The Interactive Relationship Between Outreach Breadth and Outreach Depth of Vietnam's Formal Microfinance Institutions

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Abstract:

Outreach breadth and outreach depth are factors affecting the operations and the goals of formal microfinance institutions (mfis) in vietnam. The purpose of this study is to discover the interactive relationship between outreach breadth and outreach depth and to examine factors that affect the outreach breadth and outreach depth of formal mfis. After regression analysis on a set of panel data from 2010 to 2018 of all formal mfis in vietnam, it appears that financial sustainability, repayment ratio have positive relationships with outreach breadth; number of branches andoutreach depth have negative relationships with outreach breadth; whiledeposit-to-loan ratio has a negative impact on outreach breadth. Debt-to-equity ratio and financial sustainability have positive relationships with outreach depth; the size growth of mfis and loan-to-deposit ratio have negative relationships with outreach depth, portfolio at risk has a negative impact on outreach depth. The study finds bidirectional interactions between outreach breadth and outreach depth. This study helps researchers and managers to understand the key determinants for better management of formal mfis. Jel classification: g19, g21, g29

Keywords: Microfinance Institutions, Outreach breath, Outreach depth, financial sustainability.

1. Introduction:

The renewed interest in the social goals of microfinance is part of the mfis operations. Mfis attention to their mission to improve the lives of poor people are likely to improve their operations bottom line as well. This shift is marked by a surge of interest in various types of outreach and operations development, all directed to helping mfis gain a better understanding of customers and how mfis can best serve them. At the same time, thanks to the intervention of microfinance in recent years with potential for greater outreach and sustainable success, microfinance is widely regarded as the solution to poverty and widely recommended and perceived by many as a turn-key for unlocking opportunities for the impoverished people. With the suport of microfinance, poor, farmers are aided with the tools, skills, capital to successfully adopt a sustainable approach in their quest to escape from the poverty trap in which they are deeply anchored. In Vietnam, the formal mfis have establish by the State Bank of Vietnam. The operations of formal mfis have reached 28 provinces and cities with 113 branches and transaction offices. The operations of formal mfis in Vietnam have made an important contribution to expanding the scale of the financial service provision, especially providing financial services to the poor, low-income people and contributing to ensuring social security. Outreach breadth and outreach depth are the goals of formal mfis in Vietnam. Beside, increasing the ability to provide financial services is one of the important orientations that are targeted by formal mfis in Vietnam. With this orientation, formal mfis have expanded the scale of the service provision. However, outreach breadth and outreach depth have affected the operations and made sustainability of many formal mfis in Vietnam fluctuated over the years, affecting the ability to expand the scale of the financial service provision. There have been some researches on formal mfis operations in Vietnam; but, there has been no research on the relationship between outreach breadth and outreach depth. In particular, the study of the interactive relationship and trade-off between outreach breadth and outreach depth of formal mfis is one of the urgent issues to understand the relationship and trend impact to increase social performance and promote sustainability of formal mfis in Vietnam. Therefore, this study is helpful to decision-makers and other stakeholders of formal mfis in Vietnam.

2. Literature Review:

Microfinance institution means a type of credit institution which mainly conducts some banking operations to meet the needs of low-income individuals and households and super small-sized enterprises. Mfis may be established as limited liability companies with the operations: (i) Taking deposits in Vietnamese dong in forms of compulsory savings under their regulations, and deposits of organizations and individuals including voluntary deposits of microfinance clients except those for payment purposes. (ii) Borrowing loans from domestic and overseas individuals, credit institutions, mfis, and other organizations. (iii) mfis may only extend credit in Vietnamese dong by lending. The credit extension of mfis may be guaranteed with compulsory deposits or guarantee of a group of savings depositors or loan borrowers. (iv) Other operations of mfis: Entrusted lending and receiving entrustment of lending, providing financial consultancy services in the microfinance sector, providing collection and payment and money transfer services for microfinance clients, acting as insurance service agents (National Assembly, 2010). Therefore, the formal mfis may be established as limited liability companies that mainly conducts some banking operations to meet the needs of low-income individuals and households and super small-sized enterprises. The formal mfis play an important role in the economy and social development, contributes to the strengthening and expanding the formal financial systems. At the same time, formal mfis attract capital from savings mobilization to serve the needs of investment, production, and exchange of goods, thereby contributing to poverty reduction and income improvement for customers. To play this important role, requirements for formal mfis is to advance outreach and ensure financial sustainability.

2.1 Outreach Breadth:

There are generally assumed that the larger the number of borrowers the better the outreach. The number of active borrowers is an indicator of the breadth of outreach (Rashid & Twaha, 2013) and the breadth of outreach is related to the actual number of poor people reached with financial services (Abdulai& Tewari, 2017). The breadth of outreach is a component associated with the development of the formal mfis and is influenced by many factors, including:Firstly, depth of outreach: According to Cull, Kunt and Morduch (2006), the finding is consistent with an important trade-off between the breadth of outreach and the depth of outreach. Beside, The study of microfinance outreach showed the trade-off relations between the depth and the breadth of outreach (Abdulai & Tewari, 2017).

H1.1: There is a negative relationship between outreach depth and outreach breadth of formal mfis.

Secondly, number of branches: Increasing the scale of the microfinance services by leveraging the branch networks to provide microcredit to a large number of customers (World Bank, 2004). Expansion of credit to more borrowers is also associated with increase in number of branches for many mfis and this may reconcile with the fact that increase in the breadth of outreach (Quayes, 2012).

H1.2: There is a positive relationship between number of branches and outreach breadth of formal mfis.

Thirdly, deposit-to-loan ratio: This ratio shows the ability of the mobilization deposits to meet the lending needs of mfis. Many customers can be served more by lending from the mobilization deposits. The deposits mobilization has become a strong driving force for improving operation of mfis (Fiebig, Hannig & Wisniwski, 1999). Deposit account serves as a proxy that captures the level of savings amongst microfinance clients and increase in the number of savings account would help mfis expand outreach, especially outreach breadth (Churchill and Marr, 2017).

H1.3: There is a positive relationship between deposit-to-loan ratio and outreach breadth of formal mfis.

Fourth, financial sustainability:According to Nyamsogoro (2010), the trade-off between financial sustainability and breadth of outreach with regards to the minimum loan size. The study of microfinance outreach showed the trade-off relations between sustainability and the breadth of outreach. This means that institutions that focus on attaining the financial sustainability goal are unlikely to provide microfinance products and services to a large number of poor clients (Abdulai & Tewari, 2017). Further, factors such as simultaneous causality relationship between financial sustainability and breadth of outreach, trade-off between financial sustainability and breadth of outreach (Mujeri et al., 2017).

H1.4: There is a negative relationship between financial sustainability and outreach breadth of formal mfis. Fifthly, repayment ratio: The study investigated the outreach of mfis that find that microfinance outreach is positively and significantly determined by loan repayment ratio (Osotimehin, Jegede, & Akinlabi, 2011).

H1.5: There is a positive relationship between repayment ratio and outreach breadth of formal mfis.

2.2 Depth Of Outreach:

The depth of outreach is measured by average loan size (Ledgerwood, 1999) and the average loan balance per borrower is a measure of depth of outreach (Abdulai & Tewari, 2017). All financial service providers expand the depth of outreach to develop new products and channels or to move to new regions and market segments. The majority of direct funding to microfinance is used to support portfolio growth (Ledgerwood, Earne & Nelson, 2013). The depth of outreach is associated with all mfis activities and is influenced by many factors, including: Firstly, the size growth of mfis: MFI size in terms of total assets and MFI size to be associated with larger loan size per borrower (Kai, 2009). Mfis with greater asset proportion or with large size also strongly positively influence the outreach of mfis (Saad, Taib & Bhuiyan, 2018).

H2.1: There is a positive relationship between the size growth of mfis and outreach depth of formal mfis.

Secondly, debt-to-equity ratio:The study find that microfinance outreach is positively and significantly determined by debt-equity ratio (Osotimehin, Jegede, & Akinlabi, 2011). According to Quayes (2012), debt to equity ratio can also be expected have a positive effect on outreach and the study result show that debt to equity ratio has a significant positive impact on the depth of outreach. The other study finds that mfis that are highly leveraged compromise outreach objectives (Johnson, 2015).

H2.2: There is a positive relationship between debt-to-equity ratio and outreach depth of formal mfis.

Thirdly, loan-to-deposit ratio: Loan-to-deposit ratio is used as a proxy for relative loan activity (Barkley, Mellon & Potts, 1984). Loan-to-deposit ratio is a key indicator to be monitored to take the gauge of credit institutions' structural liquidity positions. It is a ratio showing how much credit of these institutions is funded by key stable funding resources, namely deposits. Loan-to-deposit ratio of large credit institutions reached high ratio, their lending expanded rapidly (disalvo & Johnston, 2017) and affect on outreach depth of mfis.

H2.3: There is a positive relationship between loan-to-deposit ratio and outreach depth of formal mfis.

Fourth, outreach breadth: According to Cull, Kunt and Morduch (2006), there is an important trade-off between outreach breadth and outreach depth and the study of Abdulai and Tewari (2017) also showed the trade-off relations between the depth and the breadth of outreach of mfis.

H2.4: There is a negative relationship between outreach breadth and outreach depth of formal mfis.

Fifthly, portfolio at risk: An increase in the default rates suggests that significant portion of the loan portfolios are at risk, with high cost of giving out microloans, an increase in the loan loss rate suggests the possibility of mfis having difficulties in covering administrative costs. The results of the tests for the portfolio at risk and the average loan amount per borrower failed to reject the hypothesis. At the same time, the increased portfolio at risk level results in greater poverty outreach, as mfis tend to offer smaller loans to protect themselves from growing risk of loan default (Sheremenko, Escalante, Florkowski, 2012).

H2.5: There is a negative relationship between portfolio at risk and outreach depth of formal mfis.

3. Methodology:

The study uses both primary and secondary data. Secondary sources of data are gathered by international journals, books, etc. Primary data were collected from the website of MIX Market, annual reports, financial reports of all formal mfis, that were licensed by the State Bank of Vietnam in the period of 2010 - 2018. This research has analyzed and synthesized the theoretical basis relating to outreach breadth and outreach depth of mfis. Based on the synthesized and analyzed theories, the paper defines the factors affecting outreach breadth and outreach depth, the analysis model of the relationship between outreach breadth and outreach depth of all formal mfis in Vietnam is established as follows:

$$Y_1 = A_{10} + A_{11}Y_2 + \sum_{k=1}^{N} B_{1k}X_{1k} + M_1 \tag{1}$$

$$Y_2 = A_{20} + A_{21}Y_1 + \sum_{\gamma=1}^{M} B_{2\gamma}X_{2\gamma} + M_2 \tag{2}$$

Where,

Y_1 is the variable that measuresbreadth of outreach, determined the number of active borrowers. Y_2 is the variable that measures depth of outreach, determined by the average loan per borrower. x_{1k}, and $x_{2\gamma}$are the independent variables that can affect outreach breadth and outreach depth in equations (1), and (2), respectively.

The coefficient α and coefficient β are the correlation coefficients of the independent variables with the dependent variables, which are the error terms of the model. For simplicity, indicator i represents the number of observations and indicator t represents the number observed year. The definitions of variables and expected signs are presented in Table 1 and this study uses Stata 15.0 software with the variables described briefly as follows (Table 1)

Table 1. Summary Of The Research Model Variables

Variables and symbols	Definition	Expected sign and hypotheses
Factors affecting outreach breadth		
Dependent variable		
Outreachbreadth (NAB)	The number of active borrowers	
Independent variables		
Depth of outreach (ALB)	The average loan per borrower	H1.1: - (high ALB, low NAB)
Number of branches (BRA)	Number of branches	H1.2: + (high BRA, high NAB)
Deposit-to-loan ratio (DLR)	Total deposit / Gross loan	H1.3: + (high DLR, high NAB)
Financial self - sustainability (FSS)	Operating income / (Operating expenses + financing costs + provision for loan losses + Cost of capital)	H1.4: - (high FSS, low NAB)
Repayment rate (RR)	The value of the refunded credits / The value of the due credits	H1.5: + (high RR, high NAB)
Factors affecting outreach depth		
Dependent variable		
Depth of outreach (ALB)	The average loan per borrower	
Independent variables		
The size growth of MFI: Asset growth rate (AGR)	Growth in asset	H2.1: + (high AGR, high ALB)
Debt-to-equity ratio (DER)	Total liabilities / Total equity	H2.2: + (high DER, high ALB)
Loan-to-deposit ratio (LDR)	Gross loan / Total deposit	H2.3: + (high LDR, high ALB)
Outreach breadth (NAB)	The number of active borrowers	H2.4: - (high NAB, low ALB)
Portfolio at risk (PAR)	(Outstanding Balance on Arrears over 30 days + Total Gross Outstanding Refinanced (restructured) Portfolio) / Total Outstanding Gross Portfolio	H2.5: - (high PAR, low ALB)

The study uses the descriptive statistical method to evaluate the fluctuations of variables in the research model, perform the correlation analysis to assess the degree of multicollinearity and perform the regression according to the fixed effects model, random effects model and comparison with pooled ordinary least square model to determine the influencing factors for each model. Through the results of the regression steps, this study finds out the factors affecting outreach, financial sustainability and the interactive relationships between outreach and financial sustainability of formal mfis.

4. Results:

4.1 Descriptive Statistics:

Descriptive statistics of both dependent and independent variables are presented in Table 2. The results testify that AGR, ALB, BRA, DLR, FSS, LDR, RR variables have smaller standard deviations than the average. DER, NAB, PAR variables have fluctuation, due to the large difference in debt-to-asset equity ratio, breadth of outreach and portfolio at riskbetween formal mfis of Vietnam in the period from 2010 - 2018.

Table 2. Descriptive Statistics For Factors Affecting Debt-To-Asset Ratio

ariable	Mean	Std. Dev.	Min	Max
AGR	23.36139	17.4796	-6.3	69.58
ALB	.0081806	.0034304	.0022	.0153
BRA	25.69444	21.52582	4	71
DER	5.133889	5.823978	1.16	24.26
DLR	58.08056	23.12572	23.76	111.72
FSS	103.4697	14.88413	71.74	129
LDR	2.108611	.9157172	.89	5.25
NAB	93407.61	105733	414	330300
PAR	.1066944	.1687542	0	.52
RR	88.67083	12.97568	60.36	99.99

Source: Own calculations

4.2 Correlation analysis and regression results for factors affecting breadth of Outreach:

The analysis results of the correlation between variables in the model indicate a very low degree of correlation among the variables, the presence of any multicollinearity is neglected (Table3).

Table 3. Correlation Matrix For Factors Affecting Breadth Of Outreach

	NAB	ALB	BRA	DLR	FSS	RR
NAB	1.0000					
ALB	-0.0238	1.0000				
BRA	0.4341	0.0461	1.0000			
DLR	-0.3830	0.5614	-0.2833	1.0000		
FSS	0.7509	0.3080	0.6021	-0.1942	1.0000	
RR	0.6571	0.1782	0.7380	-0.1980	0.6351	1.0000

Source: Own calculations

Regression is carried out using fixed effects model (fem), random effects model (rem) and comparison with pooled ordinary least square (ols) model between nab dependent variable and alb, bra, dlr, fss rr independent variables.

According to the results of fem and rem, both p-values are less than the significance level of 5% (p-value = 0.000), so the regression models are statistically significant at the significance level of 5 %. In both fem and rem, variable albhas a negative impacts on the variable nab at the significance level of 10% and 1%; variablebra has a negative impacts on the variable nab at the significance level of 5% and 5%; variable rr has a positive impact on the variable nab at the significance level of 1% and 1%; variable dlr has a negative impacts on the variable nab but this variable is not statistically significant in both fem and rem. Variable fss has a positive impact on the variable nab at the significance level of 1% in the rem, but this variable is not statistically significant in the fem(table 4).

Table 4. Regression Results Of FEM And REM For Factors Affecting Breadth Of Outreach

Independent variables	Dependent variable (NAB)	
	REM	FEM
ALB	-8010943.0*	-33181632.6***
	(-2.04)	(-4.70)
BRA	-1987.6**	-2165.4**
	(-2.86)	(-3.69)
DLR	-494.2	-951.3
	(-0.87)	(-1.59)
FSS	5129.2***	2505.8
	(5.46)	(1.92)
RR	4254.7***	6343.0***
	(3.64)	(5.68)
_cons	-669259.6***	-345966.3*
P-value	0.0000	0.0000

t statistics in parentheses * p<0.05, ** p<0.01, ***
p<0.001 Source: Own calculation

This study performed Hausman test to select the appropriate model and Hausman test result obtains a P-value of 0.1691, greater than the significance level of 5 %, so REM is more suitable than FEM. In comparison with OLS Pooled model, REM is more suitable than OLS Pooled model. Therefore, the study uses REM regression results in order to analyze and test the next steps. The multicollinearity test of the model with Mean VIF = 3.25,VIF of variables from 2.29 to 4.31. This result shows no serious multicollinearity in this model.

Test for variance change of the model, P-value = 1.000 is greater than 0.05, therefore, this model does not have variance change phenomenon. Checking the autocorrelation of the model, P-value = 0.4921 is greater than 0.05 so this model does not have serial correlation.

4.3 Correlation Analysis And Regression Results For Factors Affecting Depth Of Outreach:

The analysis results of the correlation between variables in the model indicate a very low degree of correlation among the variables, the presence of any multicollinearity is neglected (Table5).

Table 5. Correlation Matrix For Factors Affecting Depth Of Outreach

	ALB	AGR	DER	LDR	NAB	PAR
ALB	1.0000					
AGR	-0.5430	1.0000				
DER	0.5260	-0.1159	1.0000			
LDR	-0.7293	0.4173	-0.3449	1.0000		
NAB	-0.0238	-0.0316	-0.3406	0.1110	1.0000	
PAR	-0.2198	0.0295	-0.2709	0.2132	0.6048	1.0000

Source: Own calculations

Regression is carried out using fixed effects model (fem), random effects model (rem) and comparison with pooled ordinary least square (ols) model between alb dependent variable and agr, der, fss, ldr, rr independent variables.

According to the results of rem and fem, both p-values are less than the significance level of 5% (p-value = 0.000), so the regression models are statistically significant at the significance level of 5 %. In rem, variables agr,ldr, par havenegative impacts on the variable alb at the significance level of 5%, 1% and 10%; variablesder, nab have postive impacts on the variable alb at the significance level of 1% and 10%. In fem, variable der has a positive impact on the variable alb, variable agr, ldr, nab, parhave negative impacts on the variable alb, but these variablesare not statistically significant in the fem (table 6).

Table 6. Regression Results Of FEM And REM For Factors Affecting Depth Of Outreach

Independent variables	Dependent variable (ALB)	
	REM	FEM
AGR	-0.0000508**	-0.0000252
	(-2.61)	(-1.35)
DER	0.000203***	0.0000753
	(3.54)	(1.41)
LDR	-0.00171***	-0.000968
	(-4.21)	(-2.03)
NAB	1.220*	-1.570
	(2.46)	(-0.30)
PAR	-0.00637*	-0.000315
	(-2.12)	(-0.11)
_cons	0.0115***	0.0106***
P-value	0.0000	0.0000

t statistics in parentheses * p<0.05, ** p<0.01, ***
p<0.001 Source: Own calculations

This study performed Hausman test to select the appropriate model and Hausman test result obtains a P-value of 0.6047, greater than the significance level of 5 %, so REM is more suitable than FEM. In comparison with OLS Pooled model, REM is more suitable than OLS Pooled model. Therefore, the study uses REM regression results in order to analyze and test the next steps. The multicollinearity test of the model with Mean VIF = 2.88,VIF of variables from 1.56 to 4.12. This result shows no serious multicollinearity in this model.

Test for variance change of the model, P-value = 0.7041is greater than 0.05, therefore, this model does not have variance change phenomenon. Checking the autocorrelation of the model, P-value = 0.0623is greater than 0.05 so this model does not have serial correlation.

5. Discussions:

The results of rem (table 4) reflect that variable alb has a negative impact on nab with coefficient -8010943.0 and variable alb has negative effects on nab with the significance level of 10%, indicating that alb has an impact on outreach breadth. This result agrees with the expected sign and hypotheses; at the same time, this result agrees with the analysis results of cull, kunt and morduch (2006), abdulai and tewari (2017).the trade-off relations between the depth and the breadth of outreach of formal mfis of vietnam in the past years.variable bra has a negative impact on nab with coefficient -1987.6, variable bra negatively affects nab at the significance level of 5%, indicating that bra has a strong impact on outreach breadth. This result contrasts with the expected sign and hypotheses; at the same time, this result disagrees with the analysis results of world bank (2004) and quayes (2012). The reason, some formal mfis maintain and no increase in the number of branches, while this formal mfis still increase in the number of active borrowers in the period 2010-2018. Variable fss has a positive impact on nab with coefficient 5129.2, variable fss has positive effects on nab with the significance level of 1%, indicating that fss has a very strong impact on outreach breadth. This result contrasts with the expected sign and hypotheses; at the same time, this result disagrees with the analysis results of nyamsogoro (2010), abdulai and tewari (2017), mujeri et al. (2017). Because, some formal mfis increased their financial self - sustainability by more than 110% through increasing their income from lending activities, contributing to increasing the number of active borrowers in the past years. Variable rr has a positive impact on nab with coefficient 4254.7, variable rr has positive effects on nab with the significance level of 1%, indicating that rr has a very strong impact on outreach breadth. This result agrees with the expected sign and hypotheses; at the same time, this result agrees with the analysis results of osotimehin, jegede and akinlabi (2011). Many formal mfis increased their repayment rates to more than 99%, contributing to regenerate the capital for lending and thereby contributing to increase in the number of active borrowers over the years.The results of rem (table 6) reflect that variable agr has a negative impact on alb with coefficient -0.0000508and variable AGR has negative effects on ALB with the significance level of 5%, indicating that AGR has a strong impact on outreach depth. This result contrasts with the expected sign and hypotheses; at the same time, this result disagrees with the analysis results ofkai (2009), Saad, Taib and bhuiyan (2018). Because, the size growth of many formal mfis has slowed down in recent years, while the average loan per borrower still increase in many formal mfis in recent years.variable der has a positive

impact on alb with coefficient 0.000203, variable der has positive effects on alb with the significance level of 1%, indicating that rr has a very strong impact on outreach breadth. This result agrees with the expected sign and hypotheses; at the same time, this result agrees with the analysis results of osotimehin, jegede and akinlabi (2011), quayes (2012), johnson (2015).many formal mfis use funding sourses for lending and this formal mfis increased the average loan per borrower from liabilitiesover the years.variable ldr has a negative impact on alb with coefficient -0.00171and variable ldr has negative effects on alb with the significance level of 1%, indicating that ldr has a very strong impact on outreach depth. This result contrasts with the expected sign and hypotheses; at the same time, this result disagrees with the analysis results of barkley, mellon and potts (1984), disalvo and johnston (2017). Because, loan-to-deposit ratio of many formal mfis has slowed down, while the average loan per borrower still increase in many formal mfis in recent years.variable nab has a positive impact on alb with coefficient 1.220, variable nab has positive effects on alb with the significance level of 10%, indicating that fss has an impact on outreach depth. This result contrasts with the expected sign and hypotheses; at the same time, this result disagrees with the analysis results of cull, kunt and morduch (2006), abdulai and tewari (2017). Because, many formal mfis increased their outreach breadth, contributing to increasing the average loan per borrower in the past years.variable par has a negative impact on alb with coefficient -0.00637and variable par has negative effects on alb with the significance level of 10%, indicating that par has an impact on outreach depth. This result agrees with the expected sign and hypotheses; at the same time, this result agrees with the analysis results of sheremenko, escalante, florkowski, 2012. Because, porfolio at risk of many formal mfis has slowed down, while the average loan per borrower still increase in many formal mfis in recent years.

6. Conclusions:

The objective of this paper is studying the interactive relationship between outreach breadth and outreach depth of formal mfis in vietnam. Multiple regression analysis is used in this study to find out the potential factors that affect outreach breadth and outreach depthof formal mfis. Based on prior researches, two prominent models are identified and these research results are accurate according to the characteristics of formal mfis and the development history of formal mfis in vietnam from 20110-2018.the results of the study show two factors that have positive relationships with outreach breadth of formal mfis are financial sustainability and repayment rates. Three factors that have negative relationships with outreach breadth of formal mfis are outreach depth and the number of branches. Deposit-to-loan ratio has insignificant relationships with outreach breadth of formal mfis. Two factors that have positive relationships with outreach depth of formal mfis are debt-to-equity ratio and outreach breadth. Three factors that have negative relationships with outreach depth of formal mfis are the size growth of formal mfis and loan-to-deposit ratio and portfolio at risk formal mfis. At the same time, the study finds bidirectional interactions between outreach breadth and outreach depth. In particular, this study finds outreach breadth impacts on outreach depthin a positive trend, while outreach depthimpacts on outreach breadthin a negative trend. Nowadays, mfis are becoming a significant investment prospect in many regions of the country. This study will help the researchers, managers to develop their expertise about the key factors of the outreach breadth and outreach depth and the interactive relationship between outreach breadth and outreach depth of mfis in vietnam. At the same time, based on the research results, the article recommends key content to advance improve outreach breadth and outreach depth of formal mfis in vietnam as follows. Firstly, this study finds bidirectional causal interactions between outreach breadth and outreach depth with, but outreach depth impacts on outreach breadth in a negative trend, so that the immediate policy recommendation from this study would support the encouragement of formal mfis to emphasize on outreach breadth of formal mfis. Secondly, formal mfis should advance repayment ratio to expand the operations and contribute to improving outreach breadth.Thirdly,formal mfis ought to balance sufficient resources to ensure their operational objectives. At the same time, strengthen measures to balance the financial resources and financial sustainability in oder to promote outreach breadth of mfis. This study assesses the interaction between the outreach breadth and outreach depth of the formal mfis in Vietnam. Subsequent research can be extended to the institutions that provide the microfinance service in Vietnam, further investigate other factors including macro and micro factors to achieve more comprehensive results on the interactive relationship between the outreach breadth and outreach depth.

Refreences :

1) Abdulai, a., & tewari, d. (2017). Determinants of microfinance outreach in sub-saharan africa: a panel approach. Acta commercii- independent research journal in the management sciences, 17(1), 1-10. Https://doi.org/10.4102/ac.v17i1.414

2) Barkley, d. L., mellon, c., & potts, g. T. (1984). Effects of banking structure on the allocation of credit to nonmetropolitan communities. Western journal of agricultural economics, 9(2), 283-292.

3) Churchill, s. A., & marr, a. (2017). Sustainability and outreach: a comparative study of mfis in south asia and latin america and the caribbean. Bulletin of economic research, 69(4), 19-41.

4) Cull, r., kunt, a. D., & morduch, j. (2006). Financial performance and outreach: a global analysis of leading microbanks. World bank policy research working paper 3827, 6-8. Washington, dc: the world bank.

5) Disalvo, j., & johnston, r. (2017). Banking trends: the rise in loan-to-deposit ratios: is 80 the new 60?. Federal reserve bank of philadelphia, research department, q3, (pp.18-23).

6) Fiebig, m., hannig, a., & wisniwski, s. (1999). Saving in the context microfinance-state of knowledge. Cgap working paper, (pp.7-17) . Cgap working group on savings mobilization.

7) Johnson, c. (2015). The impacts of capital structure on depth of outreach in sub-saharan africa. Critique: a worldwide journal of student politics, 118-149. Spring 2015.

8) Kai, h. (2009). Competition and wide outreach of microfinance institutions. Economics bulletin, 29(4), 2628- 2639.

9) Ledgerwood, j. (1999). Microfinance handbook - a financial market system perspective(pp.216-248). The world bank, washington, d.c.

10) Ledgerwood, j., earne, j., & nelson, c. (2013). The new microfinance handbook: a financial market system perspective. In j. Earne, & l. Sherk (eds.), funding (pp.379-382), world bank publications.

11) Mujeri, m. K, khalily, m. A. B., scheyvens, h., johnson, b., rahman, m, hasan, m., azam, s. E., & adnan, s. S. (2017). Financial inclusion for disaster and climate resilient households and communities. A research report prepared for the japan international cooperation agency, pp.126. Institute for inclusive finance and development.

12) National assembly (2010). Law on credit institutions, no. 47/2010/qh12, june 16, 2010. Ha noi, vietnam. Retrieved august15, 2019, from https://www.economica.vn/portals/0/documents/f6c24d103517f2a8c3ea307d119a2e0e.pdf

13) Nyamsogoro, g.d. (2010). Financial sustainability of rural microfinance institutions in tanzania. Phd thesis: university of greenwich, australia.

14) Osotimehin, k.o., jegede, c.a., & akinlabi, b.h. (2011). Determinants of microfinance outreach in south-western nigeria: an empirical analysis. International journal of management and business studies, 1(1), 001-007.

15) Quayes, s. (2012). Depth of outreach and financial sustainability of microfinance institutions. Applied economics, 44(26), 3421-3433.

16) Sheremenko, g., escalante, c. L., & florkowski, w. J. (2012). The universality of microfinance operations model in eastern europe and central asia: financial sustainability vs. Poverty outreach. Retrieved august 8, 2019, from http://ageconsearch.umn.edu/record/123286/files/th ... 20model%20_paper.pdf

17) World bank (2004). Microfinance and the poor in central asia challenges and opportunities. Agriculture and rural development discussion, 6, (pp.6-16). Europe and central asia region. Washington, d.c.