2023 - Journal of Financial Services Marketing - Wijaya et al. - Religiosity and depositor funds evidence from Islamic banks in Indones.

by @ Turnitin

Submission date: 08-Apr-2023 04:43AM (UTC-0400)
Submission ID: 2058937334
File name: and_depositor_funds_evidence_from_Islamic_banks_in_Indones.docx (133.3K)
Word count: 8468
Character count: 46599

Journal of Financial Services Marketing
https://doi.org/10.1057/s41264-023-00214-y

ORIGINAL ARTICLE

Religiosity and depositor funds: evidence from Islamic banks in Indonesia

Ibrahim Fatwa Wijaya[1,2] · Catur Sugiarto[1] · Nieldya Nofandrilla[3] · Amru Sukmajati[4]

Received: 23 February 2022 / Revised: 23 January 2023 / Accepted: 6 February 2023

Abstract

We examine the impact of Islamic religiosity, based on an area at the province level, on the amount of depositor funds per capita in Islamic banks. We rely on the religious actors (per capita mosque, per capita Islamic school, and per capita Islamic seminary school) and religious practice (per capita hajj) to capture the religiosity level by province in 33 provinces in Indonesia from 2013 to 2018. We performed pooled least square regressions to test our hypothesis. 2SLS and 3SLS procedures were selected to tackle endogeneity issues, i.e., simultaneity and omitted variable bias. The relationship between religiosity and the amount of depositor funds has a simultaneity problem since the decision to deposit money in a bank increases the funds available to the society. A higher supply of funds could be used not only to increase the quantity of religious actors, but also to enhance the quality of religious actors and religious practices. Consequently, the religiosity level of the people will be improved since both religious actors and religious practices shape the behavior of the people by promoting religious ideas, norms, and values. We find that Islamic banks in the stronger religiosity area receive more deposits from the customers. Our result is robust to endogeneity problems. Our study has an important practical implication since it allows businesses, including Islamic banks, to develop effective strategies when entering or expanding business in a new area, especially in the absence of the survey data of individuals' religiosity in certain areas.

Keywords Islamic banks · Religiosity · Deposit · Consumer behavior

Introduction

The Islam religion or Islamic religiosity plays a crucial part in people's life, especially for those who live in the Islamic society, which extends halfway across the world from Morocco to Indonesia (Inglehart 2007). The two most important sources of Islamic teachings, the *Quran* and *Sunna*, regulate not only praying activities, e.g., *Salat*, *Ramadan* fasting, *hajj*, etc., but also socioeconomic activities. For instance, the two important teachings in the *Quran* and *Sunna* are: (1) The Muslim needs to consume *halal* (permissible) products such as food with no pork, non-alcoholic beverages, *halal* cosmetics, and the Muslim is required to use financial products that have no interest (*riba*) (Chapra 1984, 2000); and (2) The Muslim need to avoid waste in the allocation of resources (Khan 2013). A better understanding the impact of religion and/or religiosity on a consumer's buying behavior is likely to allow the development of more effective strategies for different religious or national markets (Essoo and Dibb 2004).

Existing literature has shown that religion and/or religiosity affects the behavior of the people in the context of inner-worldly asceticism including business (Weber 1930; Wiebe and Fleck 1980). For instance, studies in the marketing area show that religious affiliation and religiosity level affect consumer behavior in non-banking industry activities (Delener 1990; McDaniel and Burnett 1990; Siguaw and Simpson 1997; Essoo and Dibb 2004). Another strand of literature has shown the role of religiosity in banking selection (Haron et al. 1994; Gerrard and Cunningham 1997; Ahmad et al. 2008; Naser et al. 2009; Mansour et al. 2010;

✉ Ibrahim Fatwa Wijaya
ibrahimfatwa@staff.uns.ac.id

1 Faculty of Economics and Business, Universitas Sebelas Maret, Surakarta, Indonesia

2 Center for Fintech and Banking, Universitas Sebelas Maret, Surakarta, Indonesia

3 Faculty of Communication and Informatics, Universitas Muhammadiyah Surakarta, Surakarta, Indonesia

4 STIE Swasta Mandiri, Surakarta, Indonesia

Published online: 16 February 2023

Awan and Bukhari 2011; Ullah and Lee 2012; Sayani and Miniaoui 2013; Abou-Youssef et al. 2015; Souiden and Rani 2015; Sharma et al. 2016; Usman et al. 2017; Kamiyama and Kashiwagi 2019) and the impact of religiosity on Islamic financial products' adoption (Amin et al. 2014; Newaz et al. 2016; Bananuka et al. 2020). However, the relationship between religiosity and the decision to patronize a bank provides contradictory results. Several studies found that religious preference is the main reason to select a bank, but other studies found that religious preference is not the main criteria to select a bank. Also, the endogeneity problems have not been addressed by the existing literature. This study not only tries to untangle the conflicting results on the impact of religiosity on the amount of depositor funds, but also addresses the endogeneity problems, i.e., simultaneity and omitted variable bias.

This study aims to test the impact of Islamic religiosity, based on an area at the province level, on the amount of depositor funds per capita in Islamic banks in Indonesia by taking into account the endogeneity problems. We find that Islamic banks in areas with stronger religiosity have more deposits/savings from the people. The result is robust with regard to the problems of simultaneity and omitted variable bias since both 2SLS and 3SLS regressions provide qualitatively similar results with the original regressions.

We contribute to the existing literature in the following ways: First, the existing literature has shown that one's religiosity has an impact on the decision to have a relationship with Islamic banks (Souiden and Rani 2015; Sharma et al. 2016; Bananuka et al. 2020; Wijaya et al. 2020). However, little is known on the impact of Islamic religiosity based on the area in a banking relationship. We use several proxies to capture Islamic religiosity at the province level such as the number of Islamic schools per capita (religious actor/organization), the number of Islamic seminary schools per capita (religious actor/organization), the number of mosques per capita (religious actor/organization), and the number of *hajj* applications per capita (religious practice). We show that Islamic religiosity based on the area affects consumer behavior in the banking relationship, i.e., Islamic banks in stronger Islamic religiosity areas have more depositor funds. This is possible since religious actors and religious practice shape people's behavior. People who live in stronger religiosity areas have a higher opportunity to obtain religious ideas, teachings, norms, or doctrines delivered by religious actors. For instance, the religious ideas of Islam that are related to banking activities are: (1) Islam prohibits interest either in the deposit or financing activities as it is categorized as *riba* (Chapra 1984); and (2) Money deposited in Islamic banks will be used to support business/activities in accordance with Islamic principles. In other words, Islamic banks cannot provide financing[1] to the alcoholic beverage industry, gambling industry, etc. In addition, instead of giving fixed interest to customers who deposit money in Islamic banks, Islamic banks offer a return based on profit-loss sharing (*Mudharaba* scheme) or bonus (*Wadia* scheme) (Iqbal and Mirakhor 2011). Thus, people who live in strongly religious areas have more confidence to save money in Islamic banks because they know that their money will be used for business/projects that are in line with Islamic principles. Our argument is in line with the Islamic theory of consumer behavior, which emphasizes the consumption of permissible goods according to Islamic teaching (Kahf 2011; Khan 2013, 2014; Shaikh et al. 2017).

Second, we address endogeneity problems, i.e., simultaneity and omitted variable bias, which have been rarely addressed by the existing literature on religiosity and banking selection. Research on the impact of religiosity on deposits in Islamic banks could be subjected to a simultaneity problem (Rutz and Watson 2013; Ullah et al. 2020; Zaefarian et al. 2017). Simultaneity occurs when one or more independent variables are caused simultaneously and reciprocally with the specified dependent variable in a model (Wooldridge 2010 as cited by Rutz and Watson 2019). The logic is the decision to deposit money in Islamic banks increases the funds available for the society. A higher supply of funds can be accessed, for instance, by entrepreneurs to expand and/or establish a business. The successful entrepreneurs donate some of their wealth to build a mosque, Islamic seminary school or Islamic school via *Waqf* or *shadaqa*. In addition, these entrepreneurs have a higher chance to perform *hajj* as well since *hajj* is not without cost. Moreover, the quality of religious actors could also be improved by using money donated by successful entrepreneurs. Better facilities of a mosque, Islamic school, and Islamic seminary school attract people to interact with them. In addition, funding supplied by Islamic banks can be also used by Islamic organizations to build (or to improve the quality of) Islamic schools/Islamic seminary schools. Consequently, the religiosity level of the people will be improved since both religious actors and religious practices shape the behavior of the people by promoting religious ideas, norms, and values (Hofstede et al. 2010). In this case, a feedback loop emerges since the improvement of religiosity level affects the consumer's behavior in patronizing a bank. This endogeneity problem is not marginal since "in the presence of simultaneous causation, the dependent variable also 'causes' the explanatory variable and thus the error term in the equation is correlated with the explanatory variable, violating OLS

[1] Islamic banks use the term "financing", but not "lending" or "loan". There are several financing schemes in Islamic banks: *Murabaha*, *Ijara*, *Qardh*, *Mudharaba*, and *Musharaka*.

assumptions and resulting in biased estimates" (Rutz and Watson 2019, p.484).

Third, our study has one important managerial implication since business, including Islamic banks, allows the development of effective strategies when entering into or expanding in the new market/area, especially in the absence of the survey data of individuals' religiosity in certain areas. Moreover, performing a survey to explore one's religiosity in a new market/area is not without cost. Islamic bank managers who decide to enter into/expand to a new area can rely on the secondary data of Islamic religiosity obtained from the authorities.

Literature review

Islam and consumer behavior

Islamic theory of consumer behavior has emerged (Khan 2013, 2014), which emphasizes that there is a connection between consumption and consumers' objectives of life that can be affected by religion. Thus, the focus of the Islamic theory of consumer behavior is on "need". Several concepts that can be found in the Islamic theory of consumer behavior are: (1) Avoiding waste (*israf*), i.e., avoid spending more on a commodity than needed (Quran 7:31; Quran 6:141) and avoid extravagance (Quran 17:28); (2) The improvement of well-being while meeting basic needs; and (3) The incorporation of ethics in the consumption decision (Kahf 2011; Shaikh et al. 2017).

Morality becomes the main filtering set in the consumption of goods as Islamic teachings make a distinction between permissible (*halal*) and impermissible (*haram*) (Kahf 2011; Khan 2014; Shaikh et al. 2017). Goods in Islam are not only exchangeable in the market, but also morally clean (Kahf 2011) and cherished by the society (Khan 2014). For instance, in financial services, Islam forbids interest (Quran 2:276) (Shaikh et al. 2017) since interest can be categorized as *riba* (usury) (Chapra 1984).

Islamic banks operate based on Islamic tenets and offer interest free products. One of the characteristics of Islamic teachings is the prohibition of *riba* (see Quran 30:39 for the first stage of *riba's* revelation, Quran 4:161 for the second stage, Quran 3:130–132 for the third stage, and Quran 2:275–281 for the fourth stage). Interest is mainly linked to the concept of *riba al-Nasi'a* (Chapra 1984). The main point of the prohibition of *riba al-Nasi'a* in saving activities is a pre-determined positive return in advance on a deposit (Chapra 1984). Thus, Islamic banks cannot provide interest for those who save money in Islamic banks; instead, Islamic banks offer saving or deposit products based on the concept of *Mudharaba* (profit-loss sharing) or *wadia*. With regard to *Mudharaba*, an Islamic bank acts as a manager (*mudharib*) who manages the investment for the customer/depositor (*shahibul maal*). Customers receive a return based on the real performance of Islamic banks in managing the funds (Dusuki 2008; Chong and Liu 2009). In the *wadia* scheme, an Islamic bank acts as the keeper and trustee of depositors' funds (Haron et al. 1994). It guarantees to return the entire deposit, or any part of it, upon the depositor's demand. However, Islamic banks have no obligation to provide a profitable return to the customer.

Customers of Islamic banks could be attracted to deposit money in Islamic banks since: (1) The money deposited will be used to finance a project/business that is in accordance with Islamic principles, e.g., no pork, no alcoholic beverage, no gambling (casino), no night club, etc. (Izhar 2010); (2) Islamic banks do not offer fixed interest to customers who deposit money, but customers receives a return based on profit-loss sharing or bonus (Iqbal and Mirakhor 2011); and (3) Islamic banks promote Islamic values toward staff, customers, and society (Dusuki 2008). However, recent empirical evidences show that the behavior of Islamic bank depositors tends to be driven by their rationality rather than their religious beliefs (Aysan et al. 2018). For instance, Islamic bank depositors are more sensitive to interest rate changes because they withdraw their deposits regardless of size (Aysan et al. 2018). In the same vein, Islamic bank depositors withdraw their deposits when the bank fundamentals turn out to be weak (Aysan et al. 2017) and when the bank does not generate positive returns from banking operations consistently (Ismal 2011).

Religiosity and consumer behavior

Existing studies have revealed that religion and/or religiosity affect the social behavior of people. For instance, the concept of "the calling" in Protestantism influences the socioeconomic behavior of the adherents such as frugality and hard work (Weber 1930). Another study shows that people with intrinsic religiosity orientation (people who use religious beliefs as the central focus for life) have a greater concern for moral standards, responsibility, and discipline (Wiebe and Fleck 1980). Furthermore, people with intrinsic religiosity are more sensitive, dependent, and conservative (Wiebe and Fleck 1980). Empirical evidence shows that religiosity is positively associated with a certain life style such as traditional role orientation, which is expected to have implications on consumer choice (Wilkes et al. 1986).

Existing literature in consumer behavior has shown that ethnicity and religious affiliation affect consumer behavior. A study within American Jewish ethnicity reveals that Jews have a positive tendency to seek and transfer information and to adopt new products that are independent of the judgment of others (Hirschman 1981). Another study posits that different religions have a different impact on consumer behavior

(Bailey and Sood 1993). For instance, Muslims were found to have a significantly different consumer shopping behavior, since they are relatively more impetuous shoppers and have less-informed shopping patterns; traits that are consistent with the fatalistic philosophy of life (Bailey and Sood 1993). In the same vein, Essoo and Dibb (2004) argue that Muslims believe that the outcome of their action is God's will. Therefore, they observed that Muslim shoppers were found to be more innovative in their shopping behavior, i.e., willing to try a new product, do not favor any specific brand, and would not wait for other consumers to try a product before they did (Essoo and Dibb 2004). However, the studies by Bailey and Sood (1993) and Essoo and Dibb (2004) only focus on Muslim customers in Washington DC and the island of Mauritius, but not on the mainstream Islamic cluster. The mainstream Islamic cluster is represented by ten Islamic societies—Morocco, Algeria, Egypt, Jordan, Bangladesh, Pakistan, Indonesia, Iran, Turkey, and Saudi Arabia—which tend to emphasize traditional values where religion is very important and they also pay more respect to authority (Inglehart 2007). However, there is no such thing as one uniform "Islamic culture" since Islamic societies, which extend from Morocco to Indonesia, interpret Islam in various ways (Inglehart 2007).

Religiosity, that can be defined as "the degree to which beliefs in specific religious values and ideals are held and practiced by an individual" (Delener 1990, p.27), affects consumer behavior. Empirical evidence shows that a pro-religious customer tends to perceive higher risk than a non-religious customer in the purchase decision of durable goods (Delener 1990). One possible explanation is because a religious person tends to be less secure and sensitive (Wiebe and Fleck 1980; Delener 1990). Another study shows that casually religious respondents were found to differ in their shopping behavior in comparison with their devout counterparts, i.e., trendier, more innovative, and more practical (Essoo and Dibb 2004). In the same vein, religious commitment, which is measured by both cognitive religiosity and behavioral religiosity, is positively associated with the importance placed by an individual on department store evaluative criteria dealing with sales personnel friendliness/helpfulness (McDaniel and Burnett 1990). Religious persons in Louisiana also have a preference to avoid shopping on Sundays than their less religious counterparts (Siguaw and Simpson 1997).

Religiosity and Islamic banking patronization

In-group/loyalty is one of the moral foundations in religion (Graham and Haidt 2010). The game of football is an interesting analogy of religion (Graham and Haidt 2010). If people only focus on the match, they will miss the bigger picture of the game of football, i.e., the supporters sing, mourn, and cry together when watching football. Thus, we might expect that Muslims who live in a strong religiosity area will have high in-group/loyalty toward other people/firms who share similar principles, which includes banking relationships. Indirect empirical evidence shows that people who share similar religious affiliation with a hospital will choose this hospital even if its location is far from home (Andeleeb 1993). In the case of Indonesia that offers a dual banking system, conventional and Islamic banks, when people decide to have a relationship with Islamic banks, they know that they will have fewer facilities and bank branches. However, a religious motive could encourage people to have a relationship with Islamic banks by saving/deposit activities. Another framework that offers insight is the attraction-selection-attrition (ASA) theory (Schneider 1987). People who live in a strong religiosity area will select Islamic banks because these institutions share similar religious preferences and principles. For example, the money deposited in Islamic banks will not be used to finance a project that is not in accordance with Islamic principles.

Previous studies have examined the criteria that customers use to select a bank such as recommendation from friends (Anderson et al. 1976), location (Laroche and Taylor 1988; Kaynak and Kucukemiroglu 1992), age of the bank (Javalgi et al. 1989), ATM location (Almossawi 2001), and advice from family and friends (Tan and Chua 1986). More recent study also found that customer satisfaction is the key point that affects depositors' trust (Kartika et al. 2020). However, literature has emerged that offers contradictory findings about the importance of religious reasons for selecting Islamic banks such as religious motive is not the important criteria to choose a bank, but a profitability reason (Awan and Bukhari 2011), fast and efficient service is the main reason to select a bank (Gerrard and Cunningham 1997), and the bank's reputation and image and the confidentiality of the bank are the top reasons to select a bank (Erol and El-Bdour 1989). On the other hand, *sharia* compliance/religious preference is the top reason to select a bank (Naser et al. 2009; Mansour et al. 2010; Ullah and Lee 2012; Sayani and Miniaoui 2013).

Interestingly, there is a connection between one's religiosity and the decision to have a relationship with Islamic banks in Malaysia (Ahmad et al. 2008). In the same vein, one's religiosity level also has an impact on customer attitudes toward Islamic banking in Egypt (Abou-Youssef et al. 2015), while in Indonesia, traditional customers who believe that interest is *haram* (prohibited) tend to select Islamic banks (Usman et al. 2017). Moreover, religiosity is positively associated with the decision to save money in Islamic microfinance institutions or *Baitul Maal wat Tawil*—BMT (Wijaya et al. 2020). Another study finds that the more a person fears divine punishment and believes in Islamic laws, the more he/she will develop a favorable

attitude toward Islamic banks (Souiden and Rani 2015). In addition, the religious practice, religious knowledge, and religious experience of Muslims influence their purchase intention of Islamic financial products (Sharma, Newaz, and Fam 2016). Another piece of evidence shows that religious satisfaction is positively associated with the willingness to apply for an Islamic mortgage loan (Amin et al. 2014) and religiosity has a positive impact toward the intention to adopt Islamic financing (Bananuka et al. 2020).

Based on above discussion, we propose the following hypothesis:

Ha: Islamic banks in a stronger religiosity area receive more deposits from people.

Data and methodology

Indonesia shows interesting progress on religiosity indicators (Wijaya et al. 2022). The current progress of religiosity shows that Muslims in Indonesia are more aware of Islamic teachings. For instance, the average year to year growth in Muslim fashion consumption is 18.2%, while the average year to year growth in *zakat*, *infaq*, *shadaqah,* and *waqf* is 33.7%. Interestingly, the growth of Islamic bank's assets outperforms its counterparts (conventional banks). This is in line with the concept of Islam, i.e., Islamic teachings govern all aspects of life such as personal, social, and business.

Dependent variable

We use the natural logarithm of the amount of depositor funds in Islamic banks per capita at the province level as our dependent variable. The natural logarithm is used to reduce the problem of heteroscedasticity. We accessed information for 33 provinces in Indonesia from 2013 to 2018. The data are provided by the Financial Service Authority of Indonesia.

Religiosity measurements and controls

Existing studies try to capture the religiosity level based on individual and area. For instance, a comprehensive measurement of the Islamic religiosity level based on the individual has been shown by Ahmad et al. (2008) and Wijaya et al. (2020). They use both cognitive religiosity (faith) and behavioral religiosity (*Akhlaq* and *Sharia*) to capture the individual's religiosity, which are in line with the concept of religious commitment (McDaniel and Burnett 1990). Intrinsic–extrinsic religiosity proposed by Allport and Ross (1967) is used by Delener (1990) to capture the individual's religiosity. Other studies try to capture the religiosity level by using the data based on the area. For instance, studies in the USA try to incorporate the total number of adherents reported by all denominations, divided by the total population in the county, to capture the religiosity level (Hilary and Hui 2009; He and Hu 2016).

We try to measure religiosity at the province level based on four proxies as proposed by Wijaya et al. (2022) and Basedau et al. (2018), who suggest capturing religiosity by incorporating both religious actors/organizations and religious practice. An Islamic school is a religious actor/organization that can deliver the religious ideas of Islam, such as doctrines, norms, and values. Consequently, the Islamic school shapes the behavior toward saving and financing decisions. The more Islamic schools can be found in the area, the more people could understand and/or access Islamic teachings. The data on Islamic schools per capita are obtained from the Central Bureau of Statistics Indonesia. *Hajj* is a form of religious practice. Using the number of people who have performed *hajj* at the province level may not capture the religiosity level properly since Saudi Arabia's government decides the quota. Thus, we use the number of people who have applied for *hajj* and waiting to perform *hajj*. The logic of this proxy is *hajj* is one of the five pillars in Islam—Muslim people should perform *hajj*—Muslim people need to work hard and save money because *hajj* is costly—Thus *hajj* could shape the behavior toward banking activities. The data of *hajj* applications per capita are obtained from the Ministry of Religious Affairs of Indonesia. Another religious actor, the mosque, promotes Islamic teaching such as not to be involved in any business that is not in accordance with Islamic principles and the prohibition of *riba* (interest), especially during the Friday prayer and *Quran* and *Sunna* learning classes. The data on mosques per capita are obtained from the Ministry of Religious Affairs of Indonesia. The Islamic seminary school (*pesantren*) is a form of religious actor/organization. This actor has two important tasks: to promote religious ideas, including saving and financing activities, and to create religious actors, i.e., *ulama* (preacher) who can deliver the ideas about *riba* to the people. The data on Islamic Seminary Schools per capita are obtained from the Ministry of Religious Affairs of Indonesia.

We incorporate control variables at the province level that capture: (1) Economy conditions: GDP per capita, employment, foreign investment, and inflation; (2) Social: democracy index; and (3) Bank: non-performing finance (we use the term finance instead of loan) and bank size (1 = large Islamic banks, 0 = small Islamic banks). Financial Service Authority of Indonesia provides two separates financial data on large Islamic banks and small Islamic banks. Unlike large Islamic banks, small Islamic bank cannot provide foreign exchanges services and has no current account (cheque) services for their customers (www.ojk.go.id).

GDP by province reflects the intensity of business conditions in a particular area. We expect that more depositor

funds can be found in Islamic banks when the GDP at the province level is stronger. Employment is expected to have positive impact on the depositor funds in Islamic banks. This is because an area with more employment and more small businesses is expected to have stronger business activities, which in turn may have a positive impact on people's income. Thus, some parts of the income can be deposited in Islamic banks. Foreign investment in the province may stimulate business as well, which in turn improves the depositor funds in Islamic banks. The increase in inflation may induce people to shift their funds to other types of assets such as property (Nys et al. 2014). Democracy index represents the level of transparency and the dissemination of information in the area. The higher the index, the more deposits can be found in Islamic banks. NPF is expected to have a negative relationship with depositor funds (Nys ey al. 2014). The higher the NPF, the higher the risk that Islamic banks cannot receive the payments back from the financing customers. Thus, people try to avoid depositing money in Islamic banks that have higher NPF. Large Islamic banks may receive more deposits from their customers since they have more facilities such as ATMs, branches, and better mobile/internet banking services.

Methodology

We used pooled least square regression to test our hypothesis. The proxies of the religiosity are entered into the model one by one to control for possible multicollinearity. Moreover, robust standard errors are employed to control for possible heteroscedasticity problems. However, our model could be subjected to an endogeneity problem, i.e., simultaneity (reverse causality) problem, since there is a possible feedback loop between religiosity and the decision to saving/depositing mo in Islamic banks. In addition, our model is also subject to omitted variable bias.

In order to tackle the problem of omitted variable bias, we employ 2SLS regression and select three instrumental variables (Zaefarian et al. 2017; Rutz and Watson 2019; Ullah et al. 2020). The instrumental variables are related to natural disaster at the province level such as the number of natural disasters, the number of deaths and injuries, and the number of houses being destroyed and damaged. These three instrumental variables act as external shocks to the people and challenge science reliability. We expect that the area that is affected by natural disasters will show improvement in the religiosity level.

We perform 2SLS regression to tackle the simultaneity problem by selecting three instrumental variables (at province level): (1) lagged three years natural logarithm Islamic school per capita; (2) lagged three years natural logarithm Islamic seminary school per capita (Hilary and Hui 2009; Reed 2015); and (3) Because of the data constraint, we also select lagged one year natural logarithm *hajj* application per capita. In addition, we also employ the 3SLS procedure to tackle the simultaneity problem (see Nys et al. 2014) since we have two simultaneous equations: (1) Religiosity affects the amount of deposits; and (2) The amount of deposits can be used to increase the funds available to e society, which in turn improves the quality and quantity of religious actors (see Barro and McCleary 2003, for the theoretical foundation).

Descriptive Statistics

Table 1 shows descriptive statistics, and Table 2 shows descriptive stistics by province (at means). Interestingly, despite that Indonesia is the biggest Muslim country in the world with around 227 million active Muslims, several provinces in Indonesia have less than 50% Muslim share. Thus, provinces like Nusa Tenggara Timur, Papua, Papua Barat, and Bali have a low number of mosques, Islamic schools, Islamic seminary schools, and *hajj* applications. One of the important proxies of Islamic banks' performance is non-performing financing (NPF). Kalimantan Barat, Maluku, and Sulawesi Tengah show a low rate of non-performing financing, while Papua Barat, Kalimantan Barat, Bengkulu score high in non-performing financing. Three provinces in Java (the densest island in Indonesia), i.e., Jawa Tengah, Jawa Barat, and Jawa Timur, have a high amount of depositor funds. In the same vein, the high number of micro and small enterprises can be found in these provinces as well. A high amount of depositor funds outside Java Island can be found in Aceh and Kalimantan Barat (Table 3).

Correlation

One of the performance indicators of Islamic banks, non-performing financing, is negatively sociated with the amount of depositor funds. In addition, the number of micro and small enterprises at the province level (as a proxy of the business activities) is positive and significant to depositor funds. In the same vein, correlation analysis shows that religiosity variables are positive and significant at 5% level to depositor funds. Although our variable of interest is positively associated with the amount of depositor funds at the province level, further analysis needs to be performed.

Results: main results and robustness check

Main results

Table 4 shows the results of pooled least square regression. Models 1, 2, 3, and 4 have no multicollinearity problem, and we employ robust standard errors to control for

Table 1 Descriptive statistics

Remarks	Variable	Obs	Mean	Std. Dev	Min	Max
Natural logarithm of depositor funds per capita at the province level	Ln Deposits	335	4.461071	2.326584	−1.687629	9.719342
Natural logarithm of sum of Islamic primary school, Islamic junior high school and Islamic senior high school per capita at the province level	Ln Islamic school	335	−1.902676	0.6372841	−3.570357	−0.7855916
Natural logarithm of the number of Islamic seminary school (pesantren) per capita by province	Ln Seminary	335	−3.208506	0.9710991	−5.83805	−0.9734283
Natural logarithm of the number of *hajj* application per capita by province	Ln *Hajj*	335	0.5668622	0.5034807	−1.132998	1.32855
Natural logarithm of the number of mosques registered under Ministry of Religious Affairs per capita at the province level	Ln Mosque	171	−0.5594721	0.9797617	−3.704335	0.7359049
Democracy index by province level. These include civil liberties, political rights, and institutions of democracy	Democracy index	335	71.37779	6.622226	52.61	85.58
Percentage of working to economically active by province	Employment	335	94.71653	1.927715	89.88306	98.63445
Natural logarithm of gross regional domestic product per capita by province	Ln GDP per capita	335	10.65107	0.5714724	9.423759	12.42242
Natural logarithm of foreign direct investment realization by province	Ln Foreign investment	335	5.885649	1.657033	0.6931472	8.871351
Inflation rate by province	Inflation	335	4.789373	2.745216	0.2	16.55
Non-performing financing at the province level	NPF	335	0.0841018	0.134774	0.0007854	1
Dummy size of the banks (1: large, 0: small)	Bank size	335	0.5820896	0.4939531	0	1

the heteroscedasticity problem. Non-performing financing (NPF) is negative and significant at 1% level in models 1, 2, 3, and 4. NPF represents the level of bank risk. The higher the risk, the less deposits to be found in Islamic banks (Nys et al. 2014). It seems that people try to avoid depositing money when the bank risk is high.

Turning our attention to the variable of interest, Islamic school is positively associated with the depositor funds ($p < 0.05$) and other Islamic religiosity variables are positively associated with the depositor funds at 1%. Our hypothesis is supported. All in all, our findings support previous studies: Islamic religiosity has a positive effect on the decision to deposit money in Islamic banks (Souiden and Rani 2015; Usman et al. 2017; Wijaya et al. 2020).

Robustness check

The problem of simultaneity is not marginal as "in the presence of simultaneous causation, the dependent variable also 'causes' the explanatory variable and thus the error term in the equation is correlated with the explanatory variable, violating OLS assumptions and resulting in biased estimates" (Rutz and Watson 2019, p.484). The simultaneity problem emerges because there is a feedback loop. Religiosity affects depositor funds at the province level. The more funds available in Islamic banks, the more the supply of funds that can be found in the area. The funds can be used not only to improve the quantity of religious actors, but also to enhance the quality of religious actors. The improvement in both quantity and quality of religious actors and religious practices improves the religious level in the same areas since religious actors and practices shape the behavior and attitudes of the people, including in banking activities.

We follow Hilary and Hui (2009) and Reed (2015) to perform 2SLS regressions by incorporating instrumental variables: (1) lagged three years natural logarithm of Islamic school per capita; (2) lagged three years natural logarithm of Islamic seminary school per capita; and (3) lagged one year natural logarithm *hajj* application per capita. We obtain a stronger correlation between lagged three years natural logarithm of Islamic school per capita with natural logarithm of Islamic school per capita, compared to lagged three years natural logarithm of Islamic school per capita with our dependent variable, i.e., natural logarithm of depositor funds per capita (0.9965 vs 0.1057). In the similar vein, we obtain a weaker correlation between lagged three years natural logarithm of Islamic seminary school per capita with natural logarithm of depositor funds per capita, compared to the correlation between lagged three years natural logarithm of Islamic seminary school per capita with natural logarithm of Islamic seminary school per capita (0.1298 vs 0.9679). We also find a weaker correlation between lagged one year natural logarithm of *hajj* application per capita with natural logarithm of depositor funds per capita, compared to the correlation between lagged one year natural logarithm of

Table 2 Descriptive statistics by province (at means)

Province	Ln Deposits	Ln Islamic School	Ln Seminary	Ln *Hajj*	Ln Mosque	Democracy Index	Employment	Ln GDP Per capita	Ln Foreign Investment	Inflation	NPF	Bank size
Aceh	5.237494	−1.383746	−1.533633	0.9438979	−0.2503235	71.16833	91.73939	10.19942	3.891306	4.495	0.0711175	0.5
Bali	2.764263	−3.440584	−3.946073	−0.730725	−2.8525	78.05	98.25609	10.68129	6.340034	4.701667	0.1128511	0.5
Banten	5.109832	−1.643955	−1.226924	0.700619	−1.107431	72.10167	90.85312	10.61268	7.93768	4.891667	0.0831085	0.5
Bengkulu	4.900072	−1.935262	−3.518117	0.7549073	0.3882841	70.35667	96.07581	10.23057	3.826556	5.341667	0.2075189	0.5
DI Yogyakarta	5.731778	−2.428074	−2.586751	0.8334235	0.7248821	81.37833	96.71164	10.25625	3.836895	4.04	0.0397162	0.5
DKI Jakarta	4.713791	−2.540495	−4.542132	0.7300106	−2.097016	80.31	92.69305	12.20366	8.253311	4.935	0.1119428	0.5
Gorontalo	5.304604	−1.714126	−3.796747	0.3572215	0.573647	73.63167	95.98889	10.1591	2.760024	4.011667	0.0650487	1
Jambi	5.866004	−1.388064	−2.869388	0.8708395	−0.3751384	69.66	95.68231	10.77828	4.205034	9.135	0.0484952	1
Jawa Barat	4.924605	−1.792044	−1.746889	0.6301162	−0.0016701	68.47333	91.39956	10.42113	8.68229	4.9	0.0564659	0.5
Jawa Tengah	4.470206	−1.672512	−2.130631	0.9202771	0.1874919	69.62667	94.93352	10.32997	6.917734	4.636667	0.0483122	0.5
Jawa Timur	4.707098	−1.143077	−2.040492	0.9847469	−0.0317083	70.43333	95.80625	10.71693	7.601878	2.853333	0.0502155	0.5
Kalimantan Barat	6.057057	−1.731399	−3.038709	0.2115129	−0.3548071	75.84167	95.66114	10.36455	6.58923	5.955	0.0175048	1
Kalimantan Selat	4.359787	−1.383149	−2.8962	1.133127	−0.4737473	73.15167	95.4832	10.47086	5.754589	4.903333	0.1061429	0.5
Kalimantan Tenga	3.309924	−1.606556	−3.510064	0.387372	−0.2870352	73.94455	95.93687	10.66781	6.505416	4.523636	0.0381683	0.5454545
Kalimantan Timur	3.888732	−2.343201	−3.142621	0.7581551	−0.2978146	74.58667	92.61834	11.96953	7.202772	5.251667	0.0848343	0.5
Kepulauan Bangka	5.681942	−2.611555	−3.365561	0.5559182	−0.5101253	75.49333	95.8151	10.71021	4.437015	5.516667	0.0862698	0.5
Kepulauan Riau	5.135176	−2.534354	−3.765658	0.3204356	−0.211131	72.25167	93.25137	11.53424	6.350376	5.208333	0.0603175	0.5
Maluku	5.334912	−1.663927	−5.123861	0.1374068	−0.9297798	77.05333	92.13221	10.03829	4.022289	2.463333	0.0206997	1
Maluku Utara	4.152079	−1.264078	−4.26776	0.7940082	−0.2239348	68.26333	95.12386	10.07651	5.484997	5.721667	0.0309745	0.5
Nusa Tenggara Barat	4.705625	−0.8215527	−2.10971	1.141788	−0.3974936	66.66667	95.38137	9.952274	5.924794	4.521667	0.0397541	0.5
Nusa Tenggara Timur	3.209697	−2.879275	−5.286276	−1.047787	−1.91602	76.82333	96.68774	9.634655	3.810303	4.773333	0.0306179	1
Papua	2.260723	−3.496121	−4.490295	−0.1630672	−2.985033	60.85818	96.5136	10.84908	7.17804	4.975455	0.3580085	0.5454545
Papua Barat	5.859985	−2.279168	−3.761988	0.5499333	−1.809225	61.28667	93.70738	11.20444	5.153743	0.7916667	0.035687	1
Riau	4.16952	−1.591875	−3.485081	0.571177	−0.1331045	70.915	93.37854	11.56891	6.925486	5.136667	0.068681	0.5
Sulawesi Barat	2.367641	−1.143284	−3.032744	1.101109	0.4691858	69.612	97.04649	10.18688	2.264831	4.042	0.3073233	0.6
Sulawesi Selatan	4.005932	−1.54735	−3.468844	1.024691	0.1697616	69.76667	94.68549	10.62448	6.023708	4.028333	0.0859126	0.5
Sulawesi Tengah	5.590445	−1.517569	−3.475689	0.3728065	−0.256219	72.135	96.25028	10.554	7.046989	5.481667	0.0293334	1
Sulawesi Tenggar	5.607346	−1.614671	−3.43062	0.6941644	−0.9470103	67.69	96.0596	10.50285	5.584094	3.983333	0.0418653	1
Sulawesi Utara	4.592052	−2.53521	−4.860343	−0.6304369	−1.126113	77.72	92.73733	10.5664	5.178137	5.325	0.0584514	1
Sumatera Barat	4.839202	−1.930477	−3.18027	0.6403354	−0.2967624	62.755	93.8944	10.48302	4.686665	5.508333	0.0633484	0.5
Sumatera Selatan	3.185788	−1.924942	−3.222729	0.5631397	−0.2234226	75.64667	95.19854	10.65267	6.935567	4.155	0.0491481	0.5
Sumatera Utara	4.167979	−1.767174	−4.431617	0.1169261	−0.4359976	65.935	93.93566	10.65699	6.930971	5.393333	0.0664094	0.5
Lampung	4.23055	−1.540994	−2.561307	0.5912466	−1.497975	67.06333	95.22996	10.38629	4.76319	5.143333	0.0368589	0.5

Table 3 Correlation

	Ln Deposits	Ln Islamic school	Ln Seminary	Ln *Hajj*	Ln Mosque	Democracy index	Employment	Ln GDP	Ln Foreign investment	Inflation	NPF	Bank size
Ln Deposits	1											
Ln Islamic school	0.113	1										
Ln Seminary	0.173*	0.493***	1									
Ln *Hajj*	0.166*	0.695***	0.619***	1								
Ln Mosque	0.151*	0.587***	0.388***	0.611***	1							
Democracy index	0.0767	−0.162*	−0.0533	−0.0644	0.129	1						
Employment	−0.138	−0.141	−0.206**	−0.146	−0.0782	0.145	1					
Ln GDP per capita	−0.0199	−0.382***	−0.211**	−0.00650	−0.236**	0.0843	−0.353***	1				
Ln Foreign investment	−0.0402	−0.154*	0.0475	−0.0967	−0.257***	−0.106	−0.405***	0.503***	1			
Inflation	0.0427	−0.0540	0.00381	−0.0576	−0.0111	0.0107	0.0142	0.0444	−0.0470	1		
NPF	−0.556***	−0.170*	−0.115	−0.0496	−0.136	−0.183*	0.156*	0.00645	−0.0692	0.0281	1	
Bank size	0.785***	−0.00715	−0.119	−0.138	−0.0383	0.0129	0.0196	−0.0635	−0.0748	−0.00763	−0.420***	1

*$p<0.05$; **$p<0.01$; ***$p<0.001$

Dependent variable: natural logarithm of depositor funds per capita at the province level (Ln Deposits). Independent variables: democracy index by province level (democracy index), percentage of working to economically active by province (Employment), natural logarithm of gross regional domestic product constant by province (Ln GDP per capita), natural logarithm of foreign direct investment realization by province (Ln Foreign investment), inflation rate by province (inflation), mon-performing financing at the province level (NPF), dummy bank size (1 = large Islamic banks, 0 = small Islamic banks) (Bank size), natural logarithm of the sum of Islamic primary school, Islamic junior high school, and Islamic senior high school per capita at the province level (Ln Islamic school), natural logarithm of Islamic seminary school (pesantren) per capita by province (Ln Seminary), natural logarithm of *hajj* application per capita by province (Ln *Hajj*), natural logarithm of the number of mosques registered under Ministry of Religious Affairs per capita at the province level (Ln Mosque)

Table 4 Pooled OLS regression

VARIABLES	Model 1	Model 2	Model 3	Model 4
Democracy index	0.0149	0.00954	0.0236**	0.00779
	(0.0118)	(0.0110)	(0.0110)	(0.0190)
Employment	−0.141***	−0.0763**	−0.123***	−0.144***
	(0.0342)	(0.0335)	(0.0295)	(0.0540)
Ln GDP per capita	0.246	0.497***	0.0741	0.117
	(0.194)	(0.176)	(0.168)	(0.295)
Ln Foreign investment	−0.0676	−0.115**	−0.0177	−0.0323
	(0.0450)	(0.0457)	(0.0431)	(0.0716)
Inflation	−0.0241	−0.0196	−0.00539	0.100
	(0.0231)	(0.0220)	(0.0221)	(0.0685)
NPF	−3.209***	−3.066***	−2.994***	−3.321***
	(0.708)	(0.669)	(0.688)	(0.820)
Bank size	3.451***	3.566***	3.593***	3.396***
	(0.173)	(0.159)	(0.157)	(0.236)
Ln Islamic school	0.291**			
	(0.129)			
Ln Seminary		0.522***		
		(0.0678)		
Ln *Hajj*			1.038***	
			(0.114)	
Ln Mosque				0.339***
				(0.129)
Constant	13.45***	6.337*	11.32***	14.79**
	(3.920)	(3.634)	(3.453)	(6.302)
Observations	335	335	335	171
R-squared	0.706	0.738	0.747	0.713

Robust standard errors in parentheses

***$p<0.01$, ** $p<0.05$, * $p<0.1$

Dependent variable: natural logarithm of depositor funds per capita at the province level (Ln Deposits). Independent variables: democracy index by province level (democracy index), percentage of working to economically active by province (employment), natural logarithm of gross regional domestic product constant by province (Ln GDP per capita), natural logarithm of foreign direct investment realization by province (Ln Foreign investment), inflation rate by province (inflation), non-performing financing at the province level (NPF), dummy bank size (1 = large Islamic banks, 0 = small Islamic banks) (bank size), natural logarithm of the sum of Islamic primary school, Islamic junior high school, and Islamic senior high school per capita at the province level (Ln Islamic school), natural logarithm of Islamic seminary school (pesantren) per capita by province (Ln Seminary), natural logarithm of *hajj* application per capita by province (Ln *Hajj*), natural logarithm of the number of mosques registered under Ministry of Religious Affairs per capita at the province level (Ln Mosque)

Table 5 2SLS regressions to tackle the simultaneity problem

Variables	Model 5	Model 6	Model 7
Democracy index	0.0149	0.00959	0.0231**
	(0.0117)	(0.0108)	(0.0110)
Employment	−0.140***	−0.0785**	−0.124***
	(0.0338)	(0.0332)	(0.0292)
Ln GDP per capita	0.249	0.488***	0.0756
	(0.192)	(0.175)	(0.166)
Ln Foreign investment	−0.0676	−0.113**	−0.0197
	(0.0444)	(0.0448)	(0.0424)
Inflation	−0.0239	−0.0200	−0.00647
	(0.0229)	(0.0217)	(0.0220)
NPF	−3.204***	−3.076***	−3.012***
	(0.700)	(0.664)	(0.677)
Bank size	3.451***	3.563***	3.586***
	(0.170)	(0.158)	(0.155)
Ln Islamic school	0.297**		
	(0.127)		
Ln Seminary		0.510***	
		(0.0677)	
Ln *Hajj*			0.998***
			(0.121)
Constant	13.38***	6.596*	11.53***
	(3.884)	(3.635)	(3.429)
Observations	335	335	335
R−squared	0.706	0.738	0.747

Robust standard errors in parentheses

***$p<0.01$, ** $p<0.05$, * $p<0.1$

Dependent variable: natural logarithm of depositor funds per capita at the province level (Ln Deposits). Independent variables: democracy index by province level (democracy index), percentage of working to economically active by province (employment), natural logarithm of gross regional domestic product constant by province (Ln GDP per capita), natural logarithm of foreign direct investment realization by province (Ln Foreign investment), inflation rate by province (inflation), non-performing financing at the province level (NPF), dummy bank size (1 = large Islamic banks, 0 = small Islamic banks) (bank size), natural logarithm of the sum of Islamic primary school, Islamic junior high school, and Islamic senior high school per capita at the province level (Ln Islamic school), natural logarithm of Islamic seminary school (pesantren) per capita by province (Ln Seminary), natural logarithm of *hajj* application per capita by province (Ln *Hajj*), natural logarithm of the number of mosques registered under Ministry of Religious Affairs per capita at the province level (Ln Mosque)

hajj application per capita with natural logarithm of *hajj* application per capita (0.1232 vs 0.93).

Also, we reject the null hypothesis that our instrument (lagged three years natural logarithm of Islamic school per capita) is weak since the F statistic in the Montiel–Pflueger robust weak instrument test is 41110. Lagged three years natural logarithm of Islamic seminary school per capita passes the weak instrument test since it has a 2659 F statistic value in the Montiel–Pflueger robust weak instrument test. In addition, lagged one year natural logarithm of *hajj* application per capita passes the weak instrument test since it has a 3731 F statistic value in the Montiel–Pflueger robust weak instrument test. 2SLS regressions show that Ln Islamic school, Ln Islamic seminary, and Ln *Hajj* are

positive and significant at 5%, 1%, and 1% respectively (Table 5).

We also follow Nys et al. (2014) to perform the 3SLS procedure since we have two simultaneous equations: (1) Religiosity affects the amount of deposits; and (2) The amount of deposits affects the religiosity level. Thus, the dependent variable in models 8a, 9a, 10a, and 11a is the natural logarithm of depositor funds per capita at the province level (Ln Deposits). In contrast, the dependent variable in models 8b, 9b, 10b, 11b is the natural logarithm of Islamic school per capita, natural logarithm of Islamic seminary school per capita, natural logarithm of *hajj* application per capita, and natural logarithm of mosques per capita, respectively. Table 6 shows 3SLS regressions to tackle the simultaneity problem. It shows that Islamic school (model 8a), Islamic Seminary (model 9a), *hajj* (model 10a), and mosque (model 11a) are positively associated with the depositor funds per capita at the province level (significant at 1%). In contrast, the depositor funds in Islamic banks at the province level are not significant to predict religiosity in models 8b, 9b, 10b, and 11b. Our findings suggest that the causality between the two endogenous variables runs from religiosity to amount of deposit.

Our model is also subjected to the omitted variable bias problem since our model cannot capture the unobservable beliefs, ideas, and attitudes of the people. We select three instrumental variables related to natural disasters at the province level: natural logarithm of natural disaster events, natural logarithm of the number of deaths and injuries, and natural logarithm of the number of houses being destroyed and damaged. These three instrumental variables act as external shocks to the people. The shocks may affect the relationship between the human and God. For instance, after experiencing an earthquake, tsunami, volcanic mountain eruption, flood, etc., people will start to think that God is important in their lives. In addition, seeing people die and injured during natural disasters reminds people to prepare more for the afterlife and think about the importance of religion. Finally, the empathy of the people will be improved after seeing many houses, including Islamic schools, mosques, and Islamic seminary schools, destroyed by natural disasters. We reject the null hypothesis that our instruments are weak since the F statistic in the Montiel–Pflueger robust weak instrument test in Models 13 and 14 are above 10. Also, the correlation between Ln Deposits (per capita) and our instruments is weaker, compared to the correlation between Islamic religiosity (per capita) and the instruments. Table 7 shows the 2SLS regressions. 2SLS regressions show qualitatively similar results with the original regressions. Thus, it is now safe to mention that Islamic banks in stronger religiosity areas receive more deposits from the people.

Discussion

The discussion on the role of religion and/or religiosity affecting the behavior of people has emerged (Weber 1930; Iannaccone 1998). Weber (1930) highlights one of the concepts in Protestantism, the calling, supported by the predestination idea, which shapes the attitude of the people in socioeconomic activities. Since then, the role of religiosity and/or religion has been discussed in so many topics including marketing.

This study has shown that Islamic religiosity (per capita) based on an area is positively associated with the depositor funds per capita at the province level. Our result is robust to the endogeneity problem, i.e., simultaneity and omitted variable bias. The result is also in line with what previous studies have found (Amin 2014; Souiden and Rani 2015; Newaz et al. 2016; Bananuka et al. 2020; Wijaya et al. 2020).

Quran and *Sunna*, as the two most important sources of law in Islam, guide all activities of human beings in the world including business. Islam provides concepts on what can be consumed/used (*halal*) and what cannot be consumed/used. Receiving interest on deposits is prohibited and Islam encourages the concept of profit-loss sharing. Furthermore, Islamic banks are also prohibited to provide financing for business that is not in accordance with Islamic principles. These religious ideas can be delivered by religious actors such as Islamic schools, Islamic seminary schools, mosques, and Muslim scholars. Also, religious practice, such as *hajj*, shapes the attitude toward the adoption of Islamic banking saving and financing products since performing *hajj* is costly.

People who live in stronger religiosity areas receive more Islamic teachings, ideas, norms, and doctrines delivered by religious actors. For instance, Muslim people, especially men, are encouraged to perform *salat* in the mosque five times a day. During these prayers, interaction between people and interaction between Muslim scholars-people emerge. Interestingly, the dissemination of religious ideas also emerged in both Islamic schools and Islamic seminary schools. In these schools, Islamic teachings are studied in the context of history, *Tafsir* (Quran interpretation), *Hadits* (the subject for studying *Sunna*), *Akhlaq* (behavior), *Fiqh* (Islamic law), Arabic language, and *Aqidah* (theology).

Conclusion

Religious actors like the mosque, Islamic school, and Islamic seminary school and religious practice (*hajj*) shape the behavior and attitude of people toward banking

Table 6 3SLS regressions to tackle the simultaneity problem

Variables	model 8a	model 8b	model 9a	model 9b	model 10a	model 10b	model 11a	model 11b
Democracy index	0.0321*	−0.0182***	0.00858	−0.00753	0.0367***	−0.0161***	−0.0105	0.0134
	(0.0169)	(0.00495)	(0.0108)	(0.00715)	(0.0134)	(0.00435)	(0.0216)	(0.0116)
Employment	0.0158	−0.0580***	−0.0244	−0.140***	−0.0722	−0.0249	−0.0255	−0.120***
	(0.0758)	(0.0176)	(0.0484)	(0.0253)	(0.0478)	(0.0154)	(0.0862)	(0.0413)
Ln GDP per capita	1.098***	−0.438***	0.722***	−0.526***	0.0195	0.0979*	0.447	−0.227
	(0.348)	(0.0646)	(0.191)	(0.0961)	(0.158)	(0.0586)	(0.286)	(0.149)
Ln Foreign investment	−0.0731	0.00440	−0.141***	0.0115	0.0417	−0.0634***	0.114	−0.231***
	(0.0694)	(0.0228)	(0.0505)	(0.0351)	(0.0590)	(0.0212)	(0.106)	(0.0580)
Inflation	−0.0129		−0.0114		0.00707		0.119	
	(0.0297)		(0.0250)		(0.0279)		(0.0738)	
NPF	−2.404***		−2.818***		−2.555***		−2.472***	
	(0.684)		(0.561)		(0.587)		(0.743)	
Bank size	3.556***		3.657***		3.792***		3.636***	
	(0.205)		(0.156)		(0.181)		(0.259)	
Education enrolment		0.0362***		0.0547***		0.0280***		0.0548***
		(0.00617)		(0.00938)		(0.00540)		(0.0137)
Enterprises		1.126**		5.949***		1.819***		5.041***
		(0.444)		(0.878)		(0.514)		(1.386)
Ln Deposits		0.0100		−0.0296		−0.0197		−0.0156
		(0.0152)		(0.0217)		(0.0133)		(0.0322)
Ln Islamic school	2.156***							
	(0.613)							
Ln Seminary			0.830***					
			(0.172)					
Ln *Hajj*					2.315***			
					(0.536)			
Ln Mosque							1.222***	
							(0.337)	
Constant	−8.298	6.643***	0.123	11.82***	4.893	1.265	0.706	9.285**
	(9.479)	(1.989)	(5.433)	(2.854)	(5.419)	(1.741)	(9.549)	(4.651)
Observations	335	335	335	335	335	335	171	171
R-squared	0.504	0.289	0.725	0.372	0.677	0.116	0.607	0.286

Standard errors in parentheses

***$p<0.01$, **$p<0.05$, *$p<0.1$

Dependent variable (Models 8a, 9a, 10a, 11a): natural logarithm of depositor funds per capita at the province level (Ln Deposits). Dependent variable (Models 8b, 9b, 10b, 11b, respectively): natural logarithm of the sum of Islamic primary school, Islamic junior high school, and Islamic senior high school per capita at the province level (Ln Islamic school), natural logarithm of Islamic seminary school (pesantren) per capita by province (Ln Seminary), natural logarithm of *hajj* application per capita by province (Ln Hajj), natural logarithm of the number of mosques registered under Ministry of Religious Affairs per capita at the province level (Ln Mosque)

Independent variables: democracy index by province level (democracy index), percentage of working to economically active by province (employment), natural logarithm of gross regional domestic product constant by province (Ln GDP per capita), natural logarithm of foreign direct investment realization by province (Ln Foreign investment), inflation rate by province (inflation), non-performing financing at the province level (NPF), dummy bank size (1 = large Islamic banks, 0 = small Islamic banks) (Bank size), ratio of the number of students to the number of people of education age (education enrolment), the number of villages by province (Villages), natural logarithm of the sum of Islamic primary school, Islamic junior high school, and Islamic senior high school per capita at the province level (Ln Islamic school), natural logarithm of Islamic seminary school (pesantren) per capita by province (Ln Seminary), natural logarithm of *hajj* application per capita by province (Ln Hajj), natural logarithm of the number of mosques registered under Ministry of Religious Affairs per capita at the province level (Ln Mosque)

activities. These religious actors promote Islamic teachings that directly and indirectly affect banking selection. In Islam, interest is forbidden; thus, depositing money and receiving fixed interest is prohibited. Islamic banking offers a deposit/savings product that is not based on interest, but on profit-loss sharing (*Mudharaba*) and bonus

Table 7 2SLS regressions to tackle omitted variable bias

Variables	Model 12	Model 13	Model 14	Model 15
Democracy index	0.0235*	0.00779	0.0282**	0.00347
	(0.0140)	(0.0117)	(0.0113)	(0.0207)
Employment	−0.0989*	−0.0673	−0.105***	−0.106*
	(0.0567)	(0.0420)	(0.0369)	(0.0575)
Ln GDP per capita	0.442*	0.486**	0.0263	0.160
	(0.262)	(0.209)	(0.175)	(0.327)
Ln Foreign investment	−0.0586	−0.106**	0.00428	0.0147
	(0.0481)	(0.0476)	(0.0465)	(0.0751)
Inflation	−0.00861	−0.0240	0.00441	0.130*
	(0.0291)	(0.0228)	(0.0247)	(0.0779)
NPF	−2.586***	−2.662***	−2.721***	−2.842***
	(0.961)	(0.765)	(0.783)	(0.966)
Bank size	3.520***	3.599***	3.644***	3.455***
	(0.184)	(0.173)	(0.172)	(0.248)
Ln Islamic school	0.819			
	(0.505)			
Ln Seminary		0.540***		
		(0.157)		
Ln *Hajj*			1.332***	
			(0.394)	
Ln Mosque				0.625**
				(0.281)
Constant	7.572	5.721	9.459**	10.82
	(7.022)	(4.602)	(4.059)	(6.808)
Observations	310	310	310	156
R-squared	0.696	0.739	0.747	0.702

Robust standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Dependent variable: natural logarithm of depositor funds per capita at the province level (Ln Deposits). Independent variables: democracy index by province level (democracy index), percentage of working to economically active by province (employment), natural logarithm of gross regional domestic product constant by province (Ln GDP per capita), natural logarithm of foreign direct investment realization by province (Ln Foreign investment), inflation rate by province (inflation), non-performing financing at province level (NPF), dummy bank size (1 = large Islamic banks, 0 = small Islamic banks) (Bank size), natural logarithm of the sum of Islamic primary school, Islamic junior high school, and Islamic senior high school per capita at the province level (Ln Islamic school), natural logarithm of Islamic seminary school (pesantren) per capita by province (Ln Seminary), natural logarithm of *hajj* application per capita by province (Ln *Hajj*), natural logarithm of the number of mosques registered under Ministry of Religious Affairs per capita at the province level (Ln Mosque)

(*wadia*). Moreover, Muslim people are prohibited to run any business that is not in accordance with Islamic principles such as casinos (gambling), alcoholic beverages, pork, the pornography industry, etc. Islamic banks ensure that the money deposited by the customers will not be used to finance these businesses. People who live in stronger religiosity areas receive more Islamic ideas, norms, and doctrines, which in turn affect their behavior, including in banking activities. We show that Islamic banks in stronger Islamic religiosity areas receive more depositor funds. Our result is robust to endogeneity problems.

Our study has at least three contributions: First, religiosity based on an area can be used as an alternative to an individual's religiosity to explain consumer behavior. Second, in the absence of individuals' religiosity data, the survey of which is costly to perform, Islamic bank managers may gain benefit by using secondary data of Islamic religiosity to build effective strategies for entering or expanding business in new markets/areas. Third, existing studies in consumer behavior and religiosity rarely address the problems of endogeneity, i.e., simultaneity and omitted variable bias. The feedback loop emerges because religiosity affects the decision to deposit money in the bank. Supply funds from the bank affect both the quantity and quality of religious actors and religious practices, which in turn affect the religiosity level of the people. Our study tackles this endogeneity by performing 2SLS and 3SLS regressions.

Future studies on the impact of religiosity on consumer behavior need to be aware of the endogeneity issue, as it is not a marginal problem and could affect the reliability of the empirical results. This study is not, however, without limitation. We use the aggregate data of depositor funds at the province level. Future studies could explore the depositor funds at the bank's level.

2023 - Journal of Financial Services Marketing - Wijaya et al. - Religiosity and depositor funds evidence from Islamic banks in Indones.

ORIGINALITY REPORT

18%	14%	17%	5%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	dspace.lib.cranfield.ac.uk Internet Source	7%
2	Ibrahim Fatwa Wijaya, Andrea Moro, Yacine Belghitar. "Does religiosity affect financing activity? Evidence from Indonesia", Business Ethics, the Environment & Responsibility, 2022 Publication	1%
3	faculty.washington.edu Internet Source	1%
4	Submitted to Cranfield University Student Paper	1%
5	healtheconomicsreview.biomedcentral.com Internet Source	1%
6	Torbjørn Selseng, Kristin Linnerud, Erling Holden. "Unpacking democracy: The effects of different democratic qualities on climate change performance over time", Environmental Science & Policy, 2022 Publication	<1%

7	Abdul Rashid, M. Kabir Hassan, Muhammad Abdul Rehman Shah. "On the role of Islamic and conventional banks in the monetary policy transmission in Malaysia: Do size and liquidity matter?", Research in International Business and Finance, 2020 Publication	<1 %
8	Nittin Essoo. "Religious Influences on Shopping Behaviour: An Exploratory Study", Journal of Marketing Management, 08/01/2004 Publication	<1 %
9	stax.strath.ac.uk Internet Source	<1 %
10	Ibrahim Fatwa Wijaya, Andrea Moro. "Trustworthiness and Margins in Islamic Small Business Financing: Evidence from Indonesia", Borsa Istanbul Review, 2022 Publication	<1 %
11	"How Much Arabic do you Need to Know to Work in the Islamic Banking Industry?", Islamic Finance in a Nutshell, 2015. Publication	<1 %
12	www.hindawi.com Internet Source	<1 %
13	core.ac.uk Internet Source	<1 %

14	whanchoi.people.uic.edu Internet Source	<1%
15	ejournal.umm.ac.id Internet Source	<1%
16	Revti-Raman Sharma, Farhana T Newaz, Kim-Shyan Fam. "Muslim religiosity, generational cohorts and buying behaviour of Islamic financial products", Australian Journal of Management, 2016 Publication	<1%
17	Stephen W. McDaniel. "Consumer religiosity and retail store evaluative criteria", Journal of the Academy of Marketing Science, 03/1990 Publication	<1%
18	epdf.tips Internet Source	<1%
19	docplayer.net Internet Source	<1%
20	hdl.handle.net Internet Source	<1%
21	www.econstor.eu Internet Source	<1%
22	whiceb.cug.edu.cn Internet Source	<1%

23	Tapas Ranjan Moharana, Debashree Roy, Garima Saxena. "Brand sponsorship effectiveness: how self-congruity, event attachment, and subjective event knowledge matters to sponsor brands", Journal of Brand Management, 2023 Publication	<1 %
24	eprints.nottingham.ac.uk Internet Source	<1 %
25	Syeda Nazish Zahra Bukhari, Salmi Mohd Isa, Goh Yen Nee. "Halal vaccination purchase intention", Journal of Islamic Marketing, 2020 Publication	<1 %
26	www.oecd.org Internet Source	<1 %
27	Jusuf Zeqiri, Baker Alserhan, Kimberly Gleason, Veland Ramadani. "Desecularization, Social Identity, and Consumer Intention to Purchase Religious Products", Technological Forecasting and Social Change, 2022 Publication	<1 %
28	Li Jianfeng, Liu Hongping, Du Lanying. "The Effect of Religiosity on Shopping Behavior: An Exploratory Study during the Transitional Period in China", 2009 International Conference on Information Management,	<1 %

Innovation Management and Industrial Engineering, 2009
Publication

29	Thich Van Nguyen, Chi Huu Lu. "Financial intermediation in banks and the key role of intellectual capital: new analysis from an emerging market", Journal of Financial Services Marketing, 2023 Publication	<1 %
30	Hasan Mukhibad, Doddy Setiawan. "Shariah supervisory board attributes and corporate risk-taking in Islamic banks", Cogent Business & Management, 2022 Publication	<1 %
31	Submitted to University of Sydney Student Paper	<1 %
32	Submitted to Kadir Has University Student Paper	<1 %
33	Dennis D. Tanner, N. J. Bunce. "Mechanism of the free-radical reactions of cyanogen and cyanogen chloride with hydrocarbon substrates", Journal of the American Chemical Society, 2002 Publication	<1 %
34	Leigh De Bruin, Mornay Roberts-Lombard, Christine De Meyer-Heydenrych. "Internal marketing, service quality and perceived	<1 %

customer satisfaction", Journal of Islamic Marketing, 2020
Publication

35	citeseerx.ist.psu.edu Internet Source	<1 %
36	www.frontiersin.org Internet Source	<1 %
37	www.mdpi.com Internet Source	<1 %
38	www2.asanet.org Internet Source	<1 %
39	Submitted to American University of Beirut Student Paper	<1 %
40	researcharchive.vuw.ac.nz Internet Source	<1 %
41	Anamitra Shome, Fauzia Jabeen, Rajesh Rajaguru. "What drives consumer choice of Islamic banking services in the United Arab Emirates?", International Journal of Islamic and Middle Eastern Finance and Management, 2018 Publication	<1 %
42	Hanudin Amin, M. Kabir Hassan. " Millennials' acceptability of -based in Malaysia ", International Journal of Ethics and Systems, 2022	<1 %

Publication

43	Md. Faruk Abdullah, Muhammad Nazmul Hoque, Md. Habibur Rahman, Jamaliah Said. "Can Islamic Financial Literacy Minimize Bankruptcy Among the Muslims? An Exploratory Study in Malaysia", SAGE Open, 2022 Publication	<1 %
44	Muhamed Zulkhibri, Raditya Sukmana. "Financing Channels and Monetary Policy in a Dual Banking System: Evidence from Islamic Banks in Indonesia", Economic Notes, 2017 Publication	<1 %
45	Submitted to University of Reading Student Paper	<1 %
46	Walter G. Joyce. "The origin of turtles: A paleontological perspective", Journal of Experimental Zoology Part B: Molecular and Developmental Evolution, 2015 Publication	<1 %
47	api.research-repository.uwa.edu.au Internet Source	<1 %
48	cdedse.org Internet Source	<1 %
49	docs.google.com Internet Source	<1 %

50	halshs.archives-ouvertes.fr Internet Source	<1%
51	mdpi-res.com Internet Source	<1%
52	pure.tue.nl Internet Source	<1%
53	"Values and Perceptions of the Islamic and Middle Eastern Publics", Springer Science and Business Media LLC, 2007 Publication	<1%

Exclude quotes	Off	Exclude matches	Off
Exclude bibliography	Off		