What Determine the Viability of Rural Banks? Evidence from Indonesia

IRWAN TRINUGROHO[a*], MOCHAMMAD DODDY ARIEFIANTO[bc], LINGGAR IKHSAN NUGROHO[a], HUNIK SRI RUNING SAWITRI[a], MUHAMMAD AGUNG PRABOWO[a], HARMADI[a], AND LUKMAN HAKIM[a]

[a] *Faculty of Economics and Business, Universitas Sebelas Maret, Surakarta, Indonesia.*
[b]*Indonesia Deposit Insurance Corporation, Jl. Jendral Sudirman Kav. Jakarta, Indonesia.*
[c] *Universitas Ma Chung, Karangwidoro, Dau, Malang, , Indonesia*

ABSTRACT

We comprehensively investigate the determinants of viability of rural banks in Indonesia. We take into account bank specific characteristics, bank governance, banking competition and regional characteristics to explain the difference in sustainability of rural banks. By studying 144 Indonesian rural banks located in 23 provinces over the period of 2010-2016, we find that banking competition measured by Lerner index and banking density is strongly negatively associated with viability of rural banks. Further, involvement of owners in the management is found to lessen the viability of such kind of banks. Well established rural banks would more likely be survived than newly established ones. Socio-economic and socio-political factors at the regional level have significant effect on the sustainability of rural banks. Some policy implications are discussed.

* Correponding author: Email: irwan.trinugroho@gmail.com

INTRODUCTION

Microfinance has been a global issue over the recent decades as it is generally argued that microfinance could contribute significantly to the financial inclusion particularly in emerging countries including Indonesia. The Indonesian government has put more attention to the improving the level of financial inclusion by bolstering the role of banking both commercial and rural banks[1] which can be operated in the conventional and sharia systems.

More particular, rural banks in Indonesia could be considered as the formal (commercialized) microfinance institutions (Hamada, 2010). According to the Indonesian Law, rural banks activities are only limited to collecting fund from the surplus spending units in the form of savings and deposits, channeling loans, providing financing and place their funds according to the sharia principles and placing their funds in the certificate of the central bank and interbank deposits.

According to the data in December 2016, there are 1633 conventional rural banks and 166 Islamic rural banks. 70% conventional rural banks are located in Java and Bali islands while, 63% of Islamic rural banks are located in Java and Bali islands. Moehdi et al. (2015) and Nys et al. (2015) mention that total assets of rural banks in Indonesia is only around 1.5% to the total of banking industry. Rural banks in Indonesia close to the concept of rural bank in Phillipines (Meslier-Crouzille et al., 2012) and some other emerging markets. However, the scale of rural banks in Indonesia is relatively smaller than those in other countries. Hamada (2010) explains that rural banks in Indonesia are a type of commercialized institutional microfinance which is assigned to drive the local economy. It is expected that their markets are lower income households and micro enterprises which are not reached by commercial banks. According to Hamada (2010) in her conceptual framework regarding microfinance institutions in Indonesia, rural banks are in the quadrant which directly competes with commercial banks having micro banking business unit, cooperative banks and *Baitul Mal wat Tamwil* (BMT/ Islamic microfinance institution).

However, practically, rural banks also compete with the Government affirmative program on small scale loans for micro enterprises (*Kredit Usaha Rakyat*/KUR) which is channeled by commercial banks. There are also illegal loans providers particularly in the rural areas. Karsidi et al. (2015) reveal that although the interest rate of predatory loans is quite high, some people perceive that the process of getting loans and paying the installment are easy, so that many households and micro enterprises have high dependency on such loans.

Since the establishment the Indonesia Deposit Insurance Corporation (IDIC) until December 2016, there have been 75 rural banks were liquidated. Although there is a significant correlation between the number of rural banks in a region and number of liquidated rural banks in the region, there also some anomalies. In few provinces, the number of failed rural banks is higher even though the number of rural banks is not the largest. On the other hand, some provinces have only small number of failed rural banks although the number of such banks is higher. Therefore, it is supposed that the region characteristics could contribute to explain the sustainability of rural banks. Trinugroho et al. (2015) confirm that the quality of local governance and socio-economic condition matter in explaining the disparity in financial deepening across provinces in Indonesia.

According to the internal survey of the IDIC, 90% of failed banks had a problem of governance in which there were fraud conducted by owners or management through the fictive transactions and other abusive behaviors. Moreover, the study of the Indonesia Financial Services Authority in 2016 concludes that the substantial problem faced by rural banks comes from the internal side such as limited capital, quality of human resources, information technology, as well as product and service innovation.

Accordingly, sustainability of rural banks is determined by two general aspects which internal factors (governance, business model, capital, infrastructure, and human resources) and external factors (business environment, competition and macroeconomic). In this present paper, we empirically investigate the determinants of viability of rural banks in Indonesia by incorporating both internal and external factors as mentioned earlier.

---

[1] Indonesian: *Bank Perkreditan Rakyat* (BPR – People Credit Bank)

LITERATURE REVIEW

Viability or sustainability of a microfinance institution could be categorized into operational self-sustainability and financial self-sustainability (Meyer, 2002). At the operational level, sustainability is only measured by the sufficiency of operational income to cover operational expenses, while financial sustainability measures the viability for the long-term by looking at consistency in the financial performance.

A number of studies have been done to investigate the determinants of sustainability of micro finance institutions. Therefore, some measures of microfinance viability have also been developed. Seibel et al. (1998) use repayment rate and sufficiency of interest rate spread to measure the probability of sustainability of micro finance institutions in Nepal. It is argued that banks with higher repayment rate and higher spread would more likely be sustained. Theoretically, Udeaja and Ibe (2002) explain that sustainability of micro finance institutions is determined by eight aspects including outreach, approach in credit channelling, monitoring and regulation, productivity and governance, information technology, market segmentation and human resources. Moehdi et al. (2015) empirically investigate the sustainability of rural banks in Indonesia by employing panel data over the 2009-2013. They measure sustainability of rural banks using three proxies which are profitability (return on assets), quality of loans (ratio of non-performing loans to total loans), and quality of loans (the ration operating revenue to cost).

A stand of literature also discusses the effect of banking competition in explaining the sustainability and profitability of microfinance institutions. For instance, Cyree dan Spurlin (2012) empirically study the impact of big banks' presence on the profit efficiency of small banks in rural areas in the context of US banking. They reveal that large banks entering to the rural markets have higher market power which in turn lowers the profit of small banks.

Furthermore, some previous studies point out that macro environment contributes to explain the viability of microfinance institutions by referring to the law and finance perspective (La Porta et al., 1998) in which some aspects in law (e.g. creditor protection, investor protection, property right and others) are important factors in explicating some aspects in finance such as financial development, banking development and cost of financial intermediation. Trinugroho et al. (2015) and Trinugroho and Wiwoho (2016) conclude that the specific characteristics of regions in Indonesia especially those related to the quality of local governance provide incentives for formal financial institutions to expand their business in the regions which in turn enhance the level of financial deepening and lower the cost of financial intermediation the regions.

RESEARCH METHODS

Data

Our sample consists of 144 Indonesian rural banks located in 23 provinces over the period of 2010-2016. We collect the data from several sources. Our main source is the financial reports of rural banks published in the website of Indonesia Financial Services Authority (OJK). As for the data of bank governance, we conduct a survey (in-depth interview) to those rural banks. As for the regional characteristics, we collect information from the Indonesia Statistics Office (BPS).

Variables

Viability of Rural Banks
We use two proxies of viability of rural banks which are the natural logarithm of ZROA (Z-score from ROA) and CAMEL. Z-Score is measured by the sum of average return on assets (ROA) and equity to total assets ratio divided

by the standard deviation of return on assets (3 period moving average). CAMEL is a standard measure of bank soundness.

Explanatory Variables

Rural Bank Governance

We use three measures of governance as follows:

- Involvement of owners in the management (INV_MAN) which is a dummy variable taking a value of 1 for rural banks that the owners or their family member involve in the management.
- Ownership concentration (OWN_CONS) which is measured using adjusted HHI.
- The proportion of independent commissioner (PROP_INDCOM) which is measured by ratio of independent commissioners to total commissioners.

Bank Specific Characteristics

We include three specific characteristics of rural banks which bank age (AGE), bank size (natural logarithm of total assets/ LNASSET) and a dummy variable for conventional rural banks (CONV) to disentangle with Islamic rural banks.

Banking Competition

We employ three measures of banking competition as follows:

- Natural logarithm of region's population to number of rural banks in the region (LNPOP_BPR)
- Natural logarithm of region's population to number of commercial banks in the region (LNPOP_BU)
- Lerner Index which is the difference between revenue and marginal cost divided by marginal cost (LERNER)

Regional Specific Factors

We employ a number of factors representing the regions' specific characteristics in economic, social and political aspects.
- Dummy variable taking a value of 1 for rural banks located in Java Island and 0 for rural banks outside Java Island (JAVA)
- Unemployment rate (UNEMPLOY)
- Democracy Index (DEMO_INDEX)
- Dummy variable for conflict regions (CONFLICT)

Empirical Model and Estimation

We use the Panel Least Square adjusted with white cross-section standard errors to estimate our empirical models. We could not be able to control for individual and time effects due to some explanatory variables are time invariant and individual invariant. We create three empirical models for each dependent variable. In the first model, we only include governance and bank specific factors. In the second model, we add the proxies of the density of banking competition. Regional specific characteristics are included in the third model.

RESULTS

Viability of Rural Banks

As explained earlier, our dependent variable is viability of rural banks which is proxied by Z-Score and CAMEL. Z-score measures solvency of a bank in which the higher the Z-score, the lower the probability to default should be. CAMEL measures the bank soundness.

Of particular interest, first, we look at the viability of rural banks across provinces. According to the data exhibited in table 1, Jawa Timur (East Java) and Kalimantan Selatan (South Kalimantan) are provinces with the highest Z-score of rural banks, while the lowest average of Z-score is in the Sumatera Barat (West Sumatera). It is consistent with the statistics for CAMEL. The highest average CAMEL of rural banks is in Kalimantan Selatan.

Table 1 Viability of Rural Banks across Provinces

No	PROVINCE	Location	LNZROA	CAMELS
1	Bali	Outside Java	1.074	15.884
2	Banten	Java	1.608	25.371
3	DI Yogyakarta	Java	1.109	16.945
4	DKI Jakarta	Java	1.551	22.224
5	Jawa Barat (West Java)	Java	1.222	15.807
6	Jawa Tengah (Cental Java)	Java	1.296	19.080
7	Jawa Timur (East Java)	Java	1.845	22.963
8	Kalimantan Barat (West Kalimantan)	Outside Java	1.523	25.599
9	Kalimantan Selatan (South Kalimantan)	Outside Java	2.335	34.429
10	Kalimantan Timur (East Kalimantan)	Outside Java	1.390	24.096
11	Kepulauan Riau (Riau Islands)	Outside Java	0.868	15.001
12	Lampung	Outside Java	1.663	22.650
13	Maluku	Outside Java	1.372	16.680
14	Nanggroe Aceh Darussalam	Outside Java	1.382	25.736
15	Nusa Tenggara Barat	Outside Java	2.086	27.991
16	Papua	Outside Java	1.092	17.856
17	Riau	Outside Java	1.007	13.247
18	Sulawesi Selatan (South Sulawesi)	Outside Java	0.926	17.413
19	Sulawesi Tengah (Central Sulawesi)	Outside Java	0.953	21.277
20	Sulawesi Utara (North Sulawesi)	Outside Java	1.067	13.600
21	Sumatera Barat (West Sumatera)	Outside Java	0.847	13.041
22	Sumatera Selatan (South Sumatera)	Outside Java	1.265	17.379
23	Sumatera Utara (North Sumatera)	Outside Java	1.003	15.358
	Average		**1.354**	**19.154**

Descriptive Statistics

Table 2 exhibits the descriptive statistics of variables that we use in the regression models. LNZROA and CAMEL are the proxies of viability of rural banks. 91% of our samples are conventional rural banks. Moreover, 70% of the samples are located in Java Island. The average rural banks that their owners (or controlling shareholders) involved in the management are 27%, while the average ownership concentration level is 0.48. The average proportion of independent commissioner on the board is 0.3.

It is also exhibited that the average age of rural banks is 19.93 years, while the average total assets (after transformed in the natural logarithm) is 17.23. Turn to the proxies of banking competition, the average natural logarithm of province's population divided by number of rural banks is 11.11, whereas the average natural logarithm of province's population divided by number of commercial banks is 11.29. The mean of Lerner Index of our sample is 0.19. The average unemployment rate is 6.28%, while the average democracy index is 66.67.

Table 2 Descriptive Statistics of Variables

Variable	Mean	Std. Dev.	Min	Max
lnzroa	1.35	0.63	-0.84	3.59
camel	19.15	14.47	-138.71	99.53
bpr	0.91	0.29	0.00	1.00
inv_man	0.27	0.44	0.00	1.00
own_cons	0.48	0.28	0.00	0.96
prop_indcom	0.30	0.39	0.00	1.00
age	19.93	11.83	1.00	62.00
lnasset	17.23	1.76	11.23	22.67
lnpop_bpr	11.11	0.60	10.06	12.83
lnpop_bu	11.29	0.54	9.27	12.75
lerner	0.19	0.21	-1.25	0.54
java	0.70	0.46	0.00	1.00
unemploy	6.28	2.44	1.83	13.74
demo_index	66.67	7.28	54.02	85.32
conflict	0.02	0.14	0.00	1.00

According to the correlation matrix presented in table 3, the LNZROA and CAMEL, the proxies of viability of rural banks), have relatively high correlation which is 0.812. It indicates that these two could consistently reflect the viability of rural banks. LNZROA is negatively correlated with ownership involvement in the management, bank size, unemployment rate, democracy index, and conflict region. Similarly, CAMEL has negative correlations with those variables. In addition, it is positively correlated with the proportion of independent commissioner on the board. There is no collinearity issue here as all correlations among explanatory variables are no more than 0.4.

Table 3 Correlation Matrix of Variables

	lnzroa	camels	inv_man	own_cons	prop_indcom	age	lnasset
lnzroa	1						
camels	0.812	1					
inv_man	-0.201	-0.111	1				
own_cons	0.02	0.016	0.172	1			
prop_indcom	-0.05	0.08	0.084	-0.005	1		
age	0.05	0.019	-0.115	-0.283	-0.165	1	
lnasset	-0.364	-0.296	0.191	-0.203	-0.052	0.261	1
unemploy	-0.04	-0.003	0.028	0.137	0.277	-0.178	-0.101
demo_index	-0.09	-0.072	0.046	-0.13	0.065	0.137	0.204
conflict	-0.039	-0.044	0.086	0.038	-0.01	-0.014	0.097
lnpop_bpr	0.208	0.189	0.141	0.047	0.13	-0.195	0.046
lnpop_bu	0.223	0.164	-0.014	0.099	0.021	0.07	-0.163
lerner	0.295	0.28	-0.243	0.231	-0.226	-0.06	-0.312
java	0.174	0.131	-0.234	-0.12	0.05	0.268	-0.211

Cont. Table 3

	unemploy	demo_index	conflict	lnpop_bpr	lnpop_bu	lerner	java
lnzroa							
camels							
inv_man							
own_cons							
prop_indcom							
age							
lnasset							
unemploy	1						
demo_index	-0.172	1					
conflict	0.031	-0.113	1				
lnpop_bpr	0.366	-0.079	0.267	1			
lnpop_bu	0.254	-0.268	0.036	0.155	1		
lerner	-0.079	-0.121	0.06	0.057	0.009	1	
java	-0.062	0.068	-0.227	-0.317	0.441	0.072	1

Table 4 Regression Results

	LNZROA			CAMEL		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Dummy for conventional rural banks	0.46***	1.45***	1.37***			
	(4.3)	(5.23)	(4.29)			
Involvement in Management	-0.17***	-0.14***	-0.14**	-3.91***	-1.80	-2.37*
	(-3.22)	(-2.61)	(-2.43)	(-3.53)	(-1.6)	(-1.93)
Ownership Concentration	-0.08	-0.07	-0.04	-1.00	-1.10	-0.72
	(-0.94)	(-0.86)	(-0.45)	(-0.56)	(-0.61)	(-0.37)
Proportion of Independent Commissioners	-0.05	-0.03	-0.004	1.99	2.49**	3.15**
	(-0.93)	(-0.6)	(-0.06)	(1.57)	(1.96)	(2.22)
Bank Age	0.006***	0.007***	0.007***	0.10**	0.12***	0.09**
	(2.93)	(3.39)	(3.04)	(2.4)	(2.87)	(2.05)
Bank Size	-0.13***	-0.11***	-0.12***	-0.21	-0.14	-0.38
	(-9.39)	(-7.5)	(-7.23)	(-0.77)	(-0.5)	(-1.14)
LN Population/Rural Banks		0.33***	0.37***		3.17***	3.92***
		(7.25)	(7.09)		(3.43)	(3.68)
LN Population/Commercial Banks		0.06	0.19**		1.31	4.62***
		(1.13)	(2.58)		(1.07)	(1.45)
Lerner Index		0.55***	0.42***		12.64***	11.67***
		(4.7)	(3.15)		(5.04)	(4.13)
Java		0.14**	0.07		0.75	-1.17
		(2.22)	(0.9)		(0.55)	(1.55)
Unemployment			-0.04***			-0.71***
			(-4.04)			(-3.03)
Democracy Index			-0.0002			0.33***
			(-0.07)			(4.37)
Regional Conflict			-0.38**			-4.51
			(-2.01)			(-1.09)
Constant	Included	Included	Included	Included	Included	Included
White cross-section	Yes	Yes	Yes	Yes	Yes	Yes
Method	Panel Least Square	Panel Least Square	Panel Least Square	Panel Least Square	Panel Least Square	Panel Least Square
R-Squared	0.19	0.30	0.32	0.03	0.08	

Note ***, **, * significant at 1%, 5% and 10%. The value in parentheses are t-statistics

Table 4 presents the regression results estimated using panel least square. Column 1, 2 and 3 are the regression results where the dependent variable is Z-Score, while model 4, 5, and 6 are regression results with CAMEL as the dependent variable. Model 1 and 4 are empirical models where only bank governance and bank specific characteristics are included in the model. Model 2 and 5 are empirical models which are extended by adding the level of competitive environment. Finally, model 3 and 6 are the complete set of empirical model where all explanatory variables are included.

Starting with the bank governance, it argued that governance is a mechanism to deal with the agency conflict. Accordingly, there are some agency issues appearing due to the delegation of authority from the stockholders (principal) to managers (agent). On the other words, it could be argued that the separation of ownership and control creates agency problems. Further, the agency costs could have an impact of firm performance. Agency type 1 explains that agency problem arises due to there is a different objectives between stockholders and managers meaning that managers' goals may not necessarily be the same with the objectives of principal. On the other hand, agency type 2 explains the potential conflict between majority and minority shareholders as there is potential expropriation (Bhaumik et al., 2010).

To examine the effect of governance on the viability of rural banks, we use three proxies of rural bank governance which are involvement of owners in the management, ownership concentration and the proportion of independent commissioners. Shareholders' involvement may reduce the potential conflict type 1, however, on the other hand, it creates more incentive to moral hazard for majority shareholders in expropriating minority

stockholders. As presented in table 4, we find consistent negative and significant effect of shareholder involvement in management on the viability of rural banks. Rural banks with involvement of shareholders in the management have a lower viability compared to those which clearly separate between ownership and management.

According to previous studies (e.g. Anderson and Reeb, 2004; Black and Kim, 2012), ownership concentration could have a positive or negative effect on firm performance. On the one hand, more concentrated the ownership would lead to more power for majority shareholder which then creates more incentive to expropriate. On the other hand, more concentrated ownership would lessen the agency problem between shareholders and managers. Our empirical study does not find any evidence on the effect of ownership concentration on the viability of rural banks meaning that there is no significant difference in the viability of rural banks between single ownership and balanced ownership.

Independent commissioner has an important role to represent minority shareholders in monitoring management. Therefore, it is expected that independent commissioner could minimize the potential agency conflict type 2 which then leads to better performance of firms. Our results partially confirm that the higher the proportion of independent commissioner on the board of commissioner, the higher the viability of rural banks particularly when we use CAMEL as a measure of viability.

Related to the bank specific characteristics, our results strongly show that age has a positive and significant effect on the viability of rural banks meaning that mature banks have less probability of default compared to newly established banks. However, maturation of rural banks is not necessarily reflected in the bank size where the effect of bank size on the viability is negative and significant.

In the column 2 and 5 of table 4, it is presented the regression results of adding banking competition in the estimation. The first measure is the Lerner Index which is the difference between price and marginal cost divided by marginal cost following the works of Weill (2011), Koetter et al. (2012), Trinugroho et al. (2014) and Meslier et al. (2017). It could be considered to measure the degree of market power of banks. More banks with higher Lerner Index could indicate less competitive banking environment. Our empirical results strongly confirm the positive and significant effect of Lerner Index on the viability of rural banks. Viability of rural banks would be higher in the regions having less competitive banking environment because they have higher market power which then translated into higher profitability. In the column 2 and 5 of table 4, it is presented the regression results of adding banking competition in the estimation. The first measure is the Lerner Index which is the difference between price and marginal cost divided by marginal cost following the works of Weill (2011), Koetter et al. (2012), Trinugroho et al. (2014) and Meslier et al. (2017). It could be considered to measure the degree of market power of banks. More banks with higher Lerner Index could indicate less competitive banking environment. Our empirical results strongly confirm the positive and significant effect of Lerner Index on the viability of rural banks. Viability of rural banks would be higher in the regions having less competitive banking environment because they have higher market power which then translated into higher profitability.

This is confirmed by the results of other measure of banking competition which is banking density proxied by province population divided by number of rural banks in the province and province population divided by number of commercial banks in the province. Results show positive and significant coefficients meaning that in the provinces having lower banking density (limited supply), the existing rural banks have higher viability compared to regions with higher banking density. In other words, rural banks would be more difficult to survive where the banking environment is competitive as they may not be able to explore their competitive advantages. This condition then erodes their profitability.

We present the complete set of regression results in column 3 and 6 of table 4 by adding the province specific factors related to local socio-economic and socio-political issues. We use three proxies which are unemployment rate, democracy index and a dummy variable for conflict region. We also control with a dummy variable for rural banks located in Java Island. Our results show that unemployment rate is negatively correlated with the viability of rural banks, while democracy index is positively associated. This confirms previous study of Trinugroho et al. (2015) which documents that in the more developed regions (in term of socio-economic condition), the level of banking

development is higher than in the less developed regions. It is also consistent with the recent paper of Delis et al. (2017). They conclude that democracy could affect economic development by lowering cost of bank loans.

CONCLUSION AND POLICY IMPLICATIONS

We analyze the sustainability of rural banks in Indonesia more particular addressing the issue of factors determining the viability of such kind of banks. By studying 144 rural banks over the 2010-2016 period, we find some interesting evidence and accordingly, there are some noteworthy policy recommendations that could be provided. First, competition is found to be the main factor to explain the viability of rural banks. Rural banks are more likely to be viable where local banking is less competitive. It is robust as we combine different measures of banking competition. Second, well established (mature) rural banks are more likely to be sustained although the size may not be large. It indicates that strong bank-customer relationship and reputation have more effect on sustainability rather than bank size. Third, rural banks have more probability to be sustained where they operate in the more socio-economically developed and more socio-politically stable. Fourth, bank governance also plays important role in explaining the viability of rural banks. A substantial number of rural banks are owned (or majority controlled) by owners which are also involved in the management. No clear separation of ownership and control would create more fragile banks especially with regards to the potential of fraud and abuse of power. It is confirmed by the empirical results that there is consistent negative effect of involvement of owners in management and the positive effect of proportion of independent commissioner on the viability of rural banks.

REFERENCES

Anderson, R. C., Reeb, D. M. (2004), "Board composition: Balancing family influence in S&P 500 firms", *Administrative Science Quarterly*, Vol. 49, pp. 209-237.

Bhaumik S.K., Gregoriu, A. (2010), " 'Family' ownership, tunneling and earnings management: A review of the literature", *Journal of Economic Surveys*, Vol. 24 pp 705-730.

Black, B., Kim, W. (2012), "The effect of board structure on firm value: A multiple identification strategies approach using Korean data", *Journal of Financial Economics*, Vol. 104, pp. 203–226.

Cyree, K.B., Spurlin, W.P. (2012), "The effects of big-bank presence on the profit efficiency of small banks in rural markets", *Journal of Banking & Finance*, Vol. 36, pp. 2593–2603.

Delis, M., Hasan, I. Ongena, S. 2017. Democracy and Credit: "Democracy Doesn`t Come Cheap" But At Least Credit to Its Corporations Will Be. *SSRN Working Paper.*

Hamada, M. (2010), "Commercialization of Microfinance in Indonesia: The Shortage of Funds and the Linkage Program", *The Developing Economies*, Vol. 48, no. 1, pp. 156–76.

Karsidi, R., Trinugroho, I., Nugroho, L.I., Prabowo, A. (2015), "Why Households Borrow from Informal Predatory Lenders: Evidence from Indonesia", *Journal of Economics and Economic Education Research*, Vol. 16(2), pp. 173-182.

Koetter, M., Kolari, J.W., Spierdijk, J. (2012), "Enjoying the quiet life under deregulation? Evidence from adjusted lerner indices for U.S. banks", *Review of Economics and Statistics*, Vol. 94, pp. 462-480.

Meslier-Crouzille, C., Nys, E., Sauviat, A. (2012), "Contribution of Rural Banks to Regional Economic Development: Evidence from the Philippines", *Regional Studies*, Vol. 46, no 6, pp. 775–791.

Meslier, C., Risfandy, T., & Tarazi, A. (2017), "Dual market competition and deposit rate setting in Islamic and conventional banks" *Economic Modelling*, Vol. 63, pp. 318–333.

Meyer, R.L. (2002), "Track Record of Financial Institutions in Assisting the Poor in Asia" *ADB Institute Research Paper* 49.

Moechdi, M., Ismail, M., Ananda, C.F., Yustika, A.E. 2016. Study on empirical characteristic of rural bank sustainability in Indonesia. *International Journal of Monetary Economics and Finance*, Vol. 9, No. 4, 363-378.

Nys, E., Tarazi, A., Trinugroho, I. (2015), "Political connections, bank deposits and formal deposit insurance", *Journal of Financial Stability* Vol. 19, pp. 83-104.

Seibel, H.P., Pant, H.D., Dhungel, D. (1998), "Microfinance In Nepal: Determinants of Viability, Sustainability and Outreach among Grameen, NGO, and Cooperative Microfinance Institutions", *Savings and Development* (Milan), Quarterly Review Vol. XXII, no. 3, pp. 305-329.

Trinugroho, I., Agusman A., Tarazi, A. (2014), "Why have bank interest margins been so high in Indonesia since the 1997/1998 financial crisis?" *Research in International Business and Finance* Vol. 32, pp. 139–158.

Trinugroho, I., Agusman, A., Ariefianto, M.D., Darsono, D., Tarazi, A. (2015), "Determinants of cross regional disparity in financial deepening: Evidence from Indonesian provinces". *Economics Bulletin*, Vol. 35(2).

Trinugroho, I., Wiwoho, J. "2016. Local Institutional Development and Cost of Financial Intermediation: Evidence from Indonesia", *International Journal of Business*, Vol. 21(4), pp. 319-327.

Udeaja, E.A., Ibe, A.C. (2002), "Building Viable Microfinance Institutions: Lessons from Other Developing Countries". *Working Paper*.

Weill, L. (2011), "Do Islamic banks have greater market power?", *Comparative Economic Studies*, Vol. 53, pp. 291–306.

ACKNOWLEDGMENTS