Is spin-off policy an effective way to improve performance of Islamic banks

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Is spin-off policy an effective way to improve performance of Islamic banks? Evidence from Indonesia*

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ABSTRACT

Indonesia has adopted a dual banking system in which both conventional and Islamic banks operate. Most of the sharia-based banks, however, are still operating Islamic windows within their conventional entity. To strengthen the role of Islamic banking in the intermediation system, the government issued Islamic Banking Law No. 21/2008 to encourage Islamic windows of conventional banks to become a legal entity separate from their parent company. Because some Islamic windows have spun off in this fashion, we can employ a difference-in-difference approach to examine the effect of such a spin-off on Islamic banks' performance, efficiency, and risk. Our study covers all Islamic commercial banks (including Islamic windows of conventional banks) in Indonesia from 2008–2019. We find that the performance and efficiency of full-fledged Islamic banks are significantly lower compared with Islamic windows of conventional banks. Moreover, our results show that financing risk increases after the spin-off. The inferior performance of full-fledged Islamic banks persists for four years after the spin-off. We also find that a conversion strategy results in better outcomes, particularly for profitability and efficiency, than a pure spin-off strategy.

1. Introduction

During the last three decades, a long debate about competition and consolidation in the banking industry has taken place not only among academics but also among policymakers. On one hand, pro-competition proponents contend that the more competitive the industry, the more efficient the intermediation function (e.g. Trinugroho et al., 2014). On the other hand, some studies argue that banking consolidation, which could lead to increased market power of banks, is an effective way to achieve overall financial stability. For instance, Schaeck and Cihák (2014) suggest that bank size may increase stability through efficient distribution. Moreover, larger banks can have lower costs. Likewise, Yusgiantoro, Soedarmono, and Tarazi (2019) find that the greater a bank's market power, the lower bank risk and the more stable the financial system.

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This competition versus consolidation perspective could offer an appropriate context to explore a current issue in Indonesian banking: the spin-off policy for Islamic windows of conventional banks. To support the development of Islamic banking, the Indonesian government issued Law No. 21/2008 concerning Sharia (Islamic) banking.[1] It mandates that in 2023, the Islamic windows of conventional banks (UUS) must be converted to independent business entities/full-fledged Islamic banks (BUS). This policy is generally called a "spin-off policy." It is required, however, that a BUS have equity of IDR500 billion,[2] which should increase to IDR1 trillion no later than 10 years after the banking regulator issues the BUS permit. If the Islamic window of a conventional bank is not ready to be separated from its parent company, the business license may be revoked.

The reason underlying this policy is that to strengthen the role of Islamic banking in financial intermediation and development, Islamic financial institutions should have greater flexibility in their operations. Becoming a full-fledged bank may enable them to grow faster. The policy is, subsequently, expected to enlarge Islamic banks' market share, which is currently stuck at around 6%. Siswantoro (2014) contends that spin-off of Islamic windows of conventional banks could bring several opportunities, such as increasing financial performance, expansion, rearrangement of financial structure, and having independent management. Moreover, customers may be happier with their Islamic bank as an independent entity—full-fledged Islamic banks are perceived as better ensuring the purity of their Sharia-compliant products and services.

Skeptics argue, however, that although capital would increase following the spin-off, the newly separated BUS may be unable to reach economies of scale at the same level as conventional banks creating difficulties for them to compete. This idea is in line with the view of Garbois et al. (2012) that size is one of the main challenges for the Islamic banking industry, which is purportedly "too small to have economies of scale." According to Prasetyo (2019), spin-off has several disadvantages, including the potential loss of joint revenues and disruption in the business/operations during and following the spinoff. Moreover, the parent bank may also lose the benefits of diversification.

This present study is therefore dedicated to clearly understanding the net impact of spin-off policy by empirically investigating the implications for performance, financing risk, and efficiency of BUS. Although the law was enacted more than 10 years ago, only a small number of UUS have been converted to BUS, indicating the industry's lack of enthusiasm for spin-offs. A comprehensive study is thus strongly needed to empirically evaluate the impact of spin-offs on the performance and risk of BUS. To the best of our knowledge, there is no strong paper that specifically addresses the effects of changing from Islamic windows to full-fledged Islamic banks. Most literature in Islamic banking directly compares Islamic banks and conventional banks (Beck et al., 2013; Aysan et al., 2017; Kocaata, 2017).

This study empirically evaluates the impact of spin-off policy on performance, risk, and efficiency using a difference-in-differences (DiD) panel data estimation strategy. Wooldridge (2009) explains that this approach is applied when data comes from natural experiments such as changes in government policy. DiD analysis requires a group that has not yet implemented spin-offs (control group) with the same characteristics as the treatment group. Because of the relatively small sample size, however, we could not use propensity score matching (Schepens, 2016) in this study.

We find evidence that both performance and efficiency decline following a spin-off. Moreover, newly separated full-fledged Islamic banks are riskier. Our deeper analysis reveals that big Islamic bank and the conversion strategy results in better outcomes compared with a pure spin-off strategy, particularly in profitability and efficiency. We also find evidence of inferior performance of full-fledged Islamic banks up to four years after the spin-off.

The rest of this paper is structured as follows. Section 2 provides related literature. In Section 3, we present the institutional setting. Data, variables, and empirical strategy appear in Section 4. In Section 5, we report the empirical results and robustness checks. Section 6 concludes with our key findings and provides policy implications.

2. Related literature

2.1. Islamic banking: performance and risk

Islamic banking is based on Sharia-derived key principles, particularly *riba* prohibition and profit–loss sharing/equity-based financing (Abedifar et al., 2013). Islamic banks are also expected to provide an alternative medium for financial transactions (Hassan and Aliyu, 2018). Islamic banking first began growing in Muslim-majority countries and has since spread to some Muslim-minority countries.[3] In the United Kingdom, for example, the government recently championed the Islamic banking sector to underline London's position as the global center for Islamic investment (Riaz et al., 2017). Weill (2011) argues that Islamic banks should have more dependable clients than conventional banks because of their customers' religious beliefs. His empirical study, however, does not show that Islamic banks have greater market power than conventional banks. Another common feature of Islamic banks is that they are typically better capitalized (e.g., Ariss, 2010; Beck et al., 2013).

Abedifar et al. (2015) summarize that three types of Islamic banks exist: 1) Islamic banks operating in countries with substantial and active government support, 2) Islamic banks operating in the private sector competing with conventional banks, and 3) conventional commercial banks offering Islamic banking via Islamic windows.

Many studies have empirically examined outcome differences between conventional and Islamic banks. The first issue is the performance difference, mostly reflected by profitability or efficiency, between these two types of banks. Earlier studies tend to have

[1] It is usually called the "Indonesia Sharia banking law"

[2] Assuming an exchange rate of IDR16,000/USD1, this amount equates to about USD31.25 million.

[3] Islamic banks account for 80% of the global sharia-compliant industry, which has around USD1.6 trillion in assets (Abedifar et al., 2015).

inconclusive findings on this particular issue (e.g., Yudistira, 2004—Islamic banks have less inefficiency; Mohamad et al., 2008 and Olson and Zoubi, 2008—no significant difference between the two; Johnes et al., 2009 and Srairi, 2010—Islamic banks are less efficient). Recent research highlights that the varied findings may result from the different perspective of the studies. For instance, a comprehensive study by Beck et al. (2013) concludes that Islamic banks are less efficient than conventional banks but have better asset quality and better intermediation ratios. More recently, Rizvi et al. (2019) find evidence that loan growth and deposit growth of Islamic banks in Indonesia are significantly higher than that of conventional banks.

With regard to risk at Islamic banks, there are two competing views (Abedifar et al., 2015). On one hand, Islamic banking is characterized by clients' religious beliefs, which may lead to greater loyalty and lower loan default. Moreover, it may also lower deposit withdrawal risk. On the other hand, some argue that the complexity of loan contracts in Islamic banking, along with the moral hazard incentive caused by the Profit and Loss Sharing (PLS) contract, may increase risk.

Some empirical studies have investigated whether there is a significant difference in risk between Islamic and conventional banks. Čihák and Hesse (2010) and Abedifar et al. (2013) conclude that Islamic banks with smaller size have lower default risk than their conventional counterparts. For larger Islamic banks, however, default risk is higher than conventional banks. Other studies find no significant difference in insolvency risk between these two (e.g. Beck et al., 2013). Yanikkaya, Gümüş, and Pabuçcu (2018) find that profitability of Islamic banks is more dynamic than that of conventional banks, which is more stable. This result means that Islamic banks are riskier than conventional banks in term of persistency of profit.

2.2. Banking structure: competition versus consolidation

The literature on banking market structure is dominated by two perspectives. The competition-fragility view postulates that the more competitive the market, the lower the bank market power, which eventually will lead to higher risk taking (Berger et al., 2009). On the other side, the competition-stability perspective argues that the larger the market power, the greater the risks that banks will take because of the incentives to aggressively channel high-margin loans.

Banking market structure is therefore important for policymakers, particularly with regard to designing the competitiveness level of the industry. On one hand, regulators may allow the industry to be more competitive. On the contrary, however, industry consolidation, through merger and acquisitions, in order to have few banks with greater market power, may be considered.

Several empirical studies address the issue of banking competitiveness versus banking consolidation. Majid and Sufian (2006) show that Malaysian banking is less competitive than overall industry, which results in greater market power for existing banks, creating a monopolistic industry. Shin and Kim (2013) reveal that the South Korean government's policy to consolidate some banks has resulted in lowering overall banking competitiveness. Likewise, Trinugroho et al. (2018) provide evidence that Islamic rural banks in Indonesia located in less competitive regions set a higher margin.

On the other side, however, some studies provide evidence about the benefits of banking consolidation. Chu (2015) concludes that banking efficiency improves following mergers and acquisitions.[4] Similarly, Yusgiantoro et al. (2019) explain that banking consolidation may increase the market power of existing banks, which is then translated into lower bank risk and a more stable financial system. Specific on Islamic banks, Ibrahim and Rizvi (2017) document that by increasing the size, mostly through merger, initially it would make Islamic banks less stable. After passing a certain size threshold, however, it will increase the stability of the Islamic banks.

3. Overview of Islamic banking in Indonesia

As explained earlier, we are motivated to study the implications of spin-off policy on the performance and risk of Islamic banks. Indonesia, the world's fourth-most-populated country and the largest Muslim population, has a dual banking system. Indonesian banking law No. 7/1992 is the basis of the dual banking system, wherein conventional and Sharia-based banks can provide banking services side by side.

According to this law, Islamic banking institutions can be Islamic commercial banks (BUS), Islamic rural banks (BPRS), and conventional commercial banks having Islamic windows (UUS).[5] As of 2019, the Islamic banking industry consists of 14 BUS, 20 UUS (owned by conventional commercial banks), and 164 BPRS. Specifically, BUS and UUS have total assets of IDR499.98 trillion (Otoritas Jasa Keuangan [OJK, the Indonesia Financial Services Authority], 2019). Although the number of Islamic banks in Indonesia is relatively large, their current market share is only 6.01 % of the overall banking industry. According to Rizvi et al. (2019), Islamic banks in Indonesia have a significant contribution to the overall banking system, particularly through increasing lending and deposits.

As explained earlier, the Sharia banking law mandates that Islamic windows of conventional banks (UUS) should be converted into full-fledged Islamic banks (BUS) with minimum capital of IDR500 billion. According to the previous study by the OJK,[6] ideally, the minimum capital for BUS is around IDR800 billion to IDR1.2 trillion. Moreover, the study also reveals that there are only 4 (of 20) UUSs considered eligible to be converted to BUS (DPPS-OJK, 2018).

[4] However, Behr and Heid (2011) criticize the previous studies on the impact of bank merger and acquisition on efficiency that might have a sample selection bias.

[5] There is also a form of Islamic microfinance in Indonesia, called *Baitul Maal Wat Tamwil* (BMT). However, the government categorizes BMT as a cooperative, which implies that supervision of BMT lies not with the OJK but with the Ministry of Cooperatives and Small and Medium Enterprises.

[6] Research conducted by the Directorate of Regulatory and Licensing of Islamic Banking (*Direktorat Pengaturan dan Perizinan Perbankan Syariah*, DPPS/OJK, in 2018)

Table 1
Descriptive Statistics of Variables – full sample.

	Definition	Obs	Mean	Std. Dev.	Min	Max
ROA	Return on assets	1,463	2.389	2.116	−0.730	7.060
NPF	Non-performing financing to total financing ratio	1,148	0.029	0.037	0.00001	0.1475
financinggrowth	The growth rate of financing	1,449	0.080	0.109	−0.055	0.390
depgrowth	The growth rate of deposit	1,471	0.097	0.165	−0.137	0.535
CIR	Cost-to-income ratio	1,529	76.822	21.789	34.600	121.540
FDR	Financing deposit ratio	1,450	1.216	0.525	0.686	2.742
spinoff	A dummy variable for treatment banks. 1 for full-fledged Islamic bank from spinoff.	1,577	0.396	0.489	0	1
post	A dummy variable for treatment effect. 1 for time after Islamic banks decide to spin off from parent banks	1,577	0.301	0.459	0	1
lnta	Natural logarithm of total assets	1,476	14.477	1.753	9.493	18.537
age	Bank's age. We calculate age from the operation of Islamic bank window	835	9.102	5.757	0.000	24.000
CPI	Consumer price index	1,584	4.603	2.000	2.650	11.960
gdp	GDP growth rate quarterly	1,584	5.401	0.600	4.140	6.810

This table shows the summary statistics of the key variables used in the DID analysis. This table shows all sample of the data.

4. Research method

4.1. Data

Our research explores how the spin-off policy could impact the performance, risk, and efficiency of Islamic banking windows. We use quarterly data from 2008 to 2019 gathered from the quarterly financial reports of Indonesia Islamic banking statistics provided by OJK. Our data enables us to differentiate between full-fledged Islamic banks and Islamic windows of conventional banks. Our final sample consists of 33 Islamic banks: 13 full-fledged Islamic banks[7] and 20 Islamic bank windows.

We consider several proxies to gauge the spin-off policy's effects on Islamic banks. We measure performance using return on assets, credit growth, and deposit growth. We use non-performing financing to measure bank risk, and we use the cost-to-income ratio to proxy efficiency. Lastly, the financing-to-deposit ratio measures intermediation capability.

4.2. Empirical strategy

We create two different groups to compare consistently the impact of spin-off policy on Islamic banks' performance, efficiency, and risk. The treatment group is full-fledged Islamic banks that implement the spin-off policy from Islamic banking windows. The control group is Islamic bank windows that have not implement the spin-off policy for several reasons. Our setting enables us to use DiD to estimate the following specification:

$$Y_{i,t} = \alpha + \beta_1 Spinoff_i + \beta_2 Post_t + \beta_3 Post_t * Spinoff_i + \beta_4 BankFundamental_{i,t} + \beta_5 Control_t + \varepsilon_{i,t}$$

where $Y_{i,t}$ is our dependent variables consisting of ROA, financing growth, deposit growth, cost-to-income ratio, non-performing financing ratio, and financing-to-deposit ratio, according to the studies of Tan (2015); Ghani et al. (2016); Trinugroho et al. (2017), and Yanikkaya et al. (2018). $Spinoff_i$ is a dummy variable that equals one for Islamic banks that have implemented spin-off policy and become full-fledged Islamic banks, and zero otherwise. $Post_t$ is a dummy variable that equals one in the time after banks implemented the spin-off policy. $BankFundamental_{i,t}$ and $Control_t$ are sets of control variable of bank fundamental and macroeconomic variables, respectively, that could affect the dependent variables.

$Post_t * Spinoff_i$ is the variable of interest. This variable indicates the direct impact of the spin-off policy on the dependent variables. The control variables are bank size, measured by the natural logarithm of total assets; bank age; consumer price index; and quarterly GDP growth. Table 1 reports the descriptive statistics of the variables.

We then investigate the effect of Islamic bank size on the relationship between spin-off policy and Islamic bank performance, risk, and efficiency. We create the dummy variable *big* to represent Islamic banks with assets greater than the median value of sample. The following is the estimation model:

$$Y_{i,t} = \alpha + \beta_1 Spinoff_i + \beta_2 Post_t + \beta_3 Post_t * Spinoff_i + \beta_4 Post_t * Spinoff_i * big + \beta_5 BankFundamental_{i,t} + \beta_6 Control_t + \varepsilon_{i,t}$$

For a deeper investigation, we test for different effects of different strategies with regard to the spin-off process. Practically speaking, spin-off could be carried out by either 1) creating a full new Islamic bank or 2) taking over an existing conventional bank and converting it to a full-fledged Islamic bank.

Finally, we also test the effect of the spin-off policy with lead of dependent variables to examine the policy's impact of the policy for several future periods.

[7] We exclude Bank Muamalat because it has been a full-fledged Islamic bank since inception.

Table 2
Descriptive Statistics of Variables – treatment and control banks.

	Treatment Banks = Full-fledged Islamic banks					Control banks = Banks with Islamic windows				
Variable	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
ROA	563	1.640	1.902	−0.730	7.060	900	2.858	2.109	−0.730	7.060
NPF	406	0.0304	0.0296	0.00001	0.1474	742	0.0282	0.0406	0.00001	0.1474
financinggrowth	545	0.070	0.098	−0.055	0.390	904	0.086	0.114	−0.055	0.390
depgrowth	562	0.086	0.149	−0.137	0.535	909	0.103	0.175	−0.137	0.535
CIR	601	85.723	18.364	34.600	121.540	928	71.058	21.901	34.600	121.540
FDR	556	1.053	0.439	0.686	2.742	894	1.318	0.548	0.686	2.742
spinoff	624	1.000	0.000	1.000	1.000	953	0.000	0.000	0.000	0.000
post	624	0.761	0.427	0.000	1.000	953	0.000	0.000	0.000	0.000
lnta	595	15.300	1.770	9.720	18.537	881	13.922	1.507	9.493	17.566
age	246	9.646	5.096	0.000	20.000	589	8.874	6.001	0.000	24
CPI	624	4.603	2.001	2.650	11.960	953	4.573	1.967	2.650	11.960
gdp	624	5.401	0.600	4.140	6.810	953	5.402	0.597	4.140	6.810

This table shows the summary statistics of the key variables used in the DID analysis. This table shows the split sample of summary statistics full-fledge Islamic bank and Islamic windows of conventional banks.

5. Results

5.1. Treatment and control groups

We select all Islamic banks—both full-fledged Islamic banks and banks with Islamic windows—that have available data for each quarter between 2008 and 2019. This corresponds to the period after the 2008 enactment of the Indonesia Sharia banking law. From this date, Islamic windows of conventional banks could be separated from their conventional parent companies and become full-fledged Islamic banks if they passed several requirements.

To estimate the impact of this spin-off policy, we use the DiD method, which requires a treatment group and a control group. The treatment banks are full-fledged Islamic banks from both the conversion strategy and the pure spin-off strategy. The control group is Islamic windows of conventional banks (UUS). Treatment effect is the date when banks start/convert their operation according to Sharia (full-fledged Islamic bank).

5.2. Descriptive statistics of variables and correlation matrix

Table 1 presents the descriptive statistics for all variables, and Table 2 reports the correlation matrix between variables. The average return on assets is 2.39 %, while the average financing growth and deposit growth are 8% and 9.7 %, respectively. The cost-to-income ratio averages 76.82 %, and the average intermediation capability (financing-to-deposit ratio) is 121.6 %. Treatment groups constitute 39.6 % of the observations. Lastly, the average bank age is 9.1 years. We also provide the statistics of variables for treatment and control banks (Table 2). On average, the return on assets, financing growth, and deposit growth of treatment groups are lower than control groups. Moreover, the average cost-to-income ratio and non-performing financing of treatment banks is higher than the control banks.

Table 3 exhibits the correlation matrix of variables. The dummy variable for treatment banks (spinoff) is negatively correlated with return on assets, deposit growth, financing growth, and the financing-to-deposit ratio. On the other hand, this variable is positively correlated with non-performing loans and the cost-to-income ratio.

5.3. Empirical results

We analyze the impact of spin-off policy on performance, efficiency, and risk of Islamic banks in Indonesia using the DiD method. Table 4 presents baseline regression results. Our variable of interest is the interaction between the dummy variable of treatment banks and the dummy variable of the treatment effect (post*spinoff) that shows the following impact of spin-off on our dependent variables. The dependent variables are bank performance, measured by return on assets, deposit growth, and financing growth; bank efficiency, measured by the cost-to-income ratio; and bank risk, proxied by non-performing financing to total financing ratio.

As presented in Table 4, we find a negative and significant impact of spin-off policy on return on assets. Similarly, the coefficients of the interaction variable on deposit growth and financing growth are negative and significant. These results imply that Islamic windows of conventional banks outperform full-fledged Islamic banks. When we change the dependent variable to the cost-to-income ratio (the measure of bank efficiency), we find a positive and significant coefficient for the interaction variable. This result indicates that full-fledged Islamic banks are less efficient than Islamic windows of conventional banks. Turning to non-performing loans (the proxy for bank risk), we find that the interaction variable has a positive and significant coefficient, indicating that full-fledged Islamic banks are riskier than Islamic windows of conventional banks. The financing-to-deposit ratio of full-fledged Islamic banks, as the measure of intermediation capability, is also found to be lower than that of Islamic windows of conventional banks.

Because some Islamic banks separated from their conventional parents before Law No. 28/2008 was enacted, we also conduct a

Table 3
Correlation Matrix.

	ROA	NPF	financinggrowth	depgrowth	CIR	FDR	post	spinoff	lnta	age	CPI	gdp
ROA	1											
NPF	−0.3643	1										
financinggrowth	0.0149	−0.1544	1									
depgrowth	0.0373	−0.1246	0.3013	1								
CIR	−0.6978	0.3454	−0.0288	−0.0504	1							
FDR	0.2372	−0.1888	0.2438	0.0312	−0.3827	1						
post	−0.2092	0.5185	−0.1457	−0.1301	0.3346	−0.3014	1					
spinoff	−0.2092	0.5185	−0.1457	−0.1301	0.3346	−0.3014	1	1				
lnta	−0.2239	0.4147	−0.2377	−0.1917	0.2669	−0.4778	0.4812	0.4812	1			
age	−0.1268	0.3202	−0.1746	−0.137	0.1178	−0.4015	0.1415	0.1415	0.6682	1		
CPI	−0.0213	−0.0896	0.2033	0.0754	−0.1009	0.2898	−0.0687	−0.0687	−0.3767	−0.2863	1	
gdp	0.0298	−0.1024	0.263	0.1217	−0.0647	0.0816	−0.0846	−0.0846	−0.2981	−0.2244	0.1647	1

ROA is return on asset. NPF is non-performing financing to total financing ratio. Financinggrowth is the growth of financing. depgrowth is the growth of deposit. CIR is cost to income ratio. FDR is financing to deposit ratio. Post is the treatment event, a dummy for one after spin-off, 0 otherwise. spinoff is Treated group, A dummy variable for one for full-fledge Islamic bank, 0 for Islamic-window of conventional banks. lnta is Natural logarithm of total asset. age is age of banks. CPI is Consumer price index. gdp is gdp growth.

Table 4
Baseline regression results.

	(1) ROA	(2) NPF	(3) financinggrowth	(4) depgrowth	(5) CIR	(6) FDR	(7) ROA	(8) NPF	(9) financinggrowth	(10) depgrowth	(11) CIR	(12) FDR
post	0.237	0.00481	0.0205	−0.121**	−6.853	0.106						
	(0.48)	(0.97)	(0.81)	(-2.39)	(-1.51)	(1.09)						
spinoff	−1.371***	0.0254***	−0.0408*	0.0920*	24.24***	−0.289***						
	(-2.91)	(5.83)	(-1.66)	(1.83)	(5.51)	(-3.02)						
post*spinoff							−1.060***	0.0287***	−0.0182**	−0.0291**	16.11***	−0.167***
							(-5.54)	(6.55)	(-2.02)	(-2.28)	(10.34)	(-5.97)
lnta	−0.154**	0.000129	−0.00566	−0.00843*	0.0823	−0.0858***	−0.159**	0.000740	−0.00631*	−0.00992**	0.0730	−0.0861***
	(-2.38)	(0.11)	(-1.59)	(-1.78)	(0.13)	(-6.08)	(-2.41)	(0.64)	(-1.78)	(-2.09)	(0.11)	(-6.00)
age	−0.0127	0.00123***	−0.00178**	−0.00315**	0.0727	−0.0112***	−0.00827	0.00117***	−0.00174**	−0.00335***	0.00211	−0.0103***
	(-0.87)	(3.98)	(-2.07)	(-2.48)	(0.51)	(-3.70)	(-0.57)	(3.81)	(-2.03)	(-2.64)	(0.02)	(-3.52)
CPI	−0.129***	0.000119	0.0111***	0.00839**	−0.458	0.0399***	−0.156***	0.000986**	0.0102***	0.00844**	0.0817	0.0335***
	(-2.64)	(0.25)	(4.18)	(1.99)	(-0.98)	(3.48)	(-3.28)	(2.03)	(3.96)	(1.99)	(0.17)	(2.96)
gdp	−0.00718	−0.000274	0.0370***	0.0272**	−0.757	−0.0487	−0.0335	−0.000396	0.0374***	0.0286**	−0.614	−0.0512
	(-0.05)	(-0.24)	(4.93)	(2.33)	(-0.51)	(-1.58)	(-0.22)	(-0.32)	(5.01)	(2.47)	(-0.40)	(-1.65)
_cons	5.803***	−0.00104	−0.0667	0.0691	75.73***	2.697***	6.021***	−0.0113	−0.0568	0.0876	74.83***	2.716***
	(4.39)	(-0.06)	(-1.06)	(0.72)	(6.17)	(9.35)	(4.48)	(-0.66)	(-0.89)	(0.92)	(5.85)	(9.30)
N	788	679	792	799	832	833	788	679	792	799	832	833
N_g	33	33	33	33	33	33	33	33	33	33	33	33
r2	0.0875	0.299	0.172	0.108	0.140	0.281	0.0722	0.281	0.169	0.0997	0.0910	0.266

This table presents the baseline regression results using difference-in-difference analysis for panel data of 13 treated banks and 20 control group banks. We employ regression with robust standard to estimate the following equation:

$$Y_{i,t} = \alpha + \beta_3 Post_t * Spinoff_i + \beta_4 BankFundamental_{i,t} + \beta_5 Control_t + \varepsilon_{i,t}$$

ROA is return on asset. NPF is non-performing financing to total financing ratio. Financinggrowth is the growth of financing. depgrowth is the growth of deposit. CIR is cost to income ratio. FDR is financing to deposit ratio. Post is the treatment event, a dummy for one after spin-off, 0 otherwise. spinoff is Treated group, A dummy variable for one for full-fledge Islamic bank, 0 for Islamic-window of conventional banks. Post*spinoff is interaction variables of post and spin-off, it is the DID estimator. lnta is Natural logarithm of total asset. age is age of banks. CPI is Consumer price index. gdp is gdp growth. Standard errors are shown in parentheses. *, **, *** indicate significance at the 10 %, 5%, and 1% level, respectively.

Table 5
Regression with exclusion of Islamic banks that have been separated before the Islamic banking Law No. 28/ 2008.

	(1) ROA	(2) NPF	(3) financinggrowth	(4) depgrowth	(5) CIR	(6) FDR	(7) ROA	(8) NPF	(9) financinggrowth	(10) depgrowth	(11) CIR	(12) FDR
post	1.009*	0.0148*	0.0532**	−0.0890*	−7.409	0.244**						
	(1.67)	(1.87)	(2.00)	(-1.70)	(-1.48)	(2.45)						
spinoff	−1.376***	0.0239***	−0.0492**	0.0874*	24.21***	−0.326***						
	(-2.93)	(5.67)	(-1.97)	(1.74)	(5.37)	(-3.39)						
post*spinoff							−0.317	0.0376***	0.00581	−0.00136	16.00***	−0.0704**
							(-0.82)	(4.79)	(0.49)	(-0.08)	(6.96)	(-2.25)
lnta	−0.119	0.000784	−0.00313	−0.00764	0.879	−0.0803***	−0.128*	0.00150	−0.00422	−0.00922*	0.976	−0.0821***
	(-1.61)	(0.78)	(-0.77)	(-1.38)	(1.20)	(-4.81)	(-1.71)	(1.52)	(-1.04)	(-1.67)	(1.27)	(-4.83)
age	−0.0328*	0.00114***	−0.00235**	−0.00364***	0.0827	−0.0166***	−0.0268	0.00105***	−0.00227**	−0.00388***	−0.0203	−0.0152***
	(-1.92)	(4.18)	(-2.57)	(-2.67)	(0.54)	(-4.90)	(-1.57)	(3.92)	(-2.49)	(-2.86)	(-0.13)	(-4.67)
CPI	−0.132**	0.000510	0.0136***	0.00906*	−0.197	0.0524***	−0.164***	0.00146***	0.0122***	0.00908*	0.475	0.0434***
	(-2.42)	(1.14)	(4.43)	(1.75)	(-0.35)	(3.87)	(-3.10)	(3.13)	(4.12)	(1.75)	(0.85)	(3.25)
gdp	−0.141	−0.0000842	0.0437***	0.0336**	0.876	−0.0602	−0.171	−0.000189	0.0443***	0.0351**	1.056	−0.0637*
	(-0.83)	(-0.06)	(5.11)	(2.44)	(0.50)	(-1.63)	(-0.99)	(-0.14)	(5.19)	(2.58)	(0.58)	(-1.70)
_cons	6.224***	−0.0121	−0.144*	0.0252	54.56***	2.674***	6.522***	−0.0241	−0.127*	0.0444	51.66***	2.725***
	(4.22)	(-0.80)	(-1.90)	(0.21)	(3.66)	(7.45)	(4.36)	(-1.59)	(-1.67)	(0.37)	(3.33)	(7.49)
N	672	585	653	661	691	692	672	585	653	661	691	692
N_g	29	29	29	29	29	29	29	29	29	29	29	29
r2	0.0414	0.274	0.178	0.0960	0.0970	0.245	0.0244	0.256	0.174	0.0883	0.0435	0.225

This table presents the regression results with exclusion of Islamic banks that have been separated before the Islamic banking law using difference-in-difference analysis for panel data of 9 treated banks and 20 control group banks. We employ regression with robust standard to estimate the following equation:

$$Y_{i,t} = \alpha + \beta_3 Post_t * Spinoff_i + \beta_4 BankFundamental_{i,t} + \beta_5 Control_t + \varepsilon_{i,t}$$

ROA is return on asset. NPF is non-performing financing to total financing ratio. Financinggrowth is the growth of financing. depgrowth is the growth of deposit. CIR is cost to income ratio. FDR is financing to deposit ratio. Post is The treatment event, a dummy for one after spin-off, 0 otherwise. spinoff is Treated group, A dummy variable for one for full-fledge Islamic bank, 0 for Islamic-window of conventional banks. Post*spinoff is interaction variables of post and spin-off, it is the DID estimator. lnta is Natural logarithm of total asset. age is age of banks. CPI is Consumer price index. gdp is gdp growth. Standard errors are shown in parentheses. *, **, *** indicate significance at the 10 %, 5%, and 1% level, respectively.

Table 6
Pure spin-off strategy.

	(1) ROA	(2) NPF	(3) financinggrowth	(4) CIR	(5) FDR	(6) ROA	(7) NPF	(8) financinggrowth	(9) CIR	(10) FDR
post	−2.201***	0.0372***	0.0460	21.40***	−0.201					
	(-3.69)	(3.48)	(1.61)	(3.27)	(-1.31)					
spinoff_pure	−0.215	0.0226***	−0.0487*	3.968	0.214					
	(-0.37)	(5.74)	(-1.95)	(0.63)	(1.41)					
post*spinoff_pure						−2.410***	0.0590***	−0.00120	25.24***	0.00546
						(-16.50)	(5.53)	(-0.08)	(13.43)	(0.15)
lnta	−0.370***	0.00270***	−0.00360	2.918***	−0.103***	−0.375***	0.00339***	−0.00470	3.011***	−0.0981***
	(-4.89)	(3.17)	(-0.87)	(3.86)	(-5.83)	(-5.06)	(3.92)	(-1.14)	(3.98)	(-5.53)
age	0.0281*	0.000495**	−0.00218**	−0.233	−0.0178***	0.0285*	0.000410**	−0.00209**	−0.240	−0.0182***
	(1.74)	(2.40)	(-2.25)	(-1.52)	(-4.93)	(1.77)	(1.98)	(-2.17)	(-1.57)	(-5.03)
CPI	−0.164***	0.000565	0.0135***	0.314	0.0351**	−0.170***	0.00147***	0.0121***	0.436	0.0417***
	(-2.89)	(1.33)	(4.40)	(0.52)	(2.50)	(-3.28)	(3.33)	(4.09)	(0.81)	(3.02)
gdp	0.0782	−0.00173	0.0443***	−0.203	−0.0662*	0.0792	−0.00185	0.0448***	−0.242	−0.0676*
	(0.45)	(-1.16)	(5.13)	(-0.11)	(-1.80)	(0.46)	(-1.20)	(5.22)	(-0.13)	(-1.83)
_cons	8.157***	−0.0243*	−0.141*	32.44**	3.118***	8.244***	−0.0357**	−0.124	30.97**	3.030***
	(5.24)	(-1.70)	(-1.86)	(2.10)	(8.64)	(5.37)	(-2.45)	(-1.63)	(2.01)	(8.39)
N	627	563	632	644	645	627	563	632	644	645
N_g	22	22	22	22	22	22	22	22	22	22
r2	0.124	0.373	0.179	0.103	0.268	0.124	0.358	0.175	0.102	0.265

This table presents the regression results of pure-spin off strategy using difference-in-difference analysis for panel data of 2 treated banks and 20 control group banks. We employ regression with robust standard to estimate the following equation:

$$Y_{i,t} = \alpha + Post_t * Spinoff_i + \beta_4 BankFundamental_{i,t} + \beta_5 Control_t + \varepsilon_{i,t}$$

ROA is return on asset. NPF is non-performing financing to total financing ratio. Financinggrowth is the growth of financing. depgrowth is the growth of deposit. CIR is cost to income ratio. FDR is financing to deposit ratio. Post is The treatment event, a dummy for one after spin-off, 0 otherwise. spinoff is Treated group, A dummy variable for one for full-fledge Islamic bank, 0 for Islamic-window of conventional banks. Post*spinoff is interaction variables of post and spin-off, it is the DID estimator. lnta is Natural logarithm of total asset. age is age of banks. CPI is Consumer price index. gdp is gdp growth. Standard errors are shown in parentheses. *, **, *** indicate significance at the 10 %, 5%, and 1% level, respectively.

Table 7
Conversion strategy.

	(1) ROA	(4) depgrowth	(5) CIR	(6) FDR
post	−1.354***	−0.00639	5.751*	−0.00821
	(-5.79)	(-0.33)	(1.91)	(-0.16)
spinoff_convert	−1.951***	0.0902*	36.80***	−0.668***
	(-2.90)	(1.78)	(7.26)	(-10.34)
post*spinoff_convert	2.869***	−0.129**	−28.14***	0.410***
	(4.28)	(-2.46)	(-5.32)	(6.47)
lnta	−0.249***	−0.00890	1.623**	−0.0966***
	(-3.32)	(-1.63)	(2.19)	(-5.82)
age	0.0180	−0.00363***	−0.0741	−0.0164***
	(1.14)	(-2.63)	(-0.50)	(-4.91)
CPI	−0.175***	0.00766*	0.423	0.0215*
	(-3.40)	(1.76)	(0.85)	(1.83)
gdp	0.0784	0.0237*	−1.269	−0.0539*
	(0.50)	(1.96)	(-0.83)	(-1.81)
_cons	6.601***	0.102	54.35***	3.004***
	(4.52)	(0.95)	(3.90)	(9.47)
N	734	761	776	776
N_g	31	31	31	31
r2	0.0722	0.109	0.140	0.323

This table presents the regression results of converstion strategy using difference-in-difference analysis for panel data of 2 treated banks and 20 control group banks. We employ regression with robust standard to estimate the following equation:

$$Y_{i,t} = \alpha + \beta_1 Spinoff_i + \beta_2 Post_t + \beta_3 Post_t * Spinoff_i + \beta_4 BankFundamental_{i,t} + \beta_5 Control_t + \varepsilon_{i,t}$$

ROA is return on asset. NPF is non-performing financing to total financing ratio. Financinggrowth is the growth of financing. depgrowth is the growth of deposit. CIR is cost to income ratio. FDR is financing to deposit ratio. Post is The treatment event, a dummy for one after spin-off, 0 otherwise. spinoff is Treated group, A dummy variable for one for full-fledge Islamic bank, 0 for Islamic-window of conventional banks. Post*spinoff is interaction variables of post and spin-off, it is the DID estimator. lnta is Natural logarithm of total asset. age is age of banks. CPI is Consumer price index. gdp is gdp growth. Standard errors are shown in parentheses. *, **, *** indicate significance at the 10 %, 5%, and 1% level, respectively.

regression by excluding such Islamic banks. As Table 5 shows, with regard to our main variables, we still find similar coefficients when the dependent variables are non-performing financing, cost-to-income ratio, and financing-to-deposit ratio. The interaction variable coefficients become insignificant, however, when return on assets, financing growth, and deposit growth are set as the dependent variables.

Next, we go deeper by examining the way spin-off is conducted. As explained earlier, there two spin-off strategies: pure spin-off and conversion. Tables 6 and 7, respectively, exhibit the regression results for these two types. For the pure spin-off policy, our results show that the coefficient of the interaction variable is negative and significant when the dependent variable is return on assets. The coefficients are positive and significant for financing growth and positive and significant for non-performing financing and cost-to-income ratio. These results indicate that pure spin-off strategy results in lower profitability, financing growth, and efficiency than the control group. Moreover, financing risk is also significantly higher than the control group. As presented in Table 7, the conversion strategy shows better outcomes: profitability, efficiency, and intermediation capability are all significantly higher than in the pure spin-off approach. Moreover, deposit growth is found to be lower for full-fledged Islamic banks created through the conversion strategy.

We also investigate the effect of size on spin-off policy that shown in Table 8. We find that size does matter to support Islamic windows of conventional banks that spin off. We find that big full-fledged Islamic banks in our triple interaction have a positive and significant effect on return on assets and the cost-to-income ratio. However, we find that big full-fledged Islamic banks have a positive and significant effect on non-performing financing levels. Therefore, big full-fledged Islamic banks have higher profitability and better efficiency but higher risk than small full-fledged Islamic banks.

Some may argue that the poor performance of newly separated full-fledged Islamic banks results from the fixed-asset investment that they have to spend right after the separation. Therefore, we go deeper by testing the impact of spin-off on performance, efficiency, and risk until the fourth year after the establishment of full-fledged Islamic bank. In general, as exhibited in Tables 9–14, we find that performance of full-fledged Islamic banks is still lower than that of Islamic windows of conventional banks. Similarly, the higher financing risk of full-fledged Islamic banks does not change until four years after the spin-off. Likewise, a higher cost inefficiency is found persist from the first until fourth year following the spin-off.

Overall, our findings reveal the inferior performance and higher risk of full-fledged Islamic banks compared with Islamic windows of conventional banks. Perhaps the relatively small size of full-fledged Islamic banks hampers them from expanding to larger markets. It also leads to a higher average cost compared with conventional banks. Moreover, the higher financing risk of those banks may come from the complexity of the loan contract in the Islamic banking (Abedifar et al., 2015).

5.4. Robustness checks

To ensure our results are consistent, we perform a robustness check using an incremental regression approach instead of directly

Table 8
Triple interactions.

	(1) ROA	(2) NPF	(3) financinggrowth	(4) depgrowth	(5) CIR	(6) FDR	(7) ROA	(8) NPF	(9) financinggrowth	(10) depgrowth	(11) CIR	(12) FDR
post	0.237	0.00481	0.0205	−0.121**	−6.853	0.106						
	(0.48)	(0.97)	(0.81)	(-2.39)	(-1.51)	(1.09)						
spinoff	−1.371***	0.0254***	−0.0408*	0.0920*	24.24***	−0.289***						
	(-2.91)	(5.83)	(-1.66)	(1.83)	(5.51)	(-3.02)						
post*spinoff							−2.994***	0.00528***	0.0967	0.0243	44.25***	−0.258
							(-9.88)	(4.56)	(1.12)	(0.35)	(13.00)	(-0.98)
post*spinoff*big							2.006***	0.0239***	−0.119	−0.0546	−29.15***	0.0946
							(5.91)	(5.49)	(-1.37)	(-0.79)	(-8.16)	(0.36)
lnta	−0.154**	0.000129	−0.00566	−0.00843*	0.0823	−0.0858***	−0.166**	0.000650	−0.00573	−0.00977**	0.195	−0.0865***
	(-2.38)	(0.11)	(-1.59)	(-1.78)	(0.13)	(-6.08)	(-2.51)	(0.56)	(-1.64)	(-2.05)	(0.29)	(-6.00)
age	−0.0127	0.00123***	−0.00178**	−0.00315**	0.0727	−0.0112***	−0.00913	0.00118***	−0.00170**	−0.00332***	0.0131	−0.0103***
	(-0.87)	(3.98)	(-2.07)	(-2.48)	(0.51)	(-3.70)	(-0.62)	(3.82)	(-1.99)	(-2.62)	(0.09)	(-3.53)
CPI	−0.129***	0.000119	0.0111***	0.00839**	−0.458	0.0399***	−0.149***	0.000961*	0.00985***	0.00838**	0.00476	0.0337***
	(-2.64)	(0.25)	(4.18)	(1.99)	(-0.98)	(3.48)	(-3.12)	(1.96)	(3.76)	(1.97)	(0.01)	(2.97)
gdp	−0.00718	−0.000274	0.0370***	0.0272**	−0.757	−0.0487	−0.0482	−0.000228	0.0383***	0.0291**	−0.386	−0.0519*
	(-0.05)	(-0.24)	(4.93)	(2.33)	(-0.51)	(-1.58)	(-0.32)	(-0.18)	(5.15)	(2.50)	(-0.25)	(-1.66)
_cons	5.803***	−0.00104	−0.0667	0.0691	75.73***	2.697***	6.171***	−0.0110	−0.0687	0.0827	72.16***	2.725***
	(4.39)	(-0.06)	(-1.06)	(0.72)	(6.17)	(9.35)	(4.58)	(-0.64)	(-1.08)	(0.86)	(5.64)	(9.29)
N	788	679	792	799	832	833	788	679	792	799	832	833
N_g	33	33	33	33	33	33	33	33	33	33	33	33
r2	0.0875	0.299	0.172	0.108	0.140	0.281	0.0768	0.283	0.177	0.100	0.100	0.266

This table presents the regression results of triple interaction considering size of Islamic banks using difference-in-difference analysis for panel data of 2 treated banks and 20 control group banks. We employ regression with robust standard to estimate the following equation:

$$Y_{i,t} = \alpha + Post_t * Spinoff_i + \beta_4 Post_t * Spinoff_i * big + \beta_5 BankFundamental_{i,t} + \beta_6 Control_t + \varepsilon_{i,t}$$

ROA is return on asset. NPF is non-performing financing to total financing ratio. Financinggrowth is the growth of financing. depgrowth is the growth of deposit. CIR is cost to income ratio. FDR is financing to deposit ratio. Post is the treatment event, a dummy for one after spin-off, 0 otherwise. spinoff is Treated group, A dummy variable for one for full-fledge Islamic bank, 0 for Islamic-window of conventional banks. Post*spinoff is interaction variables of post and spin-off, it is the DID estimator. lnta is Natural logarithm of total asset. age is age of banks, big is dummy variable 1 if Islamic bank is higher than median value of total asset, 0 otherwise. CPI is Consumer price index. gdp is gdp growth. Standard errors are shown in parentheses. *, **, *** indicate significance at the 10 %, 5%, and 1% level, respectively.

Table 9
Lead variable of ROA.

	(1) ROA_t1	(2) ROA_t2	(3) ROA_t3	(4) ROA_t4	(5) ROA_t1	(6) ROA_t2	(7) ROA_t3	(8) ROA_t4
post	0.238	0.0148	−0.685	−1.213**				
	(0.51)	(0.03)	(-1.43)	(-2.42)				
spinoff	−1.265***	−1.022**	−0.289	0.214				
	(-2.87)	(-2.43)	(-0.64)	(0.47)				
Post*spinoff					−0.947***	−0.933***	−0.951***	−1.020***
					(-4.59)	(-4.22)	(-4.14)	(-4.33)
lnta	−0.208***	−0.260***	−0.330***	−0.349***	−0.214***	−0.264***	−0.332***	−0.347***
	(-3.26)	(-3.77)	(-4.72)	(-5.05)	(-3.26)	(-3.80)	(-4.78)	(-5.02)
age	−0.0110	−0.00924	0.0122	0.0242	−0.00628	−0.00513	0.0135	0.0231
	(-0.72)	(-0.59)	(0.79)	(1.52)	(-0.42)	(-0.34)	(0.88)	(1.43)
CPI	−0.130**	−0.171***	−0.161***	−0.0853	−0.158***	−0.196***	−0.169***	−0.0803
	(-2.50)	(-3.70)	(-3.13)	(-1.59)	(-3.11)	(-4.28)	(-3.40)	(-1.56)
gdp	0.0379	−0.0342	−0.184	−0.291**	0.0310	−0.0426	−0.187	−0.290**
	(0.27)	(-0.24)	(-1.32)	(-2.08)	(0.21)	(-0.29)	(-1.33)	(-2.08)
_cons	6.318***	7.588***	9.136***	9.454***	6.436***	7.699***	9.173***	9.430***
	(5.07)	(5.77)	(6.84)	(7.20)	(4.96)	(5.68)	(6.88)	(7.19)
N	728	663	596	531	728	663	596	531
N_g								
r2	0.0948	0.114	0.125	0.144	0.0797	0.103	0.124	0.143

This table presents the regression results to test lead variables of dependent variables, t1-t4 is lead variable of dependent variable one to four years after spin-off using difference-in-difference analysis for panel data of 2 treated banks and 20 control group banks. We employ regression with robust standard to estimate the following equation:

$$Y_{i,t} = \alpha + \beta_1 Spinoff_i + \beta_2 Post_t + \beta_3 Post_t * Spinoff_i + \beta_4 BankFundamental_{i,t} + \beta_5 Control_t + \varepsilon_{i,t}$$

ROA is return on asset. NPF is non-performing financing to total financing ratio. Financinggrowth is the growth of financing. depgrowth is the growth of deposit. CIR is cost to income ratio. FDR is financing to deposit ratio. Post is the treatment event, a dummy for one after spin-off, 0 otherwise. spinoff is Treated group, A dummy variable for one for full-fledge Islamic bank, 0 for Islamic-window of conventional banks. Post*spinoff is interaction variables of post and spin-off, it is the DID estimator. lnta is Natural logarithm of total asset. age is age of banks. CPI is Consumer price index. gdp is gdp growth. Standard errors are shown in parentheses. *, **, *** indicate significance at the 10 %, 5%, and 1% level, respectively.

Table 10
Lead variable of NPF.

	(1) NPFt1	(2) NPFt2	(3) NPFt3	(4) NPFt4	(5) NPFt1	(6) NPFt2	(7) NPFt3	(8) NPFt4
post	0.0170***	0.0254***	0.0208***	0.0212***				
	(4.01)	(7.27)	(4.43)	(4.34)				
spinoff	0.0100***	0.00358**	0.00935***	0.0117***				
	(3.07)	(2.06)	(2.94)	(4.52)				
post*spinoff					0.0264***	0.0288***	0.0296***	0.0321***
					(7.55)	(7.67)	(7.18)	(6.91)
lnta	0.00202**	0.00248***	0.00252***	0.00205**	0.00225***	0.00253***	0.00263***	0.00212**
	(2.33)	(2.78)	(2.76)	(2.06)	(2.62)	(2.89)	(2.92)	(2.15)
age	0.000871***	0.000720***	0.000615**	0.000656**	0.000847***	0.000711***	0.000588**	0.000621**
	(3.70)	(2.97)	(2.42)	(2.28)	(3.62)	(2.95)	(2.33)	(2.18)
CPI	0.00178***	0.00150***	0.00102***	0.000647*	0.00209***	0.00156***	0.00113***	0.000724*
	(4.21)	(3.55)	(3.01)	(1.65)	(4.87)	(3.77)	(3.38)	(1.67)
gdp	−0.000150	0.000642	0.000187	0.00284**	−0.000121	0.000662	0.000275	0.00304**
	(-0.14)	(0.57)	(0.14)	(2.26)	(-0.11)	(0.59)	(0.21)	(2.36)
_cons	−0.0311**	−0.0389***	−0.0335**	−0.0396***	−0.0354***	−0.0399***	−0.0353**	−0.0411***
	(-2.33)	(-2.92)	(-2.28)	(-2.94)	(-2.61)	(-3.02)	(-2.43)	(-3.00)
N	644	600	547	494	644	600	547	494
N_g								
r2	0.355	0.379	0.375	0.377	0.352	0.378	0.371	0.369

This table presents the regression results to test lead variables of dependent variables, t1-t4 is lead variable of dependent variable one to four years after spin-off using difference-in-difference analysis for panel data of 2 treated banks and 20 control group banks. We employ regression with robust standard to estimate the following equation:

$$Y_{i,t} = \alpha + \beta_1 Spinoff_i + \beta_2 Post_t + \beta_3 Post_t * Spinoff_i + \beta_4 BankFundamental_{i,t} + \beta_5 Control_t + \varepsilon_{i,t}$$

ROA is return on asset. NPF is non-performing financing to total financing ratio. Financinggrowth is the growth of financing. depgrowth is the growth of deposit. CIR is cost to income ratio. FDR is financing to deposit ratio. Post is the treatment event, a dummy for one after spin-off, 0 otherwise. spinoff is Treated group, A dummy variable for one for full-fledge Islamic bank, 0 for Islamic-window of conventional banks. Post*spinoff is interaction variables of post and spin-off, it is the DID estimator. lnta is Natural logarithm of total asset. age is age of banks. CPI is Consumer price index. gdp is gdp growth. Standard errors are shown in parentheses. *, **, *** indicate significance at the 10 %, 5%, and 1% level, respectively.

Table 11
Lead variable of Financing growth.

	(1) financinggrowth_t1	(2) financinggrowth_t2	(3) financinggrowth_t3	(4) financinggrowth_t4	(5) financinggrowth_t1	(6) financinggrowth_t2	(7) financinggrowth_t3	(8) financinggrowth_t4
post	−0.00916	−0.0255	−0.0327**	−0.0401***				
	(-0.33)	(-1.17)	(-2.02)	(-3.21)				
spinoff	0.000348	0.0218	0.0247	0.0195				
	(0.01)	(1.02)	(1.55)	(1.54)				
post*spinoff					−0.00883	−0.00588	−0.0109	−0.0233***
					(-1.12)	(-0.72)	(-1.39)	(-3.07)
lnta	−0.0116***	−0.0134***	−0.0101***	−0.00627**	−0.0115***	−0.0127***	−0.00931***	−0.00564**
	(-3.24)	(-4.06)	(-3.30)	(-2.18)	(-3.34)	(-3.85)	(-3.04)	(-2.00)
age	−0.000000423	0.00123	0.000613	0.000588	−0.00000105	0.00116	0.000496	0.000480
	(-0.00)	(1.48)	(0.76)	(0.77)	(-0.00)	(1.40)	(0.62)	(0.63)
CPI	0.00259	0.00431*	0.00574**	0.0128***	0.00260	0.00483**	0.00628***	0.0132***
	(1.27)	(1.78)	(2.30)	(4.96)	(1.35)	(1.96)	(2.63)	(5.28)
gdp	0.0214***	0.0188***	−0.0113*	−0.00534	0.0214***	0.0187***	−0.0112*	−0.00508
	(2.86)	(2.65)	(-1.90)	(-1.09)	(2.84)	(2.65)	(-1.89)	(-1.03)
_cons	0.106	0.119*	0.229***	0.103*	0.106	0.109*	0.217***	0.0930*
	(1.49)	(1.86)	(4.10)	(1.85)	(1.55)	(1.69)	(3.90)	(1.71)
N	738	670	602	534	738	670	602	534
N_g								
r2	0.0972	0.0985	0.0808	0.173	0.0972	0.0967	0.0774	0.169

This table presents the regression results to test lead variables of dependent variables, t1-t4 is lead variable of dependent variable one to four years after spin-off using difference-in-difference analysis for panel data of 2 treated banks and 20 control group banks. We employ regression with robust standard to estimate the following equation:

$$Y_{i,t} = \alpha + \beta_1 Spinoff_i + \beta_2 Post_t + \beta_3 Post_t * Spinoff_i + \beta_4 BankFundamental_{i,t} + \beta_5 Control_t + \varepsilon_{i,t}$$

ROA is return on asset. NPF is non-performing financing to total financing ratio. Financinggrowth is the growth of financing. depgrowth is the growth of deposit. CIR is cost to income ratio. FDR is financing to deposit ratio. Post is the treatment event, a dummy for one after spin-off, 0 otherwise. spinoff is Treated group, A dummy variable for one for full-fledge Islamic bank, 0 for Islamic-window of conventional banks. Post*spinoff is interaction variables of post and spin-off, it is the DID estimator. lnta is Natural logarithm of total asset. age is age of banks. CPI is Consumer price index. gdp is gdp growth. Standard errors are shown in parentheses. *, **, *** indicate significance at the 10 %, 5%, and 1% level, respectively.

Table 12
Lead variable of deposit growth.

	(1) depgrowth_t1	(2) depgrowth_t2	(3) depgrowth_t3	(4) depgrowth_t4	(5) depgrowth_t1	(6) depgrowth_t2	(7) depgrowth_t3	(8) depgrowth_t4
post	−0.0998***	−0.117***	−0.110***	−0.0601***				
	(-2.62)	(-4.25)	(-4.27)	(-2.65)				
spinoff	0.0776**	0.103***	0.0979***	0.0452**				
	(2.04)	(3.68)	(3.86)	(2.00)				
post*spinoff					−0.0237*	−0.0200	−0.0202	−0.0196
					(-1.90)	(-1.64)	(-1.54)	(-1.40)
lnta	−0.0131***	−0.0145***	−0.0162***	−0.0148***	−0.0142***	−0.0146***	−0.0157***	−0.0145***
	(-2.82)	(-3.22)	(-3.33)	(-3.04)	(-3.01)	(-3.16)	(-3.12)	(-2.95)
age	0.000182	0.000705	0.000937	0.000753	−0.0000350	0.000300	0.000488	0.000514
	(0.15)	(0.56)	(0.72)	(0.57)	(-0.03)	(0.24)	(0.38)	(0.39)
CPI	0.00982***	0.00109	0.00556*	0.00742**	0.00982***	0.00274	0.00768**	0.00836**
	(2.67)	(0.34)	(1.65)	(1.97)	(2.74)	(0.87)	(2.26)	(2.24)
gdp	0.0290***	0.00673	−0.00572	0.00999	0.0299***	0.00647	−0.00509	0.0102
	(3.02)	(0.69)	(-0.59)	(1.05)	(3.07)	(0.65)	(-0.51)	(1.07)
_cons	0.0727	0.230***	0.292***	0.174*	0.0885	0.237***	0.283***	0.170*
	(0.88)	(2.70)	(3.21)	(1.86)	(1.08)	(2.66)	(3.00)	(1.81)
N	749	685	617	545	749	685	617	545
N_g								
r2	0.100	0.0723	0.0892	0.0745	0.0917	0.0486	0.0640	0.0681

This table presents the regression results to test lead variables of dependent variables, t1-t4 is lead variable of dependent variable one to four years after spin-off using difference-in-difference analysis for panel data of 2 treated banks and 20 control group banks. We employ regression with robust standard to estimate the following equation:

$$Y_{i,t} = \alpha + \beta_1 Spinoff_i + \beta_2 Post_t + \beta_3 Post_t * Spinoff_i + \beta_4 BankFundamental_{i,t} + \beta_5 Control_t + \varepsilon_{i,t}$$

ROA is return on asset. NPF is non-performing financing to total financing ratio. Financinggrowth is the growth of financing. depgrowth is the growth of deposit. CIR is cost to income ratio. FDR is financing to deposit ratio. Post is the treatment event, a dummy for one after spin-off, 0 otherwise. spinoff is Treated group, A dummy variable for one for full-fledge Islamic bank, 0 for Islamic-window of conventional banks. Post*spinoff is interaction variables of post and spin-off, it is the DID estimator. lnta is Natural logarithm of total asset. age is age of banks. CPI is Consumer price index. gdp is gdp growth. Standard errors are shown in parentheses. *, **, *** indicate significance at the 10 %, 5%, and 1% level, respectively.

Table 13
Lead variable of CIR.

	(1) CIR_t1	(2) CIR_t2	(3) CIR_t3	(4) CIR_t4	(5) CIR_t1	(6) CIR_t2	(7) CIR_t3	(8) CIR_t4
post	−9.771**	−10.67***	−6.609**	−3.336				
	(-2.37)	(-3.14)	(-2.15)	(-1.18)				
spinoff	25.25***	24.22***	17.94***	13.81***				
	(6.41)	(7.37)	(6.14)	(5.53)				
post*spinoff					13.97***	11.87***	9.772***	9.037***
					(8.51)	(6.69)	(5.20)	(4.70)
lnta	0.834	1.522**	2.604***	3.064***	0.844	1.562**	2.698***	3.169***
	(1.28)	(2.13)	(3.41)	(4.28)	(1.19)	(2.09)	(3.52)	(4.38)
age	0.0371	0.122	−0.0900	−0.133	−0.0440	0.0289	−0.172	−0.206
	(0.25)	(0.75)	(-0.55)	(-0.81)	(-0.30)	(0.18)	(-1.10)	(-1.30)
CPI	−0.425	0.406	0.528	−0.308	0.100	0.913*	0.918*	−0.0198
	(-0.87)	(0.91)	(0.99)	(-0.60)	(0.19)	(1.84)	(1.70)	(-0.04)
gdp	−3.170**	−2.451*	−0.395	3.156**	−2.892*	−2.330	−0.279	3.209**
	(-2.27)	(-1.74)	(-0.29)	(2.52)	(-1.91)	(-1.58)	(-0.20)	(2.51)
_cons	78.66***	61.41***	37.18***	16.97	77.03***	60.36***	35.51**	15.65
	(6.77)	(4.75)	(2.65)	(1.33)	(5.97)	(4.28)	(2.47)	(1.21)
N	760	688	617	545	760	688	617	545
N_g								
r2	0.159	0.169	0.158	0.183	0.0981	0.105	0.116	0.152

This table presents the regression results to test lead variables of dependent variables, t1-t4 is lead variable of dependent variable one to four years after spin-off using difference-in-difference analysis for panel data of 2 treated banks and 20 control group banks. We employ regression with robust standard to estimate the following equation:

$$Y_{i,t} = \alpha + \beta_1 Spinoff_i + \beta_2 Post_t + \beta_3 Post_t * Spinoff_i + \beta_4 BankFundamental_{i,t} + \beta_5 Control_t + \varepsilon_{i,t}$$

ROA is return on asset. NPF is non-performing financing to total financing ratio. Financinggrowth is the growth of financing. depgrowth is the growth of deposit. CIR is cost to income ratio. FDR is financing to deposit ratio. Post is the treatment event, a dummy for one after spin-off, 0 otherwise. spinoff is Treated group, A dummy variable for one for full-fledge Islamic bank, 0 for Islamic-window of conventional banks. Post*spinoff is interaction variables of post and spin-off, it is the DID estimator. lnta is Natural logarithm of total asset. age is age of banks. CPI is Consumer price index. gdp is gdp growth. Standard errors are shown in parentheses. *, **, *** indicate significance at the 10 %, 5%, and 1% level, respectively.

Table 14
Lead variable of FDR.

	(1) FDR_t1	(2) FDR_t2	(3) FDR_t3	(4) FDR_t4	(5) FDR_t1	(6) FDR_t2	(7) FDR_t3	(8) FDR_t4
post	0.147*	0.219***	0.274***	0.235***				
	(1.75)	(3.84)	(5.89)	(5.51)				
spinoff	−0.325***	−0.359***	−0.378***	−0.311***				
	(-3.92)	(-6.66)	(-8.71)	(-8.16)				
post*spinoff					−0.157***	−0.114***	−0.0712***	−0.0435*
					(-6.22)	(-4.65)	(-2.98)	(-1.87)
lnta	−0.0724***	−0.0744***	−0.0818***	−0.0787***	−0.0730***	−0.0756***	−0.0837***	−0.0811***
	(-5.45)	(-5.70)	(-6.51)	(-6.37)	(-5.35)	(-5.60)	(-6.38)	(-6.28)
age	−0.0111***	−0.0123***	−0.00982***	−0.00772***	−0.0100***	−0.0108***	−0.00809***	−0.00608***
	(-3.84)	(-4.60)	(-3.73)	(-3.18)	(-3.61)	(-4.25)	(-3.22)	(-2.60)
CPI	0.00269	−0.0133*	−0.00170	−0.00286	−0.00449	−0.0213**	−0.00991	−0.00935
	(0.29)	(-1.66)	(-0.18)	(-0.32)	(-0.48)	(-2.57)	(-1.04)	(-1.01)
gdp	0.0647**	0.0158	0.0267	−0.0277	0.0621**	0.0131	0.0242	−0.0289
	(2.37)	(0.63)	(1.10)	(-1.26)	(2.24)	(0.50)	(0.95)	(-1.26)
_cons	2.005***	2.336***	2.270***	2.472***	2.028***	2.366***	2.305***	2.501***
	(7.91)	(9.04)	(9.00)	(10.48)	(7.89)	(8.83)	(8.75)	(10.14)
N	761	689	617	545	761	689	617	545
N_g								
r2	0.252	0.264	0.284	0.265	0.227	0.223	0.231	0.216

This table presents the regression results to test lead variables of dependent variables, t1-t4 is lead variable of dependent variable one to four years after spin-off using difference-in-difference analysis for panel data of 2 treated banks and 20 control group banks. We employ regression with robust standard to estimate the following equation:

$$Y_{i,t} = \alpha + \beta_1 Spinoff_i + \beta_2 Post_t + \beta_3 Post_t * Spinoff_i + \beta_4 BankFundamental_{i,t} + \beta_5 Control_t + \varepsilon_{i,t}$$

ROA is return on asset. NPF is non-performing financing to total financing ratio. Financinggrowth is the growth of financing. depgrowth is the growth of deposit. CIR is cost to income ratio. FDR is financing to deposit ratio. Post is the treatment event, a dummy for one after spin-off, 0 otherwise. spinoff is Treated group, A dummy variable for one for full-fledge Islamic bank, 0 for Islamic-window of conventional banks. Post*spinoff is interaction variables of post and spin-off, it is the DID estimator. lnta is Natural logarithm of total asset. age is age of banks. CPI is Consumer price index. gdp is gdp growth. Standard errors are shown in parentheses. *, **, *** indicate significance at the 10 %, 5%, and 1% level, respectively.

Table A1
Robustness Check 1.

	(1) ROA	(2) ROA	(3) ROA	(4) ROA	(5) ROA
post*spinoff	−1.889***	−1.839***	−1.257***	−1.218***	−1.221***
	(-7.28)	(-5.89)	(-3.05)	(-2.95)	(-2.96)
lnta		−0.0575	−0.0907	−0.162	−0.138
		(-0.58)	(-0.67)	(-1.05)	(-1.01)
age			−0.00648	−0.0113	−0.00307
			(-0.28)	(-0.49)	(-0.14)
CPI				−0.174*	−0.185*
				(-1.90)	(-1.83)
gdp					0.500
					(0.72)
_cons	3.002***	3.831**	4.473**	6.297**	3.249
	(15.97)	(2.55)	(2.20)	(2.42)	(1.08)
N	1509	1453	823	823	823
N_g					
r2	0.0258	0.0269	0.00894	0.0107	0.0123

t statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A2
Robustness Check 2.

	(1) LnNPF	(2) LnNPF	(3) LnNPF	(4) LnNPF	(5) LnNPF
post*spinoff	3.270***	1.192***	3.294***	3.245***	3.243***
	(17.48)	(6.52)	(14.24)	(13.71)	(13.62)
lnta		1.282***	0.908***	1.045***	1.061***
		(24.42)	(7.92)	(8.98)	(9.09)
age			0.122***	0.129***	0.130***
			(4.68)	(5.10)	(5.12)
CPI				0.414***	0.407***
				(7.85)	(7.62)
gdp					0.180
					(0.99)
_cons	8.185***	−9.964***	−6.555***	−10.37***	−11.53***
	(61.30)	(-12.89)	(-4.61)	(-6.69)	(-6.12)
N	1223	1169	728	728	728
N_g					
r2	0.156	0.398	0.505	0.532	0.533

t statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

including all variables in the empirical model. As presented in Appendix A (Tables A1–A6), with regard to our variables of interest, the results remain the same with baseline regression.

6. Conclusion and policy implications

We empirically investigate the effect of the spin-off policy—separating the Islamic windows of conventional banks from their conventional parent companies and making them into full-fledged Islamic banks—on these banks' subsequent performance, efficiency, and risk. We use data from Islamic commercial banks in Indonesia from 2008 to 2019. Our results reveal that the performance and efficiency of full-fledged Islamic banks are lower than those of conventional banks' Islamic windows. We also find that Islamic windows are less risky than Islamic banks that have spun off from conventional banks. Moreover, the inferior performance of separated full-fledged Islamic banks persists for four years after the spin-off. In addition, we find that the conversion strategy results in better outcomes compared with the pure spin-off strategy. We also find that size does matter to have better results following the spin-off.

These findings carry several policy implications. We find strong evidence that the spin-off policy, more specifically pure spin-off, does not lead to better performance even after four years. Therefore, regulators should seek complementary policies to mitigate the negative effects of the spin-off policy. The newly enacted OJK regulation on banking synergy under the same ownership could be an example of complementary policies in this matter. Moreover, consolidation among newly separated full-fledged Islamic banks may help them to achieve economies of scale, enabling them to be more competitive.

CRediT authorship contribution statement

Irwan Trinugroho: Conceptualization, Formal analysis. **Wimboh Santoso:** Conceptualization, Validation, Supervision. **Rakianto**

Table A3
Robustness Check 3.

	(1) fingrowth	(2) fingrowth	(3) fingrowth	(4) fingrowth	(5) fingrowth
post*spinoff	−1.327	0.520	2.503	2.708	2.619
	(-1.18)	(1.28)	(0.93)	(0.94)	(0.94)
lnta		−0.990	−3.006	−3.223	−3.126
		(-1.23)	(-1.04)	(-1.05)	(-1.05)
age			0.563	0.542	0.618
			(0.91)	(0.90)	(0.94)
CPI				−0.595	−0.699
				(-1.15)	(-1.16)
gdp					4.107
					(1.19)
_cons	1.451	15.25	39.26	45.14	21.50
	(1.29)	(1.24)	(1.07)	(1.09)	(0.98)
N	1501	1446	851	851	851
N_g					
r2	0.000470	0.00290	0.00808	0.00877	0.0123

t statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A4
Robustness Check 4.

	(1) CIR	(2) CIR	(3) CIR	(4) CIR	(5) CIR
post*spinoff	18.94***	24.93***	21.71***	21.03***	20.99***
	(9.74)	(8.33)	(7.24)	(7.58)	(7.49)
lnta		−2.880***	−3.667**	−2.960**	−2.918**
		(-2.78)	(-2.56)	(-2.36)	(-2.37)
age			−0.0767	−0.0179	0.00690
			(-0.35)	(-0.08)	(0.03)
CPI				1.808	1.759
				(1.52)	(1.46)
gdp					1.414
					(0.55)
_cons	74.17***	113.9***	128.2***	109.6***	101.4***
	(64.49)	(7.62)	(6.36)	(6.26)	(5.64)
N	1577	1522	867	867	867
N_g					
r2	0.0548	0.0675	0.0514	0.0577	0.0581

t statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A5
Robustness Check 5.

	(1) FDR	(2) FDR	(3) FDR	(4) FDR	(5) FDR
post*spinoff	21.39	38.94	79.06	82.33	82.67
	(1.57)	(1.61)	(1.62)	(1.63)	(1.63)
lnta		−8.431*	−20.81	−24.22	−24.59
		(-1.65)	(-1.63)	(-1.64)	(-1.64)
age			3.372	3.089	2.860
			(1.59)	(1.58)	(1.58)
CPI				−8.721	−8.273
				(-1.62)	(-1.61)
gdp					−12.95
					(-1.49)
_cons	1.458***	117.9*	261.4*	351.3*	426.3
	(37.97)	(1.67)	(1.65)	(1.65)	(1.64)
N	1498	1443	868	868	868
N_g					
r2	0.00335	0.00831	0.0182	0.0225	0.0235

t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A6
Robustness Check 6.

	(1) depositgrowth	(2) depositgrowth	(3) depositgrowth	(4) depositgrowth	(5) depositgrowth
post*spinoff	−0.0859*	0.0384	−0.0248	−0.0208	−0.0228
	(-1.67)	(1.16)	(-0.75)	(-0.58)	(-0.65)
lnta		−0.0669*	−0.0669	−0.0711	−0.0688
		(-1.94)	(-1.59)	(-1.36)	(-1.36)
age			−0.0136**	−0.0140**	−0.0122**
			(-2.28)	(-2.01)	(-2.09)
CPI				−0.0116	−0.0141
				(-0.36)	(-0.42)
gdp					0.0961
					(1.22)
_cons	0.174***	1.107**	1.267*	1.382	0.828
	(3.83)	(2.11)	(1.81)	(1.39)	(1.34)
N	1498	1443	851	851	851
N_g					
r2	0.00107	0.00727	0.0128	0.0129	0.0141

t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Irawanto: Conceptualization, Validation, Project administration. **Putra Pamungkas:** Data curation, Methodology, Software, Formal analysis.

Appendix A. Robustness Check Tables

References

Abedifar, P., Molyneux, P., Tarazi, A., 2013. Risk in islamic banking. Rev. Financ. 1–62. https://doi.org/10.1093/rof/rfs041.

Abedifar, P., Ebrahim, S.M., Molyneux, P., Tarazi, A., 2015. Islamic banking and finance: recent empirical literature and directions for future research. J. Econ. Surv. 29 (4), 637–670. https://doi.org/10.1111/joes.12113.

Ariss, R.T., 2010. Competitive conditions in Islamic and conventional banking: a global perspective. Rev. Financ. Econ. 19 (3), 101–108. https://doi.org/10.1016/j.rfe.2010.03.002.

Beck, T., Demirgüç-Kunt, A., Merrouche, O., 2013. Islamic vs. Conventional banking: business model, efficiency and stability. J. Bank. Financ. 37 (2), 433–447. https://doi.org/10.1016/j.jbankfin.2012.09.016.

Behr, A., Heid, F., 2011. The success of bank mergers revisited. An assessment based on a matching strategy. J. Empir. Finance 18 (1), 117–135. https://doi.org/10.1016/j.jempfin.2010.08.006.

Berger, A.N., Klapper, L.F., Turk-Ariss, R., 2009. Bank competition and financial stability. J. Financ. Serv. Res. 35 (2), 99–118. https://doi.org/10.1007/s10693-008-0050-7.

Chu, K.H., 2015. Bank consolidation and stability: the Canadian experience, 1867-1935. J. Financ. Stab. 21, 46–60. https://doi.org/10.1016/j.jfs.2015.08.007.

Čihák, M., Hesse, H., 2010. Islamic banks and financial stability: an empirical analysis. J. Financ. Serv. Res. 38 (2), 95–113. https://doi.org/10.1007/s10693-010-0089-0.

DPPS-OJK, 2018. Kajian Spin-Off Perbankan Syariah, pp. 1–105.

Garbois, C., Gourp, C., Pock, Avon, Bhatnagar, M., 2012. The Future of Islamic Banking.

Ghani, E.K., Tarmezi, N., Said, J., Yuliansyah, Y., 2016. The effect of risk management and operational information disclosure practices on public listed firms' financial performance. Int. J. Econ. Manage. 10 (Specialissue2), 235–252.

Hassan, M.K., Aliyu, S., 2018. A contemporary survey of islamic banking literature. J. Financ. Stab. 34, 12–43. https://doi.org/10.1016/j.jfs.2017.11.006.

Ibrahim, M.H., Rizvi, S.A.R., 2017. Do we need bigger Islamic banks? An assessment of bank stability. J. Multinatl. Financ. Manag. 40, 77–91. https://doi.org/10.1016/j.mulfin.2017.05.002.

Johnes, J., Izzeldin, M., Pappas, V., 2009. The Efficiency of Islamic and Conventional Banks in the Gulf Cooperation Council (GCC) Countries: an Analysis Using Financial Ratios and Data Envelopment Analysis. Lancaster University Management School Working Paper, *23*(June 2014).

Keuangan, Otoritas Jasa, 2019. *Statistik Perbankan Syariah*. Departemen Perizinan dan Informasi Perbankan. https://doi.org/10.1017/CBO9781107415324.004 (Vol. 53).

Majid, M.Z.A., Sufian, F., 2006. Consolidation and competition in emerging market: an empirical test for Malaysian banking industry. Econ. Chang. Restruct. 39 (1–2), 105–124. https://doi.org/10.1007/s10644-007-9022-4.

Mohamad, S., Hassan, T., Bader, M., 2008. Efficiency of conventional versus Islamic Banks: international evidence using the Stochastic Frontier Approach (SFA). J. Islam. Econ. Bank. Financ. 4 (2), 107–130.

Olson, D., Zoubi, T.A., 2008. Using accounting ratios to distinguish between Islamic and conventional banks in the GCC region. Int. J. Account. 43 (1), 45–65. https://doi.org/10.1016/j.intacc.2008.01.003.

Prasetyo, M.B., 2019. The role of capital on islamic bank spin-offs in Indonesia. South East Asian J. Manag. 13 (2), 119–139. https://doi.org/10.21002/seam.v13i2.11179.

Riaz, U., Burton, B., Monk, L., 2017. Perceptions on the accessibility of Islamic banking in the UK—challenges, opportunities and divergence in opinion. Account. Forum 41 (4), 353–374. https://doi.org/10.1016/j.accfor.2017.10.002.

Rizvi, S.A.R., Narayan, P.K., Sakti, A., Syarifuddin, F., 2019. Role of Islamic banks in Indonesian banking industry: an empirical exploration. Pac. Basin Finance J. (August 2018), 1–10. https://doi.org/10.1016/j.pacfin.2019.02.002.

Schaeck, K., Cihák, M., 2014. Competition, efficiency, and stability in banking. Financ. Manage. 43 (1), 215–241. https://doi.org/10.1111/fima.12010.

Schepens, G., 2016. Taxes and bank capital structure. J. Financ. Econ. 120 (3), 585–600. https://doi.org/10.1016/j.jfineco.2016.01.015.
Shin, D.J., Kim, B.H.S., 2013. Bank consolidation and competitiveness: empirical evidence from the Korean banking industry. J. Asian Econ. 24, 41–50. https://doi.org/10.1016/j.asieco.2012.07.004.
Siswantoro, D., 2014. Analysis of Islamic bank's performance and strategy after spin-off as islamic full-fledged scheme in Indonesia. Procedia Soc. Behav. Sci. 164, 41–48. https://doi.org/10.1016/j.sbspro.2014.11.048.
Srairi, S.A., 2010. Cost and profit efficiency of conventional and Islamic banks in GCC countries. J. Product. Anal. 34 (1), 45–62. https://doi.org/10.1007/s11123-009-0161-7.
Tan, Y., 2015. The impacts of risk and competition on bank profitability in China. J. Int. Financ. Mark. Inst. Money 40, 85–110. https://doi.org/10.1016/j.intfin.2015.09.003.
Trinugroho, I., Agusman, A., Tarazi, A., 2014. Why have bank interest margins been so high in Indonesia since the 1997/1998 financial crisis? Res. Int. Bus. Financ. 32, 139–158. https://doi.org/10.1016/j.ribaf.2014.04.001.
Trinugroho, I., Risfandy, T., Ariefianto, M.D., Prabowo, M.A., Purnomo, H., Purwaningsih, Y., 2017. Does religiosity matter for Islamic banks' performance? Evidence from Indonesia. Int. J. Econ. Manage. 11 (2), 419–435.
Trinugroho, I., Risfandy, T., Ariefianto, M.D., 2018. Competition, diversification, and bank margins: evidence from Indonesian Islamic rural banks. Borsa Istanbul Rev. 18 (4), 349–358. https://doi.org/10.1016/j.bir.2018.07.006.
Weill, L., 2011. Do Islamic banks have greater market power? Comp. Econ. Stud. 53 (2), 291–306. https://doi.org/10.1057/ces.2011.1.
Wooldridge, 2009. Difference in Difference Estimation, 14(27), pp. 8383–8397. https://doi.org/10.1002/chem.200800738.
Yanikkaya, H., Gümüş, N., Pabuçcu, Y.U., 2018. How profitability differs between conventional and Islamic banks: a dynamic panel data approach. Pac. Basin Finance J. 48 (February), 99–111. https://doi.org/10.1016/j.pacfin.2018.01.006.
Yudistira, D., 2004. Efficiency in Islamic banking: an empirical analysis of eighteen banks. Islam. Econ. Stud. 12–1 (1), 2–19.
Yusgiantoro, I., Soedarmono, W., Tarazi, A., 2019. Bank consolidation and financial stability in Indonesia. Int. Econ. 159 (November 2017), 94–104. https://doi.org/10.1016/j.inteco.2019.06.002.

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