

Risk and Profitability of Islamic Banking in Indonesia : Granger Causality Test

Adrianna Syariefur Rakhmat¹, Preatmi Nurastuti², Mohammad Hatta Fahamsyah³
^{1,2,3}Universitas Pelita Bangsa, Indonesia

Abstract

This research discusses the two-way relationship between financing risk and profitability in Islamic banks. This research is a quantitative study. The data used is secondary data sourced from the Financial Services Authority regarding Islamic Bank Financing Risk or Non-Performing Financing (NPF) and Islamic Bank Profitability or Return on Assets (ROA) in June 2014-June 2023. This research tests the two-way relationship between NPF and ROA using the Granger Causality Test. This research finds that there is only a one-way relationship between ROA and NPF.

Keywords: Risk, Profitability, Granger Causality, Islamic Banking

INTRODUCTION

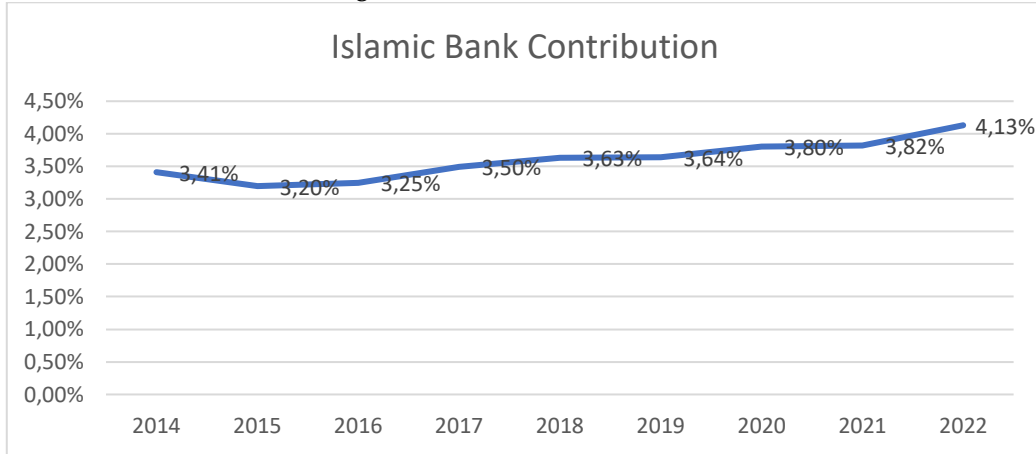
Islamic banks have an important role in the monetary transmission process in the economy. Islamic banks are able to link monetary policy indicators to real output (Ishak, 2018). Islamic banks have a significant influence on real output or real economic growth, both in the short and long term (M. Anwar et al., 2020) (Sasana et al., 2020). The relationship between economic growth and Islamic banking shows two-way causality (Anggraini, 2019). The role of Islamic banks is larger than conventional banks even though their contribution is not large (Setiawan, 2019).

In January 2021, BRI Syariah (BRIS), BNI Syariah (BNIS), and Bank Syariah Mandiri (BSM) merged to become Bank Syariah Indonesia (BSI). These three banks are State-Owned Enterprises. The government wants BSI to become the 10 Best Banks Based on assets and market capitalization. For this reason, the three banks mentioned above were proposed for merger (Hasan, 2023). With large assets, BSI can accelerate the completeness of the halal value chain in developing the halal industry, financing MSMEs, and participating in financing large-scale projects using sharia schemes (Ulfa, 2021). Apart from that, after the merger, BSI is believed to be able to achieve efficiency in its operations (Sayekti et al., 2020). In fact, another impact of the merger is that BSI will have a good reputation, work network, management and human resources (Asriani & Kurniawan, 2023).

The merger of the 3 large Islamic banks in Indonesia has had an impact on increasing Islamic bank assets, so that by 2022 their contribution can reach 4% of Indonesian banking. Islamic Bank Asset Growth in 2022 has reached 19%, far exceeding conventional bank asset growth of 9.9%. However, the low contribution of Islamic banks is a serious challenge for Islamic banks in Indonesia (Mutmainah et al., 2022).

One of the functions carried out by Islamic banks is financing. Islamic bank financing is different from financing at conventional banks. Conventional bank financing relies on an interest rate system. Meanwhile, Islamic bank financing uses a Profit Loss Sharing (PLS) and non PLS system. PLS is equity based financing which consists of mudharabah and musyarakah. Non PLS is debt based financing which consists of murabahah, salam, istishna', and ijarah. The impact of the financing provided by Islamic Bank will generate profits. Apart from generating profits, of course there are also risks faced by Islamic Banks.

Figure 1. Islamic Bank Contribution



Source : Financial Service Authority (2023)

This research discusses the two-way relationship between financing risk and profitability in Islamic banks. Previous research has not linked much financing risk to profitability in Islamic banks. Previous research has mostly discussed the influence of Islamic bank financing on profitability (Widarjono, 2022)(Addury, 2023) and financing risk (Effendi, 2017)(Mardhiyaturrositaningsih, 2022). This research is different from previous research which only analyzed one-way correlation (Roziq & Sukarno, 2021) (Syafi'i & Rusliati, 2016).

RESEARCH METHOD

This research is a quantitative study. The data used is secondary data sourced from the Financial Services Authority regarding Islamic Bank Financing Risk or Non-Performing Financing (NPF) and Islamic Bank Profitability or Return on Assets (ROA) in June 2014-June 2023. This research tests the two-way relationship between NPF and ROA using the Granger Causality Test. The research model used in this study is as follows:

$$NPF_t = \sum_{i=1}^m \alpha_i NPF_{t-i} + \sum_{i=1}^m \beta_i ROA_{t-i} + \mu_t$$

$$ROA_t = \sum_{i=1}^m \beta_i ROA_{t-i} + \sum_{i=1}^m \alpha_i NPF_{t-i} + \nu_t$$

m=amount of lag

μ_t and ν_t = disturbance error and assumed to be uncorrelated

α = Coefficient of NPF

β = coefficient of ROA

These two regression models will produce four possible coefficient values as follows ;

$\sum_{i=1}^m \alpha_i \neq 0$ and $\sum_{i=1}^m \beta_i = 0$, indicates that there is one way causality from NPF to ROA

$\sum_{i=1}^m \alpha_i = 0$ and $\sum_{i=1}^m \beta_i \neq 0$, indicates that there is one way causality from ROA to NPF

$\sum_{i=1}^m \alpha_i = 0$ and $\sum_{i=1}^m \beta_i = 0$, indicates that there is no causality from ROA to NPF and from NPF to ROA

$\sum_{i=1}^m \alpha_i \neq 0$ and $\sum_{i=1}^m \beta_i \neq 0$, indicates that there is two way causality from ROA to NPF and from NPF to ROA

RESULTS AND DISCUSSIONS

The Granger causality test requires four stages, including the stationarity test, determining the optimum lag, the cointegration test and the Granger causality test.

Stationarity Test

Based on the stationarity test using the unit root test, it can be explained that the NPF is stationary at the first difference.

Table 1. Unit Root Test for NPF and ROA

	t-Statistic	Prob.*		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.091519	0.0305	Augmented Dickey-Fuller test statistic	-6.585792	0.0000
Test critical values: 1% level	-3.499910		Test critical values: 1% level	-3.499167	
5% level	-2.891871		5% level	-2.891550	
10% level	-2.583017		10% level	-2.582846	

*MacKinnon (1996) one-sided p-values.

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Furthermore, for ROA, based on the stationarity test using the unit root test, it can be explained that ROA is stationary at the first difference.

Optimum Lag Selection

After carrying out the Stationary Test, it is continued to determine the optimum lag. Based on the table below, it can be concluded that the optimum lag selected is the second lag.

Table 2. Optimum Lag selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	831.0755	NA	2.54e-10	-16.41734	-16.36555	-16.39637
1	1046.666	418.3731*	3.85e-12*	-20.60724*	-20.45189*	-20.54435*
2	1050.337	6.979878	3.88e-12	-20.60074	-20.34182	-20.49592
3	1053.210	5.347443	3.96e-12	-20.57842	-20.21593	-20.43167
4	1054.882	3.045644	4.15e-12	-20.53232	-20.06626	-20.34364
5	1056.576	3.019576	4.35e-12	-20.48666	-19.91703	-20.25606
6	1060.060	6.071194	4.40e-12	-20.47644	-19.80324	-20.20391
7	1064.247	7.129198	4.39e-12	-20.48013	-19.70337	-20.16568
8	1065.845	2.658571	4.61e-12	-20.43258	-19.55224	-20.07619

Cointegration Test

A cointegration test is carried out to see the long-term relationship between NPF and ROA. Based on the table below, it can be concluded that NPF and ROA have no long-term relationship.

Table 3. Johansen Cointegration Test

Unrestricted Cointegration Rank Test (Trace)					Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**	Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.118328	13.57916	15.49471	0.0952	None	0.118328	13.09724	14.26460	0.0758
At most 1	0.004623	0.481918	3.841465	0.4876	At most 1	0.004623	0.481918	3.841465	0.4876

Granger Causality Test

Granger causality test is carried out to explain the direct two-way relationship between NPF and ROA. Based on the table below, the probability value of the first hypothesis is more than 0.05 or 5%, which means that there is not enough evidence to reject the first hypothesis, so NPF is declared to have no effect on ROA. The probability value of the second hypothesis is less than 0.05 or 5%, which means that the second hypothesis is rejected, so ROA is declared to have an effect on ROA. The conclusion is that there is only a one-way relationship between ROA and NPF.

Table 4. Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
ROA does not Granger Cause NPF	108	2.08008	0.1522
NPF does not Granger Cause ROA		21.7058	9.E-06

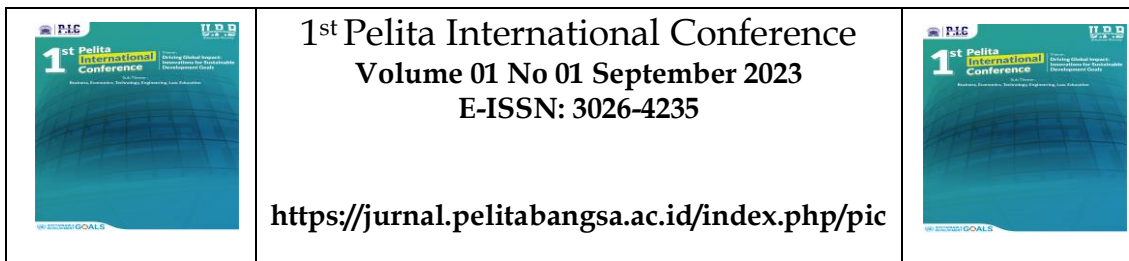
Many previous studies did not reveal the influence of profitability on risk. On the contrary, there is a lot of research that reveals the influence of financial risk (Aluko et al., 2019) (Roziq & Sukarno, 2021) (Ayuningrum, 2022), operational risk (Qabajeh et al., 2023), systematic or unsystematic risk (Aaker & Jacobson, 1987), capital risk and liquidity risk (Febiyanni & Hermanto, 2023) on profitability.

CONCLUSION

The conclusion from this research is that there is a one-way relationship between NPF and ROA, where only ROA has an effect on NPF. The relationship between NPF and ROA also does not have a long-term relationship.

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