



A Comparative Analysis of Financial Performance of Banking Industry in Indonesia: Conventional Versus Islamic Banks

Izza Al Ula Zakiyah Kusuma Wardhani¹; M. Shabri Abd. Majid²; Sartiyah³,
and M. Haris Riyaldi⁴

Abstract

This study aims to compare and analyze the financial performances of conventional and Islamic banks in Indonesia. It also attempts to measure and analyze the effect of capital, financing risk, operational efficiency, liquidity, and regulatory compliance on banking financial performances. The sample in this study is the balanced panel data, comprising a cross-section of 87 conventional banks and 11 Islamic banks and a time series from 2011 to 2020 periods, which were selected using a purposive sampling technique. The secondary data are gathered from the annual reports of the banking samples. The comparative analysis and determination of factors affecting banking financial performances are examined using a different independent sample t-test and multiple panel regression, respectively. The study documented that the financial performance of conventional banks was better than that of Islamic banks. Furthermore, the study found that capital, financing risk, and operational efficiency negatively affected performance of the conventional banks, while liquidity and regulatory compliance positively influenced conventional banking performance. Comparatively, capital, liquidity, and regulatory compliance positively affected Islamic banking performance, while financing risk and operational efficiency negatively affected Islamic banking performance. These findings suggest the importance of banking management to impose different financial management policies to enhance their performances by referring to the directional effects of the determinants of the banking financial performances.

Keywords: Performance Comparison; Financial Performance; Conventional Bank; Islamic Bank.

INTRODUCTION

The Indonesian economy experienced fluctuations from 2011 to 2020. These fluctuations, according to the Bank Indonesia's Annual Report were caused

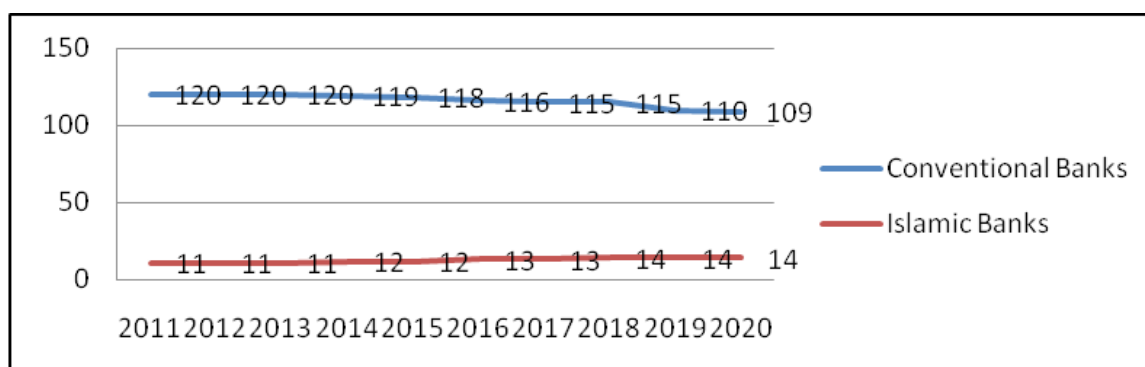
^{1,2,3,4} Faculty of Economics and Business, Universitas Syiah Kuala (USK), Indonesia.
Coessponding author: mshabri@usk.ac.id

by economic shocks originating from the global and domestic macroeconomic environments. The impact of these economic shocks affected the condition of Indonesia's financial stability, including the banking sector. Banking institutions have an important role in improving the economy in various countries, both in developed countries (Jokipii & Monnin, 2013) and in developing countries, such as Africa (Ndoricimpa, 2020), Nigeria (Abubakar & Gani, 2013), Palestine (Abusharbeh, 2017), and Indonesia (Simatupang, 2019).

Since the early 1990s, Indonesia has implemented a dual banking system, in which the banking system carries out its activities based on the conventional and the Islamic system. The main characteristic that distinguishes the two types of banks is the principle applied. Conventional banks use the principle of interest rate, while Islamic banks use the principle of profit-loss sharing.

Interestingly, as newly established banks in Indonesia, the number of Islamic banks has shown an increasing trend, while their conventional have shown otherwise. According to the Indonesian Banking Statistics (ojk.go.id), as illustrated in Figure 1, the number of Islamic commercial banks has increased from 11 banks in 2011 to 14 banks in 2020. Meanwhile, the number of conventional banks has decreased from 120 banks in 2011 to 109 banks in 2020. These phenomena raise an interesting question to research; Do these figures associate with their performance? Do the Islamic and conventional banks have similar performance? If not, which banks record better performance?

Figure 1
Number of Commercial Banks in Indonesia, 2011-2020



Source: Statistik Perbankan Indonesia, processed (2021).



The presence of Islamic banks in the Indonesian dual banking system has created a more competitive banking industry. The Islamic banks did not only compete with other Islamic banks, but they also competed with their conventional counterparts. The banks compete with each other to gain public trust to attract more funds from the third party (Widodo & Agustiyani, 2017). One of the ways to attract public funds is by showing good financial performance (Firdausi, 2016). In addition, based on the Credit Review conducted by the Financial Services Authority (OJK, 2015), the banking performance measured by credit risk affects the supply of credit by the public.

Referring to the OJK Circular Letter on 2020 regarding the publication of financial reports, the performance of the banking institutions could be measured by 14 important ratios, including 11 financial ratios and 3 compliance ratios. Performance ratios, in general, are related to capital, asset quality, profitability, efficiency, and liquidity, while the compliance ratio is related to the ratios of the percentage of violations and exceedances in lending, the fulfilment of the Minimum Statutory Reserves (MSR), and the overall net open position. Of the 14 above-mentioned banking performance ratios, the banking financial performance has been commonly measured by profitability, which is the ratio of Return on Assets (ROA). ROA portrays the ability of the bank to generate overall profitability based on its assets (Bank Indonesia, 2012).

Previous studies have been conducted to compare the profitability between Islamic and conventional banks in the UAE (Tabash et al., 2017) and Pakistan (Khan et al., 2017) showed no significant differences in their performances. However, the opposite results were found where Islamic banks had better performance compared to their conventional counterparts in Bangladesh (Uddin et al., 2017), Malaysia (Dodoev, 2018), and Indonesia (Ulina & Majid, 2020).

The contradicting findings of banking performances between the Islamic and conventional banks have motivated previous studies to explore the factors causing the banking performance. For example, these factors include capital, which is measured by the Capital Adequacy Ratio (CAR) (Jha & Hui, 2012), financing risk which is measured by the Non-Performing Loans (NPL) for conventional banks and the Non-Performing Financing (NPF) for Islamic banks (Chowdhury et al., 2017), operational efficiency that is measured by the Operating Expense Ratio (OER) (Siddique et al., 2022), liquidity that is measured by the Loan to Deposit



Ratio (LDR) for the conventional banks and the Financing to Deposit Ratio for the Islamic banks (Eng, 2013), and regulatory compliance as illustrated by the MSR (Elvira et al., 2020).

Previous studies related to the determinants of banking performance found different results for Islamic and conventional banks. For example, Warsa & Mustanda (2016) and Elshaday et al. (2018) found a positive effect of capital adequacy on conventional banking performance, while Hamdani et al. (2018) and Ulina & Majid (2020) found no significant effect of capital adequacy on Islamic banking performance. Eng (2013), Suwarno & Muthohar (2018), and Gabriel et al. (2019) found a positive effect of NPL on conventional banking performance, while Ozurumba (2016) found the opposite effect. Meanwhile, Ulina & Majid (2020) did not find a significant effect of NPL on the performance of conventional banks in Indonesia, but NPF has a significant influence on the performance of Islamic banks. Operational efficiency and liquidity were found to have a positive effect on the performance of Islamic and conventional banks (Ulina & Majid, 2020), while Ferrouhi (2014) found no significant effect of liquidity on banking performance. Finally, related to the factor of regulation compliance, Elvira et al. (2020) found a positive effect of MSR on the performance of conventional banks in Indonesia. However, no previous studies have been found regarding the effect of regulatory provisions on Islamic banking performance.

The lack of conclusive empirical evidence from previous studies on the level of banking performance and its determinants between Islamic and conventional banks has prompted this present study to re-examine the true effect of capital adequacy, financial risk, operational efficiency, and liquidity on the performances of Islamic and conventional banks with comparative treatment by including more banks (87 conventional banks and 11 Islamic banks) in the analysis and considering a longer data period, from 2011 to 2020 (870 observations for the conventional banks and 110 observation for the Islamic banks). The study also combines comparative and associative tests into its analyses to provide comparative performance evidence between the Islamic and conventional banks and their contributing factors. In addition, the study also attempts to fill the gaps in previous research by including regulatory compliance variable as one of the determinants of the performance of Islamic and conventional banks to obtain more accurate research results. With these three research novelties, it is hoped that



the results of the study will be more comprehensive and accurate in explaining the directional influence of the determinants of Islamic and conventional banking performances in Indonesia.

Against the above backdrop, this study intends to compare and analyze the financial performances of Islamic and conventional banks in Indonesia. The study also further explores the determinants of banking financial performance in Indonesia. The factors include capital, financial risk, operational efficiency, liquidity, and regulatory compliance.

The findings of the study are hoped to enrich the existing empirical evidence of both Islamic and conventional banking performances and their determinants. The findings are also expected to provide policy references for both banking management and relevant government authorities to enhance the banking industry in Indonesia.

THEORETICAL REVIEW

Banking Performance Comparison

Banking performance has been measured using various financial ratios. Profitability (ROA) has been commonly used to measure banking performance due to its ability to portray the use of assets by banks to generate their profit (Bank Indonesia, 2012). Initially, the comparative studies of the banking performance have been focused on the conventional banking institutions. However, the presence of an Islamic banking system that has different characteristics to the conventional banking system worldwide has attracted many researchers to explore the comparative performances between Islamic and conventional banks.

Among the previous studies that have comparatively investigated the performances between the Islamic and conventional banks have been conducted by Tabash et al. (2017), Khan et al. (2017), Uddin et al. (2017), Dodoev, (2018), and Majid & Ulina (2020). In their studies on the UAE (Tabash et al., 2017) and Pakistan (Khan et al., 2017) banking industry, no evidence of significant differences in banking performances between the Islamic and conventional banks was recorded. On the contrary, the Islamic banks were documented to have higher performance as compared to their conventional counterparts found in Bangladesh (Uddin et al., 2017), Malaysia (Dodoev, 2018), and Indonesia (Ulina & Majid, 2020).



Based on the above contradicting empirical results of banking performances, the study proposes the first hypothesis, as follows:

H1: There exists a different financial performance between the Islamic and conventional banks.

Determinants of Banking Financial Performance

Having recorded different performances between the banking systems, many previous studies have motivated to further analyze capital adequacy, financial risk, operational efficiency, liquidity, and regulatory compliance (Isanzu, 2017; Setiawan, 2017; Ulina & Majid, 2020; Siddique et al., 2022; and Mathuva and Nyangu, 2022).

As for capital adequacy, previous studies found its significance in affecting banking financial performance (Jha & Hui, 2012; Chowdhury et al., 2017; Isanzu, 2017; Ekinci & Poyraz, 2019; Ulina & Majid, 2020). Capital is recorded to have a crucial role in ensuring sufficient funds to support firm operations and to gain profitability. Thus, the higher the capital, the better the bank's ability to meet its capital and earn higher profit. This is also in line with the Bank Indonesia Circular Letter No. 6 of 2004.

Apart from capital adequacy, financing risk that is measured by the ratio of NPL (for conventional bank) and NPF (for Islamic bank) is also found as one of the important factors determining banking performance. A good banking asset quality is indicated by the lower credit or financing risk it has. Previous studies have documented a significant influence of financing risk on banking financial performance (Chowdhury et al., 2017; Isanzu, 2017; Suwarno & Muthohar, 2018). The lower the financial risk, the higher the banking performance.

Banking performance is also evidenced to be affected by operational efficiency (Bolarinwa et al., 2019; and Siddique et al., 2022). Operational efficiency is the level of a bank's ability to manage the operational costs they have over their operating income. Operational efficiency is commonly measured by the Operating Expense Ratio (OER). The higher the OER, the more inefficient the bank is in managing its operational costs. Thus, the lower the OER would contribute to the higher banking performance.



Furthermore, liquidity that shows the bank's ability to fulfil its obligations is also found to have a crucial influence on the banking performance. To measure banking liquidity, the Loan to Deposit Ratio (LDR) for conventional banks or the Financing to Deposit Ratio (FDR) for Islamic banks has been commonly used in the finance literature. A high liquidity value indicates that the bank is increasingly illiquid, which results in a bank's lack of ability to fulfil its obligations. Meanwhile, a low level of liquidity indicates that most of the funds in these banks are unutilized. This condition causes banks to be less able to generate greater profitability. This evidence has been found in many previous studies where liquidity has positively influenced banking performances (Eng, 2013; Setiawan, 2017; Tan et al., 2017).

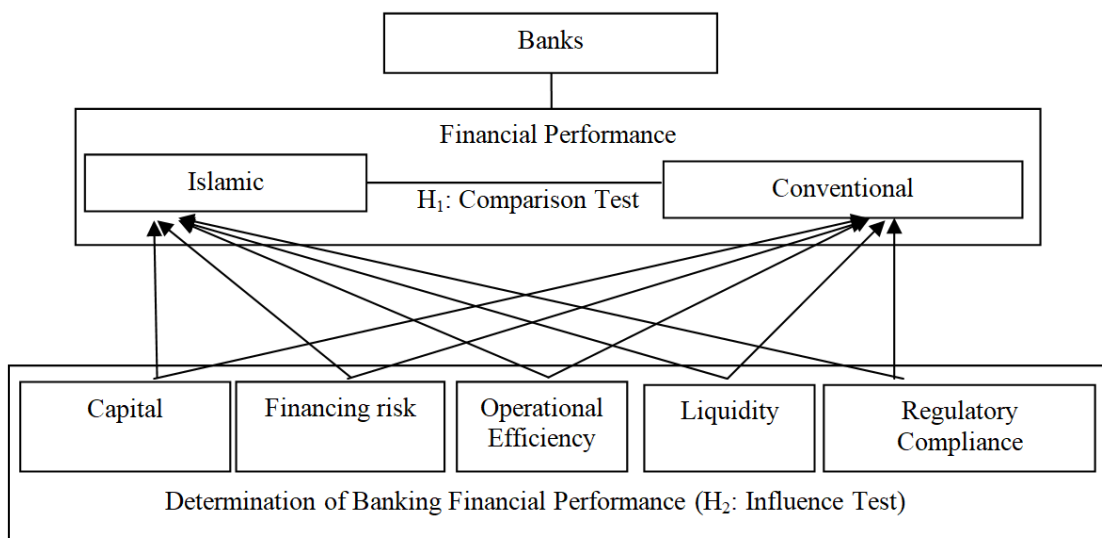
Finally, banking compliance with the regulation also contributed towards banking performance. Regulatory compliance is the ratio to the bank's ability to carry out all its activities in accordance with applicable regulations. The more compliant the banking system is with regulations, the better the bank's financial performance, as evidenced in the study conducted by Mathuva and Nyangu (2022). Fulfilment of MSR as one of the ratios that describe regulatory compliance is recorded to positively influence banking financial performance (Pratito & Puspitasari, 2017; Elvira et al., 2020).

Based on the above explanations, the study proposes the second hypothesis (comprising 5 sub-hypotheses), as follows:

- H2.1: Capital adequacy influences the financial performances of Islamic and conventional banks.
- H2.2: Financial risk influences the financial performances of Islamic and conventional banks.
- H2.3: Operational efficiency influences the financial performances of Islamic and conventional banks.
- H2.4: Liquidity influences the financial performances of Islamic and conventional banks.
- H2.5: Regulatory compliance influences the financial performances of Islamic and conventional banks.

To probe the above-proposed hypotheses, the following conceptual research framework, as illustrated in Figure 2, is proposed to explore and analyze the comparison of financial performance between the Islamic and conventional banks in Indonesia and to empirically examine their determinants.

Figure 2
A Proposed Research Framework



RESEARCH METHODS

This study uses a quantitative approach, combining comparative and associative analyses (causal relationships). The comparative analysis (independent t-test) is used to compare the financial performances between Islamic and conventional banks, while the associative analysis (panel regression) is used to measure and examine the effects of factors contributing to the banking performances.

Of 109 conventional banks and 14 Islamic banks that existed in Indonesia, the study selected 87 conventional banks and 11 Islamic banks as the study's sample using a purposive sampling technique. The study utilizes annual data over the period from 2011 to 2020. The population, sample size, and sampling selection criteria are illustrated in Table 1.



Table 1
Number of Population, Sample, and Sampling Selection Criteria

Sampling Criteria	Number of Banks	
	Conventional	Islamic
Commercial banks in Indonesia	109	14
Commercial banks that are not included in the state-owned banks, regional development banks, and national private banks in Indonesia	(8)	0
Commercial banks which are state-owned banks, regional development banks, and national private banks in Indonesia that did not publish annual financial reports for the 2011-2020 period	(14)	(3)
Total Sample	87	11
Total Observations	870	110

Source: Secondary data, processed (2021).

The study gathered the secondary data of the banking financial ratios from the banks' financial reports, obtained from the websites of each bank. These data include financial performance, capital adequacy, financing risk, operational efficiency, liquidity, and regulatory compliance. The overall variables investigated in the study and their measurements are presented in Table 2.

Table 2
Measurements of Variables

No.	Variable	Definition	Formula	Scale
Dependent Variable:				
1.	Financial Performance (FP)	The bank's ability to generate profits or profits based on the assets it owns.	$\frac{\text{Profit Before Tax}}{\text{Total Assets}} \times 100\%$	Ratio
Independent Variable:				
1.	Capital Adequacy (CA)	The ability of banks to meet obligations on capital.	$\text{CAR} = \frac{\text{Total Capital}}{\text{Risk-Weighted Assets}} \times 100\%$	Ratio

			For the conventional banks:	
			$\frac{\text{Total Non – Performing Loans}}{\text{Total Credit}} \times 100\%$	
2.	Financing risk (FR)	The possibility of banks losing money on the given loan/ financing.	For the Islamic banks:	Ratio
			$\frac{\text{Total Non – Performing Financing}}{\text{Total Financing}} \times 100\%$	
3.	Operational Efficiency (OE)	The bank's ability to manage its operating expenses against its operating income.	$\frac{\text{Total Operating Costs}}{\text{Total Operating Income}} \times 100\%$	Ratio
			For the conventional banks:	
			$\frac{\text{Total Loans}}{\text{Third party funds}} \times 100\%$	
4.	Liquidity (LQ)	The ability of the bank to meet its obligations in the short term.	For the Islamic banks:	Ratio
			$\frac{\text{Total financing}}{\text{Third party funds}} \times 100\%$	
5.	Regulatory Compliance (RC)	The ability of the bank to carry out its activities according to applicable regulations.	$\frac{\text{Current Accounts with Bank Indonesia}}{\text{Third party funds}} \times 100\%$	Ratio

Source: Adapted from Bank Indonesia (2012).

As stated earlier, the study has two objectives: first to measure and compare financial performances between Islamic and conventional banks; and second to measure and analyze the influences of capital adequacy, financing risk, operational efficiency, liquidity, and regulatory compliance on the Islamic and conventional banking performances. As for the first study's objective, the independent sample



t-test is used and analyzed using the SPSS software. Meanwhile, the multiple panel regression analysis is used to measure and analyze the determinants of banking performance using the Eviews software. For this purpose, the study will estimate the following panel regression equation:

$$FP_{it} = \delta_0 + \beta_1 CA_{it} + \beta_2 FR_{it} + \beta_3 OE_{it} + \beta_4 LQ_{it} + \beta_5 RC_{it} + \varepsilon_{it} \quad (3.1)$$

where FP is the financial performance; CA is the capital adequacy; FR is the financing risk; OE is the operational efficiency; LQ is the liquidity; RC is the regulatory compliance; δ is the constant term; β is the estimated regressors; ε is the standard error; i is the bank i ; and t is the year t .

In estimating the panel data, the study will select the most appropriate panel regression model from the three possible models, namely Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The selection of the regression model between CEM and FEM is tested using Chow test. The selection of the regression model between FEM and REM CEM is determined using the Hausman test, while to select between CEM and REM, the Lagrange Multiplier test is conducted.

Finally, to ensure the robustness of panel data analysis, before the study estimates Equation (3.1), the classical assumption tests of multicollinearity and heteroscedasticity will be first conducted.

RESULTS AND DISCUSSION

Descriptive Analysis

Before presenting the findings of comparison tests and panel regression analysis, the study reports first the descriptive statistics, classical assumption tests, and panel model selection analyses. The findings of descriptive statistics are reported in Table 3.

Table 3
Descriptive Statistics

Variable	Conventional Banks (n=870)				Islamic Banks (n=110)			
	Mean	Max.	Min.	Std. Dev.	Mean	Max.	Min.	Std. Dev.
FP	1.58	5.42	-15.89	2.02	0.52	11.15	-20.13	3.25
CA	24.99	820.90	8.02	31.85	28.81	329.09	11.03	40.21
FR	1.36	9.92	-1.15	1.24	2.34	4.99	0.00	1.55
OE	85.86	261.10	33.28	20.56	95.08	217.40	47.60	23.50
LQ	96.20	971.60	0.00	52.11	8.56	506.60	0.13	62.75
RC	8.56	627.86	2.97	23.39	5.15	14.68	2.13	1.40

Source: Secondary data, processed (2022).

As illustrated in Table 3, the conventional banks have a maximum financial performance value of 5.42%, and the minimum financial performance of -15.89% occurred in 2019 at Bank Jago. On the other hand, Islamic banks are known to have a maximum value of financial performance of 11.15% in 2019 and a minimum value of -20.13%. Based on the mean value of the financial performance of the two bank types, the financial performance of conventional banks shows a better value than that of Islamic banks. The mean value of the conventional banks was 1.58%, while the Islamic banks have an average of 0.52%. This shows that conventional banks are better at generating profitability.

In terms of capital, the conventional banks have a maximum value of 820.90 and a minimum value of 8.02%. The condition of capital in Islamic banks had a maximum value of 329.09 % and a minimum capital of 11.03% in 2012. Based on the mean value of capital, it is known that conventional banks have an average of 24.99%, while Islamic banks have an average of 28.81%. Overall, it can be concluded that Islamic banks have better capital adequacy compared to conventional banks.

As for financing risk, measured by NPL, the conventional banks have a maximum value of 9.92% and a minimum value of -1.15%. Meanwhile, the risk of financing, measured by NPF for Islamic banks recorded a maximum value of 4.99% and a minimum value of 0.00%. Overall, the average value of conventional



banks is found to be lower compared to Islamic banks. The average value of NPL for conventional banks was 1.36%, while the average of NPF for Islamic banks was 2.34%. However, the risk of financing for both types of banks is still relatively healthy, which is below the NPL/NPF limit set by Bank Indonesia, which is 5%.

Furthermore, the operational efficiency (measured by OER) for conventional banks has a maximum value of 261.10% and a minimum value of 33.28%. On the other hand, operational efficiency for Islamic banks has a maximum value of 217.40% and a minimum value of 47.60%. Overall, based on the average value of operational efficiency level, conventional banks have a lower value of OER (85.68%) compared to Islamic banks (95.08%). This shows that conventional banks are more efficient in terms of their operations compared to Islamic banks.

Furthermore, the maximum level of liquidity achieved by conventional banks as a whole was 971.60% and reached a minimum value of 0.00%. Liquidity in Islamic banks has a maximum value of 506.60% and a minimum value of 0.13%. Conventional banks have a higher liquidity value (96.20%) compared to Islamic banks (8.56%). However, Islamic banks were indicated to be unhealthy due to the lower liquidity value below the standard set by Bank Indonesia, which ranged from 78% - 92%.

Finally, regulatory compliance, as measured by MSR in conventional banks, has a maximum value of 627.86% and a minimum value of 2.97%. On the other hand, the maximum value of MSR of Islamic banks was 14.68% and the minimum at 2.13%. Overall, conventional banks have a higher level of regulatory compliance (8.65%) compared to Islamic banks (5.15%). However, the two banks have relatively good regulatory compliance, which is above the MSR fulfilment standard set by Bank Indonesia, which is 5% for conventional commercial banks and 4% for Islamic commercial banks.

Classical Assumption Tests

To ensure the robustness of the data panel estimation, the study conducted classic assumption tests of the multicollinearity and the heteroscedasticity. The findings of the multicollinearity and heteroscedasticity are, respectively, reported in Table 4 and Table 5.



The multicollinearity test is conducted to evaluate the existence of a linear relationship between the independent variables. In this study, the multicollinearity is tested using a correlation analysis, where a multicollinearity problem exists if the correlation coefficient is greater than 0.85. As illustrated in Table 4, the estimated correlation coefficients between each independent variable either for conventional or Islamic banks were less than 0.85, showing the non-existence of multicollinearity problems between independent variables.

Table 4
Multicollinearity Test

Variable	Conventional banks					Islamic banks				
	CA	FR	OE	LQ	RC	CA	FR	OE	LQ	RC
CA	1.00	-	-	-	-	1.00	-	-	-	-
FR	-0.11	1.00	-	-	-	-0.34	1.00	-	-	-
OE	0.05	0.38	1.00	-	-	-0.05	0.44	1.00	-	-
LQ	0.17	-0.08	0.06	1.00	-	0.60	-0.21	0.24	1.00	-
RC	0.76	-0.06	-0.08	-0.06	1.00	0.37	-0.08	0.02	0.57	1.00

Source: Secondary data, processed (2022).

Furthermore, the study reports the findings of the heteroscedasticity test in Table 5. The test is carried out to ensure the existence of a constant variance of the residuals. If the Chi-Square probability value of the White test is greater than the 5% significance level, thus shows that heteroscedasticity is not detected. As reported in Table 5, the probability values of Chi-Square for both banks were significant at the 1% level, indicating the existence of a heteroscedasticity problem in the model. The cure for the heteroscedasticity problem, the estimation is carried out by a weighting method, namely the Generalized Least Square (GLS) Weighted method based on cross-section weight.



Table 5
Heteroscedasticity Test

Test	Banks				
	Conventional	Islamic	P-value	Conventional	Islamic
F Statistic	7.33	10.83	Prob. F (5, 86)	0.00	0.00
Obs*R-squared	35.40	37.68	Prob. Chi-square (5)	0.00	0.00
Scaled Explained SS	133.99	259.92	Prob. Chi-square (5)	0.00	0.00

Source: Secondary data, processed (2022).

Banking Financial Performance: Conventional vs. Islamic Banks

Having ensured the investigated variables are free from multicollinearity and heteroscedasticity problems, the study proceeds to test the differences in the financial performance between Islamic and conventional banks in Indonesia. The findings of the comparison test are reported in Table 6. As observed from the table, the conventional banks recorded higher financial performance (mean = 1.29) compared to the Islamic banks (mean = 0.69) during the study period.

However, to ensure the differences in financial performances between conventional and Islamic banks, the independent t-test is conducted. As reported in Table 6, Levene's test suggested the use of an unequal variance assumption for testing performance differences between the banks. This is indicated by the insignificance of the F-statistic test of 1.29 (sig. = 0.26) and the significance of the t-test of 2.88 (sig. = 0.01).

Table 6
Independent Sample t-Test

Bank	Mean	Std. Dev	Assumption	Variance Equality		Mean Equality		
				F	Sig.	T	df	Sig.
Conventional	1.59	2.01	Equal variances	1.29	0.26	4.11	978	0.00
Islamic	0.69	3.22	Unequal variances	-	-	2.88	119.97	0.01

Source: Secondary data, processed (2022).

Based on the unequal variance assumption of the independent t-test, the study confirmed the existence of significant differences between the financial performance of conventional and Islamic banks.

The better performance of conventional banks is partially due to their lower financing risk and more operational efficiency compared to Islamic banks. In addition, the conventional banks that have long been established compared to newly established Islamic banks allow conventional banks to have a wider and better market share, thus recording higher performance.

Determinants of Financial Performance: Conventional vs. Islamic Banks

As discussed in the earlier section, the study conducted statistical tests to select the best panel regression model to measure the effects of capital adequacy, financial risk, operational efficiency, liquidity, and regulatory compliance on the financial performances of conventional and Islamic banks in Indonesia over the study period, 2011-2022. The findings of the panel regression model selection tests are reported in Table 7.

Table 7
Panel Regression Model Selection Tests

Bank	Effects Test	Chow Test			Hausman Test		
		Stat.	Df	Prob.	X ² Stat.	Df	Prob.
Conventional	Cross Section F	8.33	(86.78)	0.00	11.76	5	0.04
	Cross Section X ²	568.15	86	0.00			
Islamic	Cross Section F	2.90	(10.94)	0.00	27.12	5	0.00
	Cross Section X ²	29.57	10	0.00			

Source: Secondary data, processed (2022).

The study conducted first the Chow test to select the best regression model between the FEM and CEM. The study found a significant value of the tests either for the Cross-Section F or Cross-Section Chi-Square (X^2) at the 1% level for both conventional and Islamic banks. These findings suggest the FEM is the



more appropriate model compared to the CEM. The study further performed the Hausman test to select the best model between the FEM and REM. The study found a significant value of the test at the 5% level for conventional banks and the 1% level for Islamic banks. These findings suggest that, as compared to REM, the FEM is found to be the best model to estimate the determination of conventional and Islamic banking performance. Thus, in this study, the estimated effects of capital adequacy, financial risk, operational efficiency, liquidity, and regulatory compliance on the conventional and Islamic banking performance reported in Table 10 are based on the FEM.

Table 10
Determinants of Banking Performance Based on the FEM

Variable	Conventional Banks		Islamic Banks	
	Coefficient	t-Stat.	Coefficient	t-Stat.
Constant	9.527***	138.588	9.419***	17.579
CA	-0.004***	-5.505	0.009*	1.866
FR	-0.058***	-6.761	-0.018*	-1.877
OE	0.091***	113.665	0.100***	17.785
LQ	0.001***	3.082	1.440***	3.226
RC	0.002*	1.875	0.059***	2.086
	R ²	0.980	R ²	0.883
Diagnostics Test	Adj. R ²	0.978	Adj. R ²	0.864
	F-Stat.	422.614***	F-Stat.	47.299***
	D-W Stat.	1.396	D-W Stat.	1.883

Source: Secondary data, processed (2022).

Note: *** and * show significance at the 1% and 10% levels, respectively.

As observed from Table 10, the study found a negative significant effect of capital adequacy on the financial performance of conventional banks, while a positive significant effect is found for the Islamic banks at the 1% level. The estimated coefficient of -0.004 for conventional banks implies that a 100% increase in capital adequacy has contributed to a 4% decline in conventional

banking performance. The negative effect of capital on financial performance can be caused by banks tending to allocate funds to high-risk investments so that banks reserve more funds to anticipate losses. The results of this study are in line with research conducted by Putrianingsih & Yulianto (2016) and Muin (2017) where capital has a negative effect on financial performance.

Comparatively, capital adequacy is found to have a positive significant effect on Islamic banking performance with an estimated value of 0.009 at the 10% level. This indicates that a 100% increase in the capital adequacy ratio has contributed to a 9% increase in the performance of Islamic banks. The significant effect of capital on bank performance indicates that the distribution of funds to Islamic banks has been relatively optimal. These findings are in line with previous studies conducted by Zarrouk et al. (2016) and Alharbi (2017). In addition, Jha & Hui (2012) and Isanzu (2017) found a positive effect of capital on financial performance.

As for the financial risk, the study found a negative significant effect on the performances of the conventional and Islamic banks with estimated values of -0.058 and -0.018 for the conventional and Islamic banks at the 1% and 10% levels, respectively. These figures show that a 1% increase in the financial risk (measured by NPL or NPF) has contributed to a decline of 5.8% and 1.8% in the performances of conventional and Islamic banks, respectively. The higher financial risk that describes the low quality of loans or financing further signifies the improper distribution of funds by the banks to the right customers and investment activities. The distributed funds have a higher risk for the bank to recollect their disbursement funds to the third parties. Our findings are in harmony with the previous studies conducted by Isanzu (2017) and Ekinici & Poyraz (2019), who found a negative effect of financial risk on banking financial performance.

In terms of the financial risk magnitude, the Islamic banks are found to have better financial risk management, thus its impact was lower on their financial performance as compared to the conventional banks. The smaller magnitude and lower significant negative effect of financial risk on Islamic banking performance further illustrates the ability of the banks to rightly channel their financing to third parties (Widodo & Agustiyani, 2017). The maximum NPF value of Islamic banks was not too high and even still relatively healthy. Better financial risk management exercised by the Islamic banks has prevented the performance of



the banks from being as targeted. These results are in line with previous studies conducted by Trad et al. (2017) and Chowdhury et al. (2017).

Furthermore, the study documented a significant positive effect of operational efficiency on financial performances at the 1% level for both conventional and Islamic banks. Specifically, an increase in operational efficiency by 100% has caused conventional and Islamic banks to get an increase in their performances by 9.1% and 10%, respectively. Referring to the magnitude of the effect of operational efficiency on banking performance, the study recorded a higher effect of operational efficiency on the Islamic banks compared to the conventional banks. The Islamic banks are found to have better operational efficiency as compared to the conventional banks. Our findings of the positive effect of operational efficiency on financial performance are in harmony with findings of the previous studies conducted by Petria et al. (2015), Chowdhury & Rasid (2016), Rashid & Jabeen (2016), Siddique et al. (2022), and Sufyati et al. (2022). An increase in operational efficiency contributed towards enhancing banking performance.

As for the effect of liquidity on banking performance, the study found its positive effect on the performance of both conventional and Islamic banks at the 1% significance level. Specifically, an increase in liquidity ratio by 100% has contributed to a 1% and 14.4% increase in the conventional and Islamic banking performances, respectively. Again, these findings showed better financial management, particularly the cash management exercised by the Islamic banks. This could be partially caused by a lack of available funds provided by the Islamic banks to fulfil their short-term obligations. Thus, a smaller increase in their liquidity caused a sharp increase in their performances. The empirical evidence of the positive effect of liquidity on banking performance documented in the study is supported by previous studies conducted by Eng (2013), Bougatef (2017), and Trad et al. (2017).

Finally, as reported in Table 10, the study found a positive effect of regulatory compliance on the performances of both conventional (at the 10% significance level) and Islamic banks (at the 1% significance level). In more detail, a 100% increase in regulatory compliance has contributed to an increase of 0.2% and 5.9% in the performance of conventional and Islamic banks, respectively. The positive effect of regulatory compliance on banking performance is in line with the study conducted by Andriyani & Musdholifah (2017) and Purnamasari (2021).



As compared to the conventional banks, the study showed a higher effect of regulatory compliance on Islamic banking performance as compared to the conventional counterparts' performance. The results of this study contradict the research conducted by Pratito & Puspitasari (2017) but these results are in line with the research conducted by Andriyani & Musdholifah (2017).

Overall, our estimated FEM models to measure the determination of conventional and Islamic banking performance provide reliable and robust empirical shreds of evidence. This is shown by the significance values of F-statistics at the 1% level for measuring determinants of both conventional and Islamic banking performances. Additionally, as shown by the adjusted coefficient of determination (Adj-R²), a 97.80% variation in conventional banking performance is predicted by changes in the investigated determinants. Likewise, an 86.4% variation in the performance of Islamic banks is predicted by changes in their capital adequacy, financial risk, operational efficiency, liquidity, and regulatory compliance. These findings further confirmed the goodness of fit of our estimated model.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

This study comparatively measured the financial performances between conventional and Islamic banking industry and their determinants in Indonesia over the period 2011-2020. Using an independent t-test, the study found a significant difference in financial performance between conventional and Islamic banks in Indonesia. The conventional banking industry is recorded to have higher performance as compared to the Islamic banking industry. A higher market share of conventional banks in the Indonesian banking industry has eased conventional banks to operate efficiently due to their economies of scale. As newly established banks in Indonesia, Islamic banks are viewed as the fringe banks in the Indonesian banking industry that tap business opportunities, which are not left by their conventional counterparts.

Furthermore, based on the Fixed Effect Model (FEM) of panel multiple regression analysis, the study documented the negative significant effects of capital adequacy and financing risk on the financial performance of conventional



banks, while operational efficiency, liquidity and regulatory compliance have a positive effect on the conventional banking performance. Comparatively, only financial risk is documented to have a negative effect on Islamic banking performance, while other variables recorded a positive effect. Interestingly, the study found a smaller negative effect of financial risk on Islamic banking performance compared to their conventional counterparts. Likewise, the study also recorded higher positive effects of operational efficiency, liquidity, and regulatory compliance of the Islamic banking performance compared to their conventional counterparts.

Recommendation

Our findings showed a higher potentiality of the Islamic banking industry to promote their financial performance by focusing on better managing financial risk and further improving liquidity, operational efficiency, and regulatory compliance by applying good banking governance and prudential banking principles. Specifically, the banks should use their capital productively and allocatively to gain higher profits. The banks should carefully channel their funds, improve operational efficiency and liquidity, and comply with the existing banking regulations.

To further promote the banking industry in enhancing its financial performance, the government should give more support and priority to the Islamic banking industry to become a bigger entity in Indonesia. This would promote a more competitive environment for the banking industry that, in turn, provides better service quality and cheaper prices of banking products and services in Indonesia. Enhancing Islamic financial literacy by providing various socialization programs to the wider community would create positive public opinions about Islamic banks.

To provide more comprehensive empirical findings on banking performance and its determinants, future studies might not only measure Islamic banking performance by looking at its profitability but also by using a *Maqashid Shari'ah* perspective. Future studies could also consider both banking characteristics and macroeconomic variables as the determinants of banking performance as well as incorporating more Islamic banks from other Muslim countries for comparison.

REFERENCES

- Abubakar, A., & Gani, I. M. (2013). Impact of banking sector development on economic growth: Another look at the evidence from Nigeria. *Journal of Business Management & Social Sciences Research (JBM&SSR)*, 2(4), 47-57. <https://doi.org/10.21608/sinjas.2021.67821.1011>.
- Abusharbeh, M. T. (2017). The impact of banking sector on economic growth: Empirical analysis from Palestinian economy. *Journal of Emerging Issues in Economics, Finance and Banking (JEIEFB): An Online International Research Journal*, 6(2), 2306-2316.
- Alharbi, A. T. (2017). Determinants of Islamic banks' profitability: International evidence. *International Journal of Islamic and Middle Eastern Finance and Management*, 10(3),1-21. <https://doi.org/10.1108/mf.2008.00934jaa.001>.
- Andriyani, N., & Musdholifah. (2017). Pengaruh NPL, CAR, LDR, LTA, GWM dan GDP terhadap kinerja keuangan bank umum persero di Indonesia periode 2008-2015. *Jurnal Ilmu Manajemen*, 5(3), 1-12.
- Bolarinwa, S. T., Obembe, O. B., & Olaniyi, C. (2019). Re-examining the determinants of bank profitability in Nigeria. *Journal of Economic Studies*, 46(3), 633-651. <https://doi.org/10.1108/JES-09-2017-0246>.
- Bougatef, K. (2017). Determinants of bank profitability in Tunisia: Does corruption matter? *Journal of Money Laundering Control*, 20(1), 70-78. <https://doi.org/10.1108/JMLC-10-2015-0044>.
- Chowdhury, M. A. F., Haque, M. M., & Masih, M. (2017). Re-examining the determinants of islamic bank performance: New evidence from dynamic GMM, quantile regression, and wavelet coherence approaches. *Emerging Markets Finance and Trade*, 53(7), 1519-1534. <https://doi.org/10.1080/1540496X.2016.1250076>.
- Chowdhury, M. A. F., & Rasid, M. E. S. M. (2016). Determinants of performance of islamic banks in GCC countries: Dynamic GMM approach. In *Advances in Islamic Finance, Marketing, and Management*, 49-80. <https://doi.org/10.1108/978-1-78635-899-820161005>.
- Dodoev, K. (2018). Comparative analysis of Islamic and conventional banks. *Global Journal of Management and Business Research: C Finance*, 18(6), 0-5.



- Ekinci, R., & Poyraz, G. (2019). The effect of credit risk on financial performance of deposit banks in Turkey. *Procedia Computer Science*, 158, 979–987. <https://doi.org/10.1016/j.procs.2019.09.139>.
- Elshaday, T., Kenenisa, D., & Mohammed, S. (2018). Determinant of financial performance of commercial banks in Ethiopia: Special emphasis on private commercial banks. *African Journal of Business Management*, 12(1), 1–10. <https://doi.org/10.5897/ajbm2017.8470>.
- Elvira, H., Akuntansi, J., Bandung, P. N., & Mauluddi, H. A. (2020). The effect of third party funds and reserves requirements on return on assets in conventional commercial banks. *Indonesian Journal of Economics and Management*, 1(1), 195–204.
- Eng, T. S. (2013). Influence of NIM, BOPO, LDR, NPL and CAR against ROA of international bank and national bank go public period 2007-2011. *Jurnal Dinamika Manajemen*, 1(3), 153–167.
- Ferrouhi, E. M. (2014). Bank liquidity and financial performance: Evidence from Moroccan banking industry. *Business: Theory and Practice*, 15(4), 351–361. <https://doi.org/10.3846/btp.2014.443>.
- Firdausi, I. (2016). Analisis pengaruh kinerja perbankan terhadap dana pihak ketiga Bank Persero. *Jurnal Keuangan dan Perbankan*, 20(3), 487–495. <https://doi.org/10.26905/jkdp.v20i3.318>.
- Gabriel, O., Victor, I. E., & Innocent, I. O. (2019). Effect of Non-performing loans on the financial performance of commercial banks in Nigeria. *American International Journal of Business and Management Studies*, 1(2), 1–9. <https://doi.org/10.46545/aijbms.v1i2.82>.
- Hamdani, Wahyuni, N., Amin, A., & Sulfitra. (2018). Analisis faktor-faktor yang mempengaruhi kinerja keuangan bank umum syariah yang terdaftar di bursa efek Indonesia (BEI) (Periode 2014-2016), 2(2), 62–73.
- Sufyati, H.S., Handayani, T., Maulida, S., & Melati, M. (2022). Financial performance and health analysis of Islamic banking pre-Mega Merger. *Equilibrium: Jurnal Ekonomi Syariah*, 10(1), 91-108. <https://doi.org/10.21043/equilibrium.v10i1.14852>.
- Bank Indonesia. (2012). *Kodifikasi Peraturan Bank Indonesia Kelembagaan Penilaian Tingkat Kesehatan Bank*. Jakarta: Bank Indonesia.

- Isanzu, J. S. (2017). The impact of credit risk on the financial performance of Chinese Banks. *Journal of International Business Research and Marketing*, 2(3), 14-17. <https://doi.org/10.18775/jibrm.1849-8558.2015.23.3002>.
- Jha, S., & Hui, X. (2012). A comparison of financial performance of commercial banks: A case study of Nepal. *African Journal of Business Management*, 6(25), 7601-7611. <https://doi.org/10.5897/ajbm11.3073>.
- Jokipii, T., & Monnin, P. (2013). The impact of banking sector stability on the real economy. *Journal of International Money and Finance*, 32(1), 1-16. <https://doi.org/10.1016/j.jimonfin.2012.02.008>.
- Khan, I., Khan, M., & Tahir, M. (2017). Performance comparison of Islamic and conventional banks: Empirical evidence from Pakistan Imran Khan, Mehreen Khan, Muhammad Tahir,. *International Journal of Islamic and Middle Eastern Finance and Management*, 9(3), 134-149.
- Majid, M. S. A., & Ulina, S. (2020). Does the 2008-global financial crisis matter for the determinants of conventional and Islamic banking performances in Indonesia? *Jurnal Ekonomi dan Keuangan Islam*, 6(2), 77-90. <https://doi.org/10.20885/jeki.vol6.iss2.art1>.
- Mathuva, D. and Nyangu, M. (2022). Does banking regulatory regime affect the quality of bank earnings in the East African region?. *Journal of Accounting in Emerging Economies*, 12(3), 433-467. <https://doi.org/10.1108/JAEE-12-2020-0325>.
- Muin, S. A. (2017). Analisis Faktor-faktor yang mempengaruhi rentabilitas pada PT.Bank Rakyat Indonesia (Persero) Tbk. periode 2011-2016. *Jurnal Economics*, 5(2), 137-147.
- Ndoricimpa, A. (2020). Threshold effects of public debt on economic growth in Africa: A new evidence. *Journal of Economics and Development*, 22(2), 187-207. <https://doi.org/10.1108/jed-01-2020-0001>.
- OJK. (2015). *Potensi Pertumbuhan Ekonomi ditinjau dari Penyaluran Kredit Perbankan kepada Sektor Prioritas*. Otoritas Jasa Keuangan, 58. [https://www.ojk.go.id/id/berita-dan-kegiatan/publikasi/Documents/Pages/Potensi-Pertumbuhan-Ekonomi-ditinjau-dari-Penyaluran-Kredit-Perbankan-Kepada-Sektor-Prioritas/KajianKredit-PertumbuhanEko \(final\).pdf](https://www.ojk.go.id/id/berita-dan-kegiatan/publikasi/Documents/Pages/Potensi-Pertumbuhan-Ekonomi-ditinjau-dari-Penyaluran-Kredit-Perbankan-Kepada-Sektor-Prioritas/KajianKredit-PertumbuhanEko%20(final).pdf).



- Ozurumba, B. A. (2016). Impact of non-performing loans on the performance of selected commercial banks in Nigeria. *Research Journal of Finance and Accounting*, 7(16), 95–109. www.iiste.org.
- Petria, N., Capraru, B., & Ihnatov, I. (2015). Determinants of banks' profitability: Evidence from EU 27 banking systems. *Procedia Economics and Finance*, 20(15), 518–524. [https://doi.org/10.1016/s2212-5671\(15\)00104-5](https://doi.org/10.1016/s2212-5671(15)00104-5).
- Pratito, D. W., & Puspitasari, D. (2017). Analisis pengaruh kebijakan giro wajib minimum (GWM), posisi devisa netto (PDN), loan to deposit ratio (LDR), cadangan kerugian penurunan nilai (CKPN), dan suku bunga sbi terhadap perubahan laba (Studi pada bank umum swasta nasional devisa di Indonesia periode 2009-2013). *Jurnal Dinamika Sosial Budaya*, 17(2), 228. <https://doi.org/10.26623/jdsb.v17i2.488>.
- Purnamasari, D. (2021). Pengaruh pendapatan bagi hasil masyarakat, financing to deposit ratio (FDR), capital adequacy ratio (CAR), dan giro wajib minimum (GWM) terhadap profitabilitas (ROA) PT Bank BRI Syariah periode 2012-2019. *Thesis*. UIN Satu Tulungagung.
- Putrianingsih, D. I., & Yulianto, A. (2016). Pengaruh non performing loan (NPL) dan capital adequacy ratio (CAR) terhadap profitabilitas. *Management Analysis Journal*, 5(2), 110–115. <http://maj.unnes.ac.id>.
- Rashid, A., & Jabeen, S. (2016). Analyzing performance determinants: Conventional versus Islamic Banks in Pakistan. *Borsa Istanbul Review*, 16(2), 92–107. <https://doi.org/10.1016/j.bir.2016.03.002>.
- Setiawan, A. (2017). Analisis Pengaruh tingkat kesehatan bank terhadap return on asset. *Jurnal Analisa Akuntansi dan Perpajakan*, 1(2), 138–151. <https://doi.org/10.25139/jaap.v1i2.346>.
- Siddique, A., Khan, M. A., & Khan, Z. (2022). The effect of credit risk management and bank-specific factors on the financial performance of the South Asian commercial banks. *Asian Journal of Accounting Research*, 7(2), 182–194. <https://doi.org/10.1108/AJAR-08-2020-0071>.
- Simatupang, H. B. (2019). Peranan perbankan dalam meningkatkan perekonomian Indonesia. *JRAM (Jurnal Riset Akuntansi Multiparadigma)*, 6(2), 136–146. <https://jurnal.uisu.ac.id/index.php/JRAM/article/view/2184%0Ahttps://jurnal.uisu.ac.id/index.php/JRAM/article/>

viewFile/2184/1510.

- Suwarno, R. C., & Muthohar, A. M. (2018). Analisis pengaruh NPF, FDR, BOPO, CAR, dan GCG terhadap kinerja keuangan bank umum syariah di Indonesia periode 2013-2017. *BISNIS : Jurnal Bisnis Dan Manajemen Islam*, 6(1), 94-109. <https://doi.org/10.21043/bisnis.v6i1.3699>.
- Tabash, M. I., Yahya, A. T., & Akhtar, A. (2017). Financial performance comparison of Islamic and conventional banks in the United Arab Emirates (UAE). *International Conference on Advances in Business, Management and Law (ICABML) 2017*, 1(1), 477-494. <https://doi.org/10.30585/icabml-cp.v1i1.39>.
- Tan, Y., Floros, C., & Anchor, J. (2017). The profitability of Chinese banks: Impacts of risk, competition and efficiency. *Review of Accounting and Finance*, 16(1), 86-105. <https://doi.org/10.1108/RAF-05-2015-0072>.
- Trad, N., Trabelsi, M. A., & Goux, J. F. (2017). Risk and profitability of Islamic banks: A religious deception or an alternative solution? *European Research on Management and Business Economics*, 23(1), 40-45. <https://doi.org/10.1016/j.iedeen.2016.09.001>.
- Uddin, M. S., Ahsan, M. K., & Haque, M. A. (2017). Comparisons of financial performance of Islamic banks and conventional banks in Bangladesh. *ABC Research Alert*, 5(2), 9-20. <https://doi.org/10.18034/ra.v5i2.313>.
- Ulina, S., & Majid, M. S. A. (2020). A Comparative analysis of determinants of Islamic and conventional banking performances in Indonesia. *Amwaluna: Jurnal Ekonomi dan Keuangan Syariah*, 4(2), 176-192.
- Warsa, N. M. I. U. P., & Mustanda, I. K. (2016). Pengaruh CAR, LDR dan NPL terhadap ROA pada sektor perbankan di Indonesia. *E-Jurnal Manajemen Unud*, 5(5), 2842-2870.
- Widodo, A., & Agustiyani, M. (2017). Implikasi kinerja internal perbankan syariah dan gejala indikator makroekonomi terhadap akselerasi pembiayaan bank umum syariah di Indonesia. *Equilibrium: Jurnal Ekonomi Syariah*, 5(2), 174. <https://doi.org/10.21043/equilibrium.v5i2.2456>
- Zarrouk, H., Ben Jedidia, K., & Moualhi, M. (2016). Is Islamic bank profitability driven by same forces as conventional banks? *International Journal of Islamic and Middle Eastern Finance and Management*, 9(1), 46-66. <https://doi.org/10.1108/IMEFM-12-2014-0120>

