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Competition in Microfinance Institutions: Does Voluntary Saving Product Have a Moderating Role?

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Abstract

This study investigates the effect of competition and the moderating role of voluntary savings on the outreach and sustainability of Microfinance Institutions (MFIs). The study uses data from 39 countries and 609 MFIs from 2004 to 2018. Unit of analysis in this study includes all MFIs in the Mix Market database. It uses Boone Indicator to measure competition. In addition, this study uses the random effects model to regress the model. We find that competition corresponds with decreased outreach and sustainability, but the value is insignificant. The first research question is how competition affects MFIs' outreach and sustainability, and the second research question is whether voluntary savings can work as a moderating variable in the relationship between competition and MFIs' outreach and sustainability. Findings of this study provide guidance to MFIs and regulators regarding the ideal form for MFIs whether they should prioritize lending or expand their services to include voluntary savings.

Keywords : Competition, Microfinance institutions, Moderating variable
JEL Classification : G21, O12

1. Introduction

Microfinance institutions (MFIs) are financial institutions that began in the 1970s, with the launch of Grameen Bank, providing financial services to the poor and intending to alleviate poverty (Wang et al., 2021). These institutions aimed to provide credit to the impoverished without collateral requirements so they could launch their income-generating activities. In addition, they offer financial services to individuals who lack access to traditional banking institutions, referred to as the un bankable. Due to its beneficial effects on the welfare of the poor, microfinance has since become a preferred development strategy in many developing nations.

The initial movement of MFIs as a tool for alleviating poverty received financial support from non-governmental organizations (NGOs), donors, social investment funds, and subsidies. Given the high costs associated with providing credit to the poor, it was anticipated that the outreach emphasis would conflict with financial sustainability, which is why MFIs required this type of financial assistance. On its way, the industry accepts double bottom-line objectives as its goal, a departure from initial social objectives, allowing financial objectives as the other goal (Pati, 2019). One of the MFIs' financial goals is to achieve sustainability, which refers to the MFIs' capacity to support its operating activities through self-generated income. Many researchers often use sustainability to measure MFIs' financial performance (Hermes & Hudon, 2018). Adhering to these two sets of objectives presents a potential for achieving a mutually beneficial outcome, thereby assisting the clients and the MFIs.

At first, the focus on the double bottom line advanced the idea that achieving financial sustainability is a means to social objectives rather than an end in and of itself. However, as profit opportunities increased, MFIs began to provide financial services to the poor for profit. MFIs are shifting their focus from social goals to achieving financial objectives. In the end, MFIs' exemplary performance in the financial goals attracted the interest of for-profit MFIs mainly focused on financial objectives, also known as commercialization. This commercialization increased the competition level (Mahmud et al., 2022). Both MFIs and borrowers have experienced rapid population growth in recent years. Globally, the number of poor households with access

to microcredit programs has expanded more than 18 times in the previous two decades, from 7.6 million in 1990 to 450 million in 2010. Many empirical studies show that competition between MFIs negatively impacts their outreach (Guha & Chowdhury, 2013; McIntosh et al., 2005). This effect is also known as mission drift, where MFIs choose to serve wealthier clients. Jia & Sun (2023) explained that increased competition has resulted in market saturation, putting pressure on MFIs to focus more on profit-making to survive. Kar & Bali Swain (2018) said there is a risk that encouraging competition will not improve the outreach performance of the dominant socially motivated MFI and may cause mission drift.

Increased competition is also characterized by multiple borrowing, an asymmetric problem in which a borrower can obtain loans from multiple MFIs without the MFIs being aware of it(Deb & Sinha, 2021). The likelihood that households will borrow from multiple MFIs increases as the number of MFIs in a village increases (Mahmud et al., 2022). The consequences of multiple borrowing worsen when there are ineffective credit bureaus. Research suggests that multiple borrowing results in high debt and low repayment rates (Guha & Chowdhury, 2013; Mcintosh & Wydick, 2005) and will worsen MFIs' financial performance.

Previous studies found that competition reduced female borrowers and increased loan disbursements. (Kar & Bali Swain, 2018b). Furthermore, according to Hossain et al. (2020) competition has reduced the average number of loans disbursed by MFIs and the number of borrowers served. Assefa et al.,(2013) discovered that competition reduces the average number of disbursed loans and increases the number of borrowers. Kar & Bali Swain (2014) demonstrates that competition positively impacts the quantity of female borrowers, while simultaneously leading to a decrease in the average value of loans given. The opposing views on how competition affects MFIs are consistent with the notions of competition-stability and competition-fragility in studies of competition in the banking sector.

Regarding financial objectives, competition harms loan quality of MFIs (Assefa et al., 2013; Kar & Bali Swain, 2014; Karimu et al., 2019). On the other hand, Kar & Bali Swain (2018b) find that increased competition leads to higher profits and higher quality loan portfolios. Competition, on the one hand, may have the effect of lowering loan interest rates (Boyd & Nicoló, 2005), but on the other hand, competition may also encourage multiple borrowings. Nevertheless, Besley & Ghatak (2005) put out argument elucidating that motivated agents, such as MFIs management, necessitate distinct motives compared to profit-oriented enterprises. As a result, the competition is ineffective at improving their performance.

Further investigation into the impact of competition on the financial and social objectives of MFIs is crucial, as the failure to attain financial objectives threatens the long-term viability of MFIs. Nevertheless, failure in achieving social goals will result in MFIs disability to accomplish their primary mission. The neoclassical literature theorizes that competition is beneficial for enterprises due to its ability to stimulate efficiency and innovation (Aghion & Howitt, 1992; Hart, 1983). Conversely, the Motivated Agent Theory argues that competition has a negative effect on socially oriented institutions (Besley & Ghatak, 2005). MFIs is seen as a socially oriented institution, therefore neo-classical competition theory cannot be applied to MFIs (Hossain et al., 2020). Recent evidence also shows that MFIs have reached substantial poor people. Worldwide, MFIs have served more than 140 million clients and disbursed loans of approximately $ 124 billion (Convergence, 2019).

In the meantime, voluntary savings were a form of MFIs diversification because, traditionally, most MFIs only offered loan products and not savings products to their consumers (Brau & Woller, 2004). This is because the poor need money for their businesses more than they need to save. But, over time, the poor also need voluntary savings products because the substitution of voluntary savings products in the community tends to be risky (Karlan et al., 2014), the poor need them as an investment tool as well as a safety net when shocks happen (Grosh & Somolekae, 1996) and to encourage borrowers to pay back on time (Montgomery, 1996). Other studies also demonstrate that not only can the impoverished save, but they also have a desire to do so (Collins et al., 2009).

The Financial Intermediation Theory can be used to investigate theories about the role of voluntary savings products. By acting as intermediaries between depositors and borrowers, financial institutions can reduce the information asymmetry between borrowers and lenders (Diamond, 1984, 1996). Financial institutions play a crucial role in monitoring borrowers by diversifying financing and debt contracts. This practice helps to minimize the direct monitoring costs that would otherwise be borne by depositors if they were to directly finance borrowers without the involvement of a financial institution. In essence, financial institutions act as delegated monitors on behalf of depositors.

The connection between the theoretical framework of competition in MFIs and voluntary savings products lies in the utilization of voluntary savings products enables MFIs to get additional information about prospective borrowers. Consequently, this information acquisition process diminishes the likelihood of a multiple borrowing. It also helps MFIs to find out more about their potential clients so it can minimize the mission drift. This phenomenon is particularly observed in cases when MFIs provide multiple types of savings products, such as time savings and time deposits (Fiebig et al., 1999). In such instances, this condition can serve as a useful screening tool for MFIs. In a study conducted by Westley & Palomas (2010), two microfinance institutions (MFIs) in Peru were surveyed. The findings revealed that the profits generated from loans provided to individuals who were both savers and borrowers were 91% and 51% of the overall profits, respectively. Delgado et al. (2014) also found that that most MFIs in their research have lower costs when they offer both savings and loan services. Theoretical framework of moderator variables can be employed to elucidate the capacity of voluntary savings to mitigate the detrimental impacts of

competition on social and financial goals (Gardner et al., 2017; M Baron & A Kenny, 1986). The purpose of moderating variables is to determine the degree to which a variable can affect the relationship between two variables (Hayes, 2018).

Studies on competition in MFIs indicate that competition has a negative impact on outreach and sustainability (Caballero-Montes, 2022; Hikouatcha et al., 2023; Mahmud et al., 2022). To the best of the authors' knowledge, further research has not been conducted on the variables that could mitigate this negative effect. Therefore, this research novelty is further investigation into factors that can minimize the negative impact of competition on MFIs. Since voluntary saving may support MFIs find new potential clients and reduce overall cost, it is suspected that voluntary saving able to overcome the negative effect of competition on performance. Voluntary saving product also positively impact MFIs' financial and social mission (Bruno & Khachatryan, 2020) and also able to minimize multiple borrowing which mainly caused by higher competition on MFIs (Tang et al., 2019). Thus, to fill this research gap, this study advances voluntary saving as moderating variables between competition and MFIs' financial and social goals. As a result, this study offers a novel moderating variable for the impact of competition on their performance in the form of voluntary savings.

Specifically, this study investigated two research questions. The first research question is how competition affects MFIs' outreach and sustainability, and the second research question is whether voluntary savings can work as a moderating variable in the relationship between competition and MFIs' outreach and sustainability. Findings of this study provide guidance to MFIs and regulators regarding the ideal form for MFIs whether they should prioritize lending or expand their services to include voluntary savings.

2. Hypotheses Development

When faced with competition, microfinance institutions (MFIs) tend to limit their outreach to the poor due to rising costs caused by asymmetric information. de Quidt et al., (2018) show that the portion of loans under group lending schemes is decreasing when competition level is higher, while group lending is a method of selection, supervision, verification, and assurance of loan repayment from impoverished borrowers, given the absence of collateral. This is because competition increases the cost of social capital, while group lending requires a high level of social capital. This condition ultimately compelled MFIs to offer individual loans and diminished their ability to serve the impoverished(de Quidt & Ghatak, 2018).
H_1: Competition has a negative impact on MFIs' outreach to the poor.

Voluntary savings products can be used as a screening tool to avoid moral hazard and adverse selection (Bruno & Khachatryan, 2020). In their model, Bruno & Khachatryan (2020) show that voluntary savings are a tool that helps MFIs to choose potential borrowers. This suggests that MFIs can overcome asymmetric information by replacing joint liability with voluntary savings. Another argument is that the poor need saving products (Armendáriz & Morduch, 2010). When competing with other lenders, MFIs that offer voluntary savings can broaden their range of services and attract a wider pool of prospective borrowers (Dasgupta & Roy Chowdhury, 2022). Then, these voluntary savings products can be used to screen potential borrowers.
H_2: Voluntary saving minimized the negative effect of competition on outreach.

Competition removes MFI borrowers' disciplinary mechanism because they able to implement multiple borrowing (Hoff & Stiglitz, 1990). This phenomenon diminishes the dynamic incentive system, the reward system when a borrower receives a larger loan only if the previous loan was successful, which is frequently used by MFIs to maintain loan quality. Furthermore, this condition impacts MFI financial goals(Assefa et al., 2013).
H_3: Competition has a negative impact on MFIs' financial objective.

It is considered that voluntary savings can mitigate the negative effects of competition on MFIs' financial goals. The argument is that savings products can reduce MFI costs through economies of scope thereby reducing MFIs' cost of fund (Delgado et al., 2014). By reducing cost of funds, MFIs can expand their potential customer base therefore compensate loss because higher bad debts (Bruno & Khachatryan, 2020).
H4: Voluntary saving minimized the negative effect of competition on sustainability.

3. Method, Data, and Analysis

Data

Unit of analysis in this study includes all MFIs in the Mix Market database. The Mix Market database can be accessed using the following URL: https://datacatalog.worldbank.org/dataset/mix-market. The Mix Market remains the largest attempt to collect microfinance data and has been utilized in numerous important studies (Caballero-Montes, 2022; Mia et al., 2021; Sun & Liang, 2021). Meanwhile, for country specific data, this research uses data from the World Development Indicator (WDI) and the World Governance Index (WGI). Referring to data in the website, there are 3,115 MFIs originating from 123 countries with data spanning from 1999 to 2019. Mia et al. (2021) recommend employing filtering techniques to improve data quality. Based on Hossain et al. (2020) and Ahlin (2011), this study set the following criteria: Remove nations with insufficient macroeconomic data; MFI with full data for at least two years in a row; MFI with calendar-year-based financial reports. The filtering process yielded 3,773 observations. A total of

3,773 observations of unbalanced panel data were retrieved after the filtering process. It consists of 609 MFIs from 39 countries, covering the time span from 2004 until 2018. These results come from MFIs with the most complete data and fulfill the filtering requirement. The final year of observation is only 2018 because the 2019 data does not meet the filtering requirements.

Empirical Model

We use two estimation models to investigate our research framework. The model is panel least square. We use panel least square since our dataset is panel data. The benefit of panel least square is the ability to capture behavior of data across entities and across time. Equation 1 is used to estimate and analysis the effect of competition and the moderating role of voluntary saving on outreach while equation 2 investigates the effect of competition and the moderating role of voluntary saving on sustainability.

Model 1 – Outreach

$$ALS_{i,t} = \beta_0 + \beta_1 COMP_{i,t} + \beta_2 DTAR_{i,t} + \beta_3 COMP_{i,t} * DTAR_{i,t} + \sum_{k=1}^{N} \delta_k MFI_{i,t} + \sum_{k=1}^{N} \theta_k CS_{i,j,t} + \varepsilon_{i,t}$$

Model 2 - Sustainability

$$OSS_{i,t} = \beta_4 + \beta_5 COMP_{i,t} + \beta_6 DTAR_{i,t} + \beta_7 COMP_{i,t} * DTAR_{i,t} + \sum_{k=1}^{N} \delta_k MFI_{i,t} + \sum_{k=1}^{N} \theta_k CS_{i,j,t} + \varepsilon_{i,t}$$

Note: $ALS_{i,t}$= Average Loan Size of MFI *i* in year *t;* $OSS_{i,t}$= Operational Self-Sufficiency of MFI *i* in year *t;* $COMP_{j,t}$= Competition level facing by MFI *i* in country *j* at year t; $DTAR_{i,t}$= Voluntary saving ratio of MFI *i* in year *t*; $MFI_{i,t}$= Control variable – MFI specific; CS_{it}= Control variable – country specific; β_{0-7}, δ_k, θ_k= Coefficient; $\varepsilon_{i,t}$: Error term.

Average Loan Size (ALS)

A small average loan amount means that the MFI has a larger capacity to reach poor people (Gupta & Mirchandani, 2019). MFI with a very small average loan portfolio indicates they can reach the poorest community. This is because traditional financial institutions like commercial banks tend to avoid small loans (D'Espallier et al., 2010). Therefore, the provision of small loans demonstrates MFI's goal of reaching people who have trouble gaining access to financial services. This study used Tchakoute-Tchuigoua (2010) and Lopatta & Tchikov (2016) to calculate average loan amount. The applicable formula is as follows:

$$Average\ Loan\ Size\ (\%) = \frac{average\ outstanding\ balance\ per\ client\ or\ account}{Gross\ National\ Income}$$

Operational Self-Sufficiency (OSS)

Operational Self-Sufficiency (OSS) determines if an MFI generates sufficient revenue to cover its operating expenses. It reflects the MFI's capacity to generate sufficient financial and operating revenues to cover its expenses (Armendáriz & Morduch, 2010; Chakravarty & Pylypiv, 2015). This study's formula is based on the MixMarket and used by Iqbal et al. (2019) and Vanroose & D'Espallier (2013).

$$Operational\ Self\ sufficiency\ (\%) = \frac{financial\ revenue}{financial\ expense + Net\ impairment\ loss + Operational\ expense}$$

Competition

Following Hossain et al. (2020) and Kar & Bali Swain (2018b), this study measures competition using the Boone Indicator. Boone indicator uses the following profit function to measure market competition (Boone, 2008).

$$lnMS_{it} = \alpha + \sum_{t=1}^{T} \beta_t d_t \ln(MC_{it}) + \sum_{t=1}^{t-1} \alpha_t\, d_t + \varepsilon_{it}$$

Where MS_{it} denotes market share of MFI *i* at year *t*, MC_{it} represents the marginal cost of MFI *i* at year *t*, β is the Boone indicator, d_t is time dummy and ε_{it} is the error term. Because the Boone indicator is based on the negative connection between profit and expense, a negative coefficient value of β ($\beta < 0$) is to be expected. A more negative value of β signifies the manifestation of intense competition within the microfinance market, whereas a positive value of β suggests the presence of collusion(Tabak et al., 2012).

Furthermore, to calculate the Boone coefficient in Equation 2, one must know the MC of MFI *i* at time *t*. However, since MC cannot be measured directly, we used a Translog Cost Function (TCF) to estimate the MC of MFI *i* at year *t* (Hartarska et al., 2013). Therefore, we applied the following formula.

$$ln\left(\frac{TC}{W_3}\right)_{it} = \alpha_0 + \alpha_1 lnY_{it} + \frac{1}{2}\alpha_2 (lnY_{it})^2 + \sum_{j=1}^{2} \beta_1\, ln\left(\frac{W_j}{W_3}\right)_{it} + \frac{1}{2}\sum_{j=1}^{2} \beta_2 \left(ln\left(\frac{W_j}{W_3}\right)_{it}\right)^2 + \sum_{j=1}^{2} \gamma_j\, ln(Y)_{it}$$
$$ln(W_j)_{it} + \sum_{j<k} \sum \gamma_{jk}\, ln\left(\frac{W_j}{W_3}\right)_{it} ln\left(\frac{W_k}{W_3}\right)_{it} + \delta_1 PAR30 + \delta_t d_t + \varepsilon_t$$

Where TC_{it} denotes Total Cost for MFI *i* on year *t, Yit* represents output of MFI *i* in year *t*. Output is proxied by Gross Loan Portfolio of MFI *i* in year *t*. $W_{j,k}$ refers to input costs of MFI *i* on year t, consist of

W_1 denotes cost of labor, W_2 denotes Price of Financial Capital and W_3 denotes Price of Physical Capital. We use Stochastic Frontier Analysis (SFA) to estimate Equation 4. The coefficient in Equation 4 is then applied in Equation 5 to estimate Marginal Cost (MC).

$$MC_{it} = \frac{\partial TC_{it}}{\partial Y_{it}} = \frac{TC_{it}}{Y_{it}} \left(\alpha_1 + \alpha_2 lnY_{it} + \sum_{j=1}^{2} \gamma_j lnW_{jit} \right)$$

Voluntary Saving

This research investigates whether voluntary saving able to moderate the impact of competition on MFI performance. Tang et al. (2019) demonstrate that Financial Intermediation Theory can be applied in MFIs through voluntary saving. The study shows that MFIs with a high proportion of voluntary saving have better financial performance. Following Tang et al. (2019), we use below formula to measure voluntary saving on MFI.

$$DTAR = \frac{Total\ voluntary\ saving}{Total\ Asset}$$

Control Variable

We also include control variables in this study. We implement MFI specific and country specific as control variable. For MFI specific variable, we use MFI total asset (SIZE), length of operation (AGE), Write Off Ratio (WOR), Non-Performing Loan (NPL), equity to total asset ratio (EQTA), total cost to total asset ratio (OPTA), whether MFIs' financial report quality is good or bad (DIAMOND, dummy), and MFI type. MFI type consists of cooperative or Credit Union (COOP/CU), Non-Bank Financial Institution (NBFI), Non-Government Organization (NGO), Rural Bank (RURAL BANK), Other (OTHER). For country specific variable, we use GDP growth (GDPGR), inflation rate (INFR), percentage of people that listed in private credit bureau (PCB), political stability index (POL), and control of corruption index (CORR).

Data Analysis Technique

We performed panel data with random effect model. We choose random effect model since regression with fixed effect model cannot capture the time-invariant variable which are MFI type and MFI quality report. While regression with pooled-OLS method cannot be applied. For the estimation technique, we use moderating variable method to analyze the role of voluntary saving. Moderating variable itself is an interaction variable that explains whether a variable strengthening, weakening or reversing other variable impact (Naibaho & Widyastari, 2023). We winsorized observations for outlier on 1% and 99% percentile. To mitigate heteroskedasticity and auto correlation, we use clustered standard error in the system (Cameron & Cameron, 2018). We use STATA 15 for statistic software.

4. Results

Table 3 presents the descriptive statistics of the data used in the study. Regarding the social performance of MFIs, namely the amount of loans obtained by borrowers, the average loan provided by MFIs is 0.69% of GNI per capita. If this value refers to the Economic Analysis and Policy Division (2022), the range of GNI per capita for low income and lower middle countries ranges from under USD 1,046 to USD 4,095, so the average loan given is in the range between USD 7.21 up to USD 28.25. In terms of the average loan size obtained, the lowest MFI value was recorded at 0.009% of GNI per capita while the highest was 112.8% of GNI per capita. This value shows the low level of loans provided by MFIs.

For competition measurement, we use Boone Indicator as proxy. The higher the negative value of Boone indicates the higher the level of competition faced by MFIs. Meanwhile, a positive value of the Boone Indicator indicates that there is collusion between MFIs, allowing MFIs to continue operating well even though costs are increasing (Kar & Bali Swain, 2018b; Tabak et al., 2012). In all observations, Boone's value is between -2.1115 and 0.0853 with an average Boone Indicator value of -0.3495 which shows the high level of competition faced by MFI. Out of a total of 609 MFIs, 359 of them offer voluntary savings products. Meanwhile, the rest do not offer or only have savings products in the form of mandatory savings for borrowers. Of this amount, the voluntary savings ratio ranges from 0.3% to 83.8% of total MFI assets with the average voluntary savings being 44.3% of asset. This value shows a high composition of voluntary savings to the total assets of the MFI.

Meanwhile, in terms of financial performance, OSS shows MFI ability to generate operating income. So that the income earned can cover operating expenses, this condition is reflected in the OSS value above one. This finding is in line with Sharma et al.,(2024). Total assets as one of the MFI specific control variables show a high value of variation with the smallest MFI having assets of USD 27,978 while the total assets of the largest MFI reach USD 5.6 million. In the MFI age variable, the age range shows a variety of ages, the lowest age is 0 or the MFI has only been operating for less than a year until the oldest MFI reaches more than a century, the high age often describes a high level of MFI maturity. Overall, the MFI observed was 18 years old. Other control variables, NPL and WOR, show that MFI is moderate in facing the risk of borrower default. This is indicated by the average NPL of 5.07% and WOR of 2.39%.

Similar result also found in Hikouatcha et al. (2023). Meanwhile, the average value of capital to assets, which is at 29.4% indicates MFI's low dependence on capital while the value of operating expenses is at an average of 17.01% indicating that MFI can control operational costs well. Observations on country control variables show that average GDP growth reached 4.35% with the inflation rate in the range of 5.5%. This is in line with the characteristics of countries where most MFIs are located, developing countries where GDP growth and inflation rates are quite high. In terms of the ratio of population registered with the credit bureau, most countries where MFIs are located already have fairly good credit bureaus when this can be seen from the fact that almost half of the population is already registered with the credit bureau.

Table 1. Descriptive Result

	Obs	Mean	Std. Dev	Min	Max
Dependent Variable					
Average Loan Size (ALS) (total)	3.773	0.695	2.705	0,009	112.774
Average Loan Size (ALS) (log)	3.773	-1.216	1.219	-4.710	4.725
Operational Self-Sufficiency (OSS)	3.773	1.162	0.326	0	7.197
Main Independent Variable					
Competition (COMP)	3.773	-0.349	0.424	-2.111	0.085
Deposit to total asset (DTAR)	1.551	0.442	0.244	0.003	0.837
Control Variable – MFI specific					
Assets (total)	3.773	109,000,000	338,000,000	27.978	5.600.000.000
Assets (SIZE) (log)	3.773	16.753	1.898	10.239	22.445
Age (total)	3.664	18.434	11.495	0	113
Age (AGE) (log)	3.664	1.011	0.255	0	1.098
Write off ratio (WOR)	3.773	0.023	0.057	0	0.810
Non-Performance Loan (NPL)	3.773	0.050	0.059	0	0.549
Equity to Total Asset (EQTA)	3.773	0.293	0.205	-0.934	0.996
Operating expense to Total Asset (OPTA)	3.773	0.170	0.135	0.000	2.896
Control Variable – Country Specific					
GDP growth (GDPGR)	3.773	4.352	2.746	-14,1	14.047
Inflation rate (INF)	3.773	5.510	5.148	-4.620	54.012
Private credit bureau (PCB)	3.773	42.270	31.064	0.100	100
Political stability index (POL)	3.773	-0.567	0.571	-2.600	0.840
Control of Corruption index (CORR)	3.773	-0.570	0.402	-1.410	1.580
Dummy Variable					
MFI with good financial report quality	2.503	0.663	0.472	0	1
MFI type – Commercial bank	532	0.141	0.348	0	1
MFI type – Cooperative/CU	485	0.128	0.334	0	1
MFI type – NBFI	1.331	0.352	0.477	0	1
MFI type – NGO	1.244	0.329	0.470	0	1
MFI type – Other	36	0.009	0.097	0	1
MFI type – *Rural Bank*	145	0.038	0.192	0	1

In the dummy variable, diamond, as many as 338 MFIs have diamond values of 4 and 5, which means that 338 MFIs have good quality financial reports. Meanwhile, the distribution of MFIs based on the latest legal status of MFIs is 74 MFIs have the legal status of banks, 75 are cooperatives or Credit Unions, 227 of them are Non-bank Financial Institutions, 196 are MFIs with the legal status of Non-Governmental Organizations or NGOs, 27 MFIs are MFIs with legal status of rural banks, while the remaining or 10 MFIs have other legal status. Referring to the division of MFIs based on profit or non-profit, 274 MFIs are included in profit MFIs, 311 MFIs are non-profit MFIs and the remainder, or 24 MFIs are MFIs without profit or non-profit status (unknown).

Model 1 explained the impact of independent variables on social goals. In Model 1 – Outreach, R^2 is 24,82% implies that independent variable explains 24.82% of the dependent variable. The Wald chi^2 441.4 with *p-value* 0,000 denotes that independent variables are fit in the model. Meanwhile, competition variables have a positive impact on the average loan size. It means that the higher the level of competition, the bigger MFI distribute their loan size. It suits hypothesis 1, Nevertheless, the result is not significant. In interaction variable, voluntary saving can moderate the impact of competition on outreach because the coefficient shows a significant value of 10%. Therefore, hypothesis 2 is accepted. Regarding practical significance, this finding implies that an increase of 1% in voluntary saving to total asset ratio will result a decrease of 0.88% in average loan size. In terms of control variable, size and political stability index has a positive and significant impact on average loan size. While capital ratio, operational expense, private credit bureau coverage, control of corruption index, MFI with sound financial report, MFI with NGO and rural bank type have a negative and significant value on average loan size.

In Model 2, we delve into how independent variables influence financial objectives. With an R-squared value of 13.91%, we observe that the independent variables elucidate 13.91% of the variation in the dependent variable. The significant Wald chi-square statistic of 197.85 with a p-value of 0.000 indicates a strong fit of the independent variables within the model.

Interestingly, our analysis reveals that competition exerts a detrimental effect on sustainability, as measured by operational self-sufficiency. This suggests that heightened competition corresponds to decreased sustainability for microfinance institutions (MFIs). Although this outcome aligns with hypothesis 3, it's noteworthy that the observed impact is not statistically significant. Furthermore, our examination of interaction variables indicates that voluntary saving exacerbates the adverse influence of competition on

sustainability, albeit without achieving statistical significance. This finding contradicts hypothesis 4, underscoring the complexity of the relationship between competition, voluntary saving, and sustainability in MFIs.

Turning to control variables, we find that factors such as capital ratio and MFI type positively and significantly influence sustainability. Conversely, variables including write-off ratio, operational expenses, GDP growth, political stability, and control of corruption index exhibit negative impacts on sustainability. These findings illuminate the multifaceted nature of factors shaping MFI sustainability and underscore the importance of considering a comprehensive array of variables in financial analysis.

Table 2. Regression Result

	Model 1 - Outreach	Model 2 - Sustainability
	ALS	OSS
SIZE	0.236	0.009
	(0.057)	(0.013)
AGE	-0.009	0.055
	(0.110)	(0.038)
WOR	0.569	-0.451
	(0.404)	(0.160)
NPL	-0.076	-0.245
	(0.368)	(0.160)
EQTA	-0.563	0.391
	(0.225)	(0.132)
OPTA	-1.663	-0.817
	(0.615)	(0.216)
GDPGR	-0.009	-0.004
	(0.004)	(0.002)
INFR	-0.001	0.001
	(0.003)	(0.000)
PCB	-0.002	-0.000
	(0.000)	(0.000)
POL	0.166	-0.036
	(0.068)	(0.021)
CORR	- 0.350	-0.024
	(0.104)	(0.025)
DIAMOND	-0.319	0.027
	(0.126)	(0.021)
COOP/CU	0.014	-0.041
	(0.199)	(0.051)
NBFI	-0.107	-0.002
	(0.177)	(0.033)
NGO	-0.685	0.060
	(0.294)	(0.068)
OTHER	- 0.322	0.377
	(0.583)	(0.186)
RURAL BANK	-0.454	0.039
	(0.245)	(0.062)
Year Dummy	Ya	Ya
Konstanta	3.802	0.918
	(1.020)	(0.252)
Wald chi^2	441.440	197.850
p-value	0,000	0.000
R^2	0.248	0.139
Obs	1,504	1.504

COMP multiplied by (-1) to ease interpretation. Number in parentheses is robust standard error with cluster MFI. ***, **, * indicate significance level 1%, 5% dan 10%.

5. Discussion

The Impact of Competition on Outreach

The estimation of the impact of competition on outreach yields negative but insignificant results. The negative effect means if competition level becomes higher, MFIs distribute higher loan size. It implies mission drift might happen (Mersland & Strøm, 2010). This finding differs from that of Kar & Bali Swain (2018b) who find that the coefficient is significant. This difference is possible due to differences in the country samples used. Kar & Bali Swain (2018b) used a sample of 10 countries while this study used data from 39 countries. Another difference is the observation time span. Kar & Bali Swain (2018b) used data between 2003 and 2014, while this study used data from 2004 to 2018.

Nevertheless, this suggests that there is some support for the hypothesis that increased competition forces MFIs to be more cautious in their lending practices. These findings are consistent with those studies, which emphasized that mission drift is highly dependent on loan methods and that individual lenders are more susceptible to it (de Quidt et al., 2018; Olivares-Polanco, 2005). Therefore, it may conclude that this research share the similar phenomenon with de Quidt et al., (2018) and (Olivares-Polanco, 2005) which many of MFIs in this study switch to individual lending when facing with higher competition. This conclusion is also consistent with the concept that a higher degree of competition drives MFIs to share a

particular customer base, which ultimately results in a lesser number of active borrowers for the average MFI (Guha & Chowdhury, 2013). Public policy should establish policies that incentivize MFIs to cater to impoverished individuals whenever competition within a country reaches a specific threshold.

The Role of Voluntary Saving on The Impact of Competition on Outreach

Voluntary savings mitigate the negative impact of competition. The mechanism that occurs is that when there is increased competition, MFIs tend to look for wealthier customers because it is difficult for them to rely on group lending financing schemes (Assefa et al., 2013; de Quidt et al., 2018). However, the existence of voluntary savings fulfills the poor people's need for formal savings products on the one hand (Armendáriz & Morduch, 2010) while also encouraging borrowers to be disciplined in making payments (Montgomery, 1996).

Therefore, voluntary saving is able to minimize the negative impact of competition on outreach. The implication for policy is to set regulations that motivate MFIs to offer voluntary savings products, particularly in economies with greater market competition. This result also supports the idea that encouraging people to save is a better way to reach out to more poor customers because the poor can get much-needed services through the mobilization of local savings. This also indicates that savings products that are well-designed can assist poor households in managing their volatile daily cash flow and smoothing their consumption since it made it more likely that low-income people could afford medical care in an emergency and made it easier for women to start their own businesses (Vonderlack & Schreiner, 2010).

The Impact of Competition on Sustainability

The estimation result of model 2 implies that competition negatively impact sustainability, but the coefficient value is insignificant. It denotes that when competition level increases, MFIs' ability to survive decreases. This condition might come from lower operational income. The decrease in operational income come from higher bad debts, since multiple borrowing is increasing (Hossain et al., 2020; Mcintosh & Wydick, 2005). The fact that we do not find substantial support also may be explained by pointing out that empirical and theoretical research is inconclusive about the direction of the relationship between increased competition and sustainability.

In order to keep their clients, MFIs may be more likely to cut costs and improve the quality of their services if there is more competition in the market (Hermes et al., 2011). Therefore, competition may have a good impact on MFIs. In contrast, competition is anticipated to result in information asymmetry, borrower over-indebtedness, and lower expected loan repayment, and in order to address these issues, MFIs will engage in more screening, which will increase their operational costs and lead to overall cost inefficiency (Deb & Sinha, 2021). Yet, this finding implied that socially motivated organizations, like microfinance institutions, do not reap the benefits of competition in the form of lower operating costs and increased efficiency. In contrast, our findings support the argument that competition exerts pressure on MFIs, resulting in costly monitoring, a diminishing interest rate margin, and the pursuit of alternative market segments (Caballero-Montes et al., 2021). Hence, it is imperative to implement policies promoting the consolidation of MFIs to mitigate the adverse effects of competition.

The Role of Voluntary Saving on The Impact of Competition on Sustainability

The result in Model 2 implies that voluntary saving cannot significantly moderate the impact of competition on sustainability because the interaction coefficient value is insignificant. However, the coefficient shows a negative value means that voluntary saving strengthens the negative impact of competition on sustainability (Gardner et al., 2017). This is because competition negatively impact MFIs' sustainability. Thereby, there is a tendency for a trade-off. Trade-off itself is a condition when MFIs reach poor customer, while they cannot maintain their sustainability (Ly & Mason, 2012).

Regarding this study result, trade off might happened in MFIs. Since the availability of voluntary saving motivates MFIs to reach poor customers while still facing competition, but they cannot achieve profitability. It is in line with Malikov & Hartarska (2018) argument that promotion of integrated loans-and-savings MFIs may be justifiable as a means of meeting the requirements of the impoverished rather than as a means of cost savings for the industry. Therefore, it may be unwise for MFIs to use efficiency as an excuse to increase the breadth of their financial services to everyone. It will better for the industry and also regulator to use country characterize to investigate whether saving product is relevance for MFIs. Regulators might encourage MFIs to offer voluntary savings products when competition is low, or MFIs have already consolidated.

Analysis on Control Variables

Based on control variables, there are disparities in the determinants that affect the performance of outreach and sustainability. MFIs with larger sizes reduce their outreach while increasing their sustainability. Higher operational costs encourage MFIs to reach more underprivileged people but endanger sustainability. Similarly, the more effective a country's corruption control, the more MFIs will reach the public, but sustainability will suffer as a result. These findings validates the idea that MFI constitutes a trade-off (Hermes et al., 2011; Reichert, 2018).

6. Conclusion, Limitations, and Suggestions

Conclusion

Based on research results, we conclude that voluntary saving can moderate the impact of competition on outreach. This finding shows that there is a condition that can minimize the negative impact of competition on outreach. Since many literatures show a negative impact of competition on outreach. Therefore, this study offers a solution to minimize the impact. MFIs may adopt it by changing their legal status or building a partnership with commercial banks, so they can offer voluntary saving products. In the other hand, regulator may motivate MFIs to actively offer voluntary saving by giving them incentive.

Limitation and suggestions

There are some limitations that are faced by this study. First, MFIs financial reports on Mix Market are voluntary. This also has an impact on the completeness of data for each MFI. Not all MFIs provide the same information. This research selects MFIs with the most complete information. Apart from that, the country data held by each country is also not uniform. Based on these conditions, the selected sample is potentially not well diversified, for example the MFIs selected from the Middle East and North Africa region are all MFIs of the NGO type. A suggestion regarding this is to select different data sources so that the MFI composition can be well represented.

The second limitation is this research does not look at the background of MFIs, for example whether the MFIs are owned by the state, the private sector, or the local government. In addition, whether the MFI has links with banks or groups, whether the cooperatives included in the research are savings and loan cooperatives, employee cooperatives, or other types of cooperatives. Another condition is whether the MFI is affiliated with an international NGO or not. Suggestion for future research is the study can include this classification so that differences in ownership and legal form can be well illustrated in the estimation results. Another suggestion is further study may investigate the marginal effect of voluntary saving on MFIs' social objectives.

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References

Aghion, P., & Howitt, P. (1992). A Model of Growth Through Creative Destruction. *Econometrica*, *60*(2), 323–351.

Armendáriz, B., & Morduch, J. (2010). *The Economics of Microfinance* (second ed). The MIT Press.

Assefa, E., Hermes, N., & Meesters, A. (2013). Competition and the performance of Microfinance institutions. *Applied Financial Economics*, *23*(9), 767–782. https://doi.org/10.1080/09603107.2012.754541

Besley, T., & Ghatak, M. (2005). Competition and incentives with motivated agents. *American Economic Review*, *95*(3), 616–636. https://doi.org/10.1257/0002828054201413

Boone, J. (2008). A New Way to Measure Competition. *The Economic Journal*, *118*(531), 1245–1261.

Boyd, J. H., & Nicoló, G. De. (2005). The Theory of Bank Risk Taking and Competition Revisited. *The Journal of Finance*, *60*(3), 1329–1343.

Brau, J. C., & Woller, G. M. (2004). Microfinance: A comprehensive review of the existing literature. *Journal of Entrepreneurial Finance*, *9*(1), 1–28.

Bruno, O., & Khachatryan, K. (2020). Compulsory versus voluntary savings as an incentive mechanism in microfinance programs. *Journal of Behavioral and Experimental Finance*, *26*, 100317. https://doi.org/10.1016/j.jbef.2020.100317

Caballero-Montes, T. (2022). Integrating market conditions into regulatory decisions on microfinance interest rates: does competition matter? *Annals of Finance*, *19*(2), 201–232. https://doi.org/10.1007/s10436-022-00417-8

Caballero-Montes, T., Godfroid, C., & Labie, M. (2021). Are interest rate caps a relevant tool to cool down overheating microfinance markets ? *Strategic Change*, *30*, 319–330. https://doi.org/10.1002/jsc.2426

Cameron, A. C., & Cameron, D. L. M. (2018). A Practitioner ' s Guide to Cluster- Robust Inference. *The Journal of Human Resources*, *50*(2), 317–372.

Chakravarty, S., & Pylypiv, M. I. (2015). The Role of Subsidization and Organizational Status on Microfinance Borrower Repayment Rates. *World Development*, *66*, 737–748. https://doi.org/10.1016/j.worlddev.2014.09.007

Collins, D., Morduch, J., Rutherford, S., & Ruthven, O. (2009). *Portfolios of The Poor: How the World's Poor Live on $2 a Day*. Princeton University Press.

Convergence. (2019). *Microfinance Barometer 2019*. Paris: Convergence.

D'Espallier, B., Hudon, M., & Szafarz, A. (2010). Unsubsidized microfinance institutions. *Economics Letters*, *120*(2), 174–176. https://doi.org/10.1016/j.econlet.2013.04.021

Dasgupta, D., & Roy Chowdhury, P. (2022). Simultaneous borrowing and saving in microfinance. *Oxford Economic Papers*, *74*(3), 920–935. https://doi.org/10.1093/oep/gpab062

de Quidt, J., Fetzer, T., & Ghatak, M. (2018). Commercialization and the decline of joint liability microcredit. *Journal of Development Economics*, *134*, 209–225. https://doi.org/10.1016/j.jdeveco.2018.05.010

de Quidt, J., & Ghatak, M. (2018). Is the credit worth it? For-profit lenders in microfinance with rational and behavioral borrowers. *Annals of Public and Cooperative Economics*, *89*(1), 175–199. https://doi.org/10.1111/apce.12189

Deb, J., & Sinha, R. P. (2021). Impact of Competition on Efficiency of Microfinance Institutions : Cross Country Comparison of India and Bangladesh. *International Journal of Rural Management*. https://doi.org/10.1177/09730052211005244

Delgado, M. S., Parmeter, C. F., Hartarska, V., & Mersland, R. (2014). Should all microfinance institutions mobilize microsavings? Evidence from economies of scope. *Empirical Economics*, *48*(1), 193–225. https://doi.org/10.1007/s00181-014-0861-3

Diamond, D. W. (1984). Financial Intermediation and Delegated Monitoring. *The Review of Economic Studies*, *51*(3), 393–414.

Diamond, D. W. (1996). Financial intermediation as delegated monitoring : A simple example. *Economic Quarterly - Federal Reserve Bank of Richmond*, *82*(3), 51.

Fiebig, M., Hannig, A., & Wisniwski, S. (1999). *Savings in The Context of Microfinance - State of Knowledge*.

Gardner, R. G., Harris, T. B., Li, N., Kirkman, B. L., & Mathieu, J. E. (2017). Understanding "It Depends" in Organizational Research : A Theory-Based Taxonomy , Review , and Future Research Agenda Concerning Interactive and Quadratic Relationships. *Organizational Research Methods*, *20*(4), 610–638. https://doi.org/10.1177/1094428117708856

Grosh, B., & Somolekae, G. (1996). Mighty Oaks from Little Acorns : Can Microenterprise Serve as the Seedbed of Industrialization ? *World Development*, *24*(12), 1879–1890.

Guha, B., & Chowdhury, P. R. (2013). Micro-finance competition : motivated micro-lenders, double-dipping and default. *Journal of Development Economics*, *105*, 86–102. https://doi.org/10.1016/j.jdeveco.2013.07.006

Gupta, N., & Mirchandani, A. (2019). Corporate governance and performance of microfinance institutions: recent global evidences. *Journal of Management and Governance*, *0123456789*. https://doi.org/10.1007/s10997-018-9446-4

Hart, O. D. (1983). The market mechanism as an incentive scheme. *The Bell Journal of Economics*, *14*(2), 366–382.

Hartarska, V., Shen, X., & Mersland, R. (2013). Scale economies and input price elasticities in microfinance institutions. *Journal of Banking and Finance*, *37*(1), 118–131. https://doi.org/10.1016/j.jbankfin.2012.08.004

Hayes, A. F. (2018). Partial, conditional , and moderated moderated mediation: Quantification , inference , and interpretation. *Communication Monographs*, *85*(1), 4–40. https://doi.org/10.1080/03637751.2017.1352100

Hermes, N., & Hudon, M. (2018). Determinants of The Performance of Microfinance Institutions: A Systematic Review. *Journal of Economic Surveys*, *32*(5), 1483–1513. https://doi.org/10.1111/joes.12290

Hermes, N., Lensink, R., & Meesters, A. (2011). Outreach and Efficiency of Microfinance Institutions. *World Development*, *39*(6), 938–948. https://doi.org/10.1016/j.worlddev.2009.10.018

Hikouatcha, P., Djatang, T., Njangang, H., & Nzongang, J. (2023). Effect of non - structural competition on the performance of microfinance institutions in sub - Saharan Africa. *SN Business & Economics*, *3*(11), 1–23. https://doi.org/10.1007/s43546-023-00583-5

Hoff, K., & Stiglitz, J. E. (1990). Introduction : Imperfect Information and Rural Credit Markets - Puzzles and Policy Perspectives. *The World Bank Economic Review*, *4*(3), 235–250.

Hossain, S., Galbreath, J., Hasan, M. M., & Randøy, T. (2020). Does competition enhance the double-bottom-line performance of microfinance institutions? *Journal of Banking and Finance*, *113*, 105765. https://doi.org/10.1016/j.jbankfin.2020.105765

Iqbal, S., Nawaz, A., & Ehsan, S. (2019). Financial performance and corporate governance in microfinance: Evidence from Asia. *Journal of Asian Economics*, *60*, 1–13. https://doi.org/10.1016/j.asieco.2018.10.002

Jia, P., & Sun, S. L. (2023). Mission drift or mission fulfillment? Examining microfinance's financial and social performance with growth curve modeling and variance decomposition. *Cross Cultural & Strategic Management*, *30*(3), 467–487. https://doi.org/10.1108/CCSM-07-2021-0125

Kar, A. K., & Bali Swain, R. (2014). Competition in Microfinance: Does It Affect Performance, Portfolio Quality, and Capitalization? In R. Mersland & R. Ø. Strøm (Eds.), *Microfinance Institutions*. Palgrave Macmillan UK.

Kar, A. K., & Bali Swain, R. (2018a). Are microfinance markets monopolistic? *Applied Economics*, *50*(1), 1–14. https://doi.org/10.1080/00036846.2017.1310999

Kar, A. K., & Bali Swain, R. (2018b). Competition, performance and portfolio quality in Microfinance Markets. *European Journal of Development Research*, *30*(5), 842–870. https://doi.org/10.1057/s41287-018-0135-6

Karimu, A., Salia, S., Hussain, J. G., & Tingbani, I. (2019). Are competitive microfinance services worth regulating? Evidence from microfinance institutions in Sub-Saharan Africa. *International Journal of Finance and Economics*, *26*(1), 476–492. https://doi.org/10.1002/ijfe.1800

Karlan, D., Ratan, A. L., & Zinman, J. (2014). Savings by and for the Poor: A research review and agenda. *Review of Income and Wealth*, *60*(1), 36–78. https://doi.org/10.1111/roiw.12101

Lopatta, K., & Tchikov, M. (2016). Do microfinance institutions fulfil their promise? Evidence from cross-country data. *Applied Economics*, *48*(18), 1655–1677. https://doi.org/10.1080/00036846.2015.1105924

Ly, P., & Mason, G. (2012). Competition Between Microfinance NGOs: Evidence from Kiva. *World Development*, *40*(3), 643–655. https://doi.org/10.1016/j.worlddev.2011.09.009

M Baron, R., & A Kenny, D. (1986). The moderator-mediator variable distinction in social psychological

research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182.

Mahmud, M., Sawasa, Y., & Tanaka, M. (2022). Microfinance competition and multiple borrowing : Evidence using panel data from Bangladesh. *Review of Development Economics*, *26*(March 2021), 1164–1188. https://doi.org/10.1111/rode.12869

Malikov, E., & Hartarska, V. (2018). Endogenous scope economies in microfinance institutions. *Journal of Banking and Finance*, *93*, 162–182. https://doi.org/10.1016/j.jbankfin.2018.06.008

McIntosh, C., Dejanvry, A., & Sadoulet, E. (2005). How Rising Competition among Microfinance Institutions Affects Incumbent Lenders. *The Economic Journal*, *115*(506), 987–1004.

Mcintosh, C., & Wydick, B. (2005). Competition and microfinance. *Journal of Development Economics*, *78*, 271–298. https://doi.org/10.1016/j.jdeveco.2004.11.008

Mersland, R., & Strøm, R. Ø. (2010). Microfinance Mission Drift? *World Development*, *38*(1), 28–36. https://doi.org/10.1016/j.worlddev.2009.05.006

Mia, A. M., Banna, H., Noman, A. H. M., Alam, M. R., & Rana, M. S. (2021). Factors affecting borrowers ' turnover in microfinance institutions : A panel evidence. *Annals of Public and Cooperative Economics*, *February*, 1–30. https://doi.org/10.1111/apce.12325

Montgomery, R. (1996). Disciplining or Protecting The Poor? Avoiding The Social Costs of Peer Pressure in Micro-Credit Schemes. *Journal of International Development*, *8*(2), 289–305.

Naibaho, B. E. A., & Widyastari, N. (2023). Effect of Net Profit Margin , Sales Growth , Profitability on Dividens Pay-Out Ratio with Managerial Ownership as Moderation. *Jurnal Keuangan Dan Perbankan*, *27*(1), 96–111. https://doi.org/10.26905/jkdp.v27i1.9053

Olivares-Polanco, F. (2005). Commercializing Microfinance and Deepening Outreach. *Journal of Microfinance*, *7*(2), 49–51.

Pati, A. P. (2019). Market Structure and Double Bottom Line Commitments : Are They Aligned in Indian Microfinance Industry ? *International Journal of Rural Management*, *15*(1), 1–22. https://doi.org/10.1177/0973005218819664

Reichert, P. (2018). A meta-analysis examining the nature of trade-offs in microfinance. *Oxford Development Studies*, *46*(3), 430–452. https://doi.org/10.1080/13600818.2018.1427223

Sharma, A., Chauhan, S., Mia, A., Sangwan, S., & Alam, S. (2024). Board Gender Diversity and Debt Utilization : Evidence from the Global Microfinance Industry Borsa Istanbul Review Board gender diversity and debt utilization : Evidence from the global microfinance industry. *Borsa Istanbul Review*, *March*. https://doi.org/10.1016/j.bir.2024.02.012

Sun, S. L., & Liang, H. (2021). Globalization and affordability of microfinance. *Journal of Business Venturing*, *36*(1), 106065. https://doi.org/10.1016/j.jbusvent.2020.106065

Tabak, B. M., Fazio, D. M., & Cajueiro, D. O. (2012). The relationship between banking market competition and risk-taking: Do size and capitalization matter? *Journal of Banking and Finance*, *36*(12), 3366–3381. https://doi.org/10.1016/j.jbankfin.2012.07.022

Tang, J. J., Quayes, S., & Joseph, G. (2019). Microfinance Institutions, Financial Intermediation and the Role of Deposits. *Accounting & Finance*, *60*(2). https://doi.org/10.1111/acfi.12506

Tchakoute-Tchuigoua, H. (2010). Is there a difference in performance by the legal status of microfinance institutions? *Quarterly Review of Economics and Finance*, *50*(4), 436–442. https://doi.org/10.1016/j.qref.2010.07.003

Vanroose, A., & D'Espallier, B. (2013). Do microfinance institutions accomplish their mission? Evidence from the relationship between traditional financial sector development and microfinance institutions' outreach and performance. *Applied Economics*, *45*(15), 1965–1982. https://doi.org/10.1080/00036846.2011.641932

Vonderlack, R. M., & Schreiner, M. (2010). Women, microfinance , and savings: Lessons and proposals. *Development in Practice*, *12*(5), 602–612. https://doi.org/10.1080/0961452022000017614

Wang, B., Yu, Y., Yang, Z., & Zhang, X. (2021). Microfinance institutions and Peer-to-Peer lending: What does microfinance competition bring? *Pacific-Basin Finance Journal*, *67*(January), 101557. https://doi.org/10.1016/j.pacfin.2021.101557

Westley, G. D., & Palomas, X. M. (2010). *Is There a Business Case for Small Saver?* (Issue 18).