification of *hypothesis 3*.

The financial performance indicators to the fraction of female borrowers

The study assumes a positive relationship between all the financial performance indicators and FFB in model 9, 10 and 11. The results of regression analysis in Table D-4 comply with the assumption and show that OSS has a significant and positive relationship with FFB with the coefficient of 0.074 in model 9. The coefficient is significant at the level, where $p < 0.05$, which means that for each unit increase in OSS, there is an increase in FFB too by the value of 0.074. Hence, the evidence indicates that attaining positive operational self-sufficiency significantly contributes to the enhancement of the fraction of female borrowers, since it's increasing the percentage of women clients. It is in line with the justification of *hypothesis 3*.

The findings of model 10 in the Table D-4 also comply with the proposition and presents that ROA has a significant positive association with GNIALS with the coefficient of 0.767. The coefficient is significant at the level, where $p < 0.01$. It means that for each unit increase in ROA there is an increase in FFB of the value similar to the coefficient. Therefore, the evidence indicates that acquiring positive ROA significantly contributes to the improvement of the fraction of female borrowers, since it's increasing the percentage of women clients. It is again in line with the justification of *hypothesis 3*.

As reported in Table D-4, the result of model 11 also represents the expected assumption and reveals that PM has a significant positive relation with FFB with the coefficient of 0.095. The coefficient is significant at the level, where $p < 0.01$, which means that for each unit increase in PM there is an increase in FFB of the value of 0.095. Hence, the finding alludes that achieving positive profit margin significantly contributes to the betterment of the fraction of female borrowers, since it's increasing the percentage of women clients. It is eventually in line with the justification of *hypothesis 3*.

As a result, based on the evidences enumerated from the regression model 6, 7, 8, 9, 10 and 11, it apparently can be asserted that *the acceptance of the hypothesis 3 is justified*.

4.4.4 Interactions of Institutional and Macro Risk Indicators

The study predicts that the institutional and macro risk indicators play a moderating role between the relationship of the financial performance indicators and the social performance indicators. Table 4.10 presents the summary of findings.

Table 4.10
Summary findings of the interactions

Relationship	GNIALS	FFB	Hypothesis Remark
Moderation	Regulation, Size, Maturity, Institution type, Network membership, Inflation, GDP	Regulation, Size, Maturity, Institution type, Network membership, Inflation, GDP	Accepted
No moderation	–	–	

Source: Evidences found in this study

Institutional risk indicators

Regulatory status

As recorded in Table D-5, the result of model 12 shows the contrary than expected and reveals that the interaction variable OSS*Regulated has a significant negative relation with GNIALS as coefficient found (-0.477) and $p < 0.01$. That means a unit decrease in OSS of regulated MFIs, followed by an increase in GNIALS by the similar value of the coefficient. Therefore, the result indicates that regulatory status does not have the moderating role on the relationship between OSS and GNIALS.

The result of model 13 in Table D-5 presents the similar evidence as expected. It shows that the interaction variable ROA*Regulated has a positive, but insignificant association with GNIALS as coefficient stated 1.277 and $p > 0.10$. It refers that for each unit increase in ROA of regulated MFIs, there is an increase in GNIALS by the value similar to the coefficient. Hence, the finding indicates that regulatory status has an insignificant moderating effect on the relationship between ROA and GNIALS.

The evidence reported in Table D-5 from the regression model 14 also shows the similar result as assumed. It reveals that the interaction variable PM*Regulated has an insignificant positive relationship with GNIALS with the coefficient of 0.011 and $p > 0.10$. It refers that for each unit increase in PM of regulated MFIs, there is an increase in GNIALS by the similar value of the coefficient. Thus, the result indicates that regulatory status has an insignificant moderating role on the relationship between PM and GNIALS.

As reported in Table D-6, the result of model 15 shows as expected. It reveals that the interaction variable OSS*Regulated has a significant positive relation with FFB as coefficient found 0.237 and $p < 0.01$. That means a unit increase in OSS of regulated MFIs, followed by an increase in the percentage of female borrowers by the similar value of the coefficient. Thus, the result indicates that regulatory status has a moderating role in the relationship between operational self-sufficiency and the fraction of female borrowers.

The result of model 16 in Table D-6 presents the contrary than predicted. It shows that the interaction variable ROA*Regulated has a positive, but insignificant association with FFB as coefficient noted 0.277 and $p > 0.10$. It refers that for each unit increase in ROA of regulated MFIs; there is an increase in the percentage of female borrowers by the value similar to the coefficient. Hence, the finding indicates that regulatory status has an insignificant moderating effect on the relationship between ROA and FFB.

The evidence reported in Table D-6 from the regression model 17 shows the similar result as assumed. It discloses that the interaction variable PM*Regulated has a significant negative relationship with FFB with the coefficient of (-0.240) and $p < 0.10$. It refers that a unit decrease in profit margin of regulated MFIs, followed by an increase in the women borrowers' percentage by the similar value of the coefficient. Therefore, the result indicates that regulatory status has a significant moderating influence on the relationship between profit margins and the fraction of female borrowers.

Size of MFI

As evidenced in Table D-7, the model 18 shows the expected result as it reveals that the interaction variable $OSS*\lnSize$ has a significant negative relation with GNIALS as coefficient found (-1.412) and $p < 0.01$. That means a unit decrease in OSS to the total assets, followed by an increase in GNIALS by the similar value of the coefficient. Thus, the result indicates that the MFI-size has a moderating role in the relationship between operational self-sufficiency and GNI per capita adjusted average loan size.

The result of model 19 in Table D-7 presents the similar evidence as expected. It shows that the interaction variable $ROA*\lnSize$ has a positive, but insignificant association with GNIALS as coefficient stated 0.049 and $p > 0.10$. It refers that for each unit increase in ROA to the total assets, there is an increase in GNIALS by the value similar to the coefficient. Hence, the finding indicates that the MFI-size has an insignificant moderating effect on the relationship between return on assets and average loan size.

The evidence reported in Table D-7 from the regression model 20 also shows the similar result as assumed. It reveals that the interaction variable $PM*\lnSize$ has an insignificant positive relationship with GNIALS with the coefficient of 0.001 and $p > 0.10$. It refers that for each unit increase in profit margin to the total assets, there is an increase in GNIALS by the similar value of the coefficient. Therefore, the result indicates that the MFI-size has an insignificant moderating impact on the relationship between profit margin and GNI per capita adjusted average loan size.

As reported in Table D-8, the result of model 21 shows as expected, but in an insignificant way. It reveals that the interaction variable $OSS*\lnSize$ has an insignificant negative relation with FFB as coefficient found (-0.135) and $p > 0.10$. That means a unit decrease in OSS to the total assets, followed by an increase in the percentage of female borrowers by the similar value of the coefficient. Thus, the result indicates that the MFI-size has an insignificant moderating role on the relationship between OSS and FFB.

The result of model 22 in Table D-8 presents the opposite than predicted. It shows that the interaction variable $ROA*\lnSize$ has a positive, but insignificant association with FFB as coefficient noted 0.014 and $p > 0.10$. It refers that for each unit increase in ROA to the total assets; there is an increase in the percentage of female borrowers by the value similar to the coefficient. Hence, the finding indicates that the MFI-size has an insignificant moderating effect on the relationship between ROA and FFB.

The evidence reported in Table D-8 from the regression model 23 shows the similar result as assumed. It discloses that the interaction variable $PM*\lnSize$ has a significant negative relationship with FFB with the coefficient of (-0.012) and $p < 0.10$. It refers that a unit decrease in profit margin to the total assets, followed by an increase in the women borrowers' percentage by the similar value of the coefficient. Therefore, the result indicates that the MFI-size has a significant moderating influence on the relationship between profit margins and the fraction of female borrowers.

Maturity of MFI

As recorded in Table D-9, the result of model 24 confirms the study predicted right as it reveals that the interaction variable $OSS \cdot \ln Maturity$ has a significant positive relation with GNIALS as coefficient found 0.080 and $p < 0.05$. That means a unit increase in OSS to maturity of MFIs, followed by an increase in GNIALS by the similar value of the coefficient. Thus, the result indicates that MFI-maturity has a moderating role on the relationship between OSS and GNI per capita adjusted average loan size.

The result of model 25 in Table D-9 presents the similar evidence as expected. It shows that the interaction variable $ROA \cdot \ln Maturity$ has a positive and significant association with GNIALS as coefficient stated 0.929 and $p < 0.01$. It refers that for each unit increase in ROA to maturity of MFIs, there is an increase in GNIALS by the value similar to the coefficient. Hence, the finding indicates that MFI-maturity has a significant moderating effect on the relationship between ROA and GNI per capita adjusted average loan size.

The evidence reported in Table D-9 from the regression model 26 also shows the similar result as assumed. It reveals that the interaction variable $PM \cdot \ln Maturity$ has a significant positive relationship with GNIALS with the coefficient of 0.407 and $p < 0.10$. It refers that for each unit increase in PM to maturity of MFIs, there is an increase in GNIALS by the similar value of the coefficient. Therefore, the result indicates that MFI-maturity has a significant moderating role on the relationship between PM and GNIALS.

As reported in Table D-10, the result of model 27 shows as expected. It reveals that the interaction variable $OSS * \ln Maturity$ has a significant negative relationship with FFB as coefficient found (-0.024) and $p < 0.10$. That means a unit decrease in OSS to maturity of MFIs, followed by an increase in the percentage of female borrowers by the similar value of the coefficient. Thus, the result indicates that maturity of MFI plays a moderating role in the relationship between OSS and female borrowers' share.

The result of model 28 in Table D-10 also complies with the study predicts, though not significantly. It shows that the interaction variable $ROA * \ln Maturity$ has a negative, but insignificant association with FFB as coefficient noted (-0.060) and $p > 0.10$. It refers that for each unit decrease in ROA to maturity of MFIs; there is an increase in the percentage of female borrowers by the value similar to the coefficient. Hence, the finding indicates that MFI-maturity has an insignificant moderating effect on the relationship between return on assets and the fraction of female borrowers.

The evidence reported in Table D-10 from the regression model 29 shows the similar result as assumed. It discloses that the interaction variable $PM * \ln Maturity$ has a significant negative relationship with FFB with the coefficient of (-0.060) and $p < 0.01$. It refers that a unit decrease in profit margin to maturity of MFIs, followed by an increase in the women borrowers' percentage by the similar value of the coefficient. Therefore, the result indicates that maturity of MFI has a significant moderating influence on the relationship between profit margins and the fraction of female borrowers.

Types of MFI

As recorded in Table D-11, the result of model 30 shows mostly opposite than predicted. It reveals that the interaction variable OSS*Bank has a significant negative relation with GNIALS as coefficient found (-1.583) and $p < 0.01$. Similarly, the interaction variables OSS*CUC and OSS*NBFI also reported with negative coefficients (-0.586) and (-0.320) respectively, where $p > 0.10$ in both cases refer to an insignificant association. On the contrary, the interaction variable OSS*NGO shows an insignificant, but positive relation with GNIALS with the coefficient of 0.207 and $p > 0.10$. Thus, the result indicates that the types of MFI do not have moderating role, except NGOs on the relationship between operational self-sufficiency and GNI per capita adjusted average loan size.

The result of model 31 in Table D-11 presents the contrary evidence than expected. It shows that the interaction variables ROA*Bank and ROA*NBFI have a significant negative association with GNIALS with the coefficient of (-5.815) and (-3.937) respectively, where $p < 0.01$. Similarly, the interaction variable ROA*CUC also reported with negative coefficients (-4.381) and $p > 0.10$ that refers to an insignificant relationship. Conversely, the interaction variable ROA*NGO shows a positive, but insignificant association with GNIALS with the coefficient of 0.784 and $p > 0.10$. Thus, the result indicates that the types of MFI do not have moderating effect, except NGOs on the relationship between return on assets and GNI per capita adjusted average loan size.

The evidence reported in Table D-11 from the regression model 32 also unable to comply with the study's assumption. It reveals that the interaction variable PM*Bank has a

significant negative relation with GNIALS as coefficient found (-1.810) and $p < 0.01$. Similarly, the interaction variables PM*CUC and PM*NBF1 also reported with a significant negative coefficient of (-0.877) and (-0.442) respectively, where $p < 0.10$. On the other hand, the interaction variable PM*NGO shows an insignificant, but positive relation with GNIALS with the coefficient 0.188 and $p > 0.10$. Thus, the result indicates that the types of MFI do not have moderating influence, except NGOs on the relationship between profit margin and GNI per capita adjusted average loan size.

As reported in Table D-12, the result of model 33 shows mixed evidences. It reveals that the interaction variables OSS*Bank and OSS*CUC have an insignificant positive relation with FFB as coefficient found 0.242 and 0.158, where $p > 0.10$. On the contrary, the interaction variables OSS*NBF1 and OSS*NGO show a negative, but insignificant association with FFB with the coefficient of (-0.155) and (-0.203), where $p > 0.10$. Thus, the results indicate that the types of MFI do not have any significant moderating role on the relationship between operational self-sufficiency and female borrowers' share.

The result of model 34 in Table D-12 presents mostly the contrary evidence than expected. It shows that the interaction variables ROA*Bank and ROA*NBF1 have a significant positive association with FFB with the coefficient of 3.913, where $p < 0.01$ and 1.697, where $p < 0.05$ respectively. Similarly, the interaction variable ROA*CUC also reported with positive coefficients of 1.132 and $p > 0.10$ that refers to an insignificant relationship. Conversely, the interaction variable ROA*NGO shows a significant negative association with FFB with the coefficient of (-0.448) and $p < 0.10$.

Thus, the result indicates that the types of MFI do not have moderating effect, except NGOs on the relationship between ROA and the fraction of female borrowers.

The evidence reported in Table D-12 from the regression model 35 also rarely complies with the study's assumption. It reveals that the interaction variables PM*Bank and PM*NBF1 have an insignificant positive relation with FFB as coefficient found 0.084 and 0.017 respectively, where $p > 0.10$. Similarly, the interaction variable PM*CUC also reported with significant positive coefficient of 0.412 and $p < 0.05$. On the other hand, the interaction variable PM*NGO shows a significant negative relation with FFB with the coefficient (-0.227) and $p < 0.01$. Thus, the result indicates that the types of MFI do not have moderating influence, except NGOs on the relationship between PM and FFB.

Network membership

As recorded in Table D-13, the result of model 36 confirms that the study predicted right as it reveals that the interaction variable OSS*Network has a positive, but insignificant relation with GNIALS as coefficient found 0.143 and $p > 0.10$. That means a unit increase in OSS of network members, followed by an increase in GNIALS by the similar value of the coefficient. Thus, the result indicates that network affiliation has an insignificant moderating role on the relationship between OSS and GNIALS.

The result of model 37 in Table D-13 also presents the similar evidence as expected. It shows that the interaction variable ROA*Network has an insignificant positive association with GNIALS as coefficient stated 0.847 and $p > 0.10$. It refers that for each

unit increase in ROA of network members, there is an increase in GNIALS by the value similar to the coefficient. Hence, the finding indicates that network membership has an insignificant moderating effect on the relationship between ROA and GNIALS.

The evidence reported in Table D-13 from the regression model 38 also shows the similar result as assumed. It reveals that the interaction variable PM*Network has a positive, but insignificant relationship with GNIALS with the coefficient of 0.010 and $p > 0.10$. It refers that for each unit increase in profit margin of network members, there is an increase in GNIALS by the similar value of the coefficient. Therefore, the result indicates that network affiliation has an insignificant moderating impact on the relationship between profit margin and GNI per capita adjusted average loan size.

As reported in Table D-14, the result of model 39 complies with the study predicts. It reveals that the interaction variable OSS*Network has a significant negative relationship with FFB as coefficient found (-0.299) and $p < 0.05$. That means a unit decrease in OSS of network members, followed by an increase in the percentage of female borrowers by the similar value of the coefficient. Thus, the result indicates that membership in a network plays a moderating role in the relationship between OSS and FFB.

The result of model 40 in Table D-14 provides the contrary view than the study expected, though not statistically significant. It shows that the interaction variable ROA*Network has an insignificant positive association with FFB as coefficient noted 0.457 and $p > 0.10$. It refers that for each unit increase in ROA of network members; there is an

increase in the percentage of female borrowers by the value similar to the coefficient. Hence, the finding indicates that network affiliation has an insignificant moderating effect on the relationship between return on assets and the fraction of female borrowers.

The evidence reported in Table D-14 from the regression model 41 shows the similar result as assumed. It discloses that the interaction variable PM*Network has a significant negative relationship with FFB with the coefficient of (-0.203) and $p < 0.05$. It refers that a unit decrease in profit margin of network members, followed by an increase in the women borrowers' percentage by the similar value of the coefficient. Therefore, the result indicates that network membership has a significant moderating influence on the relationship between profit margins and the fraction of female borrowers.

Macro risk indicators

Inflation rate

As evidenced in Table D-15, the result of model 42 confirms that the study predicted right as it reveals that the interaction variable OSS*Inflation has a positive, but insignificant relation with GNIALS as coefficient found 0.003 and $p > 0.10$. That means a unit increase in OSS of MFIs in inflated economies, followed by an increase in GNIALS by the similar value of the coefficient. Thus, the result indicates that inflation rate has an insignificant moderating role on the relationship between operational self-sufficiency and GNI per capita adjusted average loan size.

The result of model 43 in Table D-15 unable to present evidence as expected. It shows that the interaction variable ROA*Inflation has a significant negative association with GNIALS as coefficient stated (-0.457) and $p > 0.10$. It refers that for each unit decrease in ROA of MFIs in inflated economies, there is an increase in GNIALS by the value similar to the coefficient. Hence, the finding indicates that inflation rate does not have a moderating effect on the relationship between ROA and average loan size.

The evidence reported in Table D-15 from the regression model 44 also fails to comply with the study's assumption. It reveals that the interaction variable PM*Inflation has a significant negative relationship with GNIALS with the coefficient of (-0.135) and $p < 0.01$. It refers that for each unit decrease in profit margin of MFIs in inflated economies, there is an increase in GNIALS by the similar value of the coefficient. Therefore, the result indicates that inflation rate does not create any moderating impact on the relationship between profit margin and GNI per capita adjusted average loan size.

As reported in Table D-16, the result of model 45 does not comply with the study predicts. It reveals that the interaction variable OSS*Inflation has an insignificant positive relationship with FFB as coefficient found 0.037 and $p > 0.10$. That means a unit increase in OSS of MFIs in inflated economies, followed by an increase in the percentage of female borrowers by the similar value of the coefficient. Thus, the result indicates that inflation rate does not have a moderating role in the relationship between operational self-sufficiency and the fraction of female borrowers.

The result of model 46 in Table D-16 provides the contrary view than the study expected. It shows that the interaction variable ROA*Inflation has a significant positive association with FFB as coefficient noted 0.088 and $p < 0.01$. It refers that for each unit increase in ROA of MFIs in inflated economies; there is an increase in the percentage of female borrowers by the value similar to the coefficient. Thus, the finding indicates that inflation rate does not have a moderating effect on the relationship between ROA and FFB.

The evidence reported in Table D-16 from the regression model 47 also shows the opposite evidence than the study's assumption. It discloses that the interaction variable PM*Inflation has a significant positive relationship with FFB with the coefficient of 0.016 and $p < 0.01$. It refers that a unit increase in profit margin of MFIs in inflated economies, followed by an increase in the women borrowers' percentage by the similar value of the coefficient. Therefore, the result indicates that inflation rate does not have a moderating influence on the relationship between profit margins and FFB.

GDP growth rate

As reported in Table D-17, the result of model 48 confirms the study predicted right as it reveals that the interaction variable OSS*GDP has a significant positive relation with GNIALS as coefficient found 0.113 and $p < 0.01$. That means a unit increase in OSS of MFIs in growing economies, followed by an increase in GNIALS by the similar value of the coefficient. Therefore, the result indicates that GDP growth rate has a significant moderating role on the relationship between OSS and average loan size.

The result of model 49 in Table D-17 presents expected evidence, but not statistically significant. It shows that the interaction variable ROA*GDP has an insignificant positive association with GNIALS as coefficient stated 0.084 and $p > 0.10$. It refers that for each unit increase in ROA of MFIs in growing economies, there is an increase in GNIALS by the value similar to the coefficient. Hence, the finding indicates that GDP growth rate has an insignificant moderating effect on the relationship between ROA and GNIALS.

The evidences reported in Table D-17 from the regression model 50 is in line with the study's assumption. It reveals that the interaction variable PM*GDP has a significant positive relationship with GNIALS with the coefficient of 0.195 and $p < 0.01$. It refers that for each unit increase in profit margins of MFIs in growing economies, there is an increase in GNIALS by the similar value of the coefficient. Therefore, the result indicates that GDP growth rate has a significant moderating role on the relationship between profit margins and GNI per capita adjusted average loan size.

As evidenced in Table D-18, the result of model 51 shows as expected in this study. It discloses that the interaction variable OSS*GDP has a significant negative relationship with FFB as coefficient found (-0.013) and $p < 0.01$. That means a unit decrease in OSS of MFIs in growing economies, followed by an increase in the percentage of female borrowers by the similar value of the coefficient. Thus, the result indicates that GDP growth rate plays a significant moderating role in the relationship between operational self-sufficiency and the fraction of female borrowers.

The result of model 52 in Table D-18 shows the similar result as assumed, though not significantly. It shows that the interaction variable ROA*GDP has a negative, but insignificant association with FFB as coefficient noted (-0.071) and $p > 0.10$. It refers that for each unit decrease in return on assets of MFIs in growing economies; there is an increase in the percentage of female borrowers by the value similar to the coefficient. Hence, the finding indicates that GDP growth rate has an insignificant moderating effect on the relationship between return on assets and the fraction of female borrowers.

The evidence reported in Table D-18 from the regression model 53 complies with the study predicts. It reveals that the interaction variable PM*GDP has a significant negative relationship with FFB with the coefficient of (-0.072) and $p < 0.01$. It refers that a unit decrease in profit margin of MFIs in growing economies, followed by an increase in the women borrowers' percentage by the similar value of the coefficient. Therefore, the result indicates that GDP growth rate has a significant moderating influence on the relationship between profit margins and the fraction of female borrowers.

4.4.5 Summary of Hypotheses

Table 4.11 of the study presents the summary of the hypotheses at providing solutions to the research questions that emerged earlier based on evidences found from empirical estimations of 53 models and presented in Table D-1 to D-18 of Appendix D.

Table 4.11

Summary of hypotheses findings

Hypotheses #	Hypothesis Statement	Predicted Sign	Actual Sign	Result	Outcome
H1	The risk indicators are significantly associated with the financial performance indicators				
H1a	Institutional risk indicators are positively related with the financial performance indicators	Positive (+)	Positive (+)	Significant	Accepted
H1b	Macro risk indicators are positively related with the financial performance indicators	Positive (+)	Positive (+)	Significant	Accepted
H2	The risk indicators are significantly associated with the social performance indicators				
H2a	Institutional risk indicators are positively related with the social performance indicators	Positive (+)	Positive (+)	Significant	Accepted
H2b	Macro risk indicators are positively related with the social performance indicators	Positive (+)	Positive (+)	Significant	Accepted
H3	The financial performance is positively associated with the social performance	Positive (+)	Positive (+)	Significant	Accepted
H4	The institutional and macro risk indicators have a moderating influence on the relationship between the financial and social performance indicators	Positive/Negative (+/-)	Positive/Negative (+/-)	Significant	Partially Accepted

Source: Evidences found in this study

4.5 Discussion of Findings

The financial and social performance estimations

To measure the financial and social performance, the study predicted that risk indicators have a positive effect on both the financial and social performance in the *hypothesis 1* and *2*. In line of justification of these hypotheses, this study analyses five different estimations from model 1 to model 5. The findings of these models precisely support the proposition of the *hypothesis 1* and *2*, though regulatory status has negative associations with operational self-sufficiency, return on assets and the fraction of female borrowers.

The evidence of a relationship between regulation and the fraction of female borrowers is in line with the findings of Cull et al. (2011) and Nurmakhanova et al. (2015). Both of the studies found significant negative relation between regulation and the percentage of female clients, thus their conclusion stated that having regulatory status reduces the depth of outreach by shifting their service for women clients to its counterparts. However, this finding is contrary to the study of Kar (2013b) and Pati (2012), who asserted that the regulation has no effects on the microfinance outreach. Additionally, Bassem (2009) revealed that regulation has a significant positive relationship with return on assets and operational self-sufficiency.

Conversely, results indicate that the rest of the institutional risk indicators; MFI-size, MFI-maturity, institutional types and network affiliation have significant explanatory power to describe the operational self-sufficiency, return on assets and profit margin respectively. Most of the coefficients are significant at the 1% level. The results reveal

that large MFIs have better return on assets and profit margin, but insignificant coefficient in model 1. The findings here are complying with the study of Cull et al. (2007); however, this result is contrary to Bassem (2009) and Meyer (2015), who claimed large MFIs achieve positive operational self-sufficiency.

However, Meyer (2015) did not observe any significant relationship between maturity and financial performance indicators. This study, on the other hand, identified that matured MFIs obtain positive operational self-sufficiency and better return on assets. These findings comply with the study of Bassem (2009), who also identified a similar correlation, but contradict with the study of Hermes et al. (2011), who found a significant negative association between MFI-maturity and the financial efficiency.

This research finds an interesting insight about MFIs' financial performance based on legal status and ownership structure. Despite the arguments in previous literature that microfinance bank performs better financially, but less performs socially and NGOs outperform socially, but less performs financially (Cull, et al., 2007), this investigation finds no such differences. Whatever the ownership status holds by the sample MFIs, there is no change in the financial performance; all types of institutions perform equally well.

Moreover, as evidenced in model 1 and 2, the network affiliation plays a significant role in attaining better financial performance. This evidence, however, opposite to the conclusion of Mersland et al. (2011), who found that affiliation does not enhance the financial performance. On the other hand, no significant reportable evidence has

identified regarding the relationship between macro risk and financial performance indicators, which again contradict with the results of those Ibrahim et al. (2018).

This dissertation also highlighted on the role of risk indicators on the social performance and assumed to have a positive correlation between variables as mentioned in *hypothesis 2*. MFI-size found to have a significant positive relationship with the fraction of female borrowers, but insignificant correlation with GNI per capita adjusted average loan size. The evidence indicates that relatively larger MFIs reach out to more women borrowers. The findings of a positive association between size and women clients are contrary to the study of Bassem (2009), Kar (2013b) and Nurmakhanova et al. (2015). All of these previous studies found that MFI-size significantly and negatively affect the women clients' percentage. Additionally, Kar (2013b) and Nurmakhanova et al. (2015) also revealed a significant positive correlation between size and average loan size of MFIs.

Maturity of MFI has identified to have a significant positive relationship with GNI per capita adjusted average loan size, and a significant negative association with the fraction of female borrowers. The results imply that MFIs with a long track record serve wealthier clients and curtail their reach out to women borrowers. Cull et al. (2007) and Mersland et al. (2010) also identified a significant positive relationship between maturity and average loan size. However, it is contradictory to the study of Olivares-Polanco (2004), who found evidence of significant negative relationship between maturity and loan size variable. Similarly, Kar (2013b) revealed a significant negative relationship between maturity and women borrowers.

As evidenced in the estimations 4 and 5, only non-bank financial institutions and non-governmental organizations outperform in term of serving to the women borrowers. Conversely, evidences indicate MFIs serving to the wealthier clients and missing the outreach to the ultra-poor despite their legal status. The results are significant at the 1% level. These findings are contrary to the study of Olivares-Polanco (2004) who found no significant difference in the social performance, however, in line with Christen (2001) and Schreiner (2002). Apart from that, Kar (2013b) also found a significant positive relationship between non-profit NGOs and the percentage of women clients and a significant negative association between non-profit NGOs and GNI per capita adjusted average loan. Similarly, Bassem (2009) also found to have a significant negative correlation between NGOs and outreach depth.

Moreover, the network affiliation shows significant positive relation with both social performance indicators. The coefficients are significant at the 1% level. The results indicate that having affiliation in local or international network enhances institutions' outreach to more women clients, however, it diverts MFIs to serve wealthier clients and overlooked the ultra-poor. This evidence supports findings of Mersland et al. (2011) that national and international affiliation enhances MFIs' outreach depth by lending to women borrowers, but also contradict with the same study since the author identified network affiliation also enhance serving to the ultra-poor.

As per the macroeconomic variables, both the inflation and GDP growth rate found to have a significant positive relationship with GNI per capita adjusted average loan and only inflation rate also significantly and positively affect the percentage of women clients. The findings refer that high rate of inflation create possibilities where MFIs able to serve wealthier clients rather the ultra-poor, but it also facilitates MFIs to focus specially women borrowers. On the other hand, in an economy with high rate of GDP growth MFIs tend to serve wealthier clients than the ultra-poor. These evidences are opposite to the findings of Nurmakhanova et al. (2015). The authors found GDP growth rate enhance MFIs' service to the ultra-poor.

Additionally, the regional dummy variables provide supplementary evidence for strong diversification in MFIs' geographic performance. MFIs in Sub-Saharan Africa show lower financial performance, however, they are doing well socially by serving the ultra-poor and women clients. Moreover, MFIs in East-Asia and Pacific, and Eastern Europe and Central Asia outperform in both financially and socially. They obtain positive operational self-sufficiency and return on asset, additionally they serve the most vulnerable poor especially women borrowers. MFIs in the Middle-East and Northern African region play good role in serving the ultra-poor, but they do not show any significant financial growth and serving more female clients.

The mission drift estimations

In addition, to address the mission drift issue, this research assumed that the financial performance has a significant relationship with the social performance in the *hypothesis*

3. The hypothesis 3 have justified from the findings of six different estimations, which includes; operational self-sufficiency is negatively related with GNI per capita adjusted average loan size in model 6, return on assets is negatively related with GNI per capita adjusted average loan size in model 7 and profit margins is negatively related with GNI per capita adjusted average loan size in model 8. Conversely, operational self-sufficiency is positively related to the fraction of female borrowers in model 9, return on assets is positively related to the fraction of female borrowers in model 10 and profit margins is positively related to the fraction of female borrowers in model 11.

The findings of model 6 are supporting the assumption of the *hypothesis 3*, since the study finds operational self-sufficiency has a significant negative relation with GNI per capita adjusted average loan size. The result is significant at the 1% level and the coefficient is very high. Hence, the operational self-sufficiency does not have any significant explanatory power to describe the size of an average loan which is adjusted by GNI per capita of relevant economy. This finding complies with the results of Ayele (2015), Nurmakhanova et al. (2015) and Quayes (2012, 2015). These studies also found similar evidences that MFI is targeting wealthier clients with a higher average loan that is lowering operational self-sufficiency. In contrast, this result is also contradictory with the finding of Meyer (2015) and Ngo (2015). Their findings clearly indicate that average loan size is positively related with the operational self-sufficiency; hence it indicates that lending to the lowest strata of poor is also minimizing operational self-sufficiency.

Return on assets in addition, also found to be negatively associated with GNI per capita adjusted average loan size in model 7 and the result is significant at the 1% level referring to the justification of *hypothesis 3*. Thus, the return on assets does not have any significant explanatory power to address the loan size of an average loan adjusted by GNI per capita. Similar findings also reported by Kar (2013b) and Meyer (2015). The authors identified that MFIs intends to secure profitability by lending to wealthier with a bigger size of loan that is actually obtain the lower return on assets. On the other hand, opposite evidence also exists in previous literature, such as; Olivares-Polanco (2005), who found that serving the ultra-poor, may lower the average size of loan, that on the other hand, unable to ensure a higher return on assets, hence, MFIs may allow wealthier clients to reduce operational cost and gain its profit.

Moreover, the results generated from model 8 also show the profit margin negatively related with GNI per capita adjusted average loan size. This finding is statistically significant at the 1% level, which indicating the confirmation of *hypothesis 3*. Thus, the profit margin does not have any significant explanatory power to explain the average size of loan adjusted by GNI per capita. This evidence supports the study findings of Quayes (2015), who asserted that choosing wealthier borrowers to lend credit has shortened the profit margin. MFIs need to target the real and most vulnerable poor as their clients and it eventually ensure their financial self-sufficiency for long periods.

The findings of model 9 are supporting the proposition of the *hypothesis 3*, since the study finds operational self-sufficiency has a significant positive relation with the fraction

of female borrowers and the result is significant at the 5% level. Thus, the operational self-sufficiency has a significant explanatory power to describe the fraction of female borrowers. This finding complies with the results of Nurmakhanova et al. (2015). Their study also found similar evidences that MFIs targeting more female clients can increase operational self-sufficiency. In addition, Ayele (2015) also found a positive relation between operational self-sufficiency and the percentage of women clients, but the result was not statistically significant. On the other hand, this result is contrary to the finding of Bassem (2012) and Meyer (2015). Their findings asserted that operational self-sufficiency is negatively related with the women borrowers' percentage; hence serving women clients is lowering operational self-sufficiency.

Apart from that, return on assets also found to be positively associated with the fraction of female borrowers in model 10 and the result is significant at the 1% level referring the justification of *hypothesis 3*. Thus, the return on assets has a significant explanatory power to address the percentage of female clients served. Similar findings also reported by Kar (2013b). The author identified that MFIs intends to scale up profitability by lending to women's counterpart that is actually ended with the lowest return on assets; rather they can gain financial viability by serving more to female clients. Meyer (2015) also reported positive association between return on assets and female borrowers, however, their results were statistically insignificant. Conversely, opposite evidence also exists in previous research, such as; Bassem (2012), the author's negative findings indicate that serving women clients lower the chance of a higher return on assets.

Moreover, the results identified from model 11 show that the profit margin positively related to the fraction of female borrowers. This finding is statistically significant at the 1% level, which indicating the confirmation of *hypothesis 3*. Thus, the profit margin has a significant explanatory power to explain the percentage of female clients. The finding asserts that choosing women's counterpart to lend credit can significantly drop MFIs' profit margin. MFIs need to target the women, who are most vulnerable and poor and it eventually increases their financial viability. The study claims this as a new findings since none of the previous study reported similar evidence before. However, counter correlation has reported in a recent study by Lopatta et al. (2017), where the authors found a significant negative correlation between profit margin and women clientele.

However, the concern of mission drift seems to be real in the regulated MFIs. The results found a significant positive relationship between regulation and GNI per capita adjusted average loan size across model 6, 7 and 8 respectively. In addition, the coefficients of these estimations are statistically significant at the 1% level. Hence, the outreach depth is strongly affected by the regulatory status of MFIs. This evidence complies with the study of Nurmakhanova et al. (2015), they also found a positive association between regulation and average loan per GDP per capita, however, the relationship was not statistically significant, thus their conclusion had no anxious impact of regulation on depth of outreach. Conversely, this study finding is contradictory to Kar (2013b) since he found a negative association between regulation and GNI per capita adjusted average loan.

On the other hand, this study finds regulation has a significant negative association with the fraction of female borrowers in model 9, 10 and 11 respectively. Moreover, the coefficients of these estimations are statistically significant at the 1% level. This evidence again indicates that regulatory status harm the outreach depth since it curtails reaching out to the female clients. The results of this part are complying with the findings of Cull et al. (2011) and Nurmakhanova et al. (2015). Both of the studies found significant negative relation between regulation and the percentage of female clients, thus their conclusion stated that having regulatory status reduces the depth of outreach by shifting their service for women clients to its counterparts. However, this finding is contrary to the study of Kar (2013b) and Pati (2012), who asserted that the regulation has no effects on the microfinance outreach performance.

The study finds MFI-size has a negative association with both the GNI per capita adjusted average loan and female borrowers' percentage across the models 7 to 11 and the coefficient is significant within the acceptance range ($p < 0.01, 0.05$ and 0.10); except in the model 6. Hence, the negative and highly significant MFI-size coefficient in model 7 and 8 precisely indicates that larger MFIs perform relatively better in keeping the average loan size small, thus serving the ultra-poor and reach out in depth. This evidence is contrary to studies of Kar (2013b) and Nurmakhanova et al. (2015). The authors argued that larger MFIs focus on wealthy clients, thus they endanger their depth of outreach. On the other hand, MFI-size also found to be negatively and significantly related to the fraction of female borrowers in the model 9, 10 and 11. Hence, the evidence indicates that bigger MFIs serve less women borrowers, thus harm the outreach depth. As a result,

the concern of mission drift seems to be valid in this context. This result is in line with the evidence found by Kar (2013b) and Nurmakhanova et al. (2015). Apart from them, various previous studies, such as; Bogan (2012), Hartarska and Nadolnyak (2007), Kar (2012) and Mersland and Strom (2009) also concluded that as MFIs become larger it drifts from its social impact mission.

As for the impact of MFI-maturity, the study finds a significant positive relationship in model 6 and negative relationship in model 7 and 8 between the maturity of MFI and GNI per capita adjusted average loan. The coefficient of model 6 indicates that more experience and mature MFIs deal with wealthier clientele, which pointing toward drifting from serving to ultra-poor. At the same time, the negative and higher coefficient in model 7 and model 8 indicate as MFIs get to experience they play more roles to serve the lowest strata of poor with smaller credits, hence no such concern of drift.

On the contrary, the study reveals a highly significant and negative association between MFI-maturity and the fraction of female borrowers in across the models 9, 10 and 11. These coefficients are contradictory to model 7 and 8. Evidences from this part of the study indicate that more mature MFIs decrease their outreach to female clients. Though the findings from model 6, 9, 10 and 11 supports the statement of Nurmakhanova et al. (2015), these are contrary to the conclusion of Hartarska and Nadolnyak (2007) and Mersland and Strom (2009), who argued that MFI-maturity and experience have a positive impact on their outreach mission, which support the results of model 7 and 8.

In addition, to observe the effect of MFI-institution types this study discovers that both non-bank financial institutions and non-governmental organizations significantly and negatively associated with GNI per capita adjusted average loan across the model 6, 7 and 8, hence both NBFIs and NGOs outperform in term of serving the ultra-poor compare to their counterpart. Conversely, credit unions and cooperatives found to be significantly and positively related to GNI per capita adjusted average loan size in model 6, which present opposite evidence than NBFIs and NGOs suggesting a trend-off or drift, however, the coefficients are negative, but insignificant in model 7 and 8. In addition, the coefficients reported in model 6 is positive and negative in model 7 and 8, however, all of them are statistically insignificant.

On the other hand, all charter types are found to be strongly associated with outreach to female borrowers. The coefficients of microfinance banks, credit unions, cooperatives, non-bank financial institutions and non-governmental organizations are positively and highly significant. As a result, despite the legal status or types, MFIs are able to enhance their outreach to women clients. The results partially support the studies of Kar (2013b) and Nurmakhanova et al. (2015), who asserted NGOs have great level of outreach and deal more with female clients. Moreover, profit oriented MFIs, such as; microfinance banks concurrently perform their social promise effectively while seeking financial growth. This evidence complies with the findings of Hartarska and Nadolnyak (2007), Nurmakhanova et al. (2015) and Quayes (2012).

Apart from that, membership in a network has a positive impact on microfinance outreach. The study finds that network membership significantly and negatively related to GNI per capita adjusted average loan across the model 6, 7 and 8. On the other hand, membership in a network significantly and positively associated with the fraction of women clients across the model 9, 10 and 11. The coefficients are statistically significant at the 1% ($p < 0.01$) level. Therefore, MFIs that has international and local network membership or affiliation tend to serve the ultra-poor and female borrowers. This evidence complies with the finding of Mersland et al. (2011), who also revealed that national and international affiliation enhance MFIs' outreach depth by lending to the lowest strata of poor and women borrowers.

As for the effect of macroeconomic factors, the study finds that the inflation rate has no significant impact on the average loan size. The rate of inflation found to be positively related with GNI per capita adjusted average loan size in model 6 and negatively related in model 7 and 8, however, with insignificant coefficients. On the other hand, the inflation rate has a significant positive association with the fraction of female clients across the model 9, 10 and 11. It indicates that high rate of inflation facilitates MFIs to reach out more to female clients, thus greater level of outreach depth. This evidence, however, is contrary to the findings of Nurmakhanova et al. (2015), who found the inflation rate has negative effect on the microfinance outreach level.

In addition, the study reports the GDP growth rate is positively and significantly related to both the GNI per capita adjusted average loan size and the fraction of women clients

across the models 6 to 11. The results are found to be significant at the 1% level. However, the coefficients of significant positive linkage between the GDP growth rate and GNI per capita adjusted average loan indicate that the high growth in the economy harm microfinance reach out to the ultra-poor. Economies with high growth rate usually practice open market strategy and based on capitalist approach. Therefore, financial intermediaries in the growing economies have eased, yet wide market to penetrate that might also influence MFIs to go widely across on the ceiling rather going deep to the ultimate poverty. On the contrary, the significant positive relation between the GDP growth rate and female clients' percentage indicates that positive and high economic growth enhances MFIs' outreach to women borrowers. Women in the open economy have much participation in the national economy and they seek empowerment more than their counterpart in the other side of the world. Later finding supports the statement of Nurmakhanova et al. (2015); however, the same study is contrary to the earlier evidence.

This study also includes regional dummy variables and it explores additional empirical evidence for strong diversification in MFIs' geographic performance. MFIs in Sub Saharan Africa and East Asia and Pacific show a positive impact on outreach to the lowest strata of poor as evidenced across model 6, 7, and 8; the coefficients of SSA and EAP are significantly negative. Moreover, MFIs in Eastern Europe and Central Asia also show similar effect to reach out to the ultra-poor since the coefficients of EECA in model 7 and 8 found to be significantly negative, whereas positively insignificant in model 6. In addition, the coefficient of MENA reported as negative across the model 6, 7 and 8, however, these are statistically insignificant. Therefore, MFIs in Middle East and North

Africa are not significantly reaching to the ultimate poverty level within the region. On the contrary, MFIs in East Asia and Pacific outperform in term of serving women clients compare to their counterparts. The coefficients of EAP across the model 9, 10 and 11 reported significantly positive. Conversely, the coefficient of EECA and MENA across the model 9, 10 and 11 found to be significantly and negatively associated with the percentage of female borrowers, which indicates MFIs in Eastern Europe and Central Asia and Middle East and North Africa are less performing in term of dealing with more women borrowers. Additionally, MFIs in Sub Saharan Africa has no significant outreach to female clients as the coefficients reported across models 9, 10 and 11 are insignificant. One possible interpretation for this variation is that MFIs' objectives do differ extensively across geographic regions. These findings of geographical diversifications comply with the studies of Kar (2013b) and Nurmakhanova et al. (2015).

The interaction effects of risk indicators

The empirical models 12 to 53 employed to justify the interaction effects of various institutional and macro risk indicators on the relationship between the financial and social performance, which indicates the partial acceptance of *hypothesis 4*. As evidenced in Table D-5, the study does not find regulation plays any significant moderating role on the relationship between the financial performance indicators and GNI per capita adjusted average loan size in model 12, 13 and 14 respectively. On the contrary, Table D-6 shows the evidence of the significant moderating effect of regulation on the association between the financial performance indicators and the fraction of female borrowers; except the

model 16, which is insignificant. However, an evidence of mission drift has identified in the model 15.

In addition, the MFI-size found to be has the insignificant moderating role on the relationship between the financial performance indicators and GNI per capita adjusted average loan size as evidenced in Table D-7; except the model 18, which is statistically significant, though mission drift tend has identified here. Conversely, the study finds significant moderating effect of MFI-size in the model 21, whereas other two models in Table D-8 show insignificant coefficients.

Moreover, the results reported in both the Table D-9 and D-10 shows MFI-maturity plays a significant moderating role in the relationship between the financial and social performance indicators. Additionally, the study does not find any plausible evidences of MFIs lending to wealthier clients and deal more with women counterparts within these models, hence concern of mission drift is invalid here. Earlier evidence finds that MFI-maturity significantly moderates the relationship between the financial performance indicators and GNI per capita average loan across the model 24, 25 and 26. Similar significant moderating impact also identified in Table D-10; except the model 28, which is insignificant.

As for the moderating influence of institution's types, this inquiry evidenced in Table D-11 that none of the institution's types; microfinance banks, credit unions, cooperatives, non-bank financial institutions and non-governmental organizations have a moderating

effect on the relationship between the financial performance indicators and GNI per capita adjusted average loan; except the NGOs, though the coefficients are not significant statistically. On the other hand, NGOs found to be has a significant moderating role on the linkage between the financial performance indicators and the percentage of female clients in the model 34 and 35, as reported in Table D-12. Although model 33 shows both the NBFIs and NGOs have moderating influence, but the coefficients are insignificant. The rest of the types have no reportable impact.

This research moreover, finds that the network membership influences as a moderator on the association between the financial performance indicators and GNI per capita adjusted average loan across the models in the Table D-13, however, none of the coefficients are statistically significant. Conversely, network membership plays a significant moderating role on the association between the financial performance indicators and the fraction of women borrowers in Table D-14; except the model 40 with no evidence of moderation.

As for the moderation effect of macro risk indicators, this study discovers that inflation rate does not significantly moderate the relationship between the financial and social performance indicators. Specifically, no significant evidence of moderation has identified across the model 42, 43 and 44 respectively. Additionally, findings in the Table D-16 show negative evidence of moderation by the inflation rate on the linkage between the financial performance indicators and the percentage of women clients across all models. On the other hand, GDP growth rate shows contrary findings than the inflation rate. As evidenced in the Table D-17, GDP growth rate plays a moderating role on the

relationship between the financial performance indicators and GNI per capita adjusted average loan, though an insignificant coefficient reported for the model 49. Additionally, GDP growth rate similarly influences the association between the financial performance indicators and the fraction of female borrowers with significant coefficient in the model 51 and 53 respectively, and insignificant coefficient in the model 52, as stated in the Table D-18. Considering discussed evidences regarding interaction effect, the eventual justification of *hypothesis 4 is partially accepted*.

The effect of control variables

The study identified significant insight on the effect of control variables. The evidences indicate that operating expense and financial expense are negatively related to the financial performance. Rationally, there is an inverse relationship between the financial performance and intuition's expenses. Moreover, the study finds that portfolio at risk is significantly and negatively related to the financial performance indicators across all models. Since the portfolio at risk indicators refers to the quality of the loan portfolio in MFIs, logically, portfolio at risk indicator and the financial performance indicators will have an inverse relationship between them. Furthermore, yield or the proxy of interest rate shows significantly positive correlation across all models. That indicates, as higher the interest rate will be charged the financial performance of MFIs will also increase. Cull et al. (2007) identified a negative quadratic association between interest rate and the financial performance of individual-based lending MFIs. This research does not investigate such aspect of the relationship.

The inquiry also finds a significant negative relationship between the borrowers per staff member and GNI per capita adjusted average loan. That means the average loan size decrease with borrowers per staff member. In addition, the relationship between the productivity measure and the serving to women clients found to be significantly positive. As per the evidence of outreach to female clients, these may imply; (a) more productive MFIs are better able to target poorer and female clients, (b) less productive MFIs need to target relatively wealthier clients and fewer female clients, (c) MFIs that increasingly improve their productivity should target relatively wealthier and less female clients. Productivity of MFIs could be increased by either improvement in the operational efficiency, or by increasing the clients' number.

The study reveals the average loan size has a significant positive relationship with cost per borrowers. This evidence implies; (a) cost efficient MFIs are capable to shorten the size of average loan (Mersland & Strøm, 2009), (b) cost inefficient MFIs should increase their loan size. Additionally, the investigation finds a significant negative relationship between cost per borrowers and the percentage of women borrowers. Similar evidences also found by Hermes et al. (2011) and Mersland and Strøm (2009). As per the results, (a) cost efficient MFIs are capable to reach out more female clients, (b) cost inefficient MFIs should curtail their reach out to women clients.

4.6 Chapter Summary

The chapter examines the descriptive analysis of the variables of this dissertation. The statistics reveal that the study sample contains above 82 percent regulated MFIs and over

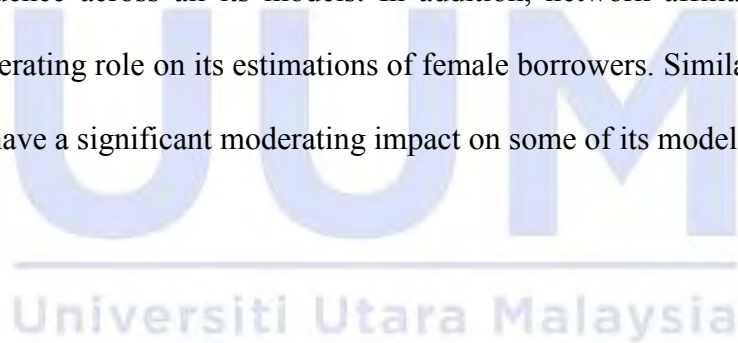
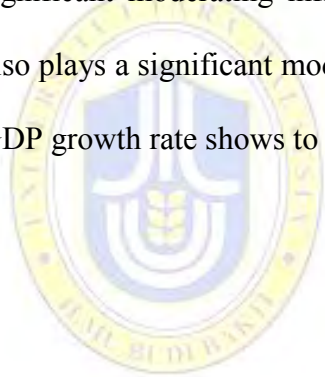
98 percent have an affiliation of local and international network. The chapter further discusses the regression assumptions of the dataset that includes; multicollinearity diagnostics, outliers, normality diagnostics, heteroscedasticity test and autocorrelation test. Based on the diagnostic test, the study utilizes OLS with robust standard errors.

Initial estimations of performance analysis reveal having regulatory status significantly decrease the financial and social performance in MFIs. MFI-size effects obtaining better financial performance and serving women borrowers. Conversely, MFI-maturity curtails number of women clients, but they yet gain positive financial growth through serving wealthier clients. Additionally, the results show that MFIs financially performs well despite their ownership structure and legal status. Network affiliation boosts the financial performance and female clients' percentage, but evidence shows of serving wealthier clients. Furthermore, macroeconomic variables only show significant effect on the attainment of the social performance. The regional dummies show that MFIs' performance varies in different geographic region.

The trade-off results of the prime estimations indicate that the concern of mission drift is invalid in MFIs of the OIC member states. However, the evidence also found that regulated MFIs tend to serve wealthier and less women clients, hence the indication of mission drift. Although, bigger MFIs serve poorer clients, they decrease lending to the female borrowers which also refers to mission drift. Additionally, MFIs' experience has negative impact on the female borrowers; however, it has mixed effects on the average

loan. As the impact of institution's types, the evidence shows that NBFIs and NGOs outperform in term of social mission.

Moreover, membership affiliation effects positively on the social mission of MFIs. Evidence of macroeconomic effects indicates that macro risk indicators are significant for MFIs to attain their social goals. The eventual evidences of regional dummies present MFIs in EAP, SSA and EECA region are complying with their social mission. The chapter also provides empirical insight regarding the moderating effects of the institutional and macro risk indicators. The findings show that the MFI-maturity has significant moderating influence across all its models. In addition, network affiliation also plays a significant moderating role on its estimations of female borrowers. Similarly, GDP growth rate shows to have a significant moderating impact on some of its models.



CHAPTER 5: CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter summarizes and discusses the main results and conclusions of the study. This chapter offers a comprehensive debate on the main results and gives additional insights into ongoing debates of mission drift and the effect of risk indicators on the mutual exclusion of double bottom lines in the OIC member states. The chapter is organized as follows. Section 5.1 presents an overview of this study. Section 5.2 offers the implication of the study and section 5.3 discusses the main limitations of this study. Section 5.4 provides the recommendations based on the findings of the study. Section 5.5 presents direction for the future research and marks the end of this dissertation.

5.1 Overview of the Study

The inception of the microcredit program to serve financially excluded rural poor in developing nations render us a tremendous result of poverty reduction. Started from an ordinary thinking of well-being for the poor has changed over time and developed as full-fledged alternative financial intermediaries today. The journey of microcredit to social enterprise in present time has altered the thinking and working pattern of traditional credit institutes, financial investors, as well as government development agencies. The industry itself witnesses a huge transformation of non-profit MFIs to profit oriented microfinance intermediaries.

The ancient microfinance was about only providing small credit based on some fundamentals, such as; credit to poor, collateral free, women borrower, and non-profit. However, microfinance in present day is a lot more than that. The industry has experienced a notable competition and commercialization, so does, the transformation. The donor subsidy has almost dried out that emerge the possibility for institutional investors to take advantage of double bottom line. MFIs therefore, seek financial self-reliance besides its poverty outreach objective. Hence the question arises on the resilience of microfinance dual missions.

This study took this question on a serious note and aims to investigate the mission drift of OIC-MFIs. We also wanted to understand the moderating influence of institutional and macro risk indicators on the mutual exclusion of double bottom lines. Only a handful of studies has attempted to justify the issue, but the evidences we have so far, show a puzzling portrait. Moreover, we found merely studies that consider the issue from the institutional investors' perspective. Evidences pointed that MFIs may drift from its original mission of poverty outreach to profit seeking due to invisible pressure from institutional investors, though it is not desirous for investors as well.

On the other hand, we believe that mission drift occurrence from the force of institutional investors and investment intention could be controlled by regulatory and supervisory policies of relevant authority. Developing and implementing regulatory policies handled by public agencies. Hence, the OIC, the region holding majority of counties suffered by bureaucracy, corruption and weak governance may facilitate unethical practices in

microfinance operations. As a result, more interest and logic have grown to take this study in the OIC member countries.

Although there are both types of studies exist, one support the transformation with the avoidance of mission drift, conversely, another side strongly criticizes it. However, this study reveals that the concern of mission drift in MFIs in the OIC countries is invalid. A significant negative relation between financial performance indicators and GNI per capita adjusted average loan size indicates that even OIC-MFIs seek profitability does not mean they go for wealthier clients or the poor to provide a large size loan. In addition, a significant positive association between financial performance indicators and the fraction of female borrowers suggests that OIC-MFIs can achieve financial self-sufficiency by not reducing its women borrowers, rather continue serving them. Furthermore, an extensive examination discloses that the interaction variables mostly have a significant influence on the mutual exclusion of double bottom lines.

5.2 Implications of the Study

It is now an undisputed consensus among academics, practitioners and policy makers that microfinance has substantially provided a great deal of opportunity and hope for poverty alleviation. Financial self-reliance is a key measure of MFIs' success. However, recent scaling up trend of profitability secures their financial sustainability, but the concern also raises that microfinance original promise of creating impact in the life of the poorest may be lost due to alternative initiative. This phenomenon is generally referred as mission drift in the literature of microfinance research. This study has sought to examine the concern empirically and provide comments in mechanisms that support to retain MFIs'

social mission while scale up for profit. The study also intended to reveal the role of institutional investors in preventing mission drift and balancing between financial and social objectives. Eventually, this study discloses some message and implication for the appropriate authority as discussed below.

5.2.1 Methodological Perspectives

Since the concern of mission drift in microfinance industry is a relatively new phenomenon and the answer is yet to know, any complete theoretical framework and methodological guideline are still missing. As a result, previous studies have employed a different variety of methodological approaches to justify their findings, such as; Cull et al. (2007), Kar (2013b), Meyer (2015), Nurmakhanova et al. (2015), Olivares-Polanco (2005) and Quayes (2012, 2015). However, this research follows the works of Cull et al. (2007), Olivares-Polanco (2005) and Quayes (2012, 2015) and uses ordinary least squares to analyze its data, but it considers different and convincing robust estimation.

To ensure validity of the statistical results, the standard errors of the coefficient estimates are adjusted for possible dependence in the residuals in recent panel data used studies. Arellano (1987), Eicker (1967), Froot (1989), Huber (1967), Newey and West (1987), Rogers (1993) and White (1980, 2014) developed the alternative covariance matrix estimators. In line with econometric literatures, Cull et al. (2007) used ordinary least squares with White's Heteroscedasticity consistent standard errors. However, all discussed techniques including White's are robust to certain violations of assumptions in the regression models; however, they do not consider the cross-sectional correlation.

According to Hoechle (2007) –standard error estimates of commonly applied covariance matrix estimation techniques–e. g., OLS, White, and Rogers or clustered standard errors–are biased, and hence statistical inference based on such standard errors is invalid”.

However, a nonparametric covariance matrix estimator proposed by Driscoll and Kraay (1998), which produces heteroscedasticity and autocorrelation consistent standard errors that are robust to general forms of spatial and temporal dependence. To the best of the author’s knowledge, none of the existing study used this covariance matrix estimator to quantify mission drift issue till to date of writing this paragraph. Therefore, this research strongly consider this standard error approach and support the argument of Driscoll and Kraay (1998) that excluding cross-sectional correlation in panel data estimation will be biased and invalid. Eventually, this study considers it might be a miniature, yet a key contribution from the methodological perspective for this dissertation.

5.2.2 Theoretical Perspectives

Contribution to the existing literature

In line with the major hypothesis, this research finds that the financial performance positively correlates with the social performance. Interaction estimations provide deeper insight in this regard which is very comprehensive. However, regulated MFIs shows reverse relationship referring some extend of mission drift. The regulatory framework of MFIs is one of the prime elements that the study precisely consider, because it provides the inside view of the Shariah implication for the financial intermediaries in the Muslims economies. To the best of the author’s knowledge, this is the first study of its kind.

Although similar results are found in previous studies, such as; Cull et al. (2007), Kar (2013b), Mersland and Strom (2010), and Quayes (2015), however, most of those studies conducted based on a global or continental unclassified dataset which affected by a variety of country context and dissimilar elements, except Mersland and Strøm (2010) who used ranked MFIs, same as this research utilizes. Conversely, this study focus on the OIC member states solely, that is mostly developing and emerging market and highly controlled by the government. Moreover, the member states have a similarity of religious faith and theoretically it should have a significant influence in the country's financial structure, financial regulation and citizen's buying or patronizing behavior (Benmelech & Moskowitz, 2010; Renneboog & Spaenjers, 2012). Evidences found from this study are also based on an extensive use of risk indicators and comprehensive estimations of interaction variables, thus contributing to the extant literature on microfinance research.

Stakeholder theory as an underpinning ethos

Furthermore, based on the theoretical substance of stakeholder literature this research uses it as the underpinning theory. However, the prime aim of the stakeholder theory is to guide the study inasmuch as it stands as a parent theoretical discipline. In short, a batch of chosen theoretical concepts from the emerging stakeholder model pointed and explained within this investigation, have illuminated the research question and guided the analytical approach selected in this empirical examination. However, it does not claim to further development of stakeholder theory in a generic sense from a conceptual standpoint.

The utilization of stakeholder theory is mostly concentrated in for-profit organizations and their social responsibilities (Donaldson & Preston, 1995; Russo & Perrini, 2010), which is a voluntary initiative from corporations. MFIs, in contrary, is a social enterprise or a hybrid organization where creating impact in society is not voluntary activities, but the prime mission of the institution. In present days, stakeholders in MFIs play a vital role in directing institution's mission and operate in line with common interests.

This study also finds evidence that MFIs could attain financial sustainability while alleviating poverty, even the institutions borrow from commercial investors. However, it would not be possible if the intention of mutual value creation from stakeholder side is missing. Therefore, this study argues that a potential dialogue about stakeholder theory for MFIs or hybrid organization needs to eventuate. This dissertation, moreover, found that mission drift is one of the most potential issues to use in this regard.

5.2.3 Practical Perspectives

Implication of trade-off paradigm

As this study explained earlier, the microfinance industry in present days is operating based on two major paradigms, namely; financial viability approach and poverty lending approach. These also can be referred as '*institution logic and social welfare logic*' or '*welfarists and institutionists*'. The findings of this research are neither in line with the welfarists nor in favor of the institutionists solely. Rather, the findings are suggesting a third paradigm of '*middle ground*' or '*trade-off theory*' that refers to the balance maintained between profitability and social obligations.

It is an emerging paradigm and can be implemented practically by the microfinance industry worldwide. However, the implications of interest rate are related to this tenet, since studies argue that both financial and social objectives can be accomplished simultaneously by an adequate method of service delivery for clients' needs at a reasonable price (Morduch, 2005; Woller, et al., 1999). Moreover, encouraging MFIs to attain self-sufficiency by focusing depth of outreach and support microfinance initiatives by providing a constructive regulatory and policy environment would be some remarkable contributions from policy makers and regulatory authorities.

Sustainability-driven scaling up approach

The obvious intention of attaining financial self-sufficiency is to eliminate poverty on a greater scale. Therefore, sticking to their social commitment or poverty alleviation objective is crucially significant. To avoid the mission drift concern, it is important to make well-judged and concerted effort to understand and identify the implications of previously discussed sustainability-driven scaling up approach in MFIs (Ibrahim, et al., 2018). To this end, a cost-effective system to measure the social mission found to be an essential step that can develop and implement. In this regards, results obtained by this dissertation are not only contributing to the policy making process, but also in attaining sustainability-driven scaling up of pro-poor MFIs whose eventual objective is to achieve social missions with a broader goal of poverty alleviation.

5.2.4 Government Perspectives

Establishing regulatory or monitoring authority

Command and control of any regulation, including financial regulation are under the authority of national government. Hence, government has a crucial role to play in governing, monitoring and regulating microfinance program. For an instant; Microcredit Regulatory Authority (MRA) in Bangladesh is such initiative by the government of Bangladesh. MRA is the central body to monitor and supervise microfinance operations of NGO-MFIs. A license from the Authority is mandatory to operate microfinance operations in Bangladesh as an NGO. It has established to promote and foster sustainable development of the microfinance sector through creating an enabling environment for NGO-MFIs in Bangladesh.

Policy initiatives

As combating poverty is vital, so government should monitor and assess the resource allocation by stakeholder and donor to perceive the devotion of MFIs toward their social mission. Such government initiative has significant impact on microfinance operations and intentions to pursue their missions. This study takes place in the OIC countries. Notably, some OIC member states have well established financial regulation, financial intermediaries, strong structure and capital market, while some others may suffer from corruptions, wicked governance, and lack of transparency. Therefore, government should take proper policy initiatives and create a constructive regulatory and supervisory environment in order to foster and support microfinance program. The OIC member

states may share their knowledge, infrastructure and experience to support other member state to improve their financial sector, especially microfinance.

5.3 Limitations of the Study

The study is subject to limitations. Use of secondary data renders data limitations. Data used in this research is mainly depending on the data availability of the MIX Market platform. As a result, self-reported data by the MFIs have included in the sample, hence, both intentional and unintentional operator's errors may occur during information submission. On the other hand, self-reporting also can lead to unverified and missing data input. On a large scale it can damage the data sample.

However, to address this issue, the data can be obtained from specialized microfinance rating agencies. Although only a limited amount of MFIs has rated by those agencies, thus, this process again reduces the number of MFIs in the dataset. Conversely, the rating scales and methodologies of different agencies to monitor financial and social performance also vary from agency to agency. In addition, this study used comprises of only rated MFIs; therefore, we cannot demand that the dataset can represent all MFIs' population. Small MFIs have omitted which neither rated by major five rating agencies, nor ranked in the list of top microfinance institutions.

5.4 Recommendations of the study

The recommendation of this study can unfold in various ways. MFIs cannot overlook the utmost importance of the social mission accomplishment. It is even more important to

patronizer of microfinance program, institutional investors, its agents and employees. Therefore, the following recommendations have made;

Regular assessment of MFI's direction

Regular assessment of institution's direction toward poverty outreach would be an important initiative. It is also important for microfinance practitioners understand their target market, demand and nature of credit service of the poorest and borrower's level of response in regards to the services and quality they have received. Those initiatives will make clear about the quality and types of microfinance products and services that need to create positive impact in the society and it will guide them to develop and improve financial services as per demand of the poor.

Resource allocation by the stakeholder

On the other hand, institutional investors and fund providers need to allocate resources for the best effective use. As combating poverty is vital, so proper resource allocation would be a prerequisite for monitoring and assessing the devotion of MFIs to the social mission. Every individual and group of practitioners and stakeholders in the microfinance industry have their separated duties in order to effective use of microfinance as a key tool for poverty alleviation. Thus, strategic resource allocation can facilitate this process.

Revisit the regulatory policy of MFI in the OIC

The proper policy setting and favorable regulatory framework are compulsory that can hardly be overlooked. The study finds evidence that MFIs can achieve financial self-

reliance without necessarily enlarging the average loan size and decreasing the fraction of female borrower. In addition, regulated MFIs are found to be drifting from poverty outreach; referring to the phenomenon is true. Therefore, the regulatory policy should re-structured that reinforce regulated MFIs spreading their services to the lower segment of the rural poor that can largely avoid the mission drift.

The results of this research also indicate that microfinance bank socially less performed to compare to other types of MFIs. Hence, one possible policy intervention could be providing incentives to traditional banks to lend in microfinance projects. On the contrary, regulatory and supervisory framework for non-bank financial institutions and non-government organizations could retain the same, since both these types of MFIs outperformed in this regards without harming their social mission.

Utilize a win-win proposition

The findings of the study support the trade-off theory, a balance between dual objectives. Therefore, institutional investors and donors have a vital role to promote the middle ground paradigm that balances between dual missions. The mutual value creation intention of investors and donors, therefore, is very important to attain dual returns. Conversely, the success of MFIs should not be measured solely by their financial self-sufficiency, size of MFIs and/or outreach in general, however, their impact on poverty alleviation and contribution in the lives of the ultra-poor should consider precisely.

Poverty alleviation as the major objectives

Technically, objectives of today's MFIs can be different, since the role of microfinance varies from one context to another. For an example; an MFI may solely serve their ultra-poor clients that clustered from a well explained target group, whereas another MFI may not have that clearly explained target group at all. Hence, they may prefer to involve them in addressing some other economic, health and social issues. Therefore, a universal definition of MFIs' missions is not sufficiently obvious. However, all these arguments are about targeting at reaching a consensus in favor of microfinance industry's long term sustainability for poverty alleviation. Thus, it should be given the utmost priority.

5.5 Future Research Direction

This study precisely employs several important indicators for addressing the concern whether MFIs have drifted away from their customary poverty reduction objective. As explained earlier that Schreiner (2002) proposed six dimensions (depth, breadth, quality, scope, impact and cost) of outreach which can be used to measure the adherence of MFIs to their poverty reduction mission. This study utilizes only the depth dimension of outreach to address the mission drift issue. As a result, remaining dimensions are yet to use in addressing the drift phenomenon. Therefore, a single framework is recommended that comprises all of the dimensions of outreach for quantifying the level of MFIs' adherence to their poverty reduction mission in future studies.

In order of choosing financial performance indicators, this study excludes financial self-sufficiency ratio. Future studies could include this indicator that will address the financial

viability MFIs adjusted for subsidies which will also add comments on the role of subsidies for the financial performance. According to Cull et al. (2007) lending methodology is an important factor for MFIs' performance and a major institutional characteristic of MFIs. Although this study excludes this indicator due to limitation of data, it is still suggested to consider this factor in future researches.

Despite using two country context variables, there are other macroeconomic elements, for an instant; poverty rate and unemployment, which are also important and should consider in future studies. Another key factor could be considered in this study is religiosity variable, for an instant; the religious morality or the implication of the Shariah-compliant finance. Since this study focuses on the Muslims majority countries and the impact of regulation has already added here, considering religiosity factors could possibly provide various new insights. Therefore, it is also recommended to look into this issue from a different dimension by using religiosity factors in future studies.

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, 923–932. <https://doi.org/10.1002/jid.2981>
- Abed, F. H. (2000). Microfinance NGOs in Bangladesh: Growth, impact and challenges. *Dhaka: BRAC*.
- Abrar, A., & Javid, A. Y. (2014). Commercialization and mission drift—A cross country evidence on transformation of microfinance industry. *International Journal of Trade, Economics and Finance*, 5, 122–125.
- Acclassato, D. H. (2008). Do interest rate ceilings really protect poors and small enterprises? 36, 93–109+113+116.
- Adhikary, S., & Papachristou, G. (2014). Is there a trade-off between financial performance and outreach in South Asian Microfinance institutions? *The Journal of Developing Areas*, 48, 381–402.
- Agbodjan, J. P. (2002). Prudential regulation in decentralised financial system. *La Réglementation Prudentielle Dans Les Systèmes Financiers Décentralisés*, 30, 63–71.
- Ahlin, C., Lin, J., & Maio, M. (2011). Where does microfinance flourish? Microfinance institution performance in macroeconomic context. *Journal of Development Economics*, 95, 105–120. <https://doi.org/10.1016/j.jdeveco.2010.04.004>
- Ahmed, I., Bhuiyan, A. B., Ibrahim, Y., & Said, J. (2016). Profitability and accountability of South Asian microfinance institutions (MFIs). *Journal of Scientific Research and Development*, 3(3), 11–21.
- Ahmed, I., Bhuiyan, A. B., Ibrahim, Y., Said, J., & Salleh, M. F. M. (2016). Social accountability of microfinance institutions in South Asian region. *International Journal of Economics and Financial Issues*, 6(3), 824-829.
- Akula, V. (2010). Clinton Global Initiative. New York, USA.
- Akula, V. (2012). The Best of 2012: Making the Most of Missteps: At Harvard Social Enterprise Conference, SKS's Akula opens up on failure, Cambridge, MA.
- Al Atoom, R. O., & Abu Zerr, A. E. (2012). Macro and microfinancial factors that assures Jordanian microfinance institutions' (MFIs) financial sustainability. *European Journal of Economics, Finance and Administrative Sciences*, 146–160.
- Anduanbessa, T. (2009). Statistical analysis of the performance of microfinance institutions: The Ethiopian case. *Savings and Development*, 33, 183–198.
- Annim, S. K. (2012a). Microfinance efficiency: Trade-offs and complementarities between the objectives of microfinance institutions and their performance perspectives. *European Journal of Development Research*, 24, 788–807. <https://doi.org/10.1057/ejdr.2011.60>
- Annim, S. K. (2012b). Targeting the poor versus financial sustainability and external funding: Evidence of microfinance institutions in Ghana. *Journal of Developmental Entrepreneurship*, 17. <https://doi.org/10.1142/s1084946712500161>
- Ansoff, H. I. (1965). *Corporate strategy: business policy for growth and expansion*. McGraw-Hill Book.
- Arellano, M. (1987). Practitioners' corner: Computing robust standard errors for within-groups estimators. *Oxford Bulletin of Economics and Statistics*, 49, 431–434.

- Arena, T. (2008). Social corporate governance and the problem of mission drift in socially-oriented microfinance institutions. *Columbia Journal of Law and Social Problems*, *41*, 269–316.
- Armendáriz, B., D'Espallier, B., Hudon, M., & Szafarz, A. (2011). Subsidy uncertainty and microfinance mission drift. *CEB Working Paper 11, Université Libre de Bruxelles*.
- Armendáriz, B., & Labie, M. (2011). *The Handbook of Microfinance*. Singapore: World Scientific.
- Armendáriz, B., & Morduch, J. (2010). *The Economics of Microfinance* (second ed.). Cambridge: MIT Press.
- Armendáriz, B., & Szafarz, A. (2011). On mission drift in microfinance institutions. *The Handbook of Microfinance*, 341–366.
- Arvelo, M., Bell, J.-L., Novak, C., Rose, J., & Venugopal, S. (2008). Morgan Stanley's approach to assessing credit risks in the microfinance industry. *Journal of Applied Corporate Finance*, *20*, 124–134. <https://doi.org/10.1111/j.1745-6622.2008.00175.x>
- Ashta, A., & Bush, M. (2009). Ethical issues of NGO principals in sustainability, outreach and impact of microfinance: Lessons in governance from the Banco Compartamos' IPO. *Management Online Review*, 1–18.
- Ashta, A., & Hudon, M. (2009). To whom should we be fair? Ethical issues in balancing stakeholder interests from Banco Compartamos case study.
- Ashta, A., & Hudon, M. (2012). The Compartamos microfinance IPO: Mission conflicts in hybrid institutions with diverse shareholding. *Strategic Change*, *21*, 331–341. <https://doi.org/10.1002/jsc.1912>
- Assefa, E., Hermes, N., & Meesters, A. (2013). Competition and the performance of microfinance institutions. *Applied Financial Economics*, *23*, 767–782. <https://doi.org/10.1080/09603107.2012.754541>
- Attali, J. (2015). About Microcredit.
- Augsburg, B., & Fouillet, C. (2010). Profit empowerment: The microfinance institution's mission drift. *Perspectives on Global Development and Technology*, *9*. <https://doi.org/10.1163/156914910X499732>
- Ayayi, A. G., & Sene, M. (2010). What drives microfinance institution's financial sustainability. *The Journal of Developing Areas*, *44*, 303–324.
- 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*, 117–129. <https://doi.org/10.1111/1467-8268.12128>
- Bagheri, A., & Midi, H. (2009). Robust estimations as a remedy for multicollinearity caused by multiple high leverage points. *Journal of Mathematics and Statistics*, *5* (4), 311.
- Bajaj, V. (2010). Microlender, first in India to go public, trades higher. *The New York Times*.
- Barry, T. A., & Tacneng, R. (2014). The impact of governance and institutional quality on MFI outreach and financial performance in Sub-Saharan Africa. *World Development*, *58*, 1–20. <https://doi.org/10.1016/j.worlddev.2013.12.006>

- Bassem, B. S. (2009). Governance and performance of microfinance institutions in Mediterranean countries. *Journal of Business Economics and Management*, 10, 31–43. <https://doi.org/10.3846/1611-1699.2009.10.31-43>
- Bassem, B. S. (2012). Social and financial performance of microfinance institutions: Is there a trade-off? *Journal of Economics and International Finance*, 4, 92–100.
- Battiliana, J., Lee, M., Walker, J., & Dorsey, C. (2012). In search of the hybrid ideal. *Stanford Social Innovation Review*, 10, 50–55.
- Beck, T., Demirgüç-Kunt, A., & Levine, R. (2007). Finance, inequality and the poor. *Journal of Economic Growth*, 12, 27–49.
- Bédécarrats, F., Baur, S., & Lapenu, C. (2012). Combining social and financial performance: A paradox? *Enterprise Development and Microfinance*, 23, 241–258. <https://doi.org/10.3362/1755-1986.2012.024>
- Beisland, L. A., Mersland, R., & Strøm, R. Ø. (2015). Audit quality and corporate governance: Evidence from the microfinance industry. *International Journal of Auditing*, 19, 218–237. <https://doi.org/10.1111/ijau.12041>
- Bellman, E. (2015). Calls Grow for a New Microloans Model. *The Wall Street Journal*.
- Benmelech, E., & Moskowitz, T. J. (2010). The political economy of financial regulation: Evidence from U.S. state usury laws in the 19th century. *The Journal of Finance*, 65, 1029–1073.
- Biener, C., Eling, M., & Schmit, J. T. (2014). Regulation in microinsurance markets: Principles, practice, and directions for future development. *World Development*, 58, 21–40. <http://doi.org/10.1016/j.worlddev.2013.12.012>
- Bouchet, M. H., Clark, E., & Gros Lambert, B. (2003). *Country Risk Assessment: A guide to global investment strategy*. John Wiley & Sons.
- Briere, M., & Szafarz, A. (2015). Does commercial microfinance belong to the financial sector? Lessons from the stock market. *World Development*, 67, 110–125.
- Burgis, T. (2008). Microfinance commercialisation warning. *Financial Times*.
- Busse, M., & Hefeker, C. (2007). Political risk, institutions and foreign direct investment. *European Journal of Political Economy*, 23, 397–415.
- Butcher, W., & Galbraith, J. (2015). Microfinance control fraud in Latin America. *Forum for Social Economics*, 1–23. <https://doi.org/10.1080/07360932.2015.1056203>
- Cameron, A. C., & Trivedi, P. K. (2005). *Microeconometrics: Methods and applications*. Cambridge university press.
- Cameron, A. C., & Trivedi, P. K. (2009). *Microeconometrics with STATA*. College Station, TX: StataCorp LP.
- Caserta, M., & Reito, F. (2013). Outreach and mission drift in microfinance: An interpretation of the new trend. *Economics Bulletin*, 33, 167–178.
- CGAP. (2003). *Microfinance Consensus Guidelines*. Washington: CGAP/The World Bank Group.
- CGAP. (2005). *Mapping of Funding Flows*, Washington, DC: CGAP.
- Chaganti, R., & Damanpour, F. (1991). Institutional ownership, capital structure, and firm performance. *Strategic Management Journal*, 12, 479–491.
- Chahine, S., & Tannir, L. (2010). On the social and financial effects of the transformation of microfinance NGOs. *Voluntas*, 21, 440–461. <https://doi.org/10.1007/s11266-010-9136-6>

- Chambers, J. M., Cleveland, W. S., Kleiner, B., & Tukey, P. A. (1983). *Graphical methods for data analysis* (Vol. 5). Wadsworth Belmont, CA.
- Chan, S. H., & Lin, J. J. (2015). Microfinance products and service quality in financial and quasi-financial institutions in China. *Strategic Change*, 24, 267–284.
- Chen, G., Rasmussen, S., Reille, X., & Rozas, D. (2010). Indian microfinance goes public: The SKS initial public offering. *CGAP Focus Note*, 65.
- Chijoriga, M. M. (2000). The performance and sustainability of micro financing institutions in Tanzania. *Journal Fur Entwicklungspolitik*, 16, 275–301.
- Chowdhury, A. (2009). Microfinance as a poverty reduction tool—a critical assessment. *Working paper 89, Department of Economic and Social Affairs, United Nations*.
- Christen, R. P., & Cook, T. (2001). Commercialization and mission drift: The transformation of microfinance in Latin America. *Occasional Paper 5*, CGAP.
- Coakes, S. J., & Steed, L. G. (2003). *SPSS: Analysis without anguish using SPSS version 11.0 for Windows* (1st ed.). Australia: John Wiley & Sons.
- Coakes, S. J., Steed, L. G., & Ong, C. (2010). *SPSS: analysis without anguish version 17.0 for Windows*. Australia: John Wiley and Sons.
- Conning, J. (1999). Outreach, sustainability and leverage in monitored and peer-monitored lending. *Journal of Development Economics*, 60, 51–77. [http://doi.org/10.1016/S0304-3878\(99\)00036-X](http://doi.org/10.1016/S0304-3878(99)00036-X)
- Copstake, J. (2007). Mainstreaming microfinance: Social performance management or mission drift? *World Development*, 35, 1721–1738. <http://doi.org/10.1016/j.worlddev.2007.06.004>
- Crabb, P. (2008). Economic freedom and the success of microfinance institutions. *Journal of Developmental Entrepreneurship*, 13, 205–219. <https://doi.org/10.1142/s1084946708000934>
- Cull, R., Demirgüç-Kunt, A., & Morduch, J. (2007). Financial performance and outreach: A global analysis of leading microbanks*. *The Economic Journal*, 117, F107–F133. <https://doi.org/10.1111/j.1468-0297.2007.02017.x>
- Cull, R., Demirgüç-Kunt, A., & Morduch, J. (2009). Microfinance meets the market. *The Journal of Economic Perspectives*, 23, 167–192. <https://doi.org/10.2307/27648299>
- Cull, R., Demirgüç-Kunt, A., & Morduch, J. (2011). Does regulatory supervision curtail microfinance profitability and outreach? *World Development*, 39, 949–965. <https://doi.org/10.1016/j.worlddev.2009.10.016>
- Curto, J. D., & Pinto, J. C. (2011). The corrected VIF (CVIF). *Journal of Applied Statistics*, 38, 1499–1507. <https://doi.org/10.1080/02664763.2010.505956>
- Dacheva, P. (2009). Commercialization in microfinance—A study of profitability, outreach and success factors within the Latin American context. *Working Paper*.
- Daley-Harris, S. (2005). *The State of the Campaign Report, 2005*. Washington DC: Microcredit Summit Campaign.
- De Crombrughe, A., Tenikue, M., & Sureda, J. (2008). Performance analysis for a sample of microfinance institutions in India. *Annals of Public and Cooperative Economics*, 79, 269–299. <https://doi.org/10.1111/j.1467-8292.2008.00362.x>
- Dehem, T., & Hudon, M. (2013). Microfinance from the clients' perspective: An empirical enquiry into transaction costs in urban and rural India. *Oxford Development Studies*, 41, S117–S132. <https://doi.org/10.1080/13600818.2013.787057>

- D'Espallier, B., Guérin, I., & Mersland, R. (2011). Women and repayment in microfinance: A global analysis. *World Development*, 39, 758–772. <http://doi.org/10.1016/j.worlddev.2010.10.008>
- D'Espallier, B., Hudon, M., & Szafarz, A. (2013). Unsubsidized microfinance institutions. *Economics Letters*, 120, 174–176. <https://doi.org/10.1016/j.econlet.2013.04.021>
- Dichter, T. (1999). NGOs in microfinance: Past, present and future. *The Centre for Human Settlements, University of British Columbia*.
- Ding, Z., Sun, S. L., & Au, K. (2014). Angel investors' selection criteria: A comparative institutional perspective. *Asia Pacific Journal of Management*, 31, 705–731.
- Donaldson, T., & Preston, L. E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of Management Review*, 20, 65–91.
- Driscoll, J. C., & Kraay, A. C. (1998). Consistent covariance matrix estimation with spatially dependent panel data. *Review of Economics and Statistics*, 80, 549–560.
- Eaton, J., Gersovitz, M., & Stiglitz, J. E. (1986). The pure theory of country risk. *European Economic Review*, 30, 481–513.
- Eicker, F. (1967). Limit theorems for regressions with unequal and dependent errors (Vol. 1, pp. 59–82). Proceedings of the fifth Berkeley symposium on mathematical statistics and probability.
- Emerson, J., & Twersky, F. (1996). New social entrepreneurs: The success, challenge and lessons of non-profit enterprise creation. *San Francisco*.
- Epstein, M. J., & Yuthas, K. (2011a). Protecting and regaining clarity of mission in the microfinance industry. *Sustainability Accounting, Management and Policy Journal*, 2, 322–330. <https://doi.org/10.1108/20408021111185439>
- Epstein, M. J., & Yuthas, K. (2011b). The critical role of trust in microfinance success: Identifying problems and solutions. *Journal of Developmental Entrepreneurship*, 16, 477–497. <https://doi.org/10.1142/s1084946711001951>
- Epstein, M. J., & Yuthas, K. (2013). Rural microfinance and client retention: Evidence from Malawi. *Journal of Developmental Entrepreneurship*, 18. <https://doi.org/10.1142/s1084946713500064>
- Erb, C. B., Harvey, C. R., & Viskanta, T. E. (1996). Political risk, economic risk, and financial risk. *Financial Analysts Journal*, 52, 29–46.
- Etzensperger, C. (2015). *Microfinance Market Outlook 2015* (Growth driven by vast market potential). Zurich, Switzerland: responsAbility Investments AG.
- Evans, J. (2010). Microfinance's midlife crisis. *The Wall Street Journal*.
- Fitch. (2009). *Microfinance – Testing its resilience to the global financial crisis*. New York: Fitch Ratings.
- Freeman, R. E. (2010). *Strategic management: A stakeholder approach*. Cambridge University Press.
- Freeman, R. E., & Evan, W. M. (1991). Corporate governance: A stakeholder interpretation. *Journal of Behavioral Economics*, 19, 337–359.
- Freeman, R. E., Harrison, J. S., & Wicks, A. C. (2007). *Managing for stakeholders: Survival, reputation, and success*. Yale University Press.
- Friedman, A. L., & Miles, S. (2006). *Stakeholders: Theory and practice*. Oxford University Press.

- Froot, K. A. (1989). Consistent covariance matrix estimation with cross-sectional dependence and heteroskedasticity in financial data. *Journal of Financial and Quantitative Analysis*, 24, 333–355.
- Gashayie, A. (2014). Relationship of financial sustainability and outreach in Ethiopian microfinance institutions: Empirical evidence. *Research Journal of Finance and Accounting*, 5, 207–211.
- Ghosh, S., & Van Tassel, E. (2008). A model of mission drift in microfinance institutions. *Department of Economics, Florida Atlantic University, December*.
- Gokhale, K. (2009a). A global surge in tiny loans spurs credit bubble in a slum. *The Wall Street Journal*.
- Gokhale, K. (2009b). As microfinance grows in India, so do its rivals. *The Wall Street Journal*.
- Gonzalez, A. (2007a). Efficiency drivers of microfinance institutions (MFIs): The case of operating costs. *MicroBanking Bulletin*.
- Gonzalez, A. (2007b). Resilience of microfinance institutions to national macroeconomic events: An econometric analysis of MFI asset quality.
- Greene, W. H. (2008). The econometric approach to efficiency analysis. *The Measurement of Productive Efficiency and Productivity Growth*, 1, 92–250.
- Greene, W. H. (2012). *Econometric Analysis* (7th ed.). Boston: Pearson.
- Gregoire, J. R., & Ramírez Tuya, O. (2006). Cost efficiency of microfinance institutions in Peru: A stochastic frontier approach. *Latin American Business Review*, 7, 41–70. https://doi.org/10.1300/J140v07n02_03
- Gujarati, D., & Porter, D. (2009). *Basic Econometrics* (5th ed.). Boston: McGraw-Hill Education.
- Gujarati, D., & Porter, D. (2010). *Essentials of Econometrics* (4th ed.). Boston: McGraw-Hill Education.
- Guntz, S. (2011). Sustainability and profitability of microfinance institutions. *CAIFD-Center for Applied International Finance and Development, Research Paper 4*.
- Gutiérrez, J., & Goitisoló, B. (2011). Profitability and social performance of microfinance institutions: Empirical evidence of relations between different types of variables. *Revista de Economía Mundial*, 189–214.
- Gutiérrez-Nieto, B., Serrano-Cinca, C., & Mar Molinero, C. (2007). Microfinance institutions and efficiency. *Omega*, 35, 131–142. <http://doi.org/10.1016/j.omega.2005.04.001>
- Gutiérrez-Nieto, Begoña, Serrano-Cinca, C., & Mar Molinero, C. (2009). Social efficiency in microfinance institutions. *Journal of the Operational Research Society*, 60, 104–119. <https://doi.org/10.1057/palgrave.jors.2602527>
- Hair, J. F., Anderson, R. E., Babin, B. J., & Black, W. C. (2010). *Multivariate data analysis: A global perspective* (Vol. 7). Pearson Upper Saddle River, NJ.
- Harker, P. T., & Zenios, S. A. (2000). What drives the performance of financial institutions. *Performance of Financial Institutions: Efficiency, Innovation, Regulation*, 3–31.
- Hartarska, V. (2005). Governance and performance of microfinance institutions in Central and Eastern Europe and the Newly Independent States. *World Development*, 33, 1627–1643. <https://doi.org/10.1016/j.worlddev.2005.06.001>

- Hartarska, V., & Nadolnyak, D. (2007). Do regulated microfinance institutions achieve better sustainability and outreach? Cross-country evidence. *Applied Economics*, 39, 1207–1222. <https://doi.org/10.1080/00036840500461840>
- Hashemi, S. M. (2007). *Beyond good intentions: Measuring the social performance of microfinance institutions*. CGAP.
- Helms, B. (2006). *Access for all: Building inclusive financial systems*. World Bank Publications.
- Hermes, N., Lensink, R., & Meesters, A. (2011). Outreach and efficiency of microfinance institutions. *World Development*, 39, 938–948. <http://doidoi.org/10.1016/j.worlddev.2009.10.018>
- Hishigsuren, G. (2007). Evaluating mission drift in microfinance lessons for programs with social mission. *Evaluation Review*, 31, 203–260.
- Hoechle, D. (2007). Robust standard errors for panel regressions with cross-sectional dependence. *Stata Journal*, 7, 281.
- Hollis, A., & Sweetman, A. (1998). Microcredit: What can we learn from the past? *World Development*, 26, 1875–1891.
- Hong, Y., & Kao, C. (2004). Wavelet-based testing for serial correlation of unknown form in panel models. *Econometrica*, 72, 1519–1563. <https://doi.org/10.1111/j.1468-0262.2004.00542.x>
- Huber, P. J. (1967). The behavior of maximum likelihood estimates under nonstandard conditions (Vol. 1, pp. 221–233). Proceedings of the fifth Berkeley symposium on mathematical statistics and probability.
- Hudon, M. (2006). Financial performance, management and ratings of the microfinance institutions: Do subsidies matter? *Working Paper*, Solvay Business School, University of Brussels.
- Hudon, M., & Traca, D. (2011). On the efficiency effects of subsidies in microfinance: An empirical inquiry. *World Development*, 39, 966–973. <https://doi.org/10.1016/j.worlddev.2009.10.017>
- Huq, B. I. A., Azad, M. A. K., Masum, A. K. M., Wanke, P., & Rahman, M. A. (2017). Examining the trade-off between social outreach and financial efficiency: Evidence from micro-finance institutions in South Asia. *Global Business Review*, 18, 617–628. <https://doi.org/doi:10.1177/0972150917692169>
- Ibrahim, Y., Ahmed, I., & Minai, M. S. (2018). The Influence of Institutional Characteristics on Financial Performance of Microfinance Institutions in the OIC Countries. *Economics & Sociology*, 11(2), 19–35. <http://dx.doi.org/10.14254/2071-789X.2018/11-2/2>
- Ihsanoglu, E. (2005). Speech of OIC Secretary General. Presented at the Third Extraordinary Session of the Islamic Summit.
- Im, J., & Sun, S. L. (2015). Profits and outreach to the poor: The institutional logics of microfinance institutions. *Asia Pacific Journal of Management*, 32, 95–117. <https://doi.org/10.1007/s10490-014-9398-4>
- Imai, K. S., Gaiha, R., Thapa, G., & Annim, S. K. (2012). Microfinance and poverty—A macro perspective. *World Development*, 40, 1675–1689. <http://doidoi.org/10.1016/j.worlddev.2012.04.013>
- IMF. (2014). The World Economic Outlook.

- Inoue, A., & Solon, G. (2006). A portmanteau test for serially correlated errors in fixed effects models. *Econometric Theory*, 22, 835–851.
- Iskenderian, M. E. (2011). Five lessons for the microfinance industry.
- Janda, K., Rausser, G., & Svárovská, B. (2014). Can investment in microfinance funds improve risk-return characteristics of a portfolio? *Technological and Economic Development of Economy*, 20, 673–695. <https://doi.org/10.3846/20294913.2014.869514>
- Jeje, K. (2014). Intensive growth strategies and outreach performance of Tanzania-based savings and credit cooperative societies. *International Journal of Business and Management*, 10, p124.
- Johnson, T. (2015). Religion. *The Organization of the Islamic Conference*.
- Johnston, J., & Dinardo, J. (2007). *Econometric Methods* (4th ed.). New York: McGraw-Hill.
- Kai, H. (2009). Competition and wide outreach of microfinance institutions. *Economics Bulletin*, 29, 2628–2639.
- Kar, A. K. (2011). Microfinance Institutions: A cross-country empirical investigation of outreach and sustainability. *Journal of Small Business & Entrepreneurship*, 24, 427–446. <https://doi.org/10.1080/08276331.2011.10593547>
- Kar, A. K. (2013a). Double bottom lines in microfinance: are they mutually exclusive? *Journal of Small Business & Entrepreneurship*, 26, 87–107. <https://doi.org/10.1080/08276331.2012.761804>
- Kar, A. K. (2013b). Mission drift in microfinance: Are the concerns really worrying? Recent cross-country results. *International Review of Applied Economics*, 27, 44–60. <https://doi.org/10.1080/02692171.2012.700701>
- Kar, A. K., & Swain, R. B. (2014a). Competition in microfinance: Does it affect performance, portfolio quality, and capitalization? *Microfinance Institutions: Financial and Social Performance*, 208.
- Kar, A. K., & Swain, R. B. (2014b). Interest rates and financial performance of microfinance institutions: Recent global evidence. *European Journal of Development Research*, 26, 87–106.
- Kennedy, P. (2008). A guide to modern econometrics. Oxford: Blackwell Publishing.
- Khandelwal, V. (2012). 3 lessons from the rise and fall of SKS microfinance.
- Kinde, B. A. (2012). Financial sustainability of microfinance institutions (MFIs) in Ethiopia. *European Journal of Business and Management*, 4, 1–10.
- Kline, R. B. (2015). *Principles and Practice of Structural Equation Modeling* (4th ed.). New York: The Guilford Press.
- Kyereboah-Coleman, A., & Osei, K. A. (2008). Outreach and profitability of microfinance institutions: The role of governance. *Journal of Economic Studies*, 35, 236–248. <https://doi.org/10.1108/01443580810887797>
- Lacalle-Calderón, M., Chasco, C., Alfonso-Gil, J., & Neira, I. (2015). A comparative analysis of the effect of aid and microfinance on growth. *Canadian Journal of Development Studies / Revue Canadienne D'études Du Développement*, 36, 72–88. <https://doi.org/10.1080/02255189.2015.984664>
- Lapenu, C., Zeller, M., Greeley, M., Chao-Béroff, R., & Verhagen, K. (2004). Social performance: A “raison d'être” for micro finance institutions...and yet, still not much measured. Some initiatives. *Performances Sociales: Une Raison D'être Des*

- Institutions de Microfinance et Pourtant Encore Peu Mesurées. Quelques Pistes*, 32, 51–68+118–119+121+122.
- Ledgerwood, J., & White, V. (2006). *Transforming microfinance institutions: Providing full financial services to the poor*. World Bank Publications.
- 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*, 25, 386–399. <https://doi.org/10.1002/sd.1663>
- Mader, P. (2013). Rise and fall of microfinance in India: The Andhra Pradesh crisis in perspective. *Strategic Change*, 22, 47–66. <https://doi.org/10.1002/jsc.1921>
- Malkin, E. (2008). Microfinance's success sets off a debate in Mexico. *The New York Times*.
- Mansfield, E. R., & Helms, B. P. (1982). Detecting multicollinearity. *The American Statistician*, 36, 158–160.
- Marr, A., & Awaworyi, S. (2012). Microfinance social performance: A global empirical study. *Applied Econometrics and International Development*, 12, 51–68.
- Mazumder, M. S. U., & Lu, W. (2015). What impact does microfinance have on rural livelihood? A comparison of governmental and non-governmental microfinance programs in Bangladesh. *World Development*, 68, 336–354. <http://doi.org/10.1016/j.worlddev.2014.12.002>
- Mersland, R., Randøy, T., & Strøm, R. Ø. (2011). The impact of international influence on microbanks' performance: A global survey. *International Business Review*, 20, 163–176. <http://doi.org/10.1016/j.ibusrev.2010.07.006>
- Mersland, R., & Strøm, R. Ø. (2008). Performance and trade-offs in microfinance organizations-does ownership matter? *Journal of International Development*, 20, 598–612.
- Mersland, R., & Strøm, R. Ø. (2009). Performance and governance in microfinance institutions. *Journal of Banking and Finance*, 33, 662–669. <https://doi.org/10.1016/j.jbankfin.2008.11.009>
- Mersland, R., & Strøm, R. Ø. (2010). Microfinance mission drift? *World Development*, 38, 28–36. <https://doi.org/10.1016/j.worlddev.2009.05.006>
- Mersland, R., & Strøm, R. Ø. (2014). Measuring microfinance performance. *Microfinance Institutions: Financial and Social Performance*, 12.
- Merton, R. C., & Bodie, Z. (1995). A conceptual framework for analyzing the financial environment.
- Meyer, J. (2015). Social versus financial return in microfinance. *Working Paper*, Center for Microfinance, Zurich, Switzerland.
- Mia, M. A., & Lee, H.-A. (2017). Mission drift and ethical crisis in microfinance institutions: What matters? *Journal of Cleaner Production*, 164, 102–114. <http://doi.org/10.1016/j.jclepro.2017.06.176>
- MIX. (2005). The MicroBanking Bulletin No. 10.
- MIX. (2008). The MicroBanking Bulletin No. 17.
- MIX. (2009a). About Microfinance: Who are the Microfinance Clients?
- MIX. (2009b). Glossary.

- Morduch, J. (1998). *Does microfinance really help the poor?: New evidence from flagship programs in Bangladesh*. Research Program in Development Studies, Woodrow School of Public and International Affairs.
- Morduch, J. (1999). The role of subsidies in microfinance: evidence from the Grameen Bank. *Journal of Development Economics*, 60, 229–248. [http://doi.org/10.1016/S0304-3878\(99\)00042-5](http://doi.org/10.1016/S0304-3878(99)00042-5)
- Morduch, J. (2000). The microfinance schism. *World Development*, 28, 617–629. [http://doi.org/10.1016/S0305-750X\(99\)00151-5](http://doi.org/10.1016/S0305-750X(99)00151-5)
- Morduch, J. (2005). Smart subsidy for sustainable microfinance. *Finance for the Poor*, 6, 1–13.
- Morduch, J., & Haley, B. (2002). Analysis of the effects of microfinance on poverty reduction. *NYU Wagner Working Paper*, New Yew University.
- Mori, N., Golesorkhi, S., Randøy, T., & Hermes, N. (2015). Board composition and outreach performance of microfinance institutions: Evidence from East Africa. *Strategic Change*, 24, 99–113. <https://doi.org/10.1002/jsc.2000>
- Navajas, S., Schreiner, M., Meyer, R. L., Gonzalez-Vega, C., & Rodriguez-Meza, J. (2000). Microcredit and the poorest of the poor: Theory and evidence from Bolivia. *World Development*, 28, 333–346.
- Ndambu, J. (2011). Does regulation increase microfinance performance in Sub-Saharan Africa. *Technical Note*.
- Nestor, C. (2011). Commercialization of Microfinance.
- Newey, W. K., & West, K. D. (1987). A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. *Econometrica*, 55, 703–708. <https://doi.org/10.2307/1913610>
- Norman, W., & MacDonald, C. (2004). Getting to the bottom of “Triple Bottom Line.” *Business Ethics Quarterly*, 14, 243–262. <https://doi.org/10.2307/3857909>
- Nurmakhanova, M., Kretschmar, G., & Fedhila, H. (2015). Trade-off between financial sustainability and outreach of microfinance institutions. *Eurasian Economic Review*, 1–20.
- Olivares-Polanco, F. (2005). Commercializing microfinance and deepening outreach? Empirical evidence from Latin America. *Journal of Microfinance/ESR Review*, 7, 47–69.
- Osborne, J. (2005). Notes on the use of data transformations. *Practical Assessment, Research and Evaluation*, 9, 42–50.
- Osborne, J. (2010). Improving your data transformations: Applying the Box-Cox transformation. *Practical Assessment, Research & Evaluation*, 15, 1–9.
- PED. (2010). Poverty and Equity.
- Peng, M. W., Sun, S. L., Pinkham, B., & Chen, H. (2009). The institution-based view as a third leg for a strategy tripod. *The Academy of Management Perspectives*, 23, 63–81.
- Penrose, E. T. (1995). *The Theory of the Growth of the Firm*. Oxford university press.
- Petersen, M. A. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies*, 22, 435–480.
- Pinz, A., & Helmig, B. (2015). Success factors of microfinance institutions: State of the art and research agenda. *Voluntas: International Journal of Voluntary and Nonprofit Organizations*, 26, 488–509.

- Piot-Lepetit, I., & Nzongang, J. (2014). Financial sustainability and poverty outreach within a network of village banks in Cameroon: A multi-DEA approach. *European Journal of Operational Research*, 234, 319–330. <https://doi.org/10.1016/j.ejor.2013.10.004>
- Porter, M. E. (1985). *Competitive advantage: Creating and sustaining superior performance*. New York.
- Porter, M. E. (2008). *Competitive strategy: Techniques for analyzing industries and competitors*. Simon and Schuster.
- Post, J. E., Preston, L. E., & Sachs, S. (2002). *Redefining the corporation: Stakeholder management and organizational wealth*. Stanford University Press.
- Prahalad, C. K. (2006). *The Fortune at the Bottom of the Pyramid*. Pearson Education India.
- Prahalad, C. K., & Hamel, G. (2006). *The core competence of the corporation*. Springer.
- Quayes, S. (2012). Depth of outreach and financial sustainability of microfinance institutions. *Applied Economics*, 44, 3421–3433. <https://doi.org/10.1080/00036846.2011.577016>
- Quayes, S. (2015). Outreach and performance of microfinance institutions: a panel analysis. *Applied Economics*, 47, 1909–1925. <https://doi.org/10.1080/00036846.2014.1002891>
- Quayes, S., & Khalily, B. (2014). Efficiency of microfinance institutions in Bangladesh. *Economics Bulletin*, 34, 1512–1521.
- Reed, L., Marsden, J., Rogers, S., Rivera, C., & Ortega, A. (2014). *Resilience: The State of the Microcredit Summit Campaign Report, 2014*. Washington DC: Microcredit Summit Campaign.
- Renneboog, L., & Spaenjers, C. (2012). Religion and finance. *Socially Responsible Finance and Investing: Financial Institutions, Corporations, Investors, and Activists*, 143–160.
- Rhyne, E. (1998). The yin and yan of micro-finance: Reaching the poor and sustainability. *Micro Banking Bulletin*, 2(1), 608.
- Rhyne, E. (2008). Transforming microfinance institutions: Providing full financial services to the poor. *International Journal of Social Economics*, 35, 879–882.
- Rhyne, E., & Otero, M. (2006). *Microfinance through the next decade: Visioning the who, what, where, when and how*. ACCION International.
- Robinson, M. (2001). *The microfinance revolution: Sustainable banking for the poor*. Washington, DC: The World Bank.
- Rogers, W. (1994). *Regression standard errors in clustered samples*. Stata Technical Bulletin, 3.
- Ronzoni, M., & Valentini, L. (2015). 5 Microfinance, poverty relief, and political justice. *Microfinance, Rights and Global Justice*, 84.
- Rosenberg, R. (2007). CGAP reflections on the Compartamos initial public offering. *CGAP Focus Note*, 42.
- Rosenberg, R. (2014). BancoSol: Moving microfinance into the mainline financial system.
- Russo, A., & Perrini, F. (2010). Investigating stakeholder theory and social capital: CSR in large firms and SMEs. *Journal of Business Ethics*, 91, 207–221.

- Sachs, S., Groth, H., & Schmitt, R. (2010). The “stakeholder view” approach: An untapped opportunity to manage corporate performance and wealth. *Strategic Change*, 19, 147–162.
- Sachs, S., & Rühli, E. (2011). *Stakeholders matter: A new paradigm for strategy in society*. Cambridge University Press.
- Sachs, S., Schmitt, R., & Perrin, I. (2008). Stakeholder value management system (Vol. 19, pp. 470–482). Proceedings of the International Association for Business and Society.
- Salmon, F. (2011). Why Yunus is right about for-profit microfinance. *Reuters*.
- Saltmarsh, M., & Contiguglia, C. (2009). Some fear profit motive to trump poverty efforts in microfinance. *The New York Times*.
- Saunders, A., Cornett, M. M., & McGraw, P. A. (2006). *Financial institutions management: A risk management approach* (Vol. 8). McGraw-Hill/Irwin.
- Schreiner, M. (2002). Aspects of outreach: A framework for the discussion of the social benefits of microfinance. microfinance risk management. *Center for Social Development, Washington University in St. Louis Campus, St. Louis, USA (Online)*. Available URL: [Http://www. Microfinancegateway. Org](http://www.microfinancegateway.org).
- S&P. (2007). *Microfinance: Taking root in the global capital markets*. New York: Standard & Poor’s.
- SPTF. (2009). Social Performance Standards Report.
- Stock, J. H., & Watson, M. W. (2011). *Introduction to Econometrics* (3rd ed.). Boston: Pearson.
- Strøm, R. Ø., D’Espallier, B., & Mersland, R. (2014). Female leadership, performance, and governance in microfinance institutions. *Journal of Banking & Finance*, 42, 60–75. <http://doi.org/10.1016/j.jbankfin.2014.01.014>
- Studenmund, A. H. (2016). *Using Econometrics: A practical guide* (7th ed.). Boston: Pearson.
- Sveiby, K. E. (1997). *The new organizational wealth: Managing & measuring knowledge-based assets*. Berrett-Koehler Publishers.
- Swibel, M. (2007). The 50 top microfinance institutions. *Forbes*.
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using Multivariate Statistics* (6th ed.). Boston: Pearson.
- Tchakoute-Tchuigoua, H. (2010). Is there a difference in performance by the legal status of microfinance institutions? *Quarterly Review of Economics and Finance*, 50, 436–442. <https://doi.org/10.1016/j.qref.2010.07.003>
- Thapa, G. (2007). Sustainability and governance of microfinance institutions: Recent experiences and some lessons for Southeast Asia. *Asian Journal of Agriculture and Development*, 4, 17–37.
- The Economist. (2008). Poor people, rich returns: Is it acceptable to profit from the poor? *The Economist*.
- The Economist. (2009). Froth at the bottom of the pyramid: Is microfinance going the same way as subprime mortgages? *The Economist*.
- The Pakistan Observer. (2011). OIC rightly changes its name. *The Pakistan Observer*.
- Tucker, M. (2001). Financial performance of selected microfinance institutions: Benchmarking progress to sustainability. *Journal of Microfinance/ESR Review*, 3, 107–123.

- Tucker, M., & Miles, G. (2004). Financial performance of microfinance institutions: A comparison to performance of regional commercial banks by geographic regions. *Journal of Microfinance/ESR Review*, 6, 41–54.
- UNCDF. (2005). *Blue Book*, Geneva: UNCF Press.
- United Nation Millennium Summit. (2000). New York, USA.
- Vanroose, A. (2008). What macro factors make microfinance institutions reach out? *Savings and Development*, 32, 153–174.
- Verbeek, M. (2013). *A guide to Modern Econometrics*. John Wiley & Sons.
- WDI. (2010). Population.
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5, 171–180.
- White, H. (1980). A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica: Journal of the Econometric Society*, 817–838.
- White, H. (2014). *Asymptotic theory for econometricians*. Academic press.
- Wilburn, K., & Wilburn, R. (2014). The double bottom line: Profit and social benefit. *Business Horizons*, 57, 11–20. <http://doi.org/10.1016/j.bushor.2013.10.001>
- Winn, M. I. (2001). Building stakeholder theory with a decision modeling methodology. *Business & Society*, 40, 133–166.
- Woller, G. (2002). The promise and peril of microfinance commercialization. *Small Enterprise Development*, 13, 12–21.
- Woller, G. M., Dunford, C., & Woodworth, W. (1999). Where to microfinance. *International Journal of Economic Development*, 1, 29–64.
- Woller, G., & Schreiner, M. (2002). Poverty lending, financial self-sufficiency, and the six aspects of outreach. *Discussion Paper, Ohio*.
- Wooldridge, J. (2012). *Introductory Econometrics: A modern approach*. Cengage Learning.
- Wright, T. (2015). Asia steps up efforts to reach the “unbanked.” *The Wall Street Journal*.
- Yaron, J. (1994). What makes rural finance institutions successful? *The World Bank Research Observer*, 9, 49–70.
- Yee, A. (2015). Why microfinance loans have such high rates. *The Wall Street Journal*.
- Yunus, M. (2003). Expanding Microcredit Outreach to Reach the Millennium Development Goals. Presented at the International Seminar on Attacking Poverty with Microcredit.
- Yunus, M. (2010). *Clinton Global Initiative*. New York, USA.
- Yunus, M. (2014). *The 17th Microcredit Summit*. Merida, Mexico.
- Yunus, M. (2015). *A conversation with the man who’s ending poverty*. Yangon, Myanmar.
- Yunus, M., & Abed, F. H. (2004). *Poverty matters: State of the microcredit summit campaign report*, Microcredit Summit.
- Yunus, Muhammad. (2007). *Creating a world without poverty: Social business and the future of capitalism*. Public Affairs.
- Zeller, M., & Johannsen, J. (2006). *Is there a difference in poverty outreach by type of microfinance institution? The case of Peru and Bangladesh*. Presented at the

Global Conference on Access to Finance: Building Inclusive Financial Systems.
The World Bank and Brookings Institutions, Washington DC.
Zeller, M., Lapenu, C., & Greeley, M. (2003). Measuring social performance of
microfinance institutions: A proposal. *Social Performance Indicators Initiative
(SPI)-Final Report, Argidius Foundation and CGAP.*



APPENDICES

Appendix A

Table A-1
Normality plot

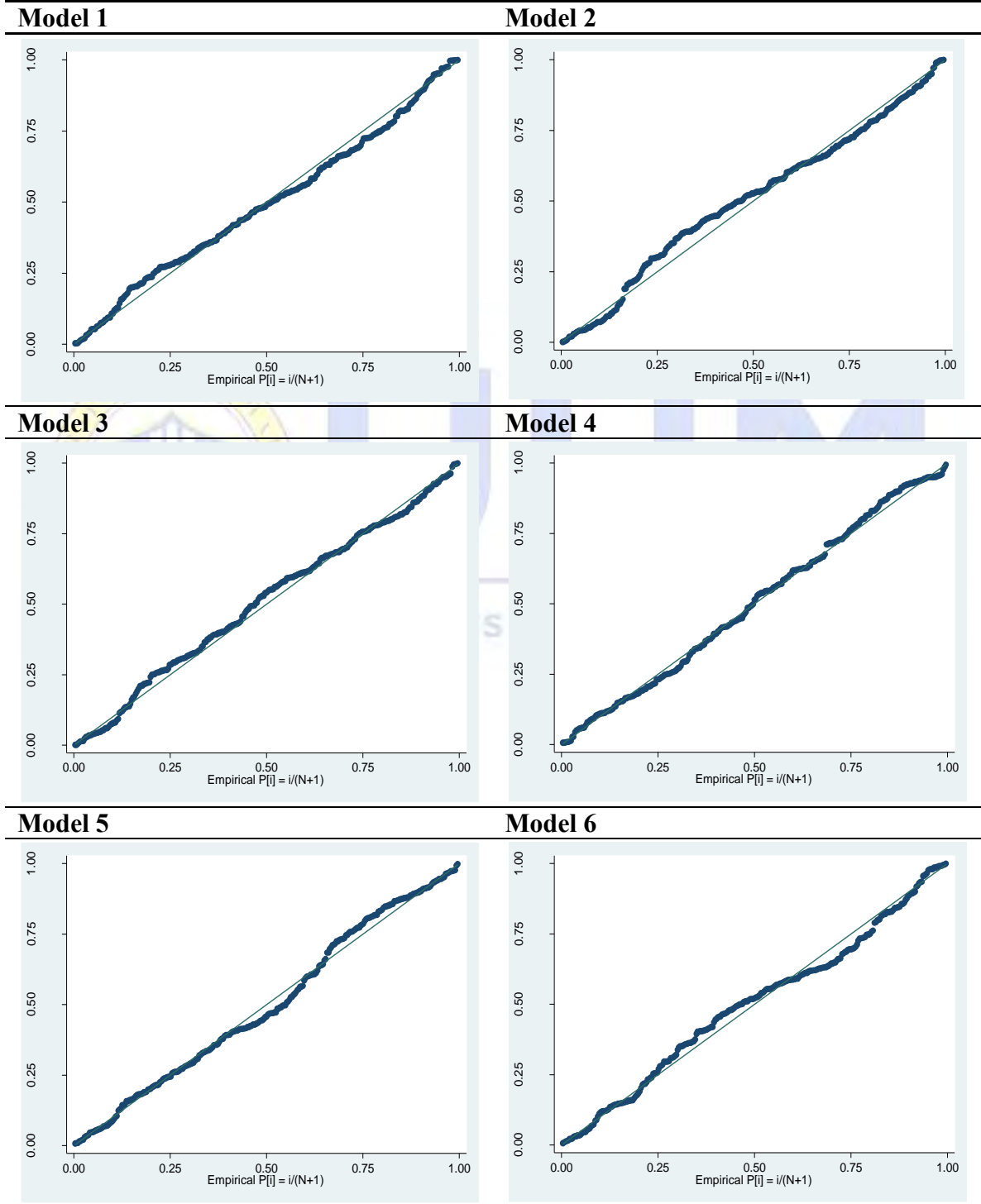


Table A-1 (Continued)

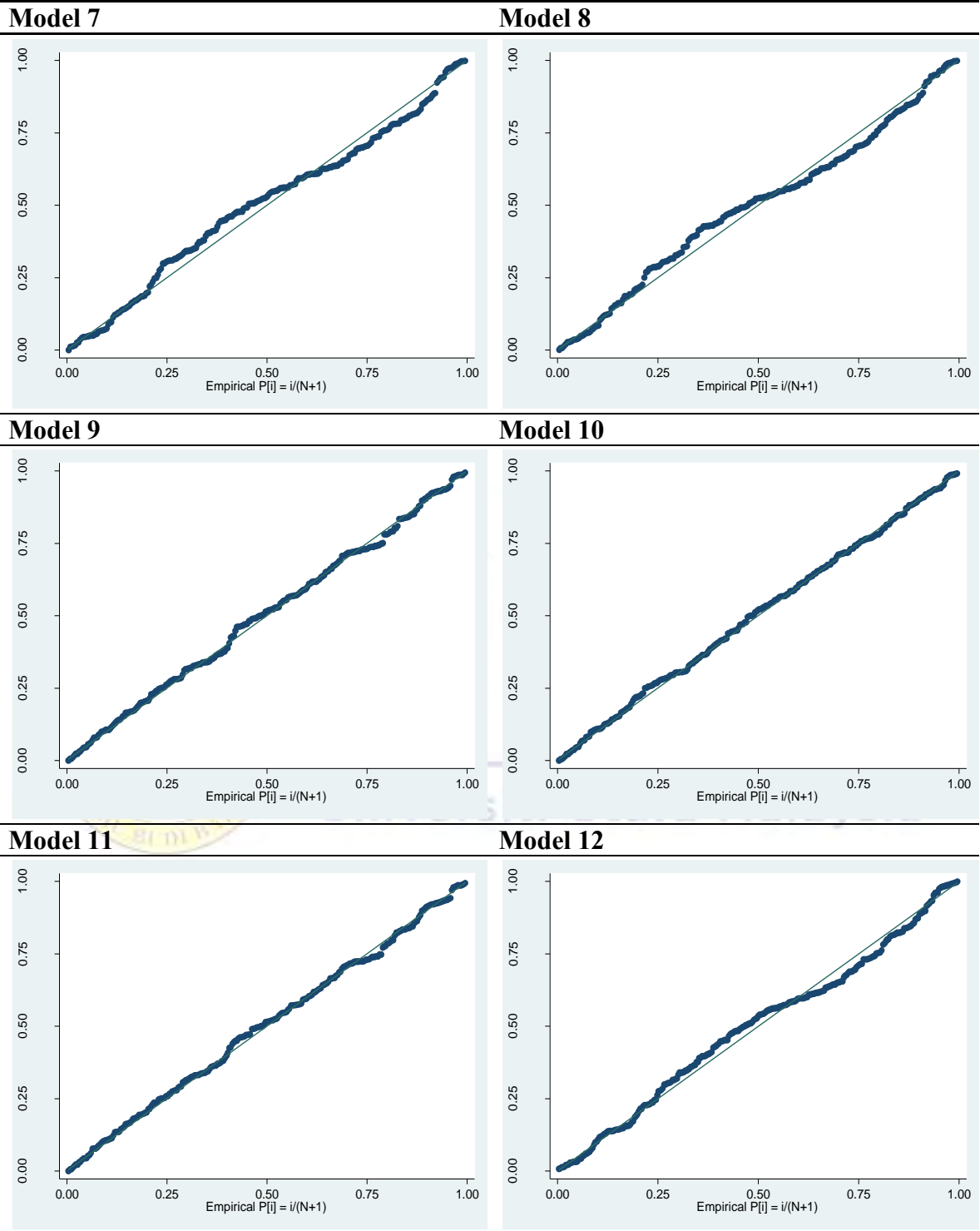
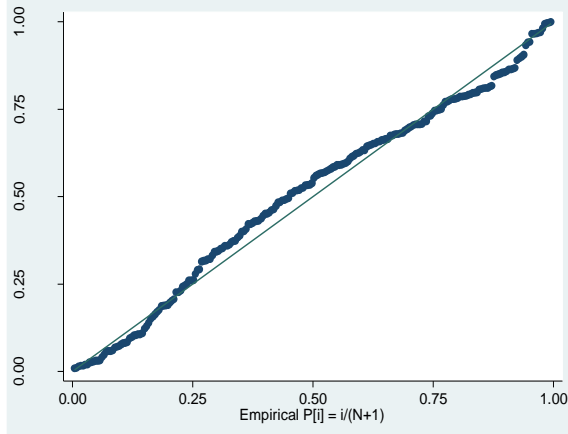
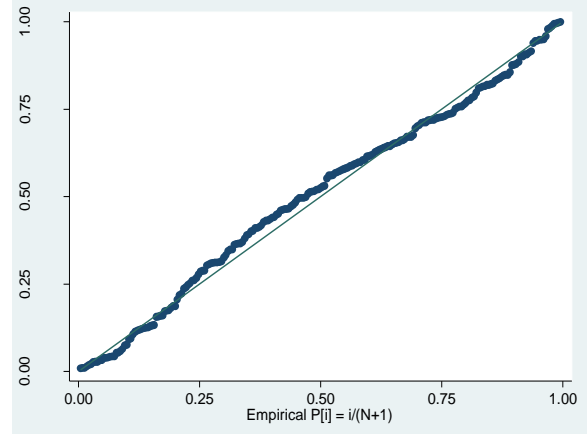


Table A-1 (Continued)

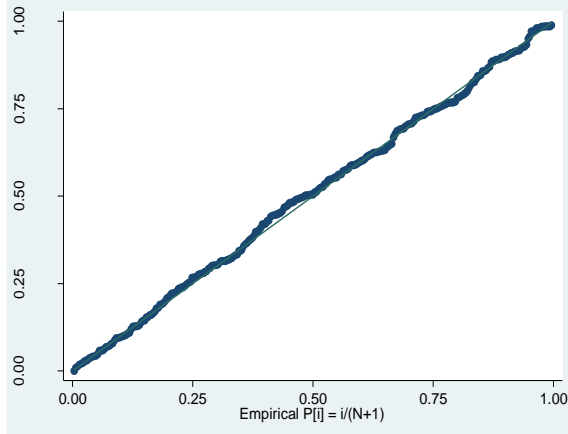
Model 13



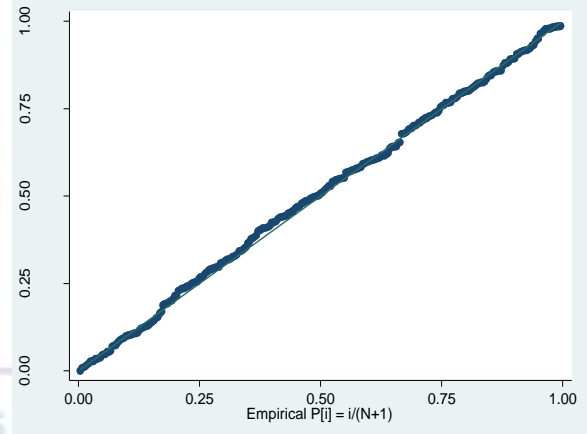
Model 14



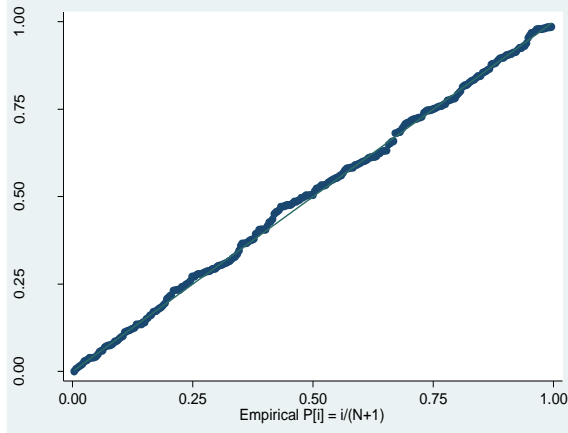
Model 15



Model 16



Model 17



Model 18

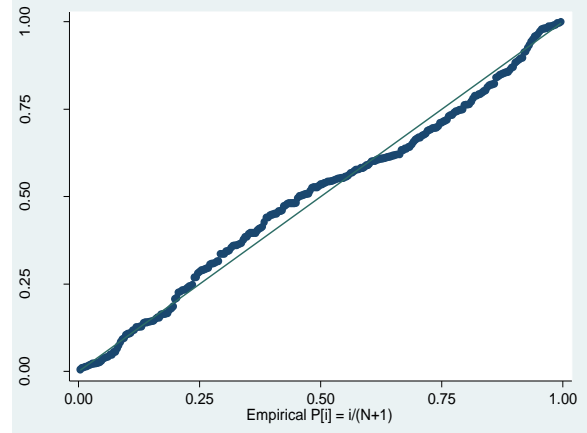
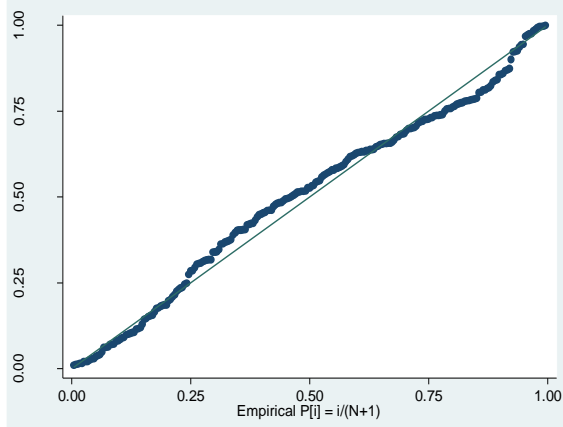
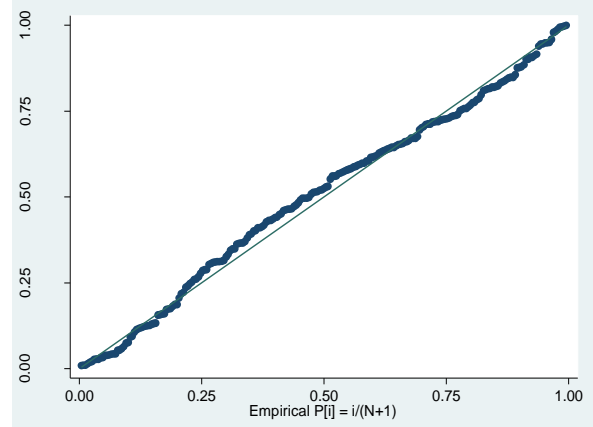


Table A-1 (Continued)

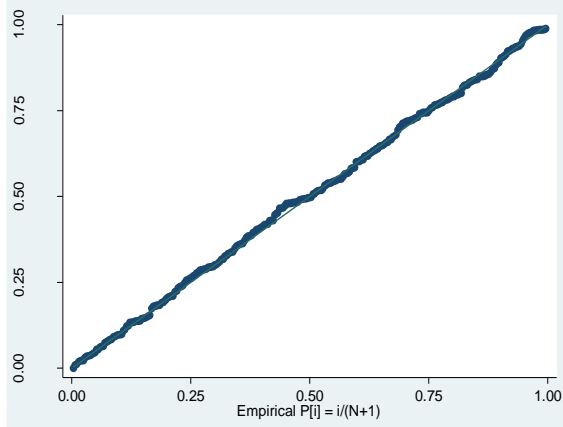
Model 19



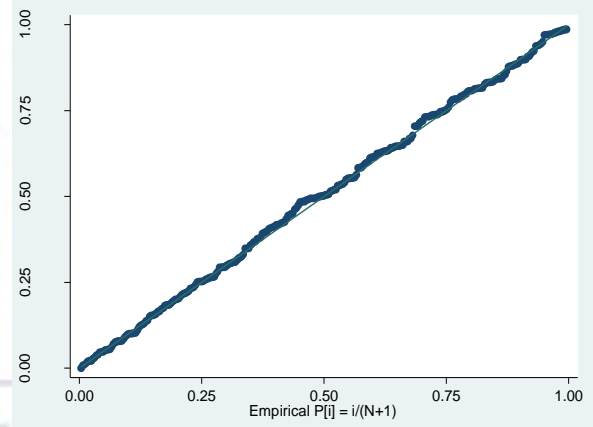
Model 20



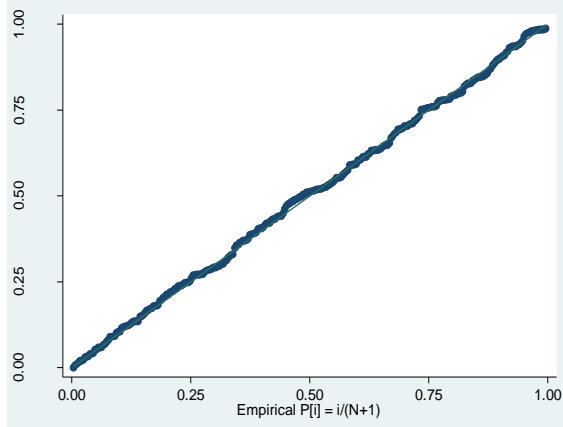
Model 21



Model 22



Model 23



Model 24

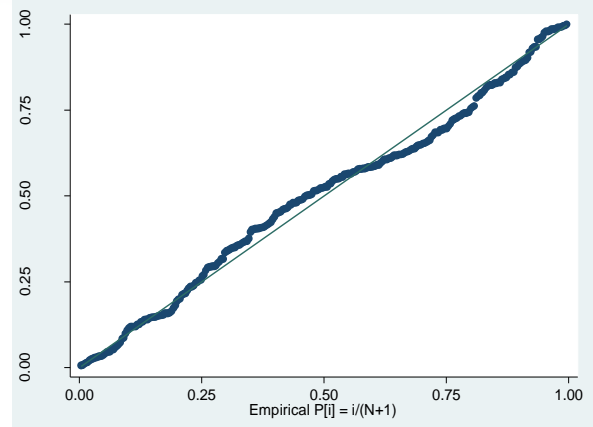
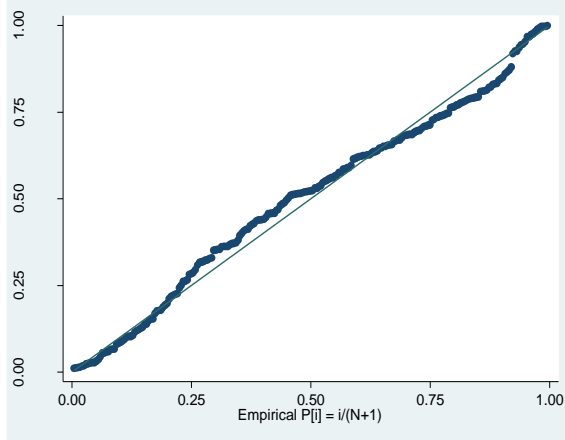
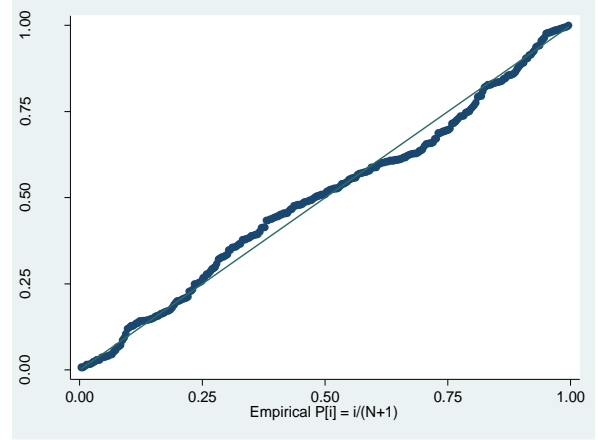


Table A-1 (Continued)

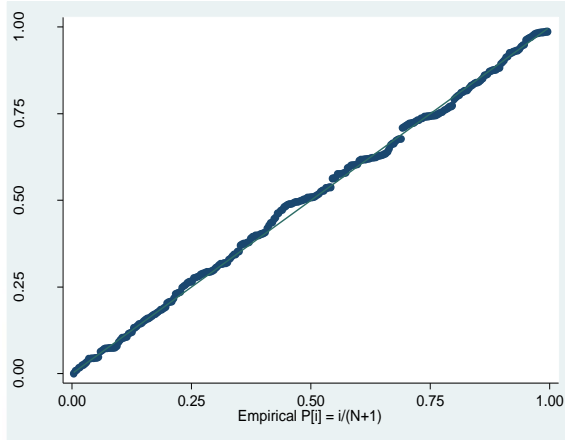
Model 25



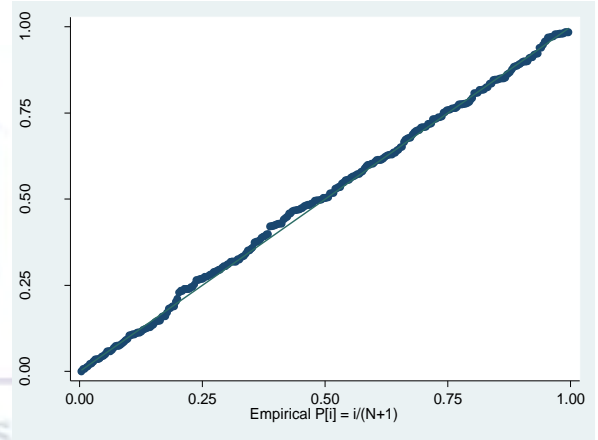
Model 26



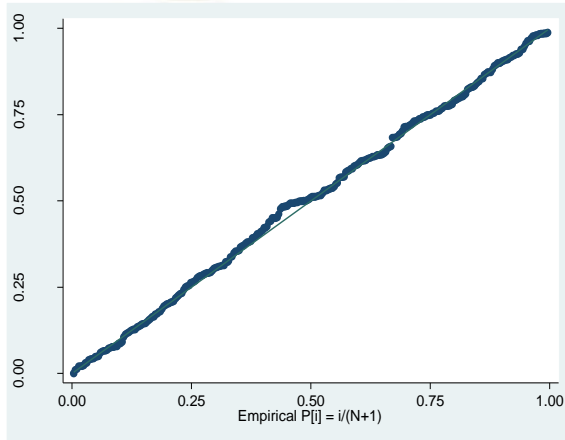
Model 27



Model 28



Model 29



Model 30

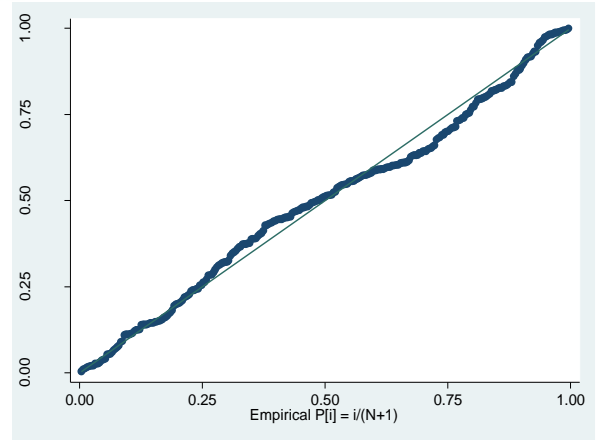
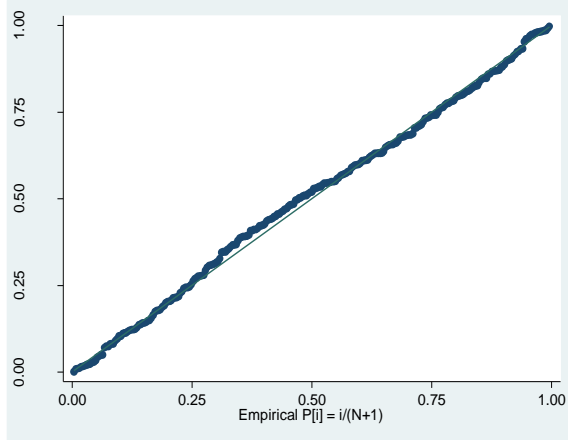
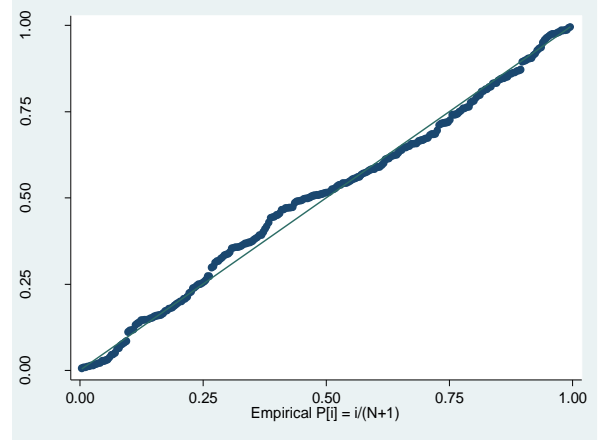


Table A-1 (Continued)

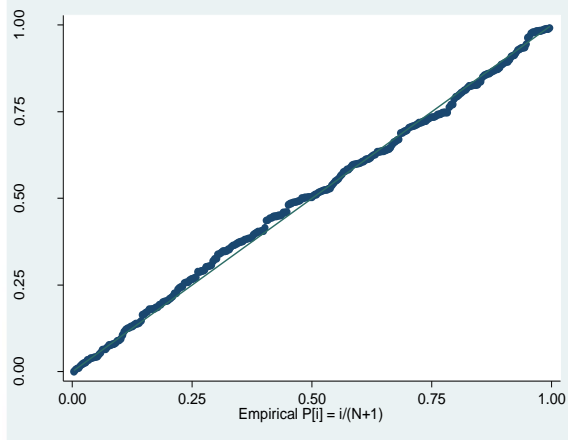
Model 31



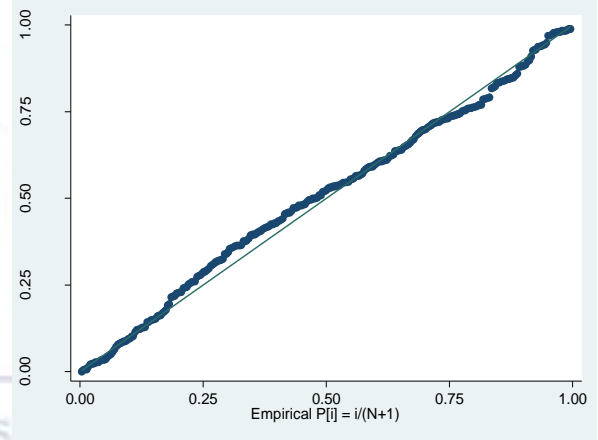
Model 32



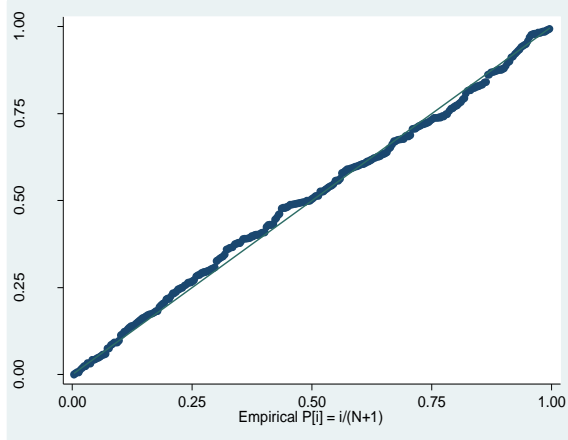
Model 33



Model 34



Model 35



Model 36

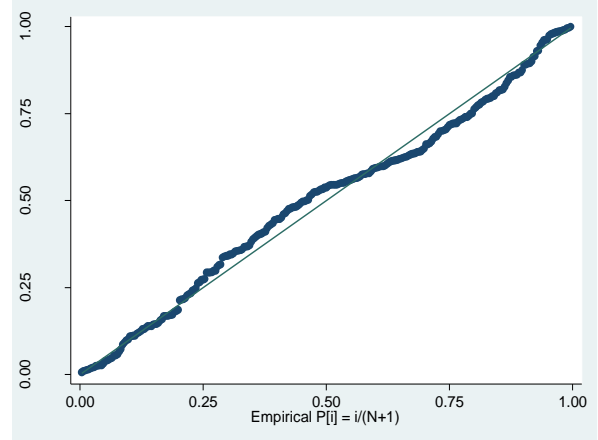
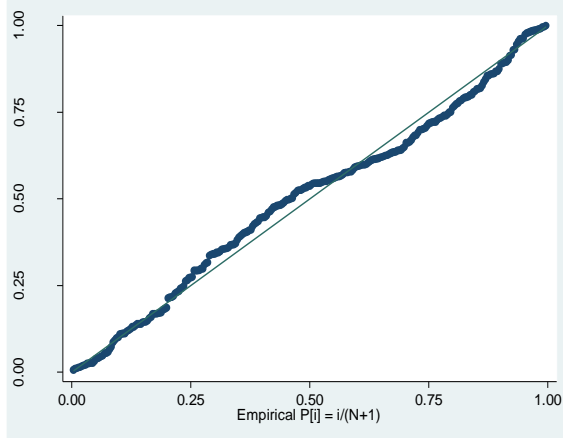
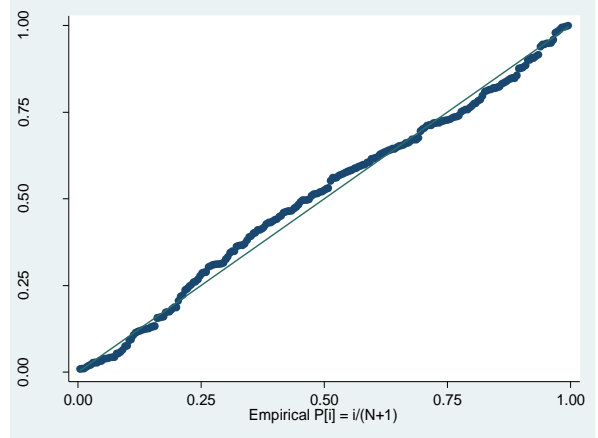


Table A-1 (Continued)

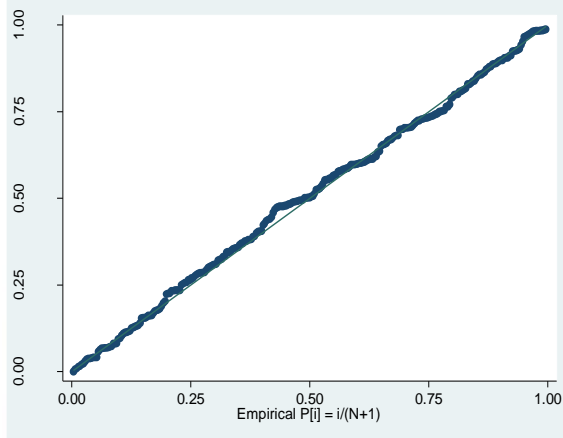
Model 37



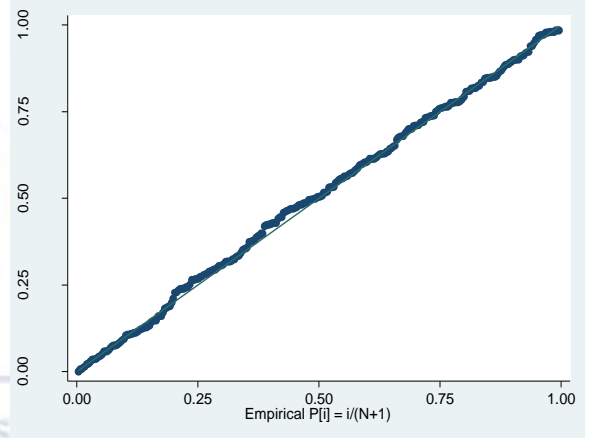
Model 38



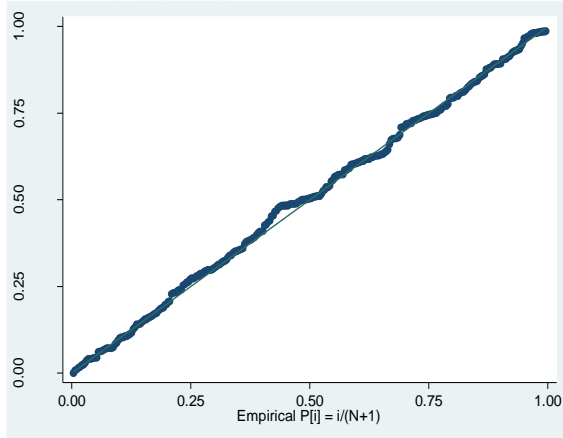
Model 39



Model 40



Model 41



Model 42

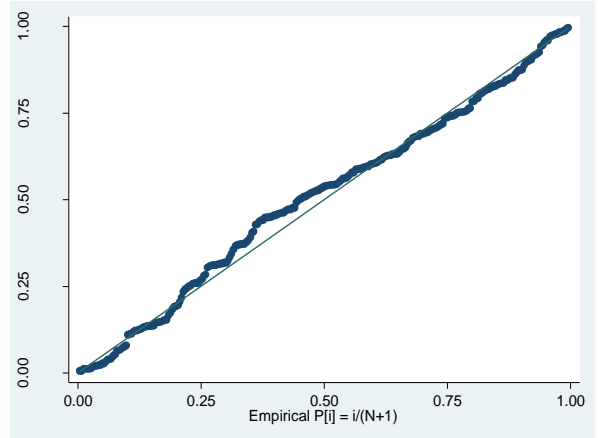


Table A-1 (Continued)

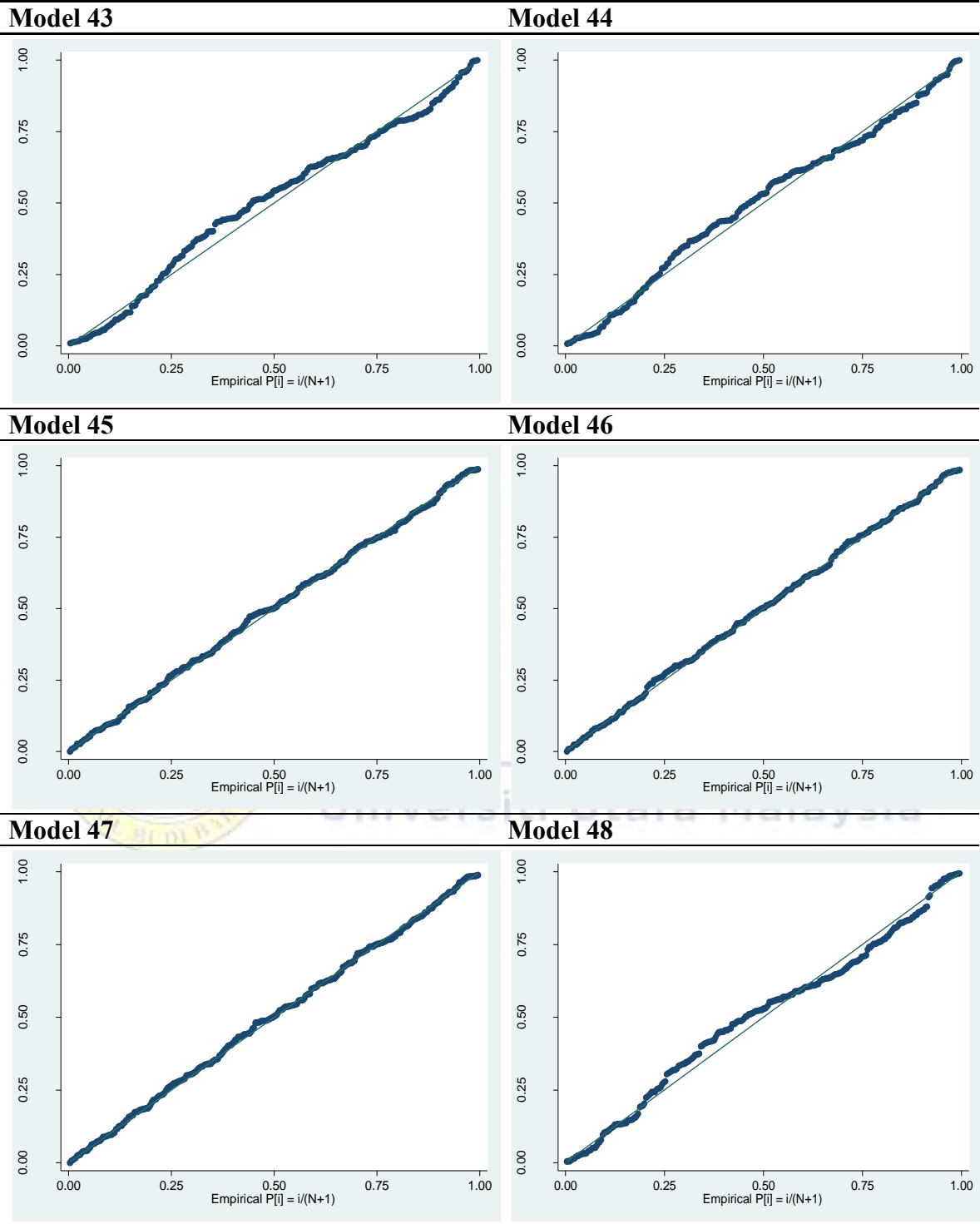
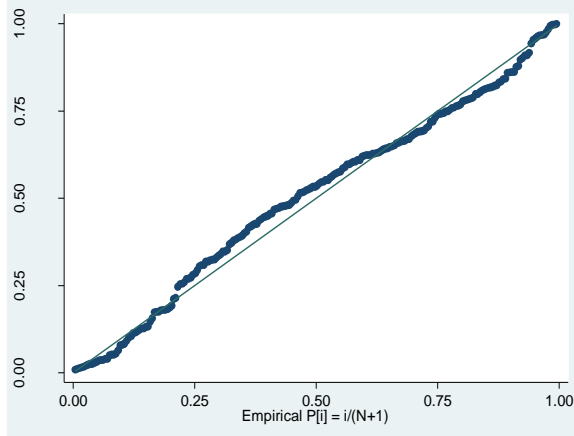
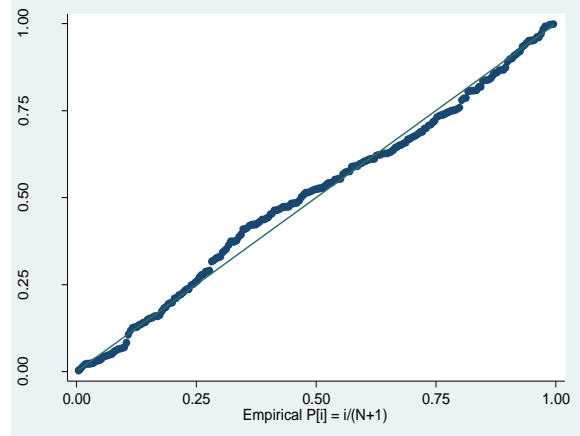


Table A-1 (Continued)

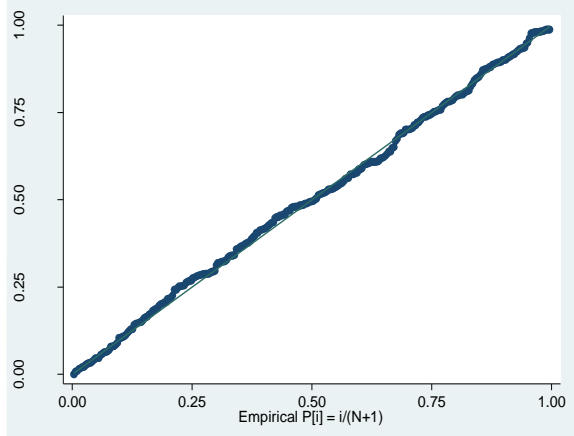
Model 49



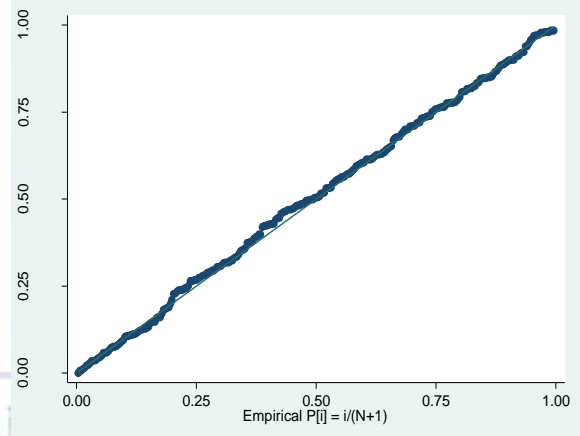
Model 50



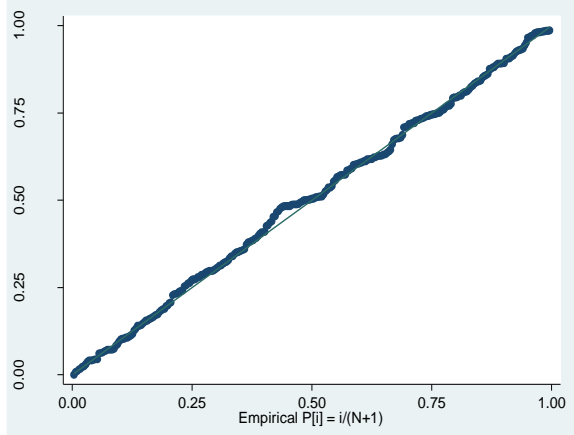
Model 51



Model 52



Model 53



Source: Graphical outputs of the study dataset

Appendix B

Table B-1
Heteroscedasticity test results

Model 1	
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	
Ho: Constant variance	
Variables: fitted values of OSS	
chi2(1)	= 97.31
Prob > chi2	= 0.0000

Model 2	
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	
Ho: Constant variance	
Variables: fitted values of ROA	
chi2(1)	= 3.00
Prob > chi2	= 0.0835

Model 3	
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	
Ho: Constant variance	
Variables: fitted values of PM	
chi2(1)	= 1.59
Prob > chi2	= 0.2079

Model 4	
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	
Ho: Constant variance	
Variables: fitted values of ALSGDP	
chi2(1)	= 77.80
Prob > chi2	= 0.0000

Model 5	
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	
Ho: Constant variance	
Variables: fitted values of FFB	
chi2(1)	= 0.60
Prob > chi2	= 0.4367

Model 6	
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	
Ho: Constant variance	
Variables: fitted values of lnALSGDP	
chi2(1)	= 2.68
Prob > chi2	= 0.1015




Table B-1 (Continued)

Model 7

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

chi2(1) = 16.93
 Prob > chi2 = 0.0000

Model 8

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

chi2(1) = 14.85
 Prob > chi2 = 0.0001

Model 9

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

chi2(1) = 0.48
 Prob > chi2 = 0.4885

Model 10

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

chi2(1) = 0.82
 Prob > chi2 = 0.3660

Model 11

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

chi2(1) = 0.43
 Prob > chi2 = 0.5114

Model 12

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

chi2(1) = 2.40
 Prob > chi2 = 0.1212

Model 13

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

chi2(1) = 67.26
 Prob > chi2 = 0.0000

Table B-1 (Continued)

Model 14

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

chi2(1) = 78.83
 Prob > chi2 = 0.0000

Model 15

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

chi2(1) = 1.32
 Prob > chi2 = 0.2514

Model 16

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

chi2(1) = 0.01
 Prob > chi2 = 0.9358

Model 17

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

chi2(1) = 0.00
 Prob > chi2 = 0.9546

Model 18

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

chi2(1) = 2.92
 Prob > chi2 = 0.0877

Model 19

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

chi2(1) = 64.20
 Prob > chi2 = 0.0000

Model 20

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

chi2(1) = 78.83
 Prob > chi2 = 0.0000

Table B-1 (Continued)

Model 21

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of FFB

chi2(1) = 0.53

Prob > chi2 = 0.4672

Model 22

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of FFB

chi2(1) = 0.01

Prob > chi2 = 0.9358

Model 23

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of FFB

chi2(1) = 0.00

Prob > chi2 = 0.9546

Model 24

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of ALSGDP

chi2(1) = 63.57

Prob > chi2 = 0.0000

Model 25

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of ALSGDP

chi2(1) = 62.43

Prob > chi2 = 0.0000

Model 26

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of ALSGDP

chi2(1) = 65.28

Prob > chi2 = 0.0000

Model 27

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of FFB

chi2(1) = 0.42

Prob > chi2 = 0.5156

Table B-1 (Continued)

Model 28

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of FFB

chi2(1) = 0.01

Prob > chi2 = 0.9199

Model 29

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of FFB

chi2(1) = 0.00

Prob > chi2 = 0.9994

Model 30

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of ALSGDP

chi2(1) = 54.31

Prob > chi2 = 0.0000

Model 31

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of ALSGDP

chi2(1) = 89.29

Prob > chi2 = 0.0000

Model 32

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of ALSGDP

chi2(1) = 76.49

Prob > chi2 = 0.0000

Model 33

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of lnFFB

chi2(1) = 53.96

Prob > chi2 = 0.0000

Model 34

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of FFB

chi2(1) = 0.06

Prob > chi2 = 0.8090

Table B-1 (Continued)

Model 35

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of FFB

chi2(1) = 0.03

Prob > chi2 = 0.8742

Model 36

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of ALSGDP

chi2(1) = 62.69

Prob > chi2 = 0.0000

Model 37

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of ALSGDP

chi2(1) = 64.20

Prob > chi2 = 0.0000

Model 38

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of ALSGDP

chi2(1) = 78.83

Prob > chi2 = 0.0000

Model 39

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of FFB

chi2(1) = 1.51

Prob > chi2 = 0.2186

Model 40

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of FFB

chi2(1) = 0.00

Prob > chi2 = 0.9473

Model 41

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of FFB

chi2(1) = 0.00

Prob > chi2 = 0.9546

Table B-1 (Continued)

Model 42

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

chi2(1) = 83.31
 Prob > chi2 = 0.0000

Model 43

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

chi2(1) = 7.48
 Prob > chi2 = 0.0062

Model 44

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

chi2(1) = 10.25
 Prob > chi2 = 0.0014

Model 45

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

chi2(1) = 1.02
 Prob > chi2 = 0.3136

Model 46

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

chi2(1) = 0.10
 Prob > chi2 = 0.7500

Model 47

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

chi2(1) = 0.05
 Prob > chi2 = 0.8244

Model 48

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

chi2(1) = 7.27
 Prob > chi2 = 0.0070

Table B-1 (Continued)

Model 49

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of lnALSGDP

chi2(1) = 8.89

Prob > chi2 = 0.0029

Model 50

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of lnALSGDP

chi2(1) = 11.85

Prob > chi2 = 0.0006

Model 51

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of FFB

chi2(1) = 0.58

Prob > chi2 = 0.4467

Model 52

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of FFB

chi2(1) = 0.02

Prob > chi2 = 0.8756

Model 53

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of FFB

chi2(1) = 0.00

Prob > chi2 = 0.9652

Source: Statistical outputs of the study dataset

Appendix C

Table C-1
Autocorrelation test results

Model 1
Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 56) = 58.373
Prob > F = 0.0000
Model 2
Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 56) = 35.671
Prob > F = 0.0000
Model 3
Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 56) = 25.108
Prob > F = 0.0000
Model 4
Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 56) = 15.602
Prob > F = 0.0002
Model 5
Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 56) = 1.309
Prob > F = 0.2574
Model 6
Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 56) = 26.571
Prob > F = 0.0000
Model 7
Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 49) = 12.802
Prob > F = 0.0008
Model 8
Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 50) = 13.927
Prob > F = 0.0005
Model 9
Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 54) = 1.893
Prob > F = 0.1745

Table C-1 (Continued)

Model 10		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	54) =	1.805
Prob > F =		0.1847
Model 11		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	54) =	1.912
Prob > F =		0.1724
Model 12		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	56) =	28.912
Prob > F =		0.0000
Model 13		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	43) =	7.613
Prob > F =		0.0085
Model 14		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	45) =	9.149
Prob > F =		0.0041
Model 15		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	56) =	1.512
Prob > F =		0.2240
Model 16		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	43) =	1.140
Prob > F =		0.2916
Model 17		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	45) =	1.981
Prob > F =		0.1661
Model 18		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	56) =	15.156
Prob > F =		0.0003
Model 19		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	48) =	6.982
Prob > F =		0.0111

Table C-1 (Continued)

Model 20		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	45) =	9.149
Prob > F =		0.0041
Model 21		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	54) =	1.948
Prob > F =		0.1685
Model 22		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	43) =	1.140
Prob > F =		0.2916
Model 23		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	45) =	1.981
Prob > F =		0.1661
Model 24		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	56) =	22.751
Prob > F =		0.0000
Model 25		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	48) =	6.915
Prob > F =		0.0115
Model 26		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	56) =	23.044
Prob > F =		0.0000
Model 27		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	54) =	1.908
Prob > F =		0.1729
Model 28		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	43) =	1.188
Prob > F =		0.2818
Model 29		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	45) =	1.972
Prob > F =		0.1671

Table C-1 (Continued)

Model 30		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	56) =	23.864
Prob > F =		0.0000
Model 31		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	54) =	11.917
Prob > F =		0.0011
Model 32		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	54) =	11.006
Prob > F =		0.0016
Model 33		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	56) =	0.440
Prob > F =		0.5099
Model 34		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	43) =	0.979
Prob > F =		0.3281
Model 35		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	45) =	2.078
Prob > F =		0.1563
Model 36		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	56) =	7.650
Prob > F =		0.0077
Model 37		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	48) =	6.982
Prob > F =		0.0111
Model 38		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	45) =	9.149
Prob > F =		0.0041
Model 39		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	56) =	1.515
Prob > F =		0.2236

Table C-1 (Continued)

Model 40		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	48) =	1.028
	Prob > F =	0.3157
Model 41		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	45) =	1.981
	Prob > F =	0.1661
Model 42		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	54) =	10.424
	Prob > F =	0.0021
Model 43		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	43) =	25.732
	Prob > F =	0.0000
Model 44		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	45) =	25.117
	Prob > F =	0.0000
Model 45		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	54) =	2.225
	Prob > F =	0.1416
Model 46		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	43) =	1.173
	Prob > F =	0.2848
Model 47		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	45) =	1.969
	Prob > F =	0.1674
Model 48		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	54) =	13.353
	Prob > F =	0.0006
Model 49		
Wooldridge test for autocorrelation in panel data		
H0: no first order autocorrelation		
F(1,	43) =	22.432
	Prob > F =	0.0000

Table C-1 (Continued)

Model 50

Wooldridge test for autocorrelation in panel data

H0: no first order autocorrelation

$$F(1, 45) = 18.133$$

$$\text{Prob} > F = 0.0001$$

Model 51

Wooldridge test for autocorrelation in panel data

H0: no first order autocorrelation

$$F(1, 54) = 1.897$$

$$\text{Prob} > F = 0.1741$$

Model 52

Wooldridge test for autocorrelation in panel data

H0: no first order autocorrelation

$$F(1, 43) = 1.047$$

$$\text{Prob} > F = 0.3120$$

Model 53

Wooldridge test for autocorrelation in panel data

H0: no first order autocorrelation

$$F(1, 45) = 1.964$$

$$\text{Prob} > F = 0.1679$$

Source: Statistical outputs of the study dataset



Appendix D

Table D-1

Estimations of the financial performance (dependent variable: OSS in Model 1, ROA in Model 2 and PM in Model 3)

Variable	Model 1	Model 2	Model 3
	b/se	b/se	b/se
Regulated	-0.055*** (0.015)	-0.013*** (0.003)	-0.011 (0.026)
lnSize	-0.006 (0.005)	0.003*** (0.001)	0.012*** (0.001)
lnMaturity	0.142*** (0.032)	0.025*** (0.003)	0.027 (0.047)
Bank	0.275*** (0.082)	0.023 (0.015)	0.078** (0.033)
CUC	0.253*** (0.061)	0.053*** (0.012)	0.138*** (0.038)
NBFI	0.250*** (0.064)	0.039*** (0.012)	0.111*** (0.032)
NGO	0.345*** (0.110)	0.043** (0.017)	0.133** (0.052)
Network	0.391*** (0.019)	0.066*** (0.011)	0.086 (0.108)
Inflation	0.005 (0.003)	0.001* (0.001)	-0.001 (0.005)
GDP	-0.001 (0.002)	-0.000 (0.000)	-0.000 (0.001)
OE	-2.985*** (0.222)	-0.492*** (0.018)	-2.245*** (0.106)
FE	-4.288*** (0.218)	-0.370*** (0.053)	-1.944*** (0.068)
PAR	-0.467** (0.231)	-0.104*** (0.025)	-0.345** (0.139)
Yield	1.954*** (0.121)	0.371*** (0.017)	1.476*** (0.103)
SSA	-0.144*** (0.048)	-0.028*** (0.004)	-0.153*** (0.038)
EAP	0.253*** (0.022)	0.033*** (0.009)	0.035 (0.057)
EECA	0.166*** (0.035)	0.024** (0.011)	0.042 (0.054)
MENA	-0.036 (0.063)	0.007 (0.005)	-0.025 (0.037)

Table D-1 (Continued)

Variable	Model 1	Model 2	Model 3
Constant	0.365*** (0.098)	-0.202*** (0.016)	-0.312 (0.195)
R-squared	0.603	0.605	0.543
Observation	285.000	285.000	285.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.



UUM
Universiti Utara Malaysia

Table D-2

Estimations of the social performance (dependent variable: GNIALS in Model 4 and FFB in Model 5)

Variable	Model 4	Model 5
	b/se	b/se
Regulated	0.055 (0.035)	-0.198*** (0.008)
lnSize	-0.010 (0.008)	0.007*** (0.002)
lnMaturity	0.070** (0.035)	-0.039*** (0.006)
Bank	1.062*** (0.107)	0.002 (0.038)
CUC	1.361*** (0.217)	-0.002 (0.034)
NBFI	0.685*** (0.139)	0.188*** (0.015)
NGO	0.404*** (0.102)	0.219*** (0.030)
Network	0.951*** (0.097)	0.277*** (0.028)
Inflation	0.038*** (0.008)	0.011*** (0.002)
GDP	0.052*** (0.007)	0.003 (0.002)
BPSM	-0.001*** (0.000)	0.001*** (0.000)
CPB	0.003*** (0.000)	-0.000*** (0.000)
SSA	-0.348*** (0.046)	0.036** (0.016)
EAP	-0.383*** (0.035)	0.126*** (0.041)
EECA	-0.545*** (0.116)	-0.190*** (0.040)
MENA	-0.175*** (0.033)	-0.236*** (0.014)
Constant	-1.623*** (0.267)	0.344*** (0.107)
R-squared	0.677	0.667
Observation	285.000	285.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.

Table D-3

Estimations of the mission drift (dependent variable: GNIALS)

Variable	Model 6	Model 7	Model 8
	b/se	b/se	b/se
OSS	-0.955*** (0.211)		
ROA		-0.333*** (0.045)	
PM			-0.231*** (0.038)
Regulated	0.429*** (0.024)	0.512*** (0.043)	0.532*** (0.033)
lnSize	-0.005 (0.006)	-0.068*** (0.024)	-0.038** (0.016)
lnMaturity	0.062** (0.026)	-0.116* (0.059)	-0.165** (0.068)
Bank	0.250 (0.197)	-0.259 (0.161)	-0.183 (0.202)
CUC	0.473** (0.202)	-0.588 (0.600)	-0.277 (0.567)
NBFI	-0.475** (0.180)	-0.750*** (0.178)	-0.753*** (0.225)
NGO	-1.244*** (0.230)	-1.572*** (0.159)	-1.599*** (0.205)
Network	-1.837*** (0.055)	-2.410*** (0.111)	-2.537*** (0.119)
Inflation	0.004 (0.009)	-0.008 (0.013)	-0.011 (0.013)
GDP	0.105*** (0.018)	0.090*** (0.016)	0.097*** (0.018)
SSA	-0.603*** (0.083)	-0.287*** (0.094)	-0.364*** (0.110)
EAP	-2.634*** (0.083)	-2.757*** (0.227)	-2.945*** (0.201)
EECA	0.015 (0.088)	-0.149** (0.063)	-0.234*** (0.070)
MENA	-0.052 (0.112)	-0.101 (0.091)	-0.146 (0.093)
Constant	0.686* (0.371)	2.054*** (0.549)	2.481*** (0.587)
R-squared	0.552	0.574	0.539
Observation	285.000	241.000	244.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.

Table D-4

Estimations of the mission drift (dependent variable: FFB)

Variable	Model 9	Model 10	Model 11
	b/se	b/se	b/se
OSS	0.074** (0.030)		
ROA		0.767*** (0.090)	
PM			0.095*** (0.034)
Regulated	-0.203*** (0.013)	-0.191*** (0.010)	-0.205*** (0.013)
lnSize	-0.010** (0.005)	-0.011** (0.005)	-0.012* (0.006)
lnMaturity	-0.032*** (0.007)	-0.040*** (0.008)	-0.027*** (0.008)
Bank	0.152*** (0.022)	0.156*** (0.029)	0.163*** (0.014)
CUC	0.152*** (0.028)	0.142*** (0.032)	0.157*** (0.022)
NBFI	0.346*** (0.032)	0.335*** (0.040)	0.352*** (0.026)
NGO	0.423*** (0.045)	0.405*** (0.052)	0.430*** (0.038)
Network	0.480*** (0.021)	0.429*** (0.024)	0.488*** (0.025)
Inflation	0.030** (0.012)	0.027** (0.011)	0.031*** (0.012)
GDP	0.021*** (0.004)	0.022*** (0.005)	0.021*** (0.004)
SSA	0.039 (0.041)	0.049 (0.045)	0.044 (0.041)
EAP	0.186*** (0.045)	0.155*** (0.041)	0.190*** (0.041)
EECA	-0.315*** (0.051)	-0.329*** (0.043)	-0.312*** (0.048)
MENA	-0.275*** (0.038)	-0.278*** (0.037)	-0.272*** (0.037)
Constant	0.342* (0.180)	0.415** (0.171)	0.333** (0.164)
R-squared	0.548	0.557	0.548
Observation	265.000	265.000	265.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.

Table D-5

Estimations of the mission drift and regulation status (dependent variable: GNIALS)

Variable	Model 12	Model 13	Model 14
	b/se	b/se	b/se
OSS	-0.400*** (0.100)		
OSS*Regulated	-0.477*** (0.179)		
ROA		-0.355*** (0.069)	
ROA*Regulated		1.277 (1.782)	
PM			-0.222*** (0.055)
PM*Regulated			0.011 (0.349)
Regulated	0.446*** (0.024)	0.050 (0.119)	0.125 (0.085)
lnSize	-0.009 (0.007)	0.019 (0.025)	0.043* (0.022)
lnMaturity	0.063** (0.024)	-0.026 (0.018)	-0.059** (0.027)
Bank	0.131 (0.160)	0.352** (0.132)	0.462*** (0.114)
CUC	0.339 (0.272)	0.415 (0.381)	0.751** (0.313)
NBFI	-0.596*** (0.151)	0.092 (0.066)	0.127* (0.066)
NGO	-1.370*** (0.163)	-0.535*** (0.129)	-0.508*** (0.146)
Network	-1.935*** (0.074)	0.210 (0.164)	0.127 (0.082)
Inflation	0.004 (0.010)	0.191** (0.075)	0.188*** (0.070)
GDP	0.105*** (0.017)	0.221*** (0.022)	0.240*** (0.026)
SSA	-0.615*** (0.097)	-0.172*** (0.056)	-0.250*** (0.036)
EAP	-2.655*** (0.079)	-0.760*** (0.116)	-0.904*** (0.135)
EECA	-0.013 (0.098)	0.043 (0.046)	-0.029 (0.041)
MENA	-0.065 (0.123)	0.188* (0.101)	0.138 (0.094)

Table D-5 (Continued)

Variable	Model 12	Model 13	Model 14
Constant	1.871*** (0.643)	-1.639*** (0.593)	-1.185** (0.565)
R-squared	0.555	0.462	0.401
Observation	285.000	226.000	229.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.



Table D-6

Estimations of the mission drift and regulation status (dependent variable: FFB)

Variable	Model 15	Model 16	Model 17
	b/se	b/se	b/se
OSS	-0.167*** (0.055)		
OSS*Regulated	0.237*** (0.078)		
ROA		0.031* (0.018)	
ROA*Regulated		0.277 (0.519)	
PM			0.042*** (0.013)
PM*Regulated			-0.240* (0.121)
Regulated	-0.212*** (0.011)	-0.216*** (0.034)	-0.173*** (0.023)
lnSize	-0.012*** (0.003)	0.008** (0.003)	-0.004 (0.006)
lnMaturity	-0.022*** (0.008)	0.012 (0.018)	0.044*** (0.014)
Bank	0.171*** (0.032)	0.248*** (0.029)	0.256*** (0.038)
CUC	0.181*** (0.062)	0.330*** (0.068)	0.288*** (0.072)
NBFI	0.365*** (0.040)	0.398*** (0.024)	0.408*** (0.031)
NGO	0.457*** (0.034)	0.481*** (0.008)	0.502*** (0.017)
Network	0.560*** (0.041)	0.562*** (0.025)	0.628*** (0.047)
Inflation	0.011*** (0.002)	0.062*** (0.014)	0.064*** (0.013)
GDP	-0.002 (0.003)	0.035*** (0.004)	0.030*** (0.004)
SSA	0.075*** (0.015)	0.065** (0.029)	0.073*** (0.026)
EAP	0.226*** (0.033)	0.236*** (0.067)	0.281*** (0.061)
EECA	-0.288*** (0.027)	-0.264*** (0.063)	-0.243*** (0.065)
MENA	-0.274*** (0.009)	-0.226*** (0.038)	-0.216*** (0.038)

Table D-6 (Continued)

Variable	Model 15	Model 16	Model 17
Constant	0.184** (0.074)	-0.244* (0.144)	-0.218 (0.158)
R-squared	0.541	0.601	0.595
Observation	285.000	226.000	229.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.



Table D-7

Estimations of mission drift and the size of MFIs (dependent variable: GNIALS)

Variable	Model 18	Model 19	Model 20
	b/se	b/se	b/se
OSS	0.808 (0.543)		
OSS*lnSize	-1.412*** (0.322)		
ROA		-0.361*** (0.060)	
ROA*lnSize		0.049 (0.074)	
PM			-0.222*** (0.055)
PM*lnSize			0.001 (0.017)
Regulated	0.469*** (0.027)	0.130*** (0.039)	0.127** (0.057)
lnSize	-0.014* (0.007)	0.001 (0.024)	0.043* (0.022)
lnMaturity	0.069* (0.038)	0.017 (0.028)	-0.059** (0.027)
Bank	0.200 (0.153)	0.475*** (0.179)	0.462*** (0.114)
CUC	0.427* (0.215)	0.391 (0.436)	0.751** (0.313)
NBFI	-0.519*** (0.168)	0.222 (0.144)	0.127* (0.066)
NGO	-1.298*** (0.195)	-0.452*** (0.129)	-0.508*** (0.146)
Network	-1.861*** (0.034)	0.136 (0.155)	0.127 (0.082)
Inflation	0.032 (0.023)	0.138*** (0.047)	0.188*** (0.070)
GDP	0.108*** (0.018)	0.066*** (0.016)	0.240*** (0.026)
SSA	-0.463*** (0.071)	-0.134** (0.062)	-0.250*** (0.036)
EAP	-2.639*** (0.066)	-0.759*** (0.094)	-0.904*** (0.135)
EECA	0.013 (0.091)	-0.016 (0.069)	-0.029 (0.041)
MENA	0.006 (0.099)	0.220** (0.087)	0.138 (0.094)

Table D-7 (Continued)

Variable	Model 18	Model 19	Model 20
Constant	2.200*** (0.620)	-1.433** (0.688)	-1.186** (0.572)
R-squared	0.560	0.452	0.401
Observation	275.000	235.000	229.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.



Table D-8

Estimations of the mission drift and the size of MFIs (dependent variable: FFB)

Variable	Model 21	Model 22	Model 23
	b/se	b/se	b/se
OSS	0.245 (0.195)		
OSS*lnSize	-0.135 (0.139)		
ROA		0.031* (0.018)	
ROA*lnSize		0.014 (0.026)	
PM			0.042*** (0.013)
PM*lnSize			-0.012* (0.006)
Regulated	-0.201*** (0.014)	-0.202*** (0.009)	-0.215*** (0.010)
lnSize	-0.012** (0.006)	0.007** (0.003)	-0.002 (0.006)
lnMaturity	-0.029*** (0.006)	0.012 (0.018)	0.044*** (0.014)
Bank	0.153*** (0.027)	0.248*** (0.029)	0.256*** (0.038)
CUC	0.142*** (0.041)	0.330*** (0.068)	0.288*** (0.072)
NBFI	0.341*** (0.043)	0.398*** (0.024)	0.408*** (0.031)
NGO	0.418*** (0.057)	0.481*** (0.008)	0.502*** (0.017)
Network	0.477*** (0.022)	0.562*** (0.025)	0.628*** (0.047)
lnInflation	0.029** (0.013)	0.062*** (0.014)	0.064*** (0.013)
lnGDP	0.021*** (0.004)	0.035*** (0.004)	0.030*** (0.004)
SSA	0.045 (0.037)	0.065** (0.029)	0.073*** (0.026)
EAP	0.186*** (0.045)	0.236*** (0.067)	0.281*** (0.061)
EECA	-0.317*** (0.053)	-0.264*** (0.063)	-0.243*** (0.065)
MENA	-0.275*** (0.038)	-0.226*** (0.038)	-0.216*** (0.038)

Table D-8 (Continued)

Variable	Model 21	Model 22	Model 23
Constant	0.496 (0.322)	-0.250* (0.149)	-0.207 (0.162)
R-squared	0.548	0.601	0.595
Observation	265.000	226.000	229.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.



Table D-9

Estimations of the mission drift and the maturity of MFIs (dependent variable: GNIALS)

Variable	Model 24	Model 25	Model 26
	b/se	b/se	b/se
OSS	-1.087*** (0.254)		
OSS*lnMaturity	0.080** (0.033)		
ROA		-0.409*** (0.041)	
ROA*lnMaturity		0.929*** (0.202)	
PM			-1.874** (0.783)
PM*lnMaturity			0.407* (0.242)
Regulated	0.055** (0.025)	0.146*** (0.036)	0.065** (0.025)
lnSize	0.047*** (0.011)	0.008 (0.022)	0.061*** (0.006)
lnMaturity	0.060 (0.078)	-0.057* (0.033)	0.071 (0.077)
Bank	0.818*** (0.135)	0.425** (0.180)	0.701*** (0.166)
CUC	1.035*** (0.257)	0.373 (0.434)	0.975*** (0.293)
NBFI	0.320** (0.122)	0.201 (0.144)	0.248* (0.145)
NGO	-0.303** (0.144)	-0.485*** (0.128)	-0.405*** (0.134)
Network	0.443*** (0.117)	0.048 (0.134)	0.363*** (0.123)
Inflation	0.035*** (0.009)	0.134*** (0.044)	0.033*** (0.008)
GDP	0.080*** (0.016)	0.065*** (0.016)	0.080*** (0.016)
SSA	-0.454*** (0.028)	-0.142** (0.064)	-0.426*** (0.038)
EAP	-0.669*** (0.053)	-0.796*** (0.111)	-0.690*** (0.062)
EECA	0.099 (0.061)	-0.028 (0.064)	0.097 (0.061)
MENA	0.200*** (0.066)	0.219*** (0.078)	0.205*** (0.050)

Table D-9 (Continued)

Variable	Model 24	Model 25	Model 26
Constant	-1.685*** (0.524)	-1.486** (0.713)	-1.616*** (0.549)
R-squared	0.406	0.455	0.400
Observation	285.000	235.000	285.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.



Table D-10

Estimations of the mission drift and the maturity of MFIs (dependent variable: FFB)

Variable	Model 27	Model 28	Model 29
	b/se	b/se	b/se
OSS	0.163** (0.071)		
OSS*lnMaturity	-0.024* (0.014)		
ROA		0.042*** (0.015)	
ROA*lnMaturity		-0.060 (0.084)	
PM			0.038*** (0.005)
PM*lnMaturity			-0.060*** (0.014)
Regulated	-0.204*** (0.014)	-0.203*** (0.009)	-0.215*** (0.011)
lnSize	-0.012** (0.005)	0.007** (0.003)	-0.004 (0.006)
lnMaturity	0.001 (0.020)	0.019 (0.019)	0.057*** (0.013)
Bank	0.160*** (0.021)	0.251*** (0.031)	0.260*** (0.037)
CUC	0.151*** (0.029)	0.331*** (0.067)	0.285*** (0.067)
NBFI	0.346*** (0.033)	0.399*** (0.024)	0.409*** (0.031)
NGO	0.425*** (0.046)	0.484*** (0.008)	0.502*** (0.015)
Network	0.484*** (0.025)	0.576*** (0.021)	0.628*** (0.037)
Inflation	0.030** (0.012)	0.063*** (0.015)	0.063*** (0.014)
GDP	0.021*** (0.004)	0.035*** (0.004)	0.030*** (0.004)
SSA	0.040 (0.042)	0.068** (0.029)	0.071*** (0.026)
EAP	0.185*** (0.047)	0.243*** (0.072)	0.280*** (0.067)
EECA	-0.317*** (0.052)	-0.262*** (0.066)	-0.244*** (0.068)
MENA	-0.276*** (0.039)	-0.224*** (0.039)	-0.219*** (0.040)

Table D-10 (Continued)

Variable	Model 27	Model 28	Model 29
Constant	0.335* (0.179)	-0.220 (0.142)	-0.222 (0.156)
R-squared	0.548	0.601	0.595
Observation	265.000	226.000	229.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.



Table D-11

Estimations of the mission drift and the types of MFIs (dependent variable: GNIALS)

Variable	Model 30	Model 31	Model 32
	b/se	b/se	b/se
OSS	-0.316 (0.497)		
OSS*Bank	-1.583*** (0.327)		
OSS*CUC	-0.586 (0.684)		
OSS*NBFI	-0.320 (0.568)		
OSS*NGO	0.207 (0.488)		
ROA		-0.649 (0.771)	
ROA*Bank		-5.815*** (0.850)	
ROA*CUC		-4.381 (3.780)	
ROA*NBFI		-3.937*** (1.194)	
ROA*NGO		0.784 (1.130)	
PM			-0.105 (0.186)
PM*Bank			-1.810*** (0.283)
PM*CUC			-0.877* (0.447)
PM*NBFI			-0.442* (0.223)
PM*NGO			0.188 (0.243)
Regulated	0.059** (0.022)	0.070* (0.037)	0.063 (0.051)
lnSize	0.070*** (0.009)	0.092*** (0.009)	0.087*** (0.006)
lnMaturity	0.181*** (0.055)	0.074** (0.030)	0.092*** (0.027)
Bank	0.590*** (0.219)	0.716*** (0.120)	0.857*** (0.098)
CUC	0.868* (0.449)	1.194*** (0.274)	1.203*** (0.257)

Table D-11 (Continued)

Variable	Model 30	Model 31	Model 32
NBFI	0.215 (0.228)	0.344*** (0.110)	0.259*** (0.063)
NGO	-0.473*** (0.162)	-0.495*** (0.050)	-0.483*** (0.054)
Network	0.409** (0.167)	0.543*** (0.195)	0.432** (0.168)
Inflation	0.033*** (0.008)	0.226*** (0.034)	0.205*** (0.038)
GDP	0.074*** (0.017)	0.278*** (0.034)	0.270*** (0.034)
SSA	-0.441*** (0.052)	-0.365*** (0.097)	-0.388*** (0.083)
EAP	-0.647*** (0.048)	-0.601*** (0.129)	-0.708*** (0.085)
EECA	0.134** (0.054)	0.210*** (0.053)	0.185*** (0.053)
MENA	0.192*** (0.067)	0.221*** (0.043)	0.195*** (0.047)
Constant	1.026 (2.544)	-2.655*** (0.433)	-2.467*** (0.353)
R-squared	0.435	0.448	0.443
Observation	285.000	265.000	265.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.

Table D-12

Estimations of the mission drift and the types of MFIs (dependent variable: FFB)

Variable	Model 33	Model 34	Model 35
	b/se	b/se	b/se
OSS	0.207 (0.220)		
OSS*Bank	0.242 (0.292)		
OSS*CUC	0.158 (0.341)		
OSS*NBFi	-0.155 (0.166)		
OSS*NGO	-0.203 (0.180)		
ROA		0.004 (0.016)	
ROA*Bank		3.913*** (0.779)	
ROA*CUC		1.132 (0.917)	
ROA*NBFi		1.697** (0.730)	
ROA*NGO		-0.448* (0.264)	
PM			0.020 (0.016)
PM*Bank			0.084 (0.198)
PM*CUC			0.412** (0.168)
PM*NBFi			0.017 (0.246)
PM*NGO			-0.227*** (0.082)
Regulated	-0.279*** (0.037)	-0.237*** (0.014)	-0.217*** (0.013)
lnSize	-0.034*** (0.011)	0.003 (0.003)	-0.006 (0.006)
lnMaturity	0.003 (0.019)	0.013 (0.027)	0.049*** (0.014)
Bank	0.004 (0.085)	0.118*** (0.035)	0.255*** (0.077)
CUC	0.134 (0.096)	0.332*** (0.097)	0.224** (0.104)

Table D-12 (Continued)

Variable	Model 33	Model 34	Model 35
NBFI	0.461*** (0.039)	0.323*** (0.063)	0.417*** (0.085)
NGO	0.695*** (0.040)	0.529*** (0.026)	0.556*** (0.039)
Network	0.648*** (0.087)	0.629*** (0.046)	0.588*** (0.047)
Inflation	0.026*** (0.003)	0.059*** (0.018)	0.064*** (0.014)
GDP	-0.017** (0.007)	0.036*** (0.004)	0.030*** (0.004)
SSA	0.359*** (0.057)	-0.010 (0.046)	0.091*** (0.030)
EAP	0.493*** (0.092)	0.216** (0.085)	0.276*** (0.067)
EECA	-0.367*** (0.096)	-0.268*** (0.071)	-0.247*** (0.070)
MENA	-0.323*** (0.059)	-0.239*** (0.049)	-0.216*** (0.040)
Constant	-0.898 (0.754)	-0.284 (0.170)	-0.202 (0.173)
R-squared	0.387	0.622	0.600
Observation	285.000	226.000	229.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.

Table D-13

Estimations of the mission drift and network membership (dependent variable: GNIALS)

Variable	Model 36	Model 37	Model 38
	b/se	b/se	b/se
OSS	-1.032** (0.487)		
OSS*Network	0.143 (0.299)		
ROA		-0.361*** (0.060)	
ROA*Network		0.847 (1.268)	
PM			-0.222*** (0.055)
PM*Network			0.010 (0.294)
Regulated	0.090*** (0.030)	0.130*** (0.039)	0.127** (0.057)
lnSize	0.049*** (0.010)	0.003 (0.022)	0.043* (0.022)
lnMaturity	0.132** (0.053)	0.017 (0.028)	-0.059** (0.027)
Bank	0.777*** (0.127)	0.475*** (0.179)	0.462*** (0.114)
CUC	1.096*** (0.237)	0.391 (0.436)	0.751** (0.313)
NBFI	0.315** (0.126)	0.222 (0.144)	0.127* (0.066)
NGO	-0.302* (0.152)	-0.452*** (0.129)	-0.508*** (0.146)
Network	0.457*** (0.101)	0.125 (0.170)	0.126 (0.083)
Inflation	0.179*** (0.017)	0.138*** (0.047)	0.188*** (0.070)
GDP	0.083*** (0.017)	0.066*** (0.016)	0.240*** (0.026)
SSA	-0.372*** (0.035)	-0.134** (0.062)	-0.250*** (0.036)
EAP	-0.698*** (0.054)	-0.759*** (0.094)	-0.904*** (0.135)
EECA	0.118* (0.068)	-0.016 (0.069)	-0.029 (0.041)
MENA	0.278*** (0.064)	0.220** (0.087)	0.138 (0.094)

Table D-13 (Continued)

Variable	Model 36	Model 37	Model 38
Constant	-1.987*** (0.493)	-1.447** (0.674)	-1.186** (0.578)
R-squared	0.414	0.452	0.401
Observation	275.000	235.000	229.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.



UUM
Universiti Utara Malaysia

Table D-14

Estimations of the mission drift and network membership (dependent variable: FFB)

Variable	Model 39	Model 40	Model 41
	b/se	b/se	b/se
OSS	0.419** (0.197)		
OSS*Network	-0.299** (0.145)		
ROA		0.016 (0.017)	
ROA*Network		0.457 (0.401)	
PM			0.042*** (0.013)
PM*Network			-0.203* (0.102)
Regulated	-0.202*** (0.011)	-0.200*** (0.007)	-0.215*** (0.010)
lnSize	-0.013*** (0.004)	0.004* (0.002)	-0.004 (0.006)
lnMaturity	-0.025*** (0.005)	0.003 (0.014)	0.044*** (0.014)
Bank	0.105*** (0.026)	0.164*** (0.045)	0.256*** (0.038)
CUC	0.109*** (0.012)	0.198** (0.094)	0.288*** (0.072)
NBFI	0.301*** (0.016)	0.304*** (0.029)	0.408*** (0.031)
NGO	0.386*** (0.028)	0.405*** (0.030)	0.502*** (0.017)
Network	0.497*** (0.032)	0.524*** (0.065)	0.645*** (0.055)
Inflation	0.011*** (0.002)	0.053*** (0.015)	0.064*** (0.013)
GDP	-0.003 (0.004)	-0.000 (0.005)	0.030*** (0.004)
SSA	0.072*** (0.016)	0.069*** (0.024)	0.073*** (0.026)
EAP	0.210*** (0.035)	0.240*** (0.051)	0.281*** (0.061)
EECA	-0.304*** (0.032)	-0.265*** (0.052)	-0.243*** (0.065)
MENA	-0.281*** (0.011)	-0.260*** (0.026)	-0.216*** (0.038)

Table D-14 (Continued)

Variable	Model 39	Model 40	Model 41
Constant	0.713*** (0.191)	-0.020 (0.103)	-0.200 (0.165)
R-squared	0.538	0.576	0.595
Observation	285.000	235.000	229.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.



Table D-15

Estimations of the mission drift and inflation rate (dependent variable: GNIALS)

Variable	Model 42	Model 43	Model 44
	b/se	b/se	b/se
OSS	-0.641*** (0.213)		
OSS*Inflation	0.003 (0.012)		
ROA		-0.293*** (0.093)	
ROA*Inflation		-0.457*** (0.085)	
PM			-0.182** (0.081)
PM*Inflation			-0.135*** (0.018)
Regulated	0.081 (0.060)	0.509*** (0.092)	0.528*** (0.118)
lnSize	0.050*** (0.009)	-0.054* (0.032)	-0.016 (0.020)
lnMaturity	0.111*** (0.028)	-0.187*** (0.058)	-0.243*** (0.063)
Bank	0.814*** (0.079)	-0.405*** (0.150)	-0.317* (0.167)
CUC	1.172*** (0.136)	-0.372 (0.429)	-0.005 (0.308)
NBFI	0.282*** (0.079)	-0.853*** (0.095)	-0.843*** (0.100)
NGO	-0.276 (0.186)	-1.578*** (0.215)	-1.564*** (0.227)
Network	0.544*** (0.091)	-2.065*** (0.171)	-2.204*** (0.169)
Inflation	0.209*** (0.073)	0.145 (0.127)	0.156 (0.113)
GDP	0.281*** (0.035)	0.311*** (0.039)	0.332*** (0.049)
SSA	-0.344*** (0.045)	-0.155* (0.078)	-0.266*** (0.097)
EAP	-0.684*** (0.097)	-2.676*** (0.287)	-2.884*** (0.244)
EECA	0.166*** (0.042)	-0.040 (0.046)	-0.120*** (0.021)
MENA	0.224*** (0.072)	-0.046 (0.172)	-0.104 (0.170)

Table D-15 (Continued)

Variable	Model 42	Model 43	Model 44
Constant	-1.357*** (0.440)	1.647*** (0.211)	1.857*** (0.231)
R-squared	0.426	0.613	0.574
Observation	265.000	226.000	229.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.



Table D-16

Estimations of the mission drift and inflation rate (dependent variable: FFB)

Variable	Model 45	Model 46	Model 47
	b/se	b/se	b/se
OSS	0.026 (0.093)		
OSS*Inflation	0.037 (0.065)		
ROA		0.019 (0.012)	
ROA*Inflation		0.088*** (0.026)	
PM			0.003 (0.010)
PM*Inflation			0.016*** (0.005)
Regulated	-0.205*** (0.019)	-0.212*** (0.013)	-0.223*** (0.011)
lnSize	-0.009 (0.006)	0.009*** (0.003)	-0.003 (0.006)
lnMaturity	-0.029*** (0.005)	0.012 (0.019)	0.038** (0.016)
Bank	0.138*** (0.033)	0.232*** (0.023)	0.250*** (0.031)
CUC	0.171*** (0.025)	0.308*** (0.060)	0.268*** (0.060)
NBFI	0.358*** (0.028)	0.388*** (0.021)	0.404*** (0.029)
NGO	0.416*** (0.046)	0.466*** (0.006)	0.489*** (0.013)
Network	0.491*** (0.026)	0.556*** (0.012)	0.602*** (0.032)
Inflation	0.011*** (0.002)	0.042** (0.019)	0.047** (0.018)
GDP	0.023*** (0.003)	0.034*** (0.004)	0.030*** (0.003)
SSA	0.050** (0.019)	0.047 (0.031)	0.060** (0.027)
EAP	0.190*** (0.048)	0.230*** (0.072)	0.271*** (0.063)
EECA	-0.313*** (0.043)	-0.268*** (0.062)	-0.247*** (0.062)
MENA	-0.258*** (0.020)	-0.241*** (0.042)	-0.230*** (0.041)

Table D-16 (Continued)

Variable	Model 45	Model 46	Model 47
Constant	0.238 (0.224)	-0.259* (0.133)	-0.243* (0.137)
R-squared	0.547	0.604	0.595
Observation	275.000	226.000	229.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.



Table D-17

Estimations of the mission drift and GDP growth rate (dependent variable: GNIALS)

Variable	Model 48	Model 49	Model 50
	b/se	b/se	b/se
OSS	-1.635*** (0.254)		
OSS*GDP	0.113*** (0.014)		
ROA		-0.400*** (0.142)	
ROA*GDP		0.084 (0.423)	
PM			-0.413*** (0.123)
PM*GDP			0.195*** (0.072)
Regulated	0.278*** (0.079)	0.454*** (0.096)	0.402*** (0.107)
lnSize	0.015*** (0.005)	-0.046 (0.028)	-0.006 (0.017)
lnMaturity	0.064 (0.045)	-0.197*** (0.056)	-0.257*** (0.065)
Bank	0.789*** (0.183)	-0.458* (0.240)	-0.102 (0.200)
CUC	1.224*** (0.186)	-0.458 (0.338)	0.141 (0.366)
NBFI	0.057 (0.188)	-0.876*** (0.204)	-0.642*** (0.154)
NGO	-0.526* (0.305)	-1.631*** (0.350)	-1.383*** (0.272)
Network	-1.511*** (0.138)	-2.133*** (0.103)	-2.239*** (0.082)
Inflation	0.064 (0.046)	0.032 (0.111)	0.013 (0.101)
GDP	0.053** (0.022)	0.297*** (0.038)	0.248*** (0.032)
SSA	-0.383*** (0.061)	-0.264*** (0.063)	-0.348*** (0.078)
EAP	-2.371*** (0.116)	-2.728*** (0.274)	-2.857*** (0.253)
EECA	0.267*** (0.077)	-0.066** (0.030)	-0.097* (0.058)
MENA	0.086 (0.150)	-0.130 (0.128)	-0.144 (0.149)

Table D-17 (Continued)

Variable	Model 48	Model 49	Model 50
Constant	-0.869** (0.433)	1.406*** (0.398)	1.234*** (0.447)
R-squared	0.592	0.608	0.573
Observation	265.000	226.000	229.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.



Table D-18

Estimations of the mission drift and GDP growth rate (dependent variable: FFB)

Variable	Model 51	Model 52	Model 53
	b/se	b/se	b/se
OSS	0.150*** (0.029)		
OSS*GDP	-0.013*** (0.004)		
ROA		0.047*** (0.017)	
ROA*GDP		-0.071 (0.069)	
PM			0.061*** (0.010)
PM*GDP			-0.072*** (0.008)
Regulated	-0.186*** (0.013)	-0.200*** (0.010)	-0.204*** (0.009)
lnSize	-0.011** (0.005)	0.007** (0.003)	-0.004 (0.006)
lnMaturity	-0.039*** (0.008)	0.014 (0.020)	0.041** (0.017)
Bank	0.080*** (0.025)	0.236*** (0.033)	0.202*** (0.041)
CUC	0.082*** (0.024)	0.318*** (0.068)	0.242*** (0.075)
NBFI	0.278*** (0.019)	0.387*** (0.026)	0.356*** (0.036)
NGO	0.344*** (0.023)	0.470*** (0.017)	0.448*** (0.023)
Network	0.457*** (0.021)	0.575*** (0.018)	0.628*** (0.040)
Inflation	0.036** (0.014)	0.065*** (0.016)	0.070*** (0.015)
GDP	0.059*** (0.010)	0.041*** (0.008)	0.052*** (0.007)
SSA	0.026 (0.035)	0.069** (0.031)	0.068** (0.026)
EAP	0.160*** (0.036)	0.243*** (0.072)	0.273*** (0.065)
EECA	-0.331*** (0.049)	-0.263*** (0.067)	-0.247*** (0.069)
MENA	-0.292*** (0.036)	-0.224*** (0.040)	-0.220*** (0.042)

Table D-18 (Continued)

Variable	Model 51	Model 52	Model 53
Constant	0.469*** (0.120)	-0.177 (0.141)	-0.103 (0.146)
R-squared	0.553	0.601	0.601
Observation	265.000	226.000	229.000

Note: Total asset and MFI-age are in natural logarithmic form. Standard Errors are given in the parentheses. Statistically significant where * $p < 0.10$; ** $p < 0.05$ and *** $p < 0.01$.

