WORKING PAPERS IN RESPONSIBLE BANKING & FINANCE

The Financial and Social Performance of Islamic Microfinance Institutions: A Cross-Country Study

By *Yaoyao Fan, Kose John, Frank Hong Liu and Luqyan Tamanni*

Abstract: We comprehensively compare four aspects of Islamic and conventional MFIs: 1) financial performance; 2) credit risk; 3) outreach; 4) mission drift. Our sample comprises firms from four regions, including East Asia and Pacific, South Asia, Middle East and North Africa, and Eastern Europe and Central Asia, over the period 1998 to 2014. We find that Islamic MFIs are less profitable, less self-sufficient, have less credit risk and better poverty outreach, approach fewer female borrowers and are less likely to have 'mission drift' than conventional MFIs.

University of St Andrews
Scotland's first university

600 YEARS
1413 – 2013

The Financial and Social Performance of Islamic Microfinance Institutions: A Cross-Country Study

Yaoyao Fan[a], Kose John[b*], Frank Hong Liu[c], Luqyan Tamanni[d]

This version: 11 August 2017

Abstract

We comprehensively compare four aspects of Islamic and conventional MFIs: 1) financial performance; 2) credit risk; 3) outreach; 4) mission drift. Our sample comprises firms from four regions, including East Asia and Pacific, South Asia, Middle East and North Africa, and Eastern Europe and Central Asia, over the period 1998 to 2014. We find that Islamic MFIs are less profitable, less self-sufficient, have less credit risk and better poverty outreach, approach fewer female borrowers and are less likely to have 'mission drift' than conventional MFIs.

a   Glasgow School for Business and Society, Glasgow Caledonian University

b   Stern School of Business, New York University

c   Adam Smith Business School, University of Glasgow

d   Business School, STEI Tazkia University

*   Corresponding author: Kose John, New York University, Stern School of Business, 44 West Fourth Street, 9-98, New York, NY 10012. E-Mail: kjohn@stern.nyu.edu.

1

1. Introduction

Microfinance Institutions (MFIs) provide financial services to poor families and microenterprises who have no access to commercial banks because the poor and microentrepreneurs usually ask for small loans and are lack of collateral (Cull et al., 2007; Caudill et al., 2009; Strøm et al., 2014; Blanco-Oliver et al., 2016). Enabling the poor to create their own income-generating businesses, MFIs have successfully alleviated poverty in most developing and newly industrialised countries (Casselman et al., 2015). Since the awarding of the Nobel Peace Prize to Mohammad Yunus, the founder of microfinance, MFIs have been recognised as an effective development tool and even as one of the main innovations in the past 25 years (Servin et al., 2012; Hartarska et al., 2013). The United Nations declared 2005 the International Year of Microcredit and included MFIs in the list of potential contributions to achieve the Millennium Development Goals of halving global poverty in 2015. Outreach by MFIs has grown rapidly, and the 2014 report of the Microcredit Summit reveals that MFIs have reached over 211 million borrowers.

However, MFIs face some difficulty in penetrating regions with substantial Muslim populations, since conventional microfinance is not compatible with the financial principles in *Sharia* (Islamic law) (Karim et al., 2008). A study conducted by the World Bank shows that over 30% of interviewed poor people from Jordan, Syria and Indonesia consider religious reasons the largest obstacle to microfinance. Consequently, a great demand for financing among the Muslim poor remains unmet. According to the records of the United Nations, Muslims accounted for one quarter of the world's population in 2010, and the majority live in low-income countries. Mohieldin et al. (2011) reveal that substantial numbers of microenterprise owners and low-income individuals interviewed in the Middle East and North Africa prefer *Sharia*-compliant financial products, even if they are more expensive. Similarly, a survey conducted in Pakistan by the Alhuda Centre of Islamic Banking and Finance documents that 99% of respondents favour financial products that adhere to Islamic principles. This high demand underscores the need to offer religiously suitable products to the underserved Muslim poor, leading to the emergence of Islamic microfinance as a new market niche (Karim et al., 2008).

Despite the high demand for and increasing popularity of Islamic Microfinance Institutions (Islamic MFIs) since the last decade, the actual performance or outcome of Islamic MFIs remains a mystery. Compared with conventional MFIs, Islamic MFIs comply with *Sharia*,

which prohibits the charging of interest and promotes profit-and-loss sharing (PLS) schemes. According to Abedifar et al. (2013), *Sharia*-compliant financial products lead to the difference in performance and risk between conventional and Islamic banking. Whether this applies to conventional and Islamic MFIs remains unclear. Mersland et al. (2013) also call for microfinance research that take religions into account. Thus, this study aims to assess the performance of Islamic MFIs and then compare it with that of conventional MFIs from four aspects: 1) financial performance; 2) credit risk; 3) outreach; 4) mission drift.

We have overall five hypotheses. First, we hypothesise that Islamic MFIs are less profitable and financially self-sufficient than conventional MFIs, because the transfer of assets involved in *Sharia*-compliant financial products creates much higher operational costs and because the prices of Islamic MFI products are much lower than those of conventional MFIs. Second, we hypothesise that credit risk of Islamic MFIs is different from that of conventional MFIs. On the one hand, the buying and selling of real products that Islamic financial products involves expose Islamic MFIs to credit risk, due to the fluctuation of commodity prices and the ownership transfer at the end of the repayment period. Islamic MFIs usually do not charge a penalty for defaults. Profit-loss sharing financial products suppress Islamic MFIs' motivation to monitor borrowers. Hence, Islamic MFIs may have higher credit risk than conventional MFIs. On the other hand, the religious belief of Islamic MFI clients might induce loyalty and stem default, reducing the credit risk of Islamic MFIs (Abedifar et al., 2013; Baele et al., 2014).

Third, we hypothesise that Islamic MFIs have better poverty outreach than conventional MFIs. Embedded with not only ethical but also religious responsibility, Islamic MFIs have a stronger motivation than conventional MFIs to fulfil their social mission. *Sharia*-compliant financial products are more cost-affordable than traditional financial products, which could attract more poor customers, particularly the poorest customers. Fourth, we hypothesise that Islamic MFIs approach fewer female borrowers than conventional MFIs because of Islamic MFIs' family orientation and Muslims' restrictions on women. We finally hypothesise that Islamic MFIs are less likely to experience 'mission drift' than conventional MFIs. 'Mission drift' is a phenomenon where financial sustainability is attained by sacrificing poverty outreach (Paxton et al., 2000; Cull et al., 2007; Hermes et al., 2011). Influenced by the trend of commercialisation, conventional MFIs are likely to shift their attention to profit generation. Islamic MFIs are less technically and operationally prepared for commercialisation and are continuously motivated by religious belief to stick to their social mission.

We employ data from the Microfinance Information Exchange Network, an international microfinance platform that provides data on individual MFIs. We construct a panel dataset that comprises1,320 MFIs located in 58 countries within four regions, namely East Asia and Pacific (EAP), South Asia (SA), Middle East and North Africa (MENA), and Eastern Europe and Central Asia (EECA) during the period of 1998 to 2014. A large percentage of the poor in these four regions are practicing Muslims. We manually classify MFIs in the MIX Market as Islamic MFIs if these MFIs partly or fully provide Islamic microcredit products and services, and classify the remaining MFIs as conventional MFIs. There are 38 Islamic MFIs, accounting for around 3% of our total sample. After adjusting for the missing data, our final sample contains 7,919 firm-year observations. Our findings support our hypotheses. We find Islamic MFIs have lower profitability, lower self-sufficiency, lower credit risk, higher poverty outreach, less female borrowers and less 'mission drift' than conventional MFIs.

Our paper provides two contributions to existing literature. First, our research adds to the limited empirical literature regarding the role of Islamic finance in the economy and comparative literature between conventional and Islamic finance. Most extant empirical or comparative studies on Islamic finance focus on the banking industry (Aggarwal and Yousef, 2000; Abedifar et al., 2013; Bassens et al., 2013; Elnahass et al., 2014; Gheeraert, 2014; Johnes et al., 2014; Mallin et al., 2014; Shaban et al., 2014), and a few focus on financial institutions and mutual funds (Pomeranz, 1997; Safieddine, 2009; Abdelsalam et al., 2014; Obid and Naysary, 2014; Aribi and Arun, 2015). Gheeraert (2014) finds evidence that the development of Islamic banking does not crowd out conventional banking but rather complements conventional banking in Muslim countries.

Compared with conventional banks, Islamic banks benefit more from lending to small businesses (Shaban et al., 2014), price their discretionary component lower (Elnahass et al., 2014), and have lower cost-efficiency, higher intermediation ratio, higher asset quality and higher capitalisation (Beck et al., 2013), lower credit risk and lower leverage (Abedifar et al., 2013). Johnes et al. (2014) find that Islamic banks have similar efficiency with conventional banks. To the best of our knowledge, this is the first empirical paper researching Islamic finance and comparing it with conventional finance from the perspective of microfinance. Our findings indicate that the comparative results of conventional and Islamic finance could be different when taking legal status into consideration.

Second, our research extends and complements the current literature on microfinance. Extant literature has analysed microfinance's characteristics, such as capital structure, ownership and female leadership (Tchuigoua, 2015; Strøm et al., 2014), cost efficiency (Caudill et al., 2009; Tchuigoua, 2016), financial performance (Mersland and Strøm, 2009; Hartarska et al., 2013; Blanco-Oliver, 2016), sustainability (Pollinger et al., 2007; Bogan, 2012), technical efficiency (Derigs and Marzban, 2009; Servin et al., 2012) and social performance (Hartarska and Mersland, 2012; Casselman et al., 2015). As the only study examining the impact of religion on microfinance, the evidence of Mersland et al. (2013) shows that compared with conventional MFIs, Christian MFIs have lower funding costs, lower profitability and similar credit risk. Our study sheds light on the impact of Islam, enshrined by a quarter of the world's population, on microfinance.

Our study is important and valuable to practitioners and investors of MFIs. Our study helps practitioners and investors develop a comprehensive understanding of the difference between conventional and Islamic MFIs. This understanding could guide practitioners to take effective action, such as generating strategies or other *Sharia*-compliant financial products to reduce operational costs, resulting in the increase of profitability and the ability to sustain operations with no subsidies. Our study has policy implications for governments in the Muslim world aiming to tackle national poverty in their nations/societies.

This paper is organised as follows. The next section reviews the relevant literature and develops our hypotheses. Section 3 discusses the data selection, measures and summary statistics. Section 4 displays the main results and Section 5 draws conclusions.

2. Hypothesis development

Compared with conventional MFIs, Islamic MFIs comply with *Sharia*, which prohibits the charging of interest and promotes profit-and-loss sharing (PLS) schemes. Consequently, conventional MFIs and Islamic MFIs reveal different business models and mission orientations, which might influence their corresponding financial and social performance. However, the extant literature remains unclear about the differences in financial performance, credit risk and social performance between conventional and Islamic MFIs. We formulate our hypotheses in this section.

2.1 Financial performance

The operational costs, particularly administrative costs, of Islamic MFIs may be higher than those of conventional MFIs. Most Islamic MFIs only offer two financial products: *Murabaha* and *Qard-Hassan* loans (El-Zoghbi and Tarazi, 2013). As a 'cost plus mark-up' sale contract, *Murabaha* is employed to finance goods and services needed as working capital. The mark-up is distinct from interest since it remains fixed, even if the repayment is overdue. *Murabaha* is the most popular and largest Islamic microfinance product, with the broadest outreach. Since *Murabaha* is tied to a particular asset, such as property, plant and equipment, it is less flexible than the commutable loan payment provided by conventional MFIs. Further, managing the transfer of assets of Islamic MFIs creates much higher operational costs than managing the cash distribution of conventional MFIs. Not tied to assets, *Qard-Hassan* loans are comparably easy to administer, so these loans have become the second largest Islamic microfinance product after *Murabaha.* But they are often not priced to cover their administrative costs (such charges are permitted) and default costs.

As to another two Islamic financial products, *Musharaka* and *Mudaraba,* underlying PLS schemes, are mostly encouraged by *Sharia* but are rarely offered by Islamic MFIs. *Musharaka* and *Mudaraba* require Islamic MFIs to share profits or losses with both investors and entrepreneurs. Specifically, under *Mudarabah* financing, the financial institution provides capital and the entrepreneur contributes effort and exercise by entirely controlling the business. If the business suffers a loss, the financial institution obtains no or a negative return on its investment and the entrepreneur earns no compensation for his/her effort. If the business generates a gain, the profits are split based on a pre-negotiated equity percentage.

Under *Musharaka* financing, the financial institution and the entrepreneur jointly supply the capital and manage the business. Losses are absorbed based on the proportion of capital contribution, while profit proportions are negotiated freely. These two instruments are similar to equity investments: *Mudarabah* financing is closer to a limited partnership and Musharaka financing is closer to an equity stake with controlling rights. These two products specifically require prudent reporting and high-level transparency to ensure that profits and losses are distributed fairly. Consequently, these two products result in tremendous operational costs in scrutiny, particularly for micro and small enterprises that are not used to formal accounting.

According to Abedifar et al. (2013) and Beck et al. (2013), the prices of Islamic MFI products are much lower than those of conventional MFIs. Conventional MFIs usually charge their financial products nominal interest rates up to 60%, and even higher interest rates when repayment is overdue as a penalty (Dehejia et al., 2012). However, for the two main Islamic MFI products, *Murabaha* only charges a fixed mark-up with no penalty for overdue repayment and *Qard-Hassan* loans do not charge any fees. Mark-up is based on the prevailing interest rates used by the non-Muslim world, such as London Interbank Offered Rates (LIBOR) or Base Lending Rate (BLR). Abedifar et al. (2013) document that Islamic finance does not extract rents (higher loan or lower deposit rates) for providing Islamic financial products. According to Beck et al. (2013), Islamic finance does not charge higher fees and commissions to compensate for the lack of interest revenue.

Since Islamic MFIs have higher operational costs and lower price charges for their products and services than conventional MFI, we hypothesise that:

H1: Islamic MFIs are less profitable and self-sufficient than conventional MFIs

2.2 Credit risk

The difference in credit risk between Islamic and conventional MFIs is ambiguous in theory. On the one hand, the features of Islamic MFIs' financial products and customers could lead to higher credit risk for Islamic MFIs relative to conventional MFIs. Compared with conventional loan contracts, Islamic loan contracts (*Murabaha*), the largest Islamic microfinance product, are more complex because they involve purchase and resale of products. This characteristic exposes Islamic MFIs to credit risk due to the fluctuation of commodity prices and the ownership transfer at the end of the repayment period. For instance, under a *Murabaha* contract, an Islamic MFI buys a house on behalf of a family at $50,000 and the family needs to repay $500 per month for ten years ($60,000 in total; mark-up = 20% of the principal). At the beginning of the second year, the price of the house might drop to $40,000. In this case, if the family defaults on this contract and initiates a new one, the total cost would be $54,000 ($500*12 + $40,000 + $40,000*0.2), lower than the cost of the original one.

Since a default penalty is not compliant with *Sharia*, Islamic MFIs usually do not charge a penalty for default. In some cases, Islamic MFIs might use rebate to replace default penalty (Khan and Ahmed, 2001). The mark-up attached to the partnership loans (*Murabaha* and *Ijara*)

implicitly include both the return and a default penalty component of the Islamic MFIs. If the borrower repays the loan in a timely manner, then he/she will obtain the rebate. Thus, Islamic MFIs collect the delayed penalty over the whole financing period, while conventional MFIs calculate default interest payments over the delayed period (Abedifar et al., 2013). The absent or fixed default penalty associated with Islamic MFIs is quite limited compared to the crescent default interest payments of conventional MFIs, resulting in increased credit risk for Islamic MFIs.

PLS financial products directly shift the credit risk of Islamic MFIs to their investment depositors (Čihák and Hesse, 2010). Thus, the equity-like nature of deposits might suppress Islamic MFIs from monitoring and disciplining borrowers, although this characteristic might also increase their investment depositors' incentives to monitor and discipline Islamic MFIs. In contrast, under interest-bearing debt contracts, conventional MFIs need to bear the entire credit risk, so they are highly motivated to scrutinize and monitor borrowers and their projects. This moral hazard problem associated with PLS contracts could increase the credit risk of Islamic MFIs.

Based on the above discussion, we hypothesise that:

H2a: Islamic MFIs have higher credit risk than conventional MFIs

On the other hand, the religious belief of Islamic MFI clients might induce loyalty and stem default, reducing the credit risk of Islamic MFIs (Abedifar et al., 2013; Baele et al., 2014). For borrowers of Islamic MFIs, taking out Islamic loans means conducting economic activity encouraged by *Sharia* (i.e. 'putting your money where your mouth is'). It is unlikely that Muslims take out Islamic loans to conduct arbitrary activities, because *Sharia* prohibits the misappropriation of other people's property (i.e. 'eating other people's money in an unlawful way'). Thus, Muslim borrowers have a higher propensity to fulfil their obligations under Islamic loan contracts, leading to lower default risk. Additionally, the extant literature reveals a positive relation between religiosity and an individual's risk aversion (Hilary and Hui, 2009; Abedifar at et., 2013).

Based on users' religious belief and religious attitude toward risk, we hypothesise that:

H2b: Islamic MFIs have lower credit risk than conventional MFIs

2.3 Outreach

Poverty outreach includes breadth and depth; this is seen specifically in Islamic MFIs as number of clients in a given period and the extent of penetration to the poorest at the beginning of the period, respectively. Scholars consider breadth of outreach as a measure of microfinance quantity, and depth of outreach as a measure of microfinance quality (Quayes, 2012). The distinction in the social condition and business model of conventional and Islamic MFIs might differentiate their performance in serving the poor. Embedded with both ethical and religious responsibility, Islamic MFIs have a stronger motivation than conventional MFIs to fulfil their social mission (outreach). As social enterprises, conventional MFIs aim to provide access to finance for poor people who are neglected by banks and financial institutions (Cull et al., 2007; Strøm et al., 2014; Kleynjans and Hudon, 2016). Meanwhile as enterprises with both social and religious purposes, Islamic MFIs aim to provide access to finance to poor Muslims who are excluded by banks and financial institutions but who are unwilling to accept microfinance that is not compliant with *Sharia*.

Results of studies regarding Muslims' attitudes toward the choice of conventional or Islamic financial products are mixed (Karim et al., 2008; El-Zoghbi and Tarazi, 2013; Gheeraert, 2014; Abedifar et al., 2016). A few studies find that Muslims have a neutral attitude in their choices, while most studies find that Muslims prefer Islamic financial products. Conventional MFIs can hardly penetrate into regions with a large number of Muslims because conventional microfinance violates the financial principles in *Sharia* (Karim et al., 2008). A World Bank survey shows that more than 30% of low-income interviewees from Jordan, Syria and Indonesia avoid conventional microfinance for religious reasons. Mohieldin et al. (2011) show that many microentrepreneurs and low-income residents interviewed in the Middle East and North Africa prefer *Sharia*-compliant financial products, even if they are more expensive. The Alhuda Centre of Islamic Banking and Finance shows that 99% of respondents in Pakistan favour financial products that comply with Islamic principles.

Due to the different price-charge features of their financial products, Islamic MFIs might attract more poor customers, particularly the poorest customers, than conventional MFIs. According to Dehejia et al. (2012), conventional MFIs often charge their financial products very high nominal interest rates of up to 60%, and even higher interest rates for overdue repayment as a penalty. Critics of conventional MFIs posit that microfinance has driven the poor into a debt trap, in some cases even causing suicide (Sundaresan, 2008; Biswas, 2010).

Such sky-high interest rates might frighten and inhibit the poor, particularly the poorest, who are less capable of repaying loans. In contrast, Islamic finance does not extract rents (higher loan rates) (Abedifar et al., 2013) and does not charge higher fees and commissions to compensate for the lack of interest revenue (Beck et al., 2013). As such, the poor feel comfortable obtaining loans from Islamic MFIs.

Based on the motivation for and loyalty to social mission fulfilment and the price-charge feature, we hypothesise that:

H3: Islamic MFIs have better poverty outreach than conventional MFIs

Issues regarding microfinance and gender have been widely researched (Kabeer, 2001; Ngo and Wahhaj, 2012; Agier and Szafarz, 2013). The distinction in the target groups of conventional and Islamic MFIs and women's relative freedom of movement between Islamic and non-Islamic societies might differentiate their ability to reach female borrowers. Prior studies emphasise that, aimed at women's empowerment, conventional MFIs particularly target women as their clients (Cull et al., 2009; Ngo and Wahhaj, 2012; Louis et al., 2013; Roberts, 2013). In contrast, Islamic MFIs originally targeted women but then extend their target to a woman's family, because they aim to increase access to financing for every poor family (Rahman, 2007; Abdelkader and Salem, 2013).

In a household, men are more likely to represent the whole family to obtain loans due to the religious restrictions on Muslim women. Muslim women must follow purdah norms, which require that women physically segregate themselves from men or cover their bodies. Adherence to purdah norms continues to constrain women's public mobility, choice of workplace and ability to carry out transactions in the marketplace (Kabeer, 2001; Field et al., 2010; Islam et al., 2015). Hence, Muslim men have been privileged by their gender in accessing finance, while, confined by purdah norms to the areas of their homes, women are dependent on their husbands for economic support. For instance, influenced by Islamic culture, the Malaysian government advocates that women whose husbands can afford living expenses should stay home to take care of other family members (Ong, 1990).

Due to the different target groups of these two MFIs and the religious restrictions on women, we hypothesise that:

H4: Islamic MFIs approach fewer female borrowers than conventional MFIs

2.4 Mission drift

The extensive commercialisation of conventional MFIs may have shifted their orientation from social mission (outreach) fulfilment to profit generation (Dichter and Harper, 2007; Mersland and Strøm, 2010; Hermes et al., 2011). A group of scholars has noticed a phenomenon called 'mission drift', in which financial sustainability is attained by sacrificing poverty outreach (Paxton et al., 2000; Cull et al., 2007; Hermes et al., 2011). In other words, MFIs have moved away from serving their poorer customers in pursuit of financial viability. This is because the unit transaction costs in terms of screening, monitoring and administration costs linked to smaller loans are higher than those linked to larger loans. Nobel Peace Prize winner Muhammad Yunus has said that clients who are financially better off crowd out poorer clients in any credit scheme.

Prior empirical studies implicitly and explicitly observe this 'mission drift' phenomenon caused by commercialisation. Navajas et al. (2003) note that since the mid-1990s, Bolivian MFIs have changed their lending technologies and the borrowers of their main businesses due to increased competition. Particularly, their result indicates that the new competitors in the Bolivian market offered loan contracts to less poor and more productive borrowers. McIntosh et al. (2005) present that wealthier borrowers are more likely to benefit from growing competition among conventional MFIs, resulting in reduced access to finance for poorer borrowers. Cull et al. (2007) find that conventional MFIs that mainly provide loans to the better-off poor (individuals) financially perform better than those that mainly provide loans to the poor (groups). This result suggests that conventional MFIs, especially if they focus on financial sustainability, prefer to serve wealthier clients and avoid poorer clients. Conventional MFIs are thus highly likely to experience 'mission drift'.

By contrast, as they are still in their infancy, Islamic MFIs have less of a focus on profits (El-Zoghbi and Tarazi, 2013). At this stage, Islamic MFIs face no or much less competition, because the market need for Islamic financial products is far more than the market supply for Islamic financial products. Practicing Muslims make up a large proportion of the poor around the world, and an estimated 650 million Muslims live on less than $2 a day (Obaidullah and Tariqullay, 2008). According to El-Zoghbi and Tarazi (2013), around 70% of Islamic MFIs' clients reside in two countries, Bangladesh and Sudan, whose GDP per capita rank 149 and 130 out of 184 in the 2015 World Bank ranking. Thus, the lack of competition among Islamic MFIs leads to a lack of motivation to commercialise that might cause mission drift.

As well, Islamic MFIs are not technically and operationally prepared for commercialisation. Financial principles enshrined in *Sharia* limit Islamic MFIs' capability to sustainably provide *Sharia*-compliant financial products at scale (El-Zoghbi and Tarazi, 2013). One principle is the prohibition on interest, which makes the application of a traditional microloan model technically impossible. Another principle is the encouragement of wealth generation through equity participation in business activities, which requires risk-sharing by financial service providers but does not guarantee returns. Therefore, Islamic MFIs are still very small compared with conventional MFIs, and around 90% of Islamic MFIs have fewer than 1,500 customers (El-Zoghbi and Tarazi, 2013). Thus, lacking technical and operational preparation, Islamic MFIs can hardly commercialise, which could lead to mission drift.

Finally, different social and cultural contexts might indicate different attitudes toward economic and social missions held by conventional and Islamic MFIs. Conventional MFIs operate in an environment where maximising capital and wealth are as important as helping the poor. Thus, although the origin of convential MFIs is motivated by the thought of helping the poor, it is reasonable for them to shift their mission to profit generation when that becomes possible. In contrast, the religious spirit of Islam emphasises the equal distribution of social welfare and forbids speculative behaviours. Namely, the Islamic finance context prioritises helping people over maximising capital and wealth. Thus, motivated by this religious spirit, Islamic MFIs might continue to focus on social mission achievement.

Therefore, based on the above discussion, we hypothesise that:

H5: Islamic MFIs are less likely to experience mission drift than conventional MFIs

3   Data, measures and descriptive statistics
3.1 Data collection and selection

We collect MFI information from the MIX Market database, a worldwide microfinance information platform for MFIs. This database employs information voluntarily reported by individual MFIs about their financial statements and balance sheets. Since most of these financial statements and balance sheets are audited, this database is extensively considered accurate and reliable. However, we should also note that this database does not contain information from all MFIs because many MFIs choose not to report to this data platform. We

denominate all financial variables into US dollars and adjust for country-specific inflation. We identify 1,320 MFIs (including 1,282 conventional MFIs and 38 Islamic MFIs) operating in four regions, including East Asia and Pacific, South Asia, Middle East and North Africa, and Eastern Europe and Central Asia, over the period of 1998 to 2014. A large percentage of the poor in these four regions are practicing Muslims. After adjusting for missing data, our final sample contains 7,919 firm-year observations.

We manually classify MFIs in the MIX Market database into two categories, conventional or Islamic, in light of the following procedures. We first identify regions with a presence of Islamic MFIs, and remove the remaining regions from the database. We then distinguish Islamic MFIs from conventional MFIs in these selected regions. Following Abedifar et al. (2013), we define Islamic MFIs as entities that offer Islamic microcredit products and services. Namely, Islamic MFIs are MFIs that fully or partially provide *Sharia*-compliant products or services. Some IMFIs are well known, while others are easily identified through their unique names, for example, Muslim Aid (Bangladesh), Akhuwat (Pakistan) or BMT (Indonesia). There exist 35 MFIs that only provide *Sharia*-compliant products or services, and 3 MFIs with a separate business branch that particularly provide *Sharia*-compliant products or services in the database. Appendix C presents all Islamic MFIs and their locations.

3.2 Empirical methods and variables

We examine the difference between conventional and Islamic MFIs, and our baseline regression model is presented below:

$$Y_{i,t} = \alpha + \beta_1 * Islamic\ MFI_{i,t} + \beta_2 * Controls_{i,t} + \beta_3 * Country_i + \beta_4 * Year_t + \varepsilon_{i,t}\ (1)$$

Where *Y* represents three groups of dependent variables: *Financial Performance*, *Credit Risk* and *Outreach*. *Financial Performance* is a group of variables including *Operational Costs*, *Administrative Costs*, *ROA* and *Operational Self-Sufficiency (OSS)*. *Credit Risk* is a group of variables including *PaR>90days*, *Write-off Ratio* and *Loan Loss Rate*. Outreach includes three variables: *Ln of No. of Active Borrowers, Average Loan Size* and *Percentage of Female Borrowers*. The variable of primary interest, *Islamic MFI*, is a dummy variable that equals one if an MFI is Islamic, and 0 if it is conventional. *Country* and *Year* control for both country and year fixed effects.

Following prior studies, we construct two measures of cost, one measure of profitability and one measure of financial self-sufficiency, respectively: 1) Operational Costs; 2) Administrative Costs; 3) Return on Assets (ROA); and 4) Operational Self-Sufficiency (OSS).[1] Although not-for-profit organisations employ a wide range of measures to represent their cost and profitability, like for-profit organisations, these four measures are the most widely employed. Market performance measures are not applicable since the MFIs in our database are not listed. *Operational costs* are defined as the operational costs divided by the loan portfolio, and mainly contain wages and administrative costs. *Administrative costs* are measured as the natural logarithm of total administrative costs on the loan portfolio.

As the traditional for-profit-maximisation measure across different institutions, *ROA* is defined as the ratio of net operating income to total assets. According to the MIX Market definitions of financial and operational self-sufficiency, *Operational Self-Sufficiency (OSS)* is defined as total financial revenue divided by the sum of financial expense, operating expense and loan loss provision expense. If an MFI's *OSS* is above 100%, it indicates that this MFI is operationally self-sufficient. If an MFI's *OSS* is above 110%, it indicates that this MFI is financially self-sufficient. *OSS* mirror the MFIs' ability to sustain their operations without subsidies, while *ROA* mirrors the MFIs' ability to generate profits using their assets.

Following Gutiérrez-Nieto et al. (2009), Mersland and Strøm (2009), González (2010), Bogan (2012) and Blanco-Oliver et al. (2016), we employ three measures of credit risk: 1) *Portfolio at Risk >90days (PaR>90days)*; 2) *Write-off Ratio*; 3) *Loan Loss Rate*. For lending institutions, the default possibility (Portfolio at Risk) is a crucial management measure since non-payments result in default losses (Write-off), which might impact their financial feasibility and future survival. *PaR>90days* is the percentage of the portfolio that is overdue for more than 90 days. *Write-off Ratio* is the percentage of the total amount of loans written off to gross loan portfolio. *Loan Loss Rate* is the ratio of the difference between write-offs and loans recovered to gross loan portfolio. A higher proportion of loan delay, write-off and loss implies higher credit risk.

Since information on the income or wealth of individual borrowers to measure their poverty levels is not available, prior studies tend to use the following two indicators as proxies of poverty outreach: 1) *No. of Active Borrowers*; 2) *Average Loan Size to GNI/Capita* (Cull et

---

[1] These four measures are employed in Mersland and Strøm (2009), Armendáriz and Morduch (2010), Ahlin et al. (2011), Galema et al. (2011), Servin et al. (2012), Strøm et al. (2014), Tchuigoua, (2014), Tchuigoua (2015), Randøy et al. (2015), Blanco-Oliver et al. (2016) and D'Espallier et al. (2017).

al., 2009; Mersland and Strøm, 2009; Louis et al., 2013; Roberts, 2013). *No. of Active Borrowers* reflects the total number of individuals that an MFI serves. More active borrowers indicates greater poverty outreach, because, holding the total lending constant, the number of borrowers that an MFI can reach is inversely related to the number of borrowers. *Average Loan Size* is the average loan size per borrower divided by country group national income per capita. Smaller loans are usually taken by poorer borrowers, indicating greater poverty outreach. *Percentage of Female Borrowers* is the number of active female borrowers divided by the total number of active borrowers. A higher percentage of female borrowers indicates better approach to female borrowers.

Following Servin et al. (2012), D'Espallier et al. (2013), Strøm et al. (2014) and D'espallier et al. (2017), we control for a battery of variables related to firm performance and MFI characteristics. *Size*, namely total assets, and *Age*, classified as new, young and mature in our case, reflect the competitiveness of an MFI. *Leverage*, debt-to-equity ratio, shows the financial health of an MFI and *Total Assets Growth* shows the expansion speed of an MFI. *Portfolio Yield*, the interest revenue (or mark-up and dividend revenue) divided by gross loan portfolio, mirrors an MFI's loan portfolio scale and output. *Deposits-to-Assets* ratio reflects the importance of deposits in an MFI's operation. *Target Market*, classified as low-end, high-end, small business and broad, reflects the business strategy of an MFI. *Dummy For_Regulated* shows whether an MFI is regulated or not. Differences in legal status reflect different rights and duties in conducting businesses. *Profit-Oriented or Not* reflects whether the orientation of an MFI is profit or social mission. *Disclosure Ratings* by the MIX Market database range from one to five, which implies the increasing disclosure quality. *No. of Loan Officers* and *No. of Offices* indicate firm competitiveness from a personnel perspective. The definitions of all measures are presented in Appendix A.

3.3 Descriptive statistics

In Appendix B, we present data on 58 countries with conventional and Islamic MFIs within the regions of East Asia and Pacific, South Asia, Middle East and North Africa, and Eastern Europe and Central Asia. Islamic MFIs are distributed in 14 countries, including Afghanistan, Bangladesh, Indonesia, Iraq, Jordan, Kosovo, Kyrgyzstan, Lebanon, Malaysia, Pakistan, Palestine, Sudan, Syria and Yemen (Appendix C). Malaysia and Sudan only have Islamic MFIs. Table 1 reports descriptive statistics for all variables. To minimise the impact of

outliers, we winsorize the continuous variables at one percentile level. We find that 3.4% of the observations are linked to Islamic MFIs and 96.6% of the observations are related to conventional MFIs.

The last column presents the comparison of conventional and Islamic MFIs in terms of the means of all variables. Islamic MFIs exhibit obviously much higher operational costs than conventional MFIs. This is consistent with the literature that, tied to assets, Islamic financial products face much higher operational costs than conventional financial products. Islamic MFIs witness a negative mean of ROA (-0.029) and conventional MFIs witness a positive mean of ROA (0.012), so overall Islamic MFIs experience losses and conventional MFIs make profits. The median of Islamic MFIs' ROA is 0.011, suggesting that over half of Islamic MFIs also make profits. This evidence is line with our expectation that Islamic MFIs are less profitable and self-sufficient than conventional MFIs, due to higher operational costs and lower prices of their products and services.

On average, female borrowers account for over 50% for both conventional and Islamic MFIs, indicating that both types of MFIs emphasise lending to women, either whether for themselves or on behalf of their families (Rahman, 2007; Abdelkader and Salem, 2013). However, Islamic MFIs have a noticeably lower percentage of female borrowers than conventional MFIs. This finding reflects our prediction that Islamic MFIs approach fewer female borrowers than conventional MFIs due to the different target between the two MFIs and the religious restrictions on women. The remaining dependent variables, such as administrative costs, OSS, PaR>90, write-off ratio, loan loss rate, number of active borrowers and average loan size, do not show a significant difference between conventional and Islamic MFIs. Both conventional and Islamic MFIs' mean values of OSS are above 110%, indicating that both types of MFI are operationally and financially self-sufficient.

The average total assets of conventional MFIs are around $52 million, and for Islamic MFIs around $20 million. Islamic MFIs are younger than conventional MFIs. The leverage (debt to equity ratio) of Islamic MFIs (around six) is three times larger than conventional MFIs (around two). Islamic MFIs are less likely to be legally regulated and profit-oriented than conventional MFIs. Islamic MFIs have higher deposits-to-assets ratios, more loan officers and more loan offices, since they are restricted to investing other assets (such as bonds) by *Sharia*. Islamic MFIs exhibit lower disclosure quality than conventional MFIs because, being relatively smaller and younger, Islamic MFIs have not developed financial reporting systems as qualified

as conventional MFIs. Differences between total assets growth, gross loan portfolio, portfolio yield and target market are insignificant between these two kinds of MFIs.

[Insert Table 1 here]

4 Empirical results

4.1 Financial performance

We argue that an MFI has better financial performance, if it shows higher cost efficiency, profitability and financial self-sufficiency. In the 1980s and 1990s, the continuing reliance on subsidies and unsatisfactory outreach performance led to the development of a new microfinance premise: financial self-sufficiency (Louis et al., 2013). Financial self-sufficiency reflects an MFI's ability to continue its operations if it receives no further subsides. Morduch (1999) states that cost control and efficiency would eventually lower MFIs' dependency on subsidies, thereby enabling MFIs to stay in business in the long run. On the other hand, with no further subsidies, MFIs must endeavour to generate sufficient profits from their core activities to cover their costs. Therefore, to pursue the goal of long-term operations, MFIs tend to reduce their costs, increase their profits and eventually become financially self-sufficient.

Table 2 reports estimates from the baseline regressions. In Columns (1) and (2), *Islamic MFI* is significantly and positively associated with *Operational Costs* and *Administrative Costs* at the 1% level. This evidence reflects the economically significant difference between these two costs for the two types of MFI. For instance, the coefficient of *Islamic MFI* on *Operational Costs* (0.143) indicates that the operational costs of Islamic MFIs are 0.143 higher than those of conventional MFIs, which account for 67% of the average operational costs of the total sample (0.213). This result supports our expectation that the assets-involved character of Islamic MFIs' financial products creates much higher operational and administrative costs for them. In Columns (3) and (4), *Islamic MFI* is negatively and significantly related to *ROA* and *OSS* at the 1% level. This evidence reveals the economically significant difference in profitability and financial self-sufficiency between conventional and Islamic MFIs. For instance, the coefficient of *Islamic MFI* on *OSS* (-0.157) indicates that Islamic MFIs' *OSS* is 0.157 lower than that of conventional MFIs, which accounts for 12.9% of the average OSS of the total sample (1.217). Our result hence provides evidence to support our hypothesis (H1) that Islamic MFIs are less profitable and self-sufficient than conventional MFIs.

In terms of control variables, targeting high-end and broad markets, larger, regulated and not new MFIs with higher portfolio yield, lower write-off ratio and more offices have higher ROA. Not targeting small business markets, larger and not new MFIs with higher portfolio yield and lower write-off ratio have higher financial self-sufficiency. Larger, mature and regulated MFIs with higher write-off ratio, more active borrowers, a not-for-profit orientation and higher disclosure quality have higher operational and administrative costs. These results regarding control variables are consistent with those reported in D'Espallier et al. (2013).

[Insert Table 2 here]

4.2 Credit risk

We argue that an MFI has lower credit risk if it has fewer loan defaults, i.e. a lower percentage of loans that are overdue more than 90 days, that are written-off and permanently impaired. Modern microfinance was planned as a response to the high default risk in subsidised rural credit during the period of 1950-1985 (Hulme and Mosley, 1996). Nowadays, MFIs' top management tends to keep loan defaults down; thus, the lower default risk in microfinance is one of the industry's main achievements (Mersland et al., 2013). Preventing or limiting loan defaults is also an important strategy to lower total costs and support financial self-sufficiency. Conventional MFIs tend to use intensive monitoring and higher default penalty to cut loan defaults, while Islamic MFIs tend to rely on the moral obligations implicit in *Sharia* that encourage obligation fulfilment and prohibit arbitrary activities to prevent loan defaults.

Table 3 reports estimates from the baseline regressions. Columns (1) to (3) show that *Islamic MFI* is negatively and significantly associated with *PaR>90days*, *Write-off Ratio* and *Loan Loss Rate* at the 5% level. This result overall reflects the economically significant difference between conventional and Islamic MFIs in credit risk. For instance, the coefficients of *Islamic MFI* (-0.020) on *PaR>90days* indicate that the percentage of loans overdue more than 90 days is 0.02 lower than those of conventional MFIs, which accounts for 43.5% of the average value of the total sample (0.046). In accordance with our hypothesis (H2b), our result shows that Islamic MFIs bear a lower credit risk than conventional MFIs. This evidence also suggests that although the design of Islamic financial products is technically prone to credit

risk, religious belief encourages Muslim borrowers to fulfil their obligations under Islamic loan contracts, resulting in overall lower credit risk (Abedifar et al., 2013; Baele et al., 2014).

In terms of control variables, larger and mature MFIs with faster total assets growth and lower ROA have higher a write-off ratio. Larger and regulated MFIs with higher leverage, faster total assets growth, lower deposits-to-assets and for-profit orientation have a higher loan loss rate. New MFIs with higher deposits-to-assets, less loan officers and more offices have more loans overdue for more than 90 days. This evidence regarding control variables is consistent with that reported in Mersland and Strøm (2009), D'espallier et al. (2013) and D'Espallier et al. (2017).

[Insert Table 3 here]

4.3 Outreach

We argue that an MFI has better outreach if it reaches more active borrowers. The number of active borrowers not only reflects the breadth of the outreach (how many poor people are served), but also the depth of outreach (how poor are the people served), because, holding the total lending constant, the poverty level of the borrowers an MFI can reach is inversely related with the total number of borrowers. A socially responsible MFI will pursue the goal of reaching the poorest people while at the same time serving a large number of borrowers. We also argue that an MFI performs better in serving female borrowers if it reaches a higher percentage of female borrowers. Both socially and religiously responsible MFIs will purse the goal of lending to more women, although religiously responsible MFIs tend to reach more women through their families.

Column (1) in Table 4 presents that *Islamic MFI* is positively and significantly linked to *Ln of No. of Active Borrowers* at the 1% level. The economic significance of this difference is also sizeable. The coefficients of *Islamic MFI* (0.394) suggest that Islamic MFIs have on average 39.4% more active borrowers than conventional MFIs. This evidence is consistent with our hypothesis (H3) that Islamic MFIs have a better poverty outreach than conventional MFIs. Column (2) presents that Islamic MFI is negatively and significantly related to *Percentage of Female Borrowers* at the 1% level. The economic magnitude of this difference is substantial. The coefficients of Islamic MFI (-0.163) indicate that the percentage of female borrowers for Islamic MFIs is lower than that for conventional MFIs by 26.3% (=0.163/0.619). This evidence

conforms our hypothesis (H4) that Islamic MFIs approach fewer female borrowers than conventional MFIs.

We add average loan size as an additional variable of outreach. *Average Loan Size* is the average loan size per borrower divided by country group national income per capita. Smaller loans are usually taken out by poorer borrowers, indicating greater outreach. However, according to Hoepner et al. (2017), average loan size is not a good indicator of poverty outreach because it is not necessarily associated with borrower poverty. First, institutional characteristics, such as maximum loan size, risk management practices or regulatory boundaries of MFIs' operations, are stronger drivers of an MFI's average loan size than borrower poverty (Christen, 2001; Dunford, 2002; Gonzalez and Rosenberg, 2006). Second, small loans are not predominantly given to very poor borrowers, since less poor borrowers might also be interested in more flexible small loans (Dunford, 2002; Olivares-Polanco, 2005). Column (3) presents that *Islamic MFI* is negatively and significantly linked to *Average Loan Size* at the 1% level. The economic significance of this difference is also sizeable. The coefficients of *Islamic MFI* (-0.371) suggest that Islamic MFIs have on average 37.1% smaller loan size than conventional MFIs, indicating our former results are robust.

In terms of control variables, larger and mature MFIs with slower total assets growth, higher disclosure ratings, more loan officers and fewer offices have more active borrowers. Larger, new and regulated MFIs with less portfolio yield, a not-for-profit orientation and lower disclosure ratings have larger loan size. Regulated MFIs with a for-profit orientation, more loan officers and fewer offices have a higher percentage of female borrowers. These results regarding control variables are in line with those reported in Tchuigoua (2015).

[Insert Table 4 here]

4.4 Mission drift

We finally investigate the difference between conventional and Islamic MFIs with regards to mission drift. Our baseline regression is exhibited below:

$$Outreach_{i,t} = \alpha + \beta_1 * Islamic\ MFI_{i,t} + \beta_2 * Islamic\ MFI_{i,t} * ROA_{i,t}$$
$$+ \beta_3 * ROA_{i,t} + \beta_4 * Controls_{i,t} + \beta_5 * Country_i + \beta_6 * Year_t$$
$$+ \varepsilon_{i,t} \quad (2)$$

If 'mission drift' happens, we would expect Beta 3 to be negative and significant, indicating that an increase in profitability is associated with a decrease in poverty outreach. The variable of primary interest is the interaction term *Islamic MFI*ROA*, which represents the difference between Islamic and conventional MFIs in the impact of ROA on outreach. If we conjecture that Islamic MFI is less likely to experience 'mission drift', we would expect Beta 2 to be positive and significant, indicating that the negative relationship between ROA and outreach is less severe for Islamic MFI.

Columns (4) to (5) in Table 4 report the results. Column (4) shows that *ROA* is negatively related to *Ln of No. of Active Borrowers* at the 5% level. The coefficient of *ROA* (-0.748) suggests that a 1% increase of MFIs' ROA leads to a 0.75% decrease of number of active borrowers. Namely, an increase in profitability is linked to a decrease in poverty outreach, so 'mission drift' happens. The interaction term *Islamic MFI*ROA* is positively and significantly related to *Ln of No. of Active Borrowers* at the 1% level. This result suggests that the negative relation between ROA and poverty outreach is less obvious for Islamic MFIs, so Islamic MFIs are less likely to experience 'mission drift' than conventional MFIs. Column (5) shows that *ROA* is positively related to *Average Loan Size* at the 5% level. The coefficient of ROA (0.631) suggests that a 1% increase in MFIs' ROA leads to a 0.63% increase of average loan size. Since a larger *Average Loan Size* indicates less poverty outreach, an increase in profitability is related to a decrease in poverty outreach, which causes 'mission drift'. The interaction term *Islamic MFI*ROA* is negatively and significantly related to *Average Loan Size* at the 1% level. This result also indicates that the negative relation between ROA and poverty outreach is less obvious for Islamic MFIs, so Islamic MFIs are less likely to experience 'mission drift' than conventional MFIs. These two results confirm our hypothesis (H5) that compared with conventional MFIs, Islamic MFIs experience less 'mission drift'.

[Insert Table 4 here]

21

5 Conclusion

Because they are incompatible with the financial principles in *Sharia* (Islamic law), it is hard for conventional MFIs to penetrate into regions with a substantial Muslim population (Karim et al., 2008). The high demand for loans highlights the need to provide religiously compatible products to the underserved Muslim poor, resulting in the advent of Islamic microfinance as a new market niche (Karim et al., 2008). Mersland et al. (2013) call for microfinance research that takes religions into consideration, but the actual performance or outcome of Islamic MFIs remains a mystery. Thus, our study intends to evaluate the performance of Islamic MFIs and then compare it with that of conventional MFIs from four aspects: 1) financial performance; 2) credit risk; 3) outreach; 4) mission drift.

We hypothesise that Islamic MFIs have less profitability, less self-sufficiency, less or more credit risk, more poverty outreach, fewer female borrowers and less 'mission drift'. Employing a sample of firms from four regions for the period 1998 to 2014, we find empirical evidence for our hypotheses. Our study sheds light on extant literature from two perspectives. First, our research adds to the limited empirical literature on the role of Islamic finance in the economy and comparative literature between conventional and Islamic finance. Second, our research extends and complements the current literature on microfinance. In response to Mersland et al.'s (2013) call for microfinance research that take religions into consideration, our research is the first study that investigates the impact of Islam on microfinance. This paper helps both practitioners and investors to gain a comprehensive understanding of the difference between conventional and Islamic MFIs. This study also has policy implications for governments in the Muslim world aiming to tackle national poverty in their nations/societies.

6 References

Abdelsalam, O., Fethi, M. D., Matallín, J. C. and Tortosa-Ausina, E. (2014) On the comparative performance of socially responsible and Islamic mutual funds. *Journal of Economic Behavior and Organization*, 103, 108-128.

Abdelkader, I. B., and Salem, A. B. (2013) Islamic vs conventional microfinance institutions: performance analysis in MENA countries, *International Journal of Business and Social Research*, 3(5), 218-233.

Abedifar, P., Hasan, I. and Tarazi, A. (2016) Finance-growth nexus and dual-banking systems: Relative importance of Islamic banks. *Journal of Economic Behavior & Organization*, 131, 198-215.

Abedifar, P., Molyneux, P. and Tarazi, A. (2013) Risk in Islamic banking. *Review of Finance*, 17(6), 2035-2096.

Aggarwal, R. K. and Yousef, T. (2000) Islamic banks and investment financing. *Journal of Money, Credit and Banking*, 93-120.

Agier, I., and Szafarz, A. (2013) Microfinance and gender: Is there a glass ceiling on loan size?, *World Development*, 42, 165-181.

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

Aribi, Z. A. and Arun, T. (2015) Corporate social responsibility and Islamic financial institutions (IFIs): Management perceptions from IFIs in Bahrain. *Journal of Business Ethics*, 129(4), 785-794.

Armendáriz, B. and Morduch, J. (2010) *The economics of microfinance*. MIT press.

Baele, L., Farooq, M. and Ongena, S. (2014) Of religion and redemption: Evidence from default on Islamic loans. *Journal of Banking & Finance*, 44, 141-159.

Bassens, D., Engelen, E., Derudder, B. and Witlox, F. (2013) Securitization across borders: organizational mimicry in Islamic finance. *Journal of Economic Geography*, 13(1), 85-106.

Beck, T., Demirgüç-Kunt, A. and Singer, D. (2013) Is small beautiful? Financial structure, size and access to finance. *World Development*, *52*, 19-33.

Biswas, S. (2010) India's micro-finance suicide epidemic. *BBC NEWS*, available at: http://www.bbc.co.uk/news/world-south-asia-11997571.

Blanco-Oliver, A., Irimia-Dieguez, A. and Reguera-Alvarado, N. (2016) Prediction-oriented PLS path modeling in microfinance research. *Journal of Business Research*, 69(10), 4643-4649.

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

Casselman, R. M., Sama, L. M. and Stefanidis, A. (2015) Differential social performance of religiously-affiliated microfinance institutions (MFIs) in base of pyramid (BoP) markets. *Journal of Business Ethics*, 132(3), 539-552.

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

Christen, R.P. and Drake, D. (2002) Commercialization: The new reality of microfinance. *The commercialization of microfinance: Balancing business and development*, 2-22.

Čihák, M. and Hesse, H. (2010) Islamic banks and financial stability: An empirical analysis. *Journal of Financial Services Research*, 38(2-3), 95-113.

Cull, R., Demirgüç-Kunt, A. and Morduch, J. (2007) Financial performance and outreach: A global analysis of leading microbanks. *The Economic Journal*, 117(517), 107-133.

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

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

Dehejia, R., Montgomery, H. and Morduch, J. (2012) Do interest rates matter? Credit demand in the Dhaka slums. *Journal of Development Economics*, 97(2), 437-449.

Derigs, U. and Marzban, S. (2009) New strategies and a new paradigm for Shariah-compliant portfolio optimization. *Journal of Banking & Finance*, 33(6), 1166-1176.

Dichter, T. W. and Harper, M. (Eds.). (2007) *What's wrong with microfinance?*. Rugby: Practical Action Publishing.

Dunford, C. (2002) What's Wrong with Loan Size?, *Davis, Freedom from Hunger*.

Elnahass, M., Izzeldin, M. and Abdelsalam, O. (2014) Loan loss provisions, bank valuations and discretion: A comparative study between conventional and Islamic banks. *Journal of Economic Behavior and Organization*, 103, 160-173.

El-Zoghbi, M. and Tarazi, M. (2013) Trends in Sharia-Compliant Financial Inclusion. *Brief. Washington, DC: CGAP*.

Field, E., Jayachandran, S. and Pande, R. (2010) Do traditional institutions constrain female entrepreneurship? A field experiment on business training in India, *The American Economic Review*, 100(2), 125-129.

Galema, R., Lensink, R. and Spierdijk, L. (2011) International diversification and microfinance. *Journal of International Money and Finance*, 30(3), 507-515.

Gheeraert, L. (2014) Does Islamic finance spur banking sector development?. *Journal of economic behavior and organization*, 103, 4-20.

Gonzalez, A. (2010) Is Microfinance Growing Too Fast?. *SSRN working paper*.

Gonzalez, A. and Rosenberg, R. (2006) The state of microcredit – outreach, profitability and poverty. *CGAP working paper*.

Gutiérrez-Nieto, B., Serrano-Cinca, C. and Molinero, C. M. (2009) Social efficiency in microfinance institutions. *Journal of The Operational Research Society*, 60(1), 104-119.

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

Hartarska, V., Shen, X. and Mersland, R. (2013) Scale economies and input price elasticities in microfinance institutions. *Journal of Banking & Finance*, 37(1), 118-131.

Hermes, N. and Lensink, R. (2011) Microfinance: its impact, outreach, and sustainability. *World Development*, 39(6), 875-881.

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

Hilary, G. and Hui, K.W. (2009) Does religion matter in corporate decision making in America? *Journal of Financial Economics,* 93(3), 455-473.

Hoepner, A.G.F., Liu, H., Sandberg, J and Wilson, J.O.S (2017) Measuring the Outreach of Microfinance: How does Average Loan Size relate to Client Poverty?. *St Andrews Working Paper*.

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

Islam, A., Nguyen, C. and Smyth, R. (2015) Does microfinance change informal lending in village economies? Evidence from Bangladesh, *Journal of Banking & Finance*, 50, 141-156.

Johnes, J., Izzeldin, M. and Pappas, V. (2014) A comparison of performance of Islamic and conventional banks 2004-2009. *Journal of Economic Behavior and Organization*, 103, 93-107.

Kabeer, N. (2001) Conflicts over credit: re-evaluating the empowerment potential of loans to women in rural Bangladesh, *World Development*, 29(1), 63-84.

Karim, N., Tarazi, M. and Reille, X. (2008) Islamic Microfinance: An Emerging Market Niche, *Brief. Washington, DC: CGAP*.

Kleynjans, L. and Hudon, M. (2016) A study of codes of ethics for Mexican microfinance institutions. *Journal of Business Ethics*, 134(3), 397-412.

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

Mallin, C., Farag, H. and Ow-Yong, K. (2014) Corporate social responsibility and financial performance in Islamic banks. *Journal of Economic Behavior and Organization*, 103, 21-38.

McIntosh, C., Janvry, A. and Sadoulet, E. (2005) How rising competition among microfinance institutions affects incumbent lenders. *The Economic Journal*, 115(506), 987-1004.

Mersland, R. and Strøm, R. Ø. (2010) Microfinance mission drift?. *World Development*, 38(1), 28-36.

Mersland, R. and Strøm, R.Ø. (2009) Performance and governance in microfinance institutions. *Journal of Banking & Finance*, 33(4), 662-669.

Mersland, R., D'Espallier, B. and Supphellen, M. (2013) The effects of religion on development efforts: Evidence from the microfinance industry and a research agenda. *World Development*, 41, 145-156.

Mohieldin, M., Iqbal, Z., Rostom, A. M. and Fu, X. (2011) The role of Islamic finance in enhancing financial inclusion in Organization of Islamic Cooperation (OIC) countries. *SSRN working paper.*

Navajas, S., Conning, J. and Gonzalez-Vega, C. (2003) Lending technologies, competition and consolidation in the market for microfinance in Bolivia. *Journal of International Development*, 15(6), 747-770.

Ngo, T. M. P. and Wahhaj, Z. (2012) Microfinance and gender empowerment, *Journal of Development Economics*, 99(1), 1-12.

Obaidullah, M. and Khan, T. (2008) Islamic microfinance development: Challenges and initiatives. *SSRN working paper.*

Obid, S.N.S. and Naysary, B. (2014) Toward a comprehensive theoretical framework for Shariah governance in Islamic financial institutions. *Journal of Financial Services Marketing*, 19(4), 304-318.

Olivares-Polanco, F. (2005) Commercializing microfinance and deepening outreach? Empirical evidence from Latin America. *ESR Review*, 7(2), 47.

Ong, A. (1990). State versus Islam: Malay families, women's bodies, and the body politic in Malaysia, *American Ethnologist*, 17(2), 258-276.

Paxton, J., Graham, D. and Thraen, C. (2000) Modeling group loan repayment behaviour: new insights from Burkina Faso. *Economic Development & Cultural Change*, 48(3), 639-55.

Pollinger, J. J., Outhwaite, J. and Cordero-Guzmán, H. (2007) The question of sustainability for microfinance institutions. *Journal of Small Business Management*, 45(1), 23-41.

Pomeranz, F. (1997) The accounting and auditing organization for Islamic financial institutions: An important regulatory debut. *Journal of International Accounting, Auditing and Taxation*, 6(1), 123-130.

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

Rahman, A.R.A. (2007) Islamic Economics: Theoretical and Practical Perspectives in a Global Context, *Islamic Microfinance: A Missing Component in Islamic Banking*.

Randøy, T., Strøm, R. Ø. and Mersland, R. (2015) The Impact of Entrepreneur-CEOs in Microfinance Institutions: A Global Survey. *Entrepreneurship Theory and Practice*, 39(4), 927-953.

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

Safieddine, A. (2009) Islamic financial institutions and corporate governance: New insights for agency theory. *Corporate Governance: An International Review*, 17(2), 142-158.

Servin, R., Lensink, R. and Van den Berg, M. (2012) Ownership and technical efficiency of microfinance institutions: Empirical evidence from Latin America. *Journal of Banking & Finance*, 36(7), 2136-2144.

Shaban, M., Duygun, M., Anwar, M. and Akbar, B. (2014) Diversification and banks' willingness to lend to small businesses: Evidence from Islamic and conventional banks in Indonesia. *Journal of Economic Behavior and Organization*, 103, 39-55.

Strøm, R. Ø., D'Espallier, B. and Mersland, R. (2014) Female leadership, performance, and governance in microfinance institutions. *Journal of Banking & Finance*, 42, 60-75.

Sundaresan, S. (2008) *Microfinance emerging trends and challenges*. Cheltenham, UK: Edward Elgar.

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

Tchuigoua, H. T. (2015) Capital structure of microfinance institutions. *Journal of Financial Services Research*, 47(3), 313-340.

Tchuigoua, H. T. (2016) Buffer capital in microfinance institutions. *Journal of Business Research*, 69(9), 3523-3537.

Table 1
Summary Statistics

This table displays descriptive statistics for all the variables of the total of 1,320 MFIs during the period of 1998 to 2014. Conventional MFIs are the subsample of 1,282 MFIs that only provide traditional financial products and services, and Islamic MFIs are the subsample of 38 MFIs that fully or partly provide Islamic financial products and services. All variables are explained in Section 3.2 and their formal definitions are presented in Appendix A.

Variables	All MFIs			Conventional MFIs			Islamic MFIs			Mean Difference
	Mean	SD	N	Mean	SD	N	Mean	SD	N	
Explanatory Variable										
Islamic MFI	0.034	0.180	7919							
Dependent Variables										
Operational Costs	0.213	0.187	5962	0.211	0.184	5752	0.300	0.259	210	0.089***
Administrative Costs	1975	9715	4747	2016	10077	4571	923	1289	176	1093
ROA	0.018	0.161	5971	0.012	0.161	5764	-0.029	0.174	207	-0.040***
OSS	1.217	0.588	5785	1.219	0.583	5587	1.156	0.725	198	-0.063
PaR>90days	0.046	0.084	4863	0.046	0.085	4684	0.054	0.048	179	0.008
Write-off Ratio	0.014	0.067	5358	0.014	0.068	5172	0.015	0.053	186	0.001
Loan Loss Rate	0.017	0.041	5511	0.017	0.041	5305	0.015	0.029	206	-0.002
No. of Active Borrowers	88726	52715	7220	90255	50456	6974	45379	116781	246	-44875
Average Loan Size	1.530	0.531	7159	1.582	0.548	6914	0.585	0.050	245	-1.000
Percentage of Female Borrowers	0.605	0.262	5371	0.619	0.263	5180	0.563	0.228	191	-0.056***
Control Variables										
Size	51363	667733	7547	52444	689319	7294	20214	45410	253	-32230***
Age_Mature	0.570	0.495	7612	0.574	0.495	7354	0.465	0.500	258	-0.108***
Age_New	0.204	0.402	7612	0.202	0.401	7354	0.248	0.433	258	0.046*
Leverage	5.845	0.189	7250	5.982	0.173	7008	1.869	0.666	242	-4.113***
Total Assets Growth	0.521	1.049	6056	0.524	1.059	5848	0.450	0.762	208	-0.744
Portfolio Yield	0.295	0.136	4782	0.294	0.136	4601	0.308	0.147	181	0.013
Deposits-to-Assets	0.270	0.346	5574	0.268	0.347	5394	0.315	0.310	180	0.046*
Target Market_Low End	0.336	0.472	7919	0.338	0.473	7653	0.286	0.413	266	-0.052
Target Market_High End_	0.053	0.224	7919	0.053	0.223	7653	0.068	0.252	266	0.015
Target Market_Small Business	0.049	0.217	7919	0.050	0.217	7653	0.041	0.199	266	-0.008

Dummy_For Regulated	0.683	0.465	7919	0.689	0.463	7653	0.500	0.501	266	-0.450***
Dummy_For Profit	0.406	0.491	7891	0.408	0.491	7629	0.350	0.478	262	-0.058*
Disclosure Ratings	2.675	1.414	7891	2.681	1.414	7629	2.489	1.427	262	-0.192***
No. of Loan Officers	198	1182	5390	197	1209	5188	234	277	192	37***
No. of Offices	41	185	5275	41	189	5089	56	62	186	14***

Table 2
Financial Performance

This table reports panel regression results of financial performance on Islamic MFIs in the sample period 1998 to 2014. For dependent variables, *Operational Costs* are the operational costs divided by the gross loan portfolio. *Administrative Costs* are the administrative costs on the gross loan portfolio. *Operating Self-Sufficiency (OSS)* is defined as total financial revenue divided by the sum of financial expense, operating expense and loan loss provision expense. *ROA* is the ratio of net operating income to total assets. The independent variable *Islamic MFI* is a dummy variable which equals one if an MFI is Islamic, and 0 if it is conventional. Definitions of all variables are shown in Appendix A. In all columns, country fixed and year fixed effects are further controlled. Figures in parentheses are t-statistics and *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

Dependent Variables	Operational Costs	Ln (Administrative Costs)	ROA	OSS
	(1)	(2)	(3)	(4)
Islamic MFI	0.143***	0.142**	-0.050***	-0.157***
	(2.59)	(2.01)	(-2.59)	(-2.77)
Ln(Size)	0.644***	0.721***	0.024**	0.029
	(11.72)	(12.92)	(2.56)	(0.84)
Age_Mature	-0.226***	-0.151***	-0.001	-0.072
	(-7.79)	(-4.64)	(-0.24)	(-1.39)
Age_New	0.058	0.084*	-0.046***	-0.037***
	(1.43)	(1.71)	(-5.24)	(-4.14)
Leverage	-0.000	-0.000	0.000	0.000
	(-1.18)	(-0.66)	(-0.13)	(-0.47)
Total Assets Growth	0.000	0.001***	0.000	0.000
	(1.11)	(8.97)	(1.39)	(-1.21)
Portfolio Yield	0.123***	0.102***	0.147***	0.425***
	(3.67)	(3.12)	(3.20)	(2.91)
Deposits-to-Assets	0.060	0.046	-0.005	-0.002
	(1.38)	(0.90)	(-0.54)	(-0.25)
Write-off Ratio	1.622***	0.802***	-0.226**	-1.300***
	(4.11)	(3.01)	(-2.29)	(-3.02)
Target Market_Low End	0.004	0.005***	-0.011***	0.006
	(1.05)	(2.58)	(-3.19)	(1.56)
Target Market_High End	-0.008	-0.003	0.001	-0.006
	(-1.40)	(-1.13)	(0.12)	(1.12)
Target Market_Small Business	-0.025***	-0.000	-0.021***	-0.099**
	(-3.37)	(-0.07)	(-2.59)	(-2.18)
Dummy_For Regulated	0.082***	0.142**	0.051**	-0.002
	(3.00)	(1.98)	(2.34)	(-0.78)
Dummy_For Profit	-0.035	-0.090*	-0.004	-0.004
	(-0.92)	(-1.95)	(-0.58)	(-0.82)
Disclosure Ratings	0.061***	0.033***	-0.003	-0.002
	(6.19)	(2.68)	(-1.56)	(-1.34)
Ln(No. of Loan Officers)	0.002	0.012	-0.000	-0.000
	(0.16)	(0.64)	(-0.05)	(-0.09)
Ln(No. of Offices)	-0.007	-0.012	0.006*	0.003
	(-0.40)	(-0.61)	(1.91)	(1.05)
Constant	-0.863*	-1.008***	-0.120***	-0.293***
	(-1.86)	(-4.17)	(-3.09)	(-7.15)
Country Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
N	2560	2543	2564	2498
adj. R^2	0.5575	0.5556	0.357	0.534

Table 3
Credit Risk

This table reports panel regression results of credit risk on Islamic MFIs in the sample period 1998 to 2014. For dependent variables, *PaR>90days* is the percentage of the portfolio that is overdue for more than 90 days. *Write-off ratio* is the percentage of the total amount of loans written off to gross loan portfolio. *Loan Loss Rate* is the ratio of the difference between write-offs and loans recovered to gross loan portfolio. The independent variable *Islamic MFI* is a dummy variable which equals one if an MFI is Islamic, and 0 if it is conventional. Definitions of all variables are shown in Appendix A. In all columns, country fixed and year fixed effects are further controlled. Figures in parentheses are t-statistics and *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

Dependent Variables	PaR>90days	Write-off Ratio	Loan Loss Rate
	(1)	(2)	(3)
Islamic MFI	-0.020**	-0.005**	-0.008**
	(-2.28)	(-2.27)	(-2.27)
Ln(Size)	-0.004	0.037*	0.007**
	(-0.74)	(1.79)	(2.03)
Age_Mature	-0.001	0.000	0.002
	(-0.23)	(0.09)	(0.79)
Age_New	0.013*	-0.013***	0.005
	(1.76)	(-3.06)	(1.40)
Leverage	0.000	-0.000	0.000***
	(1.57)	(-0.56)	(3.17)
Total Assets Growth	0.000	0.000**	0.000***
	(0.84)	(2.27)	(3.17)
Portfolio Yield	-0.004	-0.015	0.009
	(-0.32)	(-0.78)	(1.05)
Deposits-to-Assets	0.054***	0.007	-0.008**
	(5.44)	(1.36)	(-2.28)
ROA	0.006	-0.072***	-0.001
	(0.22)	(-3.58)	(-0.12)
Target Market_Low End	-0.000	0.000	-0.294
	(-0.04)	(0.01)	(-1.03)
Target Market_High End	-0.006	0.011	0.216
	(-0.81)	(0.78)	(0.48)
Target Market_Small Business	-0.019***	-0.001	-0.100
	(-3.56)	(-0.29)	(-0.52)
Dummy_For Regulated	0.007	0.005	0.011***
	(0.59)	(1.27)	(2.91)
Dummy_For Profit	0.008	-0.001	0.006**
	(1.51)	(-0.54)	(2.12)
Disclosure Ratings	-0.001	0.001	-0.001
	(-0.73)	(0.88)	(1.12)
Ln (No. of Loan Officers)	-0.014***	0.000	0.002
	(-4.95)	(0.21)	(1.6)
Ln (No. of Offices)	0.008***	-0.001	-0.001
	(2.82)	(-0.81)	(-0.23)
Constant	0.080***	0.053**	-0.006
	(3.12)	(2.18)	(-0.42)
Country Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
N	2105	2060	2059
adj. R^2	0.161	0.169	0.156

Table 4
Social Performance: Outreach and Mission Drift

In this table, Columns (1) to (3) present panel regression results of poverty outreach on Islamic MFIs, and Columns (4) to (5) report panel regression results of mission drift on Islamic MFIs in the sample period 1998 to 2014. For dependent variables, *No. of Active Borrowers* reflects the total number of individuals that an MFI serves. *Average Loan Size* is the average loan size per borrower divided by country group national income per capita. *Percentage of Female Borrowers* is the number of active women borrowers divided by the total number of active borrowers. The independent variable *Islamic MFI* is a dummy variable which equals one if an MFI is Islamic, and 0 if it is conventional. The interaction term *Islamic MFI*ROA* represents the effect of the Islamic MFI's ROA on poverty outreach, namely mission drift. Definitions of all variables are shown in Appendix A. In all columns, country fixed and year fixed effects are further controlled. Figures in parentheses are t-statistics and *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

Dependent Variables	Ln(No. of Active Borrowers)	Percentage of Female Borrowers	Average Loan Size	Ln(No. of Active Borrowers)	Average Loan Size
	(1)	(2)	(3)	(4)	(5)
Dummy_Islamic MFI	0.394***	-0.163***	-0.371***	0.405***	-0.345***
	(3.07)	(-5.81)	(-3.61)	(3.33)	(-3.34)
Dummy_Islamic MFIs*ROA				1.328***	-0.742**
				(4.38)	(-2.33)
ROA	-0.609*	-0.068	0.056**	-0.748**	0.631**
	(-1.85)	(-0.95)	(2.11)	(-2.18)	(2.14)
Ln(Size)	0.801**	-0.016	0.151***	0.800***	0.151***
	(-4.53)	(-0.97)	(8.26)	(-4.58)	(8.26)
Age_Mature	0.072	0.005	0.007	0.075	0.006
	(1.36)	(0.36)	(1.08)	(1.42)	(0.93)
Age_New	-0.152**	-0.013	0.210**	-0.148**	0.207**
	(-2.30)	(-0.65)	(2.52)	(-2.23)	(2.49)
Leverage	0.000	0.000	-0.000	0.000	-0.000
	(0.17)	(0.36)	(-1.52)	(0.11)	(-0.96)
Total Assets Growth	-0.001***	-0.000***	-0.000	-0.001***	-0.000
	(3.81)	(-8.21)	(-0.61)	(3.54)	(-0.41)
Portfolio Yield	-0.010	0.012	-0.026***	0.041	-0.032***
	(-0.04)	(0.31)	(-2.87)	(0.14)	(-3.90)
Deposits-to-Assets	0.053	-0.004	-0.007	0.048	-0.005
	(0.75)	(-0.14)	(-1.47)	(0.67)	(-1.23)
Write-off Ratio	0.347	0.028	-0.047	0.313	-0.038
	(1.11)	(0.16)	(-1.09)	(1.01)	(-0.92)
Target Market_Low End	0.098*	0.244***	-0.046	0.096*	-0.044

	(1.79)	(21.10)	(-1.25)	(1.75)	(-1.21)
Target Market_High End	-0.178*	-0.096***	0.077	-0.179*	0.076
	(-1.70)	(-4.03)	(0.71)	(-1.71)	(0.70)
Target Market_Small Business	0.085	-0.144***	0.077	0.078	0.084
	(0.62)	(-6.13)	(0.66)	(0.57)	(0.72)
Dummy For_Regulated	-0.003	-0.053***	0.008**	-0.003	0.008**
	(-1.25)	(-2.97)	(2.23)	(-1.21)	(2.28)
Dummy_For Profit	0.063	0.166***	-0.130**	0.063	-0.130**
	(1.22)	(8.87)	(-2.17)	(1.21)	(-2.04)
Disclosure Ratings	0.114***	-0.005	-0.127***	0.113***	-0.126***
	(7.12)	(-1.10)	(-6.26)	(7.05)	(-6.23)
Ln(No. of Loan Officers)	0.049**	0.056***	0.000	0.050**	0.000
	(2.24)	(7.43)	(0.19)	(2.31)	(0.21)
Ln(No. of Offices)	-0.047*	-0.041***	2.790	-0.047*	2.644
	(-1.93)	(-4.65)	(1.35)	(-1.93)	(1.28)
Constant	-3.543***	6.522	-0.732***	-3.528***	-0.702***
	(-11.42)	(0.42)	(2.90)	(-11.37)	(2.76)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
N	2051	2049	2103	2015	2013
adj. R^2	0.897	0.281	0.594	0.898	0.380

Appendix A
Definitions of Variables

Variable Name	Definition
Dependent Variables	
Operational Costs	The operational costs divided by the gross loan portfolio, which mainly covers wages and administrative costs
Administrative Costs	The administrative costs on the gross loan portfolio
Return on Assets (ROA)	The ratio of net operating income to total assets
Operating Self-Sufficiency (OSS)	Total financial revenue divided by the sum of financial expense, operating expense and loan loss provision expense
PaR>90days	The percentage of the portfolio that is overdue for more than 90 days
Write-off Ratio	The percentage of the total amount of loans written off to gross loan portfolio Write off is an accounting procedure that removes the outstanding balance of loans from the items of Gross Loan Portfolio and Impairment Loss Allowance when these loans are recognised as uncollectable
Loan Loss Rate	The ratio of the difference between write-offs and loans recovered to gross loan portfolio
No. of Active Borrowers	The total number of individuals that an MFI serves
Average Loan Size	The average loan size per borrower divided by country group national income per capita
Percentage of Female Borrowers	The number of active women borrowers divided by the total number of active borrowers
Explanatory Variable	
Islamic MFI	A dummy variable equal to one if an MFI is Islamic, and 0 if it is conventional
Control Variables	
Size	Total assets
Leverage	Debt-to-equity ratio
Total Assets Growth	Annual growth rate of total assets
Portfolio Yield	The interest revenue divided by gross loan portfolio for conventional MFIs; the mark-up and dividend divided by gross loan portfolio for Islamic MFIs
Deposits-to-Assets	Deposits-to-assets ratio
Age_Mature	A dummy variable equal to one if an MFI is mature
Age_New	A dummy variable equal to one if an MFI is new
Target Market_Low End	A dummy variable equal to one if an MFI targets low-end markets
Target Market_High End	A dummy variable equal to one if an MFI targets high-end markets
Target Market_Small Business	A dummy variable equal to one if an MFI targets small business markets
Dummy_For Regulated	A dummy variable equal to one if an MFI is regulated; zero if it is not regulated
Dummy_For Profit	A dummy variable equal to one if an MFI is profit-oriented
Disclosure Ratings	Disclosure quality ratings by the MIX Market database. One indicates the lowest disclosure quality and five indicates the highest disclosure quality
No. of Loan Officers	Total number of loan offices
No. of Offices	Total number of offices

Appendix B
The Distribution of Conventional and Islamic MFIs in Each Country

Country	No. of conventional MFIs	No. of Islamic MFIs	Percentage of Islamic MFIs
Afghanistan	15	3	16.67%
Albania	7	0	0
Armenia	17	0	0
Azerbaijan	35	0	0
Bangladesh	79	2	2.47%
Belarus	1	0	0
Bhutan	1	0	0
Bosnia and Herzegovina	17	0	0
Bulgaria	26	0	0
Cambodia	19	0	0
China	35	0	0
Croatia	2	0	0
East Timor	3	0	0
Egypt	16	0	0
Fiji	1	0	0
Georgia	19	0	0
Hungary	1	0	0
India	208	0	0
Indonesia	69	5	6.76%
Iraq	8	4	30.33%
Jordan	6	2	25.00%
Kazakhstan	48	0	0
Kosovo	11	1	8.33%
Kyrgyzstan	45	1	2.17%
Laos	20	0	0
Lebanon	5	1	16.67%
Macedonia	4	0	0
Malaysia	0	1	100%
Moldova	7	0	0
Mongolia	13	0	0
Montenegro	4	0	0
Morocco	11	0	0
Myanmar	1	0	0
Nepal	48	0	0
Pakistan	31	5	13.89%
Palestine	5	6	54.55%
Papua New Guinea	4	0	0
Philippines	119	0	0
Poland	4	0	0
Romania	8	0	0
Russia	115	0	0
Samoa	1	0	0
Serbia	4	0	0
Slovakia	1	0	0
Solomon Islands	1	0	0
Sri Lanka	27	0	0
Sudan	0	2	100%
Syria	2	1	33.33%
Tajikistan	45	0	0
Thailand	3	0	0
Tonga	1	0	0

Tunisia	1	0	0
Turkey	2	0	0
Ukraine	3	0	0
Uzbekistan	34	0	0
Vanuatu	1	0	0
Vietnam	43	0	0
Yemen	5	4	44.44%

Appendix C	
MFI Name and Location	
MFI Name	**Location**
Asasah	Pakistan
TMSS	Bangladesh
Akhuwat	Pakistan
FINCA - AFG	Afghanistan
Al Majmoua	Lebanon
Azal	Yemen
Bank of Khyber	Pakistan
Kompanion	Kyrgyzstan
FATEN	Palestine
DEF	Jordan
MBK Ventura	Indonesia
ACAD	Palestine
ASALA	Palestine
Jabal Al Hoss	Syria
PASED	Sudan
START	Kosovo
PARC	Palestine
AIM	Malaysia
Tadhamon	Yemen
Al-Thiqa	Iraq
BMT Pringsewu	Indonesia
Abyan	Yemen
FINCA - JOR	Jordan
Reef	Palestine
BMT Pelita Insa	Indonesia
BMT Kayu Manis	Indonesia
CHF Iraq	Iraq
CWCD	Pakistan
Al Aman	Iraq
Al Amal Bank	Yemen
Farz Foundation	Pakistan
Al Takadum	Iraq
BMT Sanama	Indonesia
Family Bank	Sudan
Mutahid	Afghanistan
Muslim Aid	Bangladesh
Islamic Relief	Palestine
IIFC Group	Afghanistan

Recent CRBF Working papers published in this Series

Fourth Quarter | 2017

17-012 **Rónán Gallagher and Barry Quinn:** Regulatory Own Goals: The Unintended Consequences of Financial Regulation in Professional Football.

Third Quarter | 2017

17-011 **Ahmed Marhfor, Kais Bouslah and Bouchra M'Zali:** Corporate Social Responsibility and Stock Price Informativeness: Evidence from the Canadian Market.

17-010 **Ross Brown and Colin Mason:** Looking Inside the Spiky Bits: A Critical Review and Conceptualisation of Entrepreneurial Ecosystems.

17-009 **Pejman Abedifar, Paolo Giudici and Shatha Hashem:** Heterogeneous Market Structure and Systemic Risk: Evidence from Dual Banking Systems.

Second Quarter | 2017

17-008 **Alberto Montagnoli, Mirko Moro, Georgios A. Panos and Robert E. Wright:** Financial Literacy and Attitudes to Redistribution.

17-007 **Dimitris Chronopoulos, Anna Lucia Sobiech and John O. S. Wilson:** Future Issues in Bank Taxation.

17-006 **Ross Brown and Neil Lee:** The Future of Funding for Small and Medium-Sized Enterprises in the UK.

17-005 **Jose Liñares-Zegarra and John O.S. Wilson:** Future Issues in Unsecured Consumer Debt.