

The Determinants of Financial Inclusion among Indonesian Muslim Households

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Abstract

This study empirically examines the determinants of financial inclusion among Indonesian Muslims using individual-level panel data. We investigated financial inclusion indicators such as borrowing from financial institutions, bank account ownership, the borrowed amount, and savings in financial services. We analysed data from the Indonesian Family Life Survey (IFLS) fourth (2007) and fifth (2014) waves, offering a comprehensive dataset with unique socio-economic variables. We used Ordinary Least Squares and Logit estimations to identify factors influencing individuals' access to financial services and the average borrowed amount. Our findings indicate that urban residents with higher wealth, predominantly males, have better access to financial services. Banks remain the primary source for loans among Indonesian Muslims. Access to commercial banks significantly impacts loan accessibility. Notably, Baitul Maal WatTamwil (BMT), an Islamic microfinance institution, enhances the probability of Indonesian Muslims accessing formal loans.

Keywords: Financial Inclusion, Islamic Finance, Household, Muslim, Indonesia

JEL Classification: G510, Z120

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I. Introduction

Growing literature on the impact of a financial system tends to confirm its positive impact both from macroeconomic and microeconomic perspectives. A financial system is hypothesized to affect economic growth and be able to reduce inequality and poverty. According to the World Bank (2008), a well-functioning financial system can foster growth and reduce poverty. A study conducted by King and Levine (1993) supports Schumpeter's theory that financial services are important for economic development and technological innovation. Gine and Townsend (2004) found out that financial liberalization in Thailand can be associated with a substantial increase in GDP per capita of Thailand during that period.

From the microeconomic perspective, better access to the financial system can improve living standards. Murdoch (1998) suggested that microfinance has potential impact to reduce vulnerability of poor people, but not to reduce the poverty line. Duy (2012) examined two modes of household access to the financial system (individual and group-based lending systems) and revealed that both types of microcredit lending affect the welfare of households in Mekong Delta of Vietnam. A similar finding was reported in a study carried out by Pitt and Khandker (1998) that the use of credit has positive and significant effect on household expenditure, household assets, labour supply, and the likelihood that children go to school.

Improved financial access also has other potential impact on human capital. Fuwa et al. (2005) reported that having access to the credit market boosts the likelihood of children in India to go to school by 60 percent. Tu et al. (2015) also discovered that in the short term, education expenditure is positively and significantly influenced by credit access. Similar findings were obtained in Indonesia. Credit given to women living below the poverty line in Lombok (Indonesia) enables their family to move above the poverty line.

On the contrary, Coleman (1999) revealed that micro credit has no significant impact on physical assets, savings, production sales, productive expenses, labour, as well as expenditure on health care and education. In the business sector, Cotler and Woodwuff (2007) discovered that

microcredit has positive and significant impact on the profit and sales of small retailers only, and does not have the same effect on large retailers.

Although the impact of a financial system is a little bit inconclusive, improving access to the financial system has become a relevant and crucial goal for economic development. Financial inclusion means making financial services available to all, which in turn enables more people to harness its full potential benefit in support of their economic condition. Globally, financial inclusion has become a core of the development strategy that is supported by the United Nations and the World Bank Group.

Nevertheless, the Islamic world or Muslim countries under the Organisation of Islamic Cooperation (OIC) show less encouraging financial inclusion indicators. Naceur et al. (2015) found out that financial indicators of OIC countries are lower than those of non-OIC countries. For instance, in 2014, OECD countries on average performed better than OIC countries on borrowing and saving money in financial institutions (Appendix 1). Unlike other OIC countries, MENA countries actually have better financial deepening as demonstrated by a large proportion of private loans to GDP (Pearce, 2011). However, MENA countries are not good at channelling their finances to SMEs that may need to be financed most.

In the Southeast Asia region, Indonesia as one of Islamic finance powerhouses have not reached the same level as MENA countries. Indonesia as a G20 member and one of the biggest economies in OIC shows low Loan-to-GDP and Deposit-to-GDP ratios. Table 1. shows Indonesia's performance on financial inclusion compared to some Southeast Asian and emerging economies. For almost all indicators, Indonesia fails to outperform the other countries. It implies that financial inclusion in Indonesia is not optimal yet.

Indicator	Indonesia	Malaysia	Thailand	The Philippines	Vietnam	India	Brazil
Population (billion)	242.3	28.86	69.52	94.85	87.84	1241	196.7
Loans per 1,000 adults	293	281.7	250.8	458.7	n/a	n/a	241.3
Bank branches per 1,000 sq km	8.2	6.3	12.1	16.3	7.8	30.4	7.9
Bank branches per 1,000 adults	8.6	10.5	11.3	8.1	3.6	10.6	46.1
ATM per 1,000 sq km	16	34	83.8	35.7	42.9	25.4	20.5
ATM per 1,000 adults	16.5	56.4	78	17.7	20	8.9	119.6
Loan/GDP	31.7	104.2	95.3	21.4	135.9	51.7	40.3
Deposit/GDP	43.4	130.8	78.8	41.9	136.4	68.4	53.3

Table 1. Financial Inclusion Indicators in Emerging Market Countries

Source: Bank Indonesia, 2013

The World Bank in 2010 released a report stating that only 21 percent of the Indonesian population have access to banks and the other 2 percent engage in informal financial services. In a more detailed report, Brodjonegoro (2010) showed that only 41 percent of the population have their own bank account. Furthermore, 68.1 percent of the population save their money, but only 47.6 percent save it in the bank, 18.2 percent prefer saving their money in financial services, and the remaining 31.9 percent of the population do not save. In relation to credit, 60 percent of the population borrow, but only 17 percent borrow from the bank, 34 percent borrow from informal services, and 9 percent borrow from semi-informal services. Regarding distribution of financial inclusion in Indonesia, it seems that many provinces are in the low equilibrium banked level such as Jambi and South Sumatra, 5 provinces are in the underbanked level such as Papua, 4 provinces are in the middle equilibrium banked level while the rest such as all provinces in Java and Bali islands are in the overbanked level.

There are several obstacles for the acceleration of financial inclusion in Indonesia both from supply and demand sides. According to Bank Indonesia (2011), there is a large gap of knowledge about the risks and benefits of financial services between bank staff and local people. Transaction cost is considered high for poor people who cannot afford it and thus they never use financial services. The needs of local people sometimes are different from what commercial banks offers. Currently, Indonesia focuses on improving financial inclusion by enhancing financial literacy. Like the supply side, the main obstacle of the demand side also comes from lack of knowledge about the benefits and risks of a financial system among prospective customers in rural and remote areas. The culture and socio-economic background of poor people also hinder them in accessing financial services. Bank Republik Indonesia (BRI) must change its office interior design in rural areas into a very simple one as people there are resistant to enter the office due to its cleanliness.

A study conducted by Demircuc-Kunt and Klapper (2013) compared the level of financial inclusion among nations as well as individuals using data from Global FINDEX 2011. They discovered that only 5 percent of the respondents have religious reasons to rationalize their reason to not have an account in a formal financial institution. A larger percentage of such people are found in some other Middle Eastern countries such as the West Bank and the Gaza Strip (Palestine), and in several countries in South Asia such as Pakistan. In these countries, the development of financial products follows religious belief (i.e. Islamic finance). Therefore, Islamic financial institutions have the potential for improving financial inclusion in those countries. The other reasons for low banking

inclusion from the higher share are “not enough money to use”, “too expensive”, “a family member already has an account”, “too far away”, “lack of necessary documentation”, and “lack of trust”.

In contrast, Zulkhibri (2016) stated that in Muslim countries, the low number of bank accounts can result from lack of and uneven access to services and Islamic financial products. He added that the cause of the financial background of the exclusivity of religious reasons reached 9 percent in Muslim countries. He suggested that the development of better targeting of inclusive finance in rural and countryside areas should be conducted better on a profit-sharing basis. There are four reasons why Islamic financial product-based profit sharing tends to be more successful in developing financial inclusion in rural areas than in urban areas. First, the problem of fraudulent practices tends to not arise in a transparent society such as a rural community. Second, a rural community tends to be more conservative in religious matters than an urban community. Third, Islamic-based financial institutions are a necessary means to integrate a rural community into the national financial system. Lastly, there is a strong need for inclusion of Islamic banking to improve financial inclusion as it can be a way to reduce poverty and inequality in rural areas.

In the context of Indonesia, Gitahari et.al. (2014) conducted research on the determinants of household borrowing in Indonesia. Using the National Socio-Economic Survey (Susenas), they found out that there are a number of determinants affecting the decision of a household in borrowing money from a financial institution, namely the household’s location, sex (for non-bank loans only), marital status (not significant for loans from individuals), age, education level, employment status, and poverty status. Apparently, the national movement initiated by Bank Indonesia to encourage people to save money in the bank does not increase access of poor people to bank credit.

Cognizant of some studies mentioned above, this paper aims to contribute to financial inclusion literature in three ways. First, this paper will be one of the first papers focusing on the financial inclusion of Muslims using national sampling. Most studies in this area used aggregate data such as the IMF’s Financial Access Survey (FAS) from the IMF and the Global Financial Inclusion Index (Global Findex). Some other studies may use micro data such as Gitaharie et al. (2014) who used Susenas data yet their research did not focus on Muslim households. Second, this research will use the latest data set from the Indonesian Family Life Survey (IFLS) that will give better understanding of the current financial inclusion status. Finally, information from IFLS is more complete than information from Susenas, and thus it is possible to include some variables like community variables that may have association with financial inclusion.

Therefore, this research attempts to rigorously quantify the determinants of financial inclusion in Indonesia, particularly among Muslim households. We also aim to explain the determinants of the Muslims financial inclusion financial facilities.

II. Data and Method

2.1 Data

This paper used the IFLS fourth (2007) and fifth (2014) waves. IFLS is a longitudinal survey that has been conducted five times since 1993, namely in 1993, 1997, 2000, 2007, and 2014. The survey contains various information about households and their individual members as well as community information where the households live. Information at individual and household data levels covers all socio-economic information such as education, occupation, religion, health, marriage, participation in the community, and so forth. Furthermore, at the community level we can obtain information about infrastructure conditions, socio-economic conditions, and various social programs in the community, including the availability of financial facilities in every village.

In this study, we combined information obtained at individual, household, and community levels. The purpose is to gain a comprehensive picture of individuals aged 15 and older who have savings or loans as well as their demographic, socio-economic, and community characteristics. The same 6,754 individuals participated in the surveys in both years, 2007 and 2014. As many as 6,032 participants in the 2007 survey and 6,046 participants in the 2014 surveys were Muslims. For more detailed explanation about our sample, please refer to Appendix 1.

2.2. Method

We used descriptive statistics to get the first description and compare the average of each variable in each year. For instance, we compared the percentage of individuals having savings, loans to other people or institutions, and their total loans in both years.

To examine how an individual accessed banking services, we considered four variables, namely a) ownership of a bank account, savings, deposits, and stocks, b) the nominal amount of their savings, deposits, and stocks, c) their loans in the previous year, d) the nominal amount of their loans in the previous year.

For the predictors, we combined several variables from individual, household, and community levels. For individual characteristics, we included age, sex, education, and marital status, while for household characteristics, we included household members, asset ownership, and the household location. Lastly, community characteristics were represented by the number of community activities and the availability of financial institutions in that area. Thus, we formulate econometric specifications as follows:

Financial indicator equation:

$$Y_{it} = \beta_0 + \beta_1 Xd_{it} + \beta_0 Xh_{it} + \beta_0 Xc_{it} + \beta_4 Qinc * distance_{it} + a_i + \varepsilon_{it} \quad (1)$$

$$P(Y = 1|X)_{it} = G(\beta_0 + \beta_1 Xd_{it} + \beta_0 Xh_{it} + \beta_0 Xc_{it} + \beta_4 Qinc * distance_{it} + a_i + \varepsilon_{it}) \quad (2)$$

Where Y in the first model is the nominal amount of savings or the nominal amount of loans, and in the second model, the probability of an individual to have savings and the probability of an individual to get loans. Then, Xd_{it} refers to demographic characteristics (education, age, sex, and marital status), Xh_{it} refers to household characteristics (education of the household head, whether the household head is female, and the number of household member), Xc_{it} refers to community characteristics (whether the community is urban or rural one and the availability of a financial institution in the area), and $Qinc * distance_{it}$ refers to the interaction between the income quintile and the availability of banks in their village.

This research employed panel data analysis, namely Pooled Least Square, Logit Fixed Effect, and Logit Random Effect for continues data. As for binary data, we employed Linear Probability Model (LPM), Pooled Fixed Effect, and Pooled Random Effect.

III. Results and Analysis

3.1 Descriptive Analysis

Before performing regression analysis, it is necessary to look at descriptive statistics that enables us to see common features. As shown in Figure 4, we compared the characteristics of respondents who had loans in 2007 and 2014. Overall, there was a substantial increase in the number of borrowers in 2014 compared to that in 2007. In terms of religion, Muslims borrowed less money than non-Muslims, but the difference became relatively smaller in 2014 compared to that in 2007; the difference was only 3 percent in 2014. The number of Muslim borrowers was 11 percent higher in 2014 than that in 2007. However, there was no substantial difference in the number of borrowers between rural areas and urban areas as well as between the number of male borrowers and female borrowers.

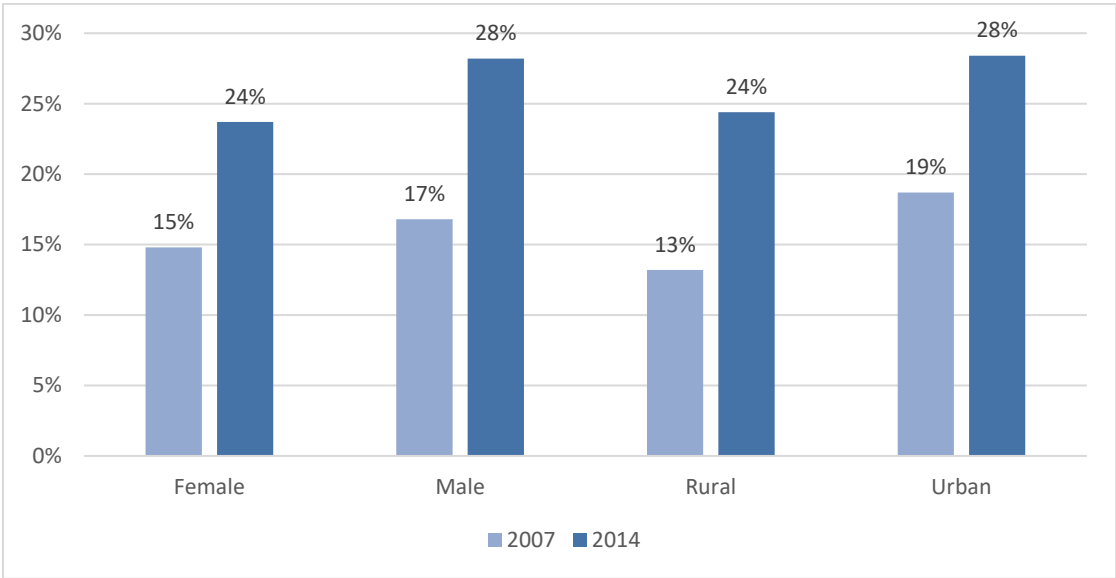


Figure 4. The Percentage of Indonesian Muslim Borrowers in the Past Year
Source: Author Calculation based on IFLS 4 and IFLS 5 (2007–2014)

The following figure shows the opposite of the previous figure. The average amount of loans borrowed by people in Indonesia was smaller in 2014 than that in 2007, except for the non-Muslim category which in average borrowed a higher amount of money. The average amount of loans borrowed by Muslim borrowers was higher than that of non-Muslim borrowers in both years. However, Muslim borrowers borrowed less money in 2014; the decrease was almost 20 percent. Another substantial decrease happened in rural areas, reaching 56 percent.

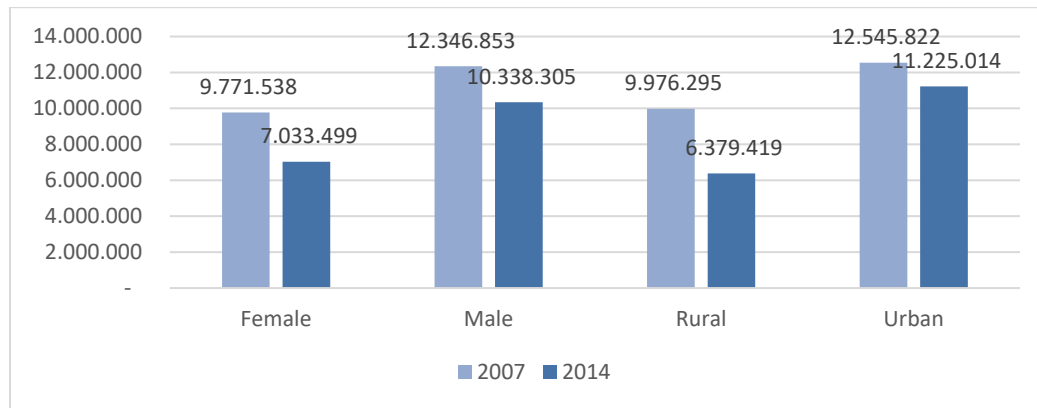


Figure 4. The Average Amount of Loans of Indonesian People

Source: Author Calculation based on IFLS 4 and IFLS 5 (2007–2014)

Muslims owning savings and deposits can be divided into two categories: their sex and whether they live in urban or rural areas. A substantial difference is shown in the latter category, namely a higher number of Muslims having savings and deposits live in urban areas. Intuitively, this difference is normal as living in urban areas requires people to engage more with financial institutions than those who live in rural areas.

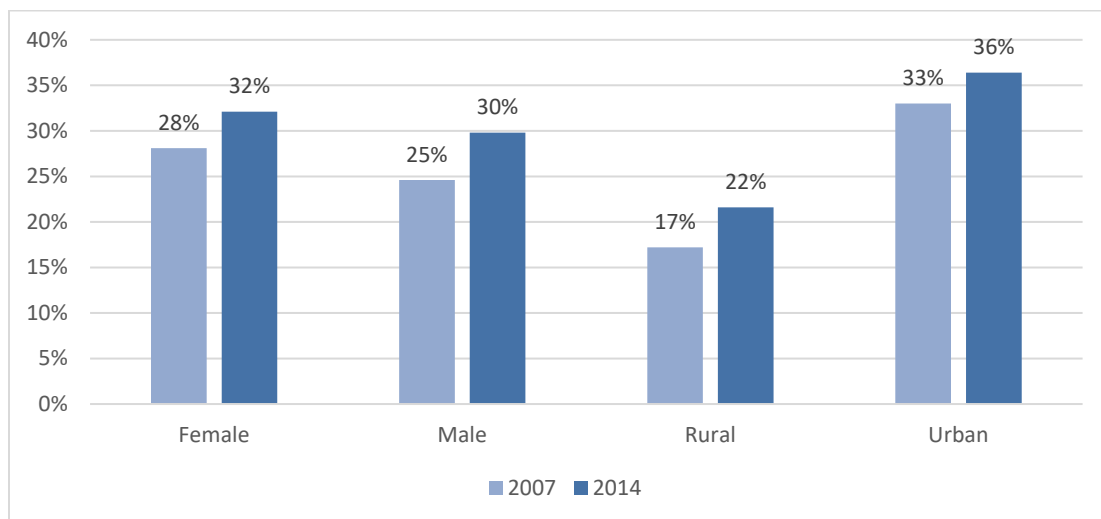


Figure 5. The Percentage of Indonesian Muslims Owning Savings and Deposits

Source: Author Calculation based on IFLS 4 and IFLS 5 (2007–2014)

The average amount of savings owned by Indonesian Muslims is again much higher in urban areas compared to rural areas, which can be attributed to an income that is higher in urban areas than in rural areas. However, there was a considerable increase in the average amount of savings if we

compare the difference between 2007 and 2014. The average amount of savings was increasing considerably higher in the category of urban and rural areas from 2007 to 2014. For both areas, the average amount of savings owned by Muslims tripled in 2014. The similar result is also obtained if we compare the average amount of savings owned by female and male Muslims.

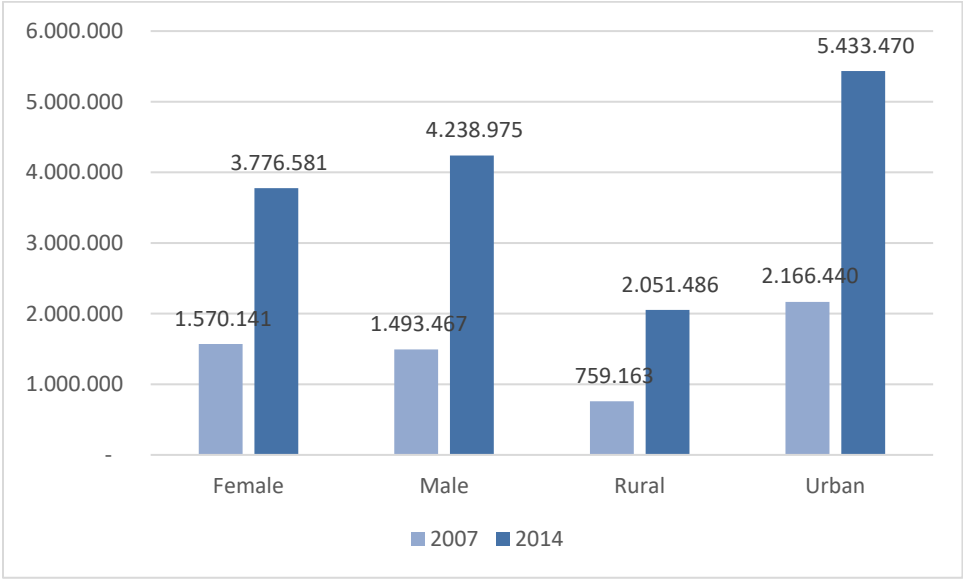


Figure 6. The Average Amount of Savings and Deposits of Indonesian Muslims
 Source: Author Calculation based on IFLS 4 and IFLS 5 (2007–2014)

The following table summarizes the sources of loans obtained by Indonesian Muslims. In general, most Indonesian Muslims borrowed money from the bank or 72 percent of them took out loans from the bank in 2007. However, this percentage decreased by 10 percent in 2014, which was compensated by an increase in the proportion of loans from other formal institutions by approximately 3 percent. This fact is encouraging as it means that other formal institutions such as BMT are growing and can capture more customers or loans.

Source of Loan	Frequency		Percentage	
	2007	2014	2007	2014
Banks	7,938	7,980	72.14	62.75
Other Formal Institutions	894	1,408	8.13	11.07
Agricultural Banks	3	7	0.03	0.06
Office/Capital Owners	292	322	2.65	2.53
Community Organizations (PKK, Arisan, LKMD)	143	219	1.3	1.72
Loan Sharks	514	712	4.67	5.6
Others	1,219	2,069	11.08	16.27
Total	11,003	12,717	100	100

Table 2. Sources of Loans of Indonesian Muslims

Source: Author Calculation based on IFLS 4 and IFLS 5 (2007–2014).

Based on age, older people borrow less money than younger people. It is reasonable as older people will start to avoid debts due to uncertain income in the future while young people who have more steady income will borrow more (see Appendix 2). The similar result is shown in the category of saving; the older people are, the less money they save.

The rising trend occurs in the wealth category. The number of people having loans in the richer group wealth quintile is larger than that in the first quintile. It is also common that the number of people owning savings or deposits is in the big quintile; we can say that the richer a person is, the higher their likelihood to have savings (See Appendix 3).

3.2 Regression Analysis

As explained in the previous part, we had four interest variables. Each interest variable was subject to three difference types of regression and each type was distinguished by the type of financial institution existing in the relevant village. The financial institution availability variable was examined based on the availability of Bank BRI or BMT. We assume that BRI can represent financial facilities since it has branches in almost every district in Indonesia, while BMT can be a representative of Islamic Financial Institutions established mostly in rural areas or countryside. Subsequently, the sixth regression consisted of Pooled Least Square (PLS), Fixed Effect (FE), and Random Effect (RE). In each Fixed Effect and Random Effect regression, we performed a Hausman test to find the most appropriate model. Our sample consisted of Indonesian Muslims aged 15 and older.

Appendix 4 explains the determinants of bank account ownership. Account ownership can be in the forms of savings, deposit, and stock ownership. We conducted PLS, FE, and RE regression and tested the results using the Hausman test. The results suggest that Logit with RE is the most appropriate model for us. The findings from Logit with RE inform us that age and male participants correlate negatively with bank account ownership. This implies that as individuals get older, they will reduce their interaction with financial inclusion, and men are more hesitant to interact with financial inclusion than women. Education, the number of family members, the number of activities in the community, an increase in the income, and wealth will increase the possibility of people to have a bank account. These results are not surprising as people with a higher education level may play more roles in the community and have more income and wealth, thereby increasing their engagement with financial institutions. Then, the result of interaction between financial inclusion and the wealth quintile shows that being in the fourth quintile and the availability of BRI in their village have positive effect. It means that there is a possibility that rich people living nearby BRI have bigger savings or deposits than the others.

For Appendix 5, we can see the determinants of the amount of savings which imply how often an individual interacts with a bank and how much money they put on their bank account. Results of the Hausman test suggest that the most appropriate model is Pooled RE. The findings suggest that education has a positive correlation with increased savings, meaning that educated people will interact more often with banks. An increase in wealth will also encourage people to interact more often with banks or to save. Living in an urban area and the availability of BRI encourage people to save more. Living in an urban area or the availability of BRI in an area possibly offer easiness for people to interact with banks or to save. On the contrary, having more activities in a community makes people have less savings. This condition is also found among married peoples; they have less savings than unmarried people. Likewise, employment also has negative effect on the amount of savings because employees normally use their bank account only to receive their salary. After receiving their salary, they will spend it.

In Appendix 6, we will see the factors affecting an individual's decision in borrowing money. In our sample, the number of people who had ever borrowed money is relatively small, namely only 23.11 percent. After conducting the Hausman test, the most appropriate model is the Logit Random Effect. Similar to the first model, age and male participants correlate negatively with having loans while education increases the possibility of people to have loans. This indicates that people tend to

have a less interest in borrowing money as they are getting older. Men are also less likely to have loans. Marital status, however, has positive influence on loans. It implies that marriage increases the opportunity to borrow money since, possibly by being marriage, a married couple can share the risks of lending with each other. Sex and the number of family members have negative effect on loans. The number of community activities, people living in an urban area, the availability of BMT and BRI, and increased income correlate positively with loans. Similar to this condition, employment and income have positive effect of loans. When a person is rich and has a job, it is easier for the person to get loans. However, the most interesting finding from this model is that men tend to borrow less than women.

Our last model is in Appendix 7 which shows determinants of the amount of loans. According to the Hausman test, Pooled Random Effect is the best model. Education and marital status have a positive correlation with the amount of loans. It implies that prospective borrowers with a higher education and a married status are perceived to have good characters by the bank and thus the bank will approve their loan application. Increased wealth and income, which imply the possibility of the borrower to pay off their loans, also have positive effect on loans. Living in an urban area also helps individuals to get higher loans. Having more activities in society has positive impact on the amount of loans. The interaction between the wealth quintile and BMT availability shows a positive sign. Especially in the bottom and top quintile, having BMT nearby one's neighbourhood will increase their loans. On the contrary, age and sex have negative effect. It seems that old men have less debts than the others.

Our analysis is subject to limitations. One of them is that the analysis in this study only focused on financial inclusion in Indonesia, particularly among Muslim households based on their socio-economic factors. Further research is necessary to examine other possible mechanisms that might affect, for example by employing some socio-cultural factors that can explain Indonesian financial inclusion.

IV. Conclusions

This research attempts to rigorously quantify the determinants of financial inclusion in Indonesia, particularly among Muslim households. We also attempted to examine the status of financial institutions in Indonesia using IFLS wave 4 (2007) and wave 5 (2014) and explained the characteristics of Muslims not having access to financial facilities.

Our interest variables are a) ownership of a bank account, savings, deposits, and stocks, b) the nominal amount of savings, deposits, and stocks, c) an individual's loan in the previous year, d) the nominal amount of an individual's loan in the previous year. For control variables, we combined some variables from individual, household, and community levels. For individual characteristics, we considered age, sex, education, and marital status as control variables. While for household characteristics, we took into account household members, asset ownership, and household location. Lastly, community characteristics were represented by the number of community activities and the availability of a financial institution in the relevant area.

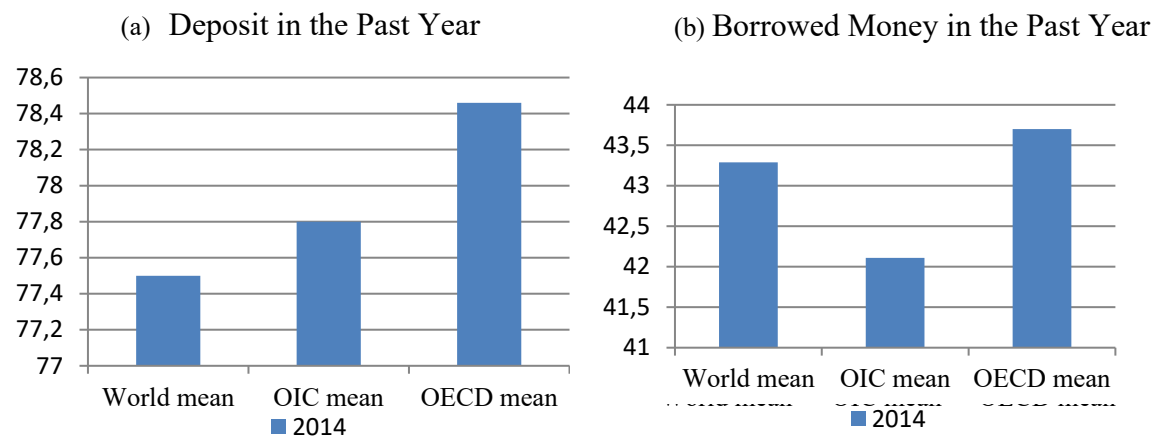
Based on the descriptive analysis, there are some changes in the amount of loans and savings according to some individual characteristics. Some of the changes lead to positive signals on financial inclusion, for example an increasing number of people borrowing money from other formal institutions even though the increase is small. Furthermore, based on the regression analysis, some individual characteristics and the availability of BRI or BMT correspond positively with all the four interest variables. We discovered that older people are less likely to deal with financial inclusion, but rich people with a job and great income prefer dealing with banks. The availability of a bank in the village will be more advantageous to the rich.

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Appendix 1: Comparison between OIC Countries and OECD Countries in terms of the Percentage of People Having Deposits and Borrowing Money in the Past Year



Source: Global Financial Index, calculated

Note: Percentage age 15+

Number of observations:

- a. The world, for 2014: 146 countries
- b. OIC countries, for 2014: 48 countries
- c. OECD countries, for 2014: 28 countries

Appendix 2. IFLS4 and IFLS5 Descriptive Statistics

Variable	Observation	Mean/ Percentage	Maximum	Minimum
Year of Observation	13,508			
2007	6,754	50		
2014	6,754	50		
Religion				
Islam	12,078	89.41		
Protestantism	513	3.8		
Catholicism	231	1.71		
Hinduism	664	4.92		
Buddhism	21	0.16		
Confucianism	1	0.01		
Age (Year)	13,508	44.20	15	101
Years of Education (Year)	13,508	8.07	0	19
Marital Status (=1, Married)	13,508	0.83	0	1
Sex (=1, Male)	13,508	0.78	0	1
Household Size	13,508	2.37	1	14
Number of Community Organizations Attended	13,508	2.02	0	10
Location				
Rural	6,383	47.25		
Urban	7,125	52.75		
Amount of Wealth Owned (IDR)	13,508	155,000,000	0	4,310,000,000
Having Saving Account/Reserve/Deposits	13,508			
Yes	3,677	27.22		
No	9,831	72.78		
Amount of Saving Account/Reserve/Deposits (IDR)	13,508	3,210,065	0	1,000,000,000
Total Income in a Year (IDR)	13,508	71,200,000	0	600,000,000,000
Taking out a Loan in the Last Year				
Yes	3,122	23.11		
No	10,386	76.89		
Total Loan Attained	7,901	10,900,000	0	1,000,000,000
Financial Institution Availability (from the community level)				
BRI Bank	9,050			
Available	2,006	22.17		
Not Available	7,044	77.83		
Baitul Maal Wattamwil	9,050			
Available	671	7.41		
Not Available	8,379	92.59		

Source: Author Calculation based on IFLS 4 and IFLS 5 (2007–2014)

Appendix 3. Financial Inclusion by Age Group

Age Category	Percentage of Those Borrowing in the Last Year		Average Amount of Total Loans (IDR)		Percentage of Those Having Savings or Deposits		Average Amount of Total Savings or Deposits (IDR)	
	2007	2014	2007	2014	2007	2014	2007	2014
15 to 34	14%	27%	9,225,786.00	8,205,036.50	31%	35%	1,307,319.63	3,452,727.54
35 to 44	21%	32%	13,625,527.00	11,940,606.00	27%	33%	1,973,609.38	4,207,440.93
45 to 54	18%	28%	12,312,021.00	12,097,424.00	22%	28%	1,662,406.38	4,892,128.22
55 to 64	16%	21%	13,551,944.00	6,322,104.50	22%	25%	1,519,746.25	4,873,378.91
Over 65	7%	12%	5,416,814.50	2,139,107.75	15%	15%	900,639.63	3,399,874.85
Total	16%	27%	11,571,646.00	9,325,163.00	26%	31%	1,521,433.63	4,098,988.14

Appendix 4. Financial Inclusion by Asset Group

Quintile Based on Assets Owned	Percentage of Those Borrowing in the Last Year		Average Amount of Total Loans (IDR)		Percentage of Those Having Savings or Deposits		Average Amount of Total Savings or Deposits (IDR)	
	2007	2014	2007	2014	2007	2014	2007	2014
Quintile 1	11%	23%	2,838,085.75	2,266,759.00	18%	18%	219,464.06	228,720.71
Quintile 2	16%	26%	4,236,656.50	3,223,858.75	23%	27%	579,320.63	1,001,334.90
Quintile 3	14%	27%	4,921,415.00	4,638,982.00	17%	24%	455,175.53	1,111,477.01
Quintile 4	18%	30%	8,420,348.00	10,989,091.00	24%	33%	841,696.94	2,853,862.31
Quintile 5	22%	29%	29,159,066.00	25,457,910.00	48%	51%	5,503,072.50	15,274,923.32
Total	16%	27%	11,556,970	9,300,252	26%	31%	15,19,061.875	4,093,388.153

Source: Author Calculation based on IFLS 4 and IFLS 5 (2007–2014)

Appendix 5. Regression Analysis on the Probability of Having Savings or Deposits

	(1) LPM	(2) LPM	(3) Fixed Effect	(4) Fixed Effect	(5) Random Effect	(6) Random Effect
Age (Year)	-0.0018*** (0.0005)	-0.0017*** (0.0005)	0.0110 (0.0249)	0.0092 (0.0249)	-0.0171*** (0.0035)	-0.0169*** (0.0035)
Years of educ	0.0165*** (0.0015)	0.0167*** (0.0015)	-0.0553 (0.0499)	-0.0531 (0.0500)	0.1044*** (0.0100)	0.1051*** (0.0100)
1 = married	0.0020 (0.0170)	0.0016 (0.0170)	0.3690 (0.2857)	0.3865 (0.2843)	0.0446 (0.1256)	0.0446 (0.1255)
1 = male	-0.1017*** (0.0165)	-0.1019*** (0.0166)	.	.	-0.7029*** (0.1172)	-0.7065*** (0.1171)
Household size	0.0037 (0.0025)	0.0043* (0.0025)	0.0465 (0.0445)	0.0469 (0.0445)	0.0379** (0.0183)	0.0397** (0.0182)
Num. of Community	0.0130*** (0.0031)	0.0128*** (0.0031)	0.0972** (0.0388)	0.0979** (0.0390)	0.0933*** (0.0217)	0.0927*** (0.0217)
logwealth	0.0489*** (0.0033)	0.0499*** (0.0033)	0.2619*** (0.0603)	0.2624*** (0.0606)	0.3791*** (0.0315)	0.3838*** (0.0315)
logincome	0.0349*** (0.0040)	0.0373*** (0.0039)	0.1215** (0.0590)	0.1252** (0.0579)	0.2723*** (0.0345)	0.2838*** (0.0330)
1= employ	-0.0281 (0.0244)	-0.0274 (0.0244)	-0.0409 (0.2732)	-0.0284 (0.2737)	-0.1838 (0.1653)	-0.1804 (0.1656)
1= urban	0.0802*** (0.0113)	0.0814*** (0.0109)	0.0862 (0.2401)	0.1130 (0.2417)	0.5788*** (0.0806)	0.5842*** (0.0776)
q1*BRI	-0.0088 (0.0228)		-0.3923 (0.4276)		-0.0798 (0.2322)	
q2*BRI	-0.0413** (0.0211)		-0.1709 (0.2483)		-0.2083 (0.1576)	
q3*BRI	-0.0263 (0.0231)		-0.1535 (0.2477)		-0.1228 (0.1477)	
q4*BRI	0.0737*** (0.0242)		0.0689 (0.2239)		0.2721** (0.1346)	
q1*BMT		-0.0370 (0.0290)		-0.4506 (0.6331)		-0.5186 (0.3668)
q2*BMT		-0.0483 (0.0319)		0.0695 (0.3258)		-0.2512 (0.2375)
q3*BMT		-0.0474 (0.0342)		0.1523 (0.3833)		-0.2853 (0.2358)
q4*BMT		0.0560 (0.0422)		0.4138 (0.4025)		0.1705 (0.2305)
_cons	-1.1939*** (0.0818)	-1.2525*** (0.0789)			-12.5468*** (0.7216)	-12.8234*** (0.6991)
Insig2u _cons					0.0185 (0.1807)	0.0139 (0.1811)
Rsquare	0.1477	0.1462				
Prob F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Number of observations	7214	7214	1700	1700	7214	7214
Number of groups	4090	4090				

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix 6. Regression Analysis on the Amount of Savings or Deposits

	(1) PLS	(2) PLS	(3) Fixed Effect	(4) Fixed Effect	(5) Random Effect	(6) Random Effect
Age (Year)	0.0000 (0.0037)	-0.0001 (0.0036)	0.0418 (0.0370)	0.0404 (0.0375)	0.0000 (0.0036)	-0.0001 (0.0036)
Years of educ	0.0601*** (0.0098)	0.0605*** (0.0098)	-0.1888** (0.0788)	-0.1980** (0.0787)	0.0601*** (0.0101)	0.0605*** (0.0101)
1 = married	-0.3066** (0.1290)	-0.2969** (0.1300)	-0.2338 (0.3981)	-0.3315 (0.4041)	-0.3066** (0.1343)	-0.2969** (0.1343)
1 = male	-0.1619 (0.1172)	-0.1826 (0.1178)	.	.	-0.1619 (0.1208)	-0.1826 (0.1208)
Household size	-0.0140 (0.0192)	-0.0164 (0.0193)	0.0376 (0.0640)	0.0491 (0.0644)	-0.0140 (0.0195)	-0.0164 (0.0195)
Num. of Community	-0.0508** (0.0229)	-0.0473** (0.0233)	0.0438 (0.0555)	0.0481 (0.0553)	-0.0508** (0.0223)	-0.0473** (0.0224)
Logwealth	0.5022*** (0.0337)	0.5073*** (0.0336)	0.4190*** (0.1003)	0.4655*** (0.0994)	0.5022*** (0.0340)	0.5073*** (0.0340)
logincome	0.3504*** (0.0389)	0.3502*** (0.0363)	0.0920 (0.0898)	0.1141 (0.0875)	0.3504*** (0.0375)	0.3502*** (0.0357)
1= employ	-0.4925*** (0.1663)	-0.5157*** (0.1659)	0.2693 (0.3718)	0.2724 (0.3757)	-0.4925*** (0.1639)	-0.5157*** (0.1647)
1= urban	0.2248*** (0.0857)	0.2742*** (0.0825)	0.7475* (0.4163)	0.7485* (0.4187)	0.2248*** (0.0857)	0.2742*** (0.0825)
q1*BRI	0.5091* (0.2952)		0.4876 (0.7219)		0.5091* (0.2808)	
q2*BRI	0.0689 (0.1712)		0.4700 (0.4275)		0.0689 (0.1798)	
q3*BRI	0.1063 (0.1491)		0.6394* (0.3414)		0.1063 (0.1544)	
q4*BRI	0.1729 (0.1165)		0.5622** (0.2642)		0.1729 (0.1217)	
q1*BMT		-0.3984 (0.4622)		0.9471 (1.0874)		-0.3984 (0.5280)
q2*BMT		0.0621 (0.2376)		1.1491 (1.0639)		0.0621 (0.2761)
q3*BMT		-0.0200 (0.2392)		-0.2030 (0.4596)		-0.0200 (0.2482)
q4*BMT		-0.3567* (0.2131)		0.2247 (0.4151)		-0.3567* (0.2048)
_cons	-0.3463 (0.6883)	-0.3790 (0.6513)	4.2381* (2.3925)	3.3118 (2.3688)	-0.3463 (0.7125)	-0.3790 (0.6813)
Rsquare	0.3495	0.3498	0.0215	0.0193	0.3495	0.3498
Prob F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Number of observations	1704	1704	1704	1704	1704	1704
Number of groups	1394	1394				

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix 7. Regression Analysis on the Probability of Loans in the Last Year

	(1) LPM	(2) LPM	(3) Fixed Effect	(4) Fixed Effect	(5) Random Effect	(6) Random Effect
Age (Year)	-0.0013*** (0.0004)	-0.0001 (0.0036)	0.0576** (0.0243)	0.0534** (0.0244)	-0.0100*** (0.0033)	-0.0104*** (0.0033)
Years of educ	0.0092*** (0.0014)	0.0605*** (0.0098)	0.0218 (0.0452)	0.0212 (0.0454)	0.0601*** (0.0095)	0.0579*** (0.0094)
1 = married	0.0712*** (0.0157)	-0.2969** (0.1300)	0.4470 (0.3261)	0.5016 (0.3303)	0.5438*** (0.1267)	0.5465*** (0.1267)
1 = male	-0.0732*** (0.0167)	-0.1826 (0.1178)	.	.	-0.5024*** (0.1135)	-0.4902*** (0.1134)
Household size	-0.0086*** (0.0026)	-0.0164 (0.0193)	0.0055 (0.0435)	0.0005 (0.0434)	-0.0562*** (0.0182)	-0.0582*** (0.0182)
Num. of Community	0.0280*** (0.0032)	-0.0473** (0.0233)	0.0869** (0.0370)	0.0956** (0.0373)	0.1828*** (0.0207)	0.1818*** (0.0208)
logwealth	0.0045 (0.0035)	0.5073*** (0.0336)	0.0557 (0.0532)	0.0616 (0.0532)	0.0226 (0.0262)	0.0198 (0.0261)
logincome	0.0248*** (0.0041)	0.3502*** (0.0363)	0.1629*** (0.0587)	0.1615*** (0.0577)	0.1930*** (0.0324)	0.1759*** (0.0310)
1= employ	0.0436* (0.0230)	-0.5157*** (0.1659)	0.7347** (0.3171)	0.7424** (0.3169)	0.2879* (0.1731)	0.3045* (0.1733)
1= urban	0.0647*** (0.0114)	0.2742*** (0.0825)	-0.1556 (0.2191)	-0.1488 (0.2202)	0.4386*** (0.0767)	0.3893*** (0.0740)
q1*BRI	-0.0051 (0.0258)		0.0198 (0.3659)		0.0069 (0.2089)	
q2*BRI	-0.0133 (0.0215)		-0.2788 (0.2580)		-0.0443 (0.1463)	
q3*BRI	-0.0326 (0.0228)		-0.1550 (0.2315)		-0.1984 (0.1452)	
q4*BRI	-0.0468** (0.0228)		-0.2250 (0.2375)		-0.3217** (0.1379)	
q1*BMT		-0.3984 (0.4622)		0.5784 (0.4183)		0.5264** (0.2671)
q2*BMT		0.0621 (0.2376)		-0.6008 (0.3860)		-0.1394 (0.2269)
q3*BMT		-0.0200 (0.2392)		0.2505 (0.3526)		0.1832 (0.2195)
q4*BMT		-0.3567* (0.2131)		0.0337 (0.3512)		0.4512** (0.2217)
_cons	-0.3560*** (0.0819)	-0.3790 (0.6513)			-5.7270*** (0.6273)	-5.4169*** (0.6014)
Insig2u _cons					-0.0350 (0.1800)	-0.0306 (0.1799)
Rsquare	0.0564	0.3498				
Prob F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Number of observations	7214	1704	1862	1862	7214	7214
Number of groups	4090	1394				

Appendix 8. Regression Analysis on the Amount of Loans

	(1)	(2)	(3)	(4)	(5)	(6)
	PLS	PLS	Fixed Effect	Fixed Effect	Random Effect	Random Effect
Age (Year)	0.0047 (0.0032)	0.0050 (0.0032)	0.0316 (0.0309)	0.0419 (0.0313)	0.0047 (0.0032)	0.0050 (0.0033)
Years of educ	0.0802*** (0.0085)	0.0799*** (0.0085)	-0.0709 (0.0811)	-0.0668 (0.0804)	0.0802*** (0.0086)	0.0799*** (0.0086)
1 = married	0.3864*** (0.1295)	0.3988*** (0.1295)	0.3936 (0.4053)	0.3940 (0.3999)	0.3864*** (0.1236)	0.3988*** (0.1238)
1 = male	0.0539 (0.1106)	0.0227 (0.1107)	.	.	0.0539 (0.1050)	0.0227 (0.1048)
Household size	0.0054 (0.0172)	0.0049 (0.0171)	-0.0048 (0.0541)	0.0062 (0.0543)	0.0054 (0.0171)	0.0049 (0.0169)
Num. of Community	-0.0387** (0.0179)	-0.0351* (0.0181)	-0.0041 (0.0452)	0.0065 (0.0452)	-0.0387** (0.0179)	-0.0351* (0.0180)
logwealth	0.2117*** (0.0241)	0.2198*** (0.0241)	0.1117* (0.0662)	0.1117* (0.0666)	0.2117*** (0.0246)	0.2198*** (0.0246)
logincome	0.3904*** (0.0323)	0.3735*** (0.0310)	0.0710 (0.0716)	0.0206 (0.0691)	0.3904*** (0.0306)	0.3735*** (0.0297)
1= employ	-0.1787 (0.1595)	-0.1788 (0.1618)	1.1141*** (0.3657)	1.2412*** (0.3677)	-0.1787 (0.1553)	-0.1788 (0.1559)
1= urban	-0.0718 (0.0692)	-0.0528 (0.0673)	0.1373 (0.2980)	0.1515 (0.2972)	-0.0718 (0.0696)	-0.0528 (0.0674)
q1*BRI	0.3589* (0.1938)		0.7349 (0.4696)		0.3589* (0.1932)	
q2*BRI	0.1799 (0.1335)		0.1849 (0.2724)		0.1799 (0.1329)	
q3*BRI	-0.3366** (0.1344)		-0.0220 (0.2876)		-0.3366** (0.1347)	
q4*BRI	0.1916 (0.1191)		0.2648 (0.2497)		0.1916 (0.1198)	
q1*BMT		-0.0219 (0.2593)		-0.3836 (0.4967)		-0.0219 (0.2480)
q2*BMT		-0.2140 (0.1539)		0.0438 (0.3480)		-0.2140 (0.1941)
q3*BMT		-0.4657*** (0.1703)		-0.3401 (0.3634)		-0.4657** (0.1872)
q4*BMT		0.1786 (0.1836)		0.7516** (0.3026)		0.1786 (0.1719)
_cons	3.4018*** (0.6116)	3.5451*** (0.5925)	9.0862*** (2.0609)	9.2734*** (2.0396)	3.4018*** (0.5842)	3.5451*** (0.5638)
Rsquare	0.3035	0.3008	0.0003	0.0002	0.3035	0.3008
Prob F	0.0000	0.0000	0.0003	0.0001	0.0000	0.0000
Number of observations	2053	2053	2053	2053	2053	2053
Number of groups	1697	1697				

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$