Exploring the Dynamic Nexus between Indonesian Economic Forces and Islamic Banking Financial Performance

Nora Ria Retnasih
UIN Maulana Malik Ibrahim Malang, Indonesia
noraria@uin-malang.ac.id

Abstract

World economic uncertainty during the pandemic resulted in a decline in overall economic activity. This has an impact on the financial performance of Islamic banks, especially those related to business and consumer financing. Most customers face financial difficulties and ultimately have the potential for increased credit risk. So, there is a mutual connection between macroeconomic indicators and the financial performance of Islamic banks. This research aims to measure the magnitude of the influence of economic variables on the financial performance of Indonesian Sharia Banking for the period 2020 quarter 1 to 2022 quarter 4. The method used in this quantitative research is Panel Vector Autoregressive (PVAR). The research results show that the exchange rate significantly affects Islamic banks' financial performance. In the long term, exchange rate shocks positively impact the FDR and NPF variables, while the ROA and CAR variables give a negative response. The exchange rate also makes the largest contribution to all financial performance variables compared to interest rates and the consumer price index. The implication is for policymakers to always maintain domestic economic stability, especially the exchange rate. Exchange rate stability reflects price stability as measured by inflation and will have an impact on other economic indicators.

Keywords: Consumer Price Index; Exchange rate; Financial Performance; Interest Rate

Abstrak

Ketidakpastian ekonomi dunia selama pandemi mengakibatkan penurunan aktivitas ekonomi secara keseluruhan. Hal ini berdampak pada kinerja keuangan bank syariah terutama yang terkait dengan pembiayaan bisnis dan konsumen. Sebagian besar nasabah menghadapi kesulitan keuangan dan pada akhirnya berpotensi pada peningkatan resiko kredit. Sehingga terdapat keterikatan satu sama lain antara indicator perekonomian makro dan kinerja keuangan bank syariah. Penelitian ini bertujuan untuk mengukur besarnya pengaruh variabel ekonomi terhadap kinerja keuangan Perbankan Syariah Indonesia periode tahun 2020 triwulan 1 sampai dengan tahun 2022 triwulan 4. Metode yang digunakan dalam penelitian kuantitatif ini adalah Panel Vector Autoregressive (PVAR). Hasil penelitian menunjukkan bahwa nilai tukar berpengaruh signifikan terhadap kinerja keuangan bank syariah. Dalam jangka panjang guncangan nilai tukar memberikan dampak positif terhadap variabel FDR dan NPF, sedangkan variabel ROA dan CAR memberikan respon negatif. Selain itu, nilai tukar juga memberikan kontribusi paling besar terhadap seluruh variabel kinerja keuangan dibandingkan tingkat suku bunga dan indeks harga konsumen. Implikasinya bagi pengambil kebijakan untuk selalu menjaga stabilitas perekonomian dalam negeri, khususnya nilai tukar. Stabilitas nilai tukar mencerminkan stabilitas harga yang diukur dengan inflasi dan akan berdampak pada indikator perekonomian lainnya.

Kata kunci: *Indeks Harga Konsumen; Kinerja Keuangan; Nilai Tukar; Tingkat Suku Bunga*

INTRODUCTION

Islamic banking in Indonesia is required to continue to improve its performance in facing international competition as well as an increase in the share of the domestic banking market. The performance of banking institutions is part of the financial sector which is closely related to the economic sector of a country. According to Zeqiraj et al., (2021), improving banking performance can encourage financial stability, increase confidence in the banking system, and encourage overall economic progress which means achieving stability in the macroeconomic and monetary sectors. Milennia and Mesta (2022) add that in microeconomics banking plays a role as a source of funding, and in macroeconomics, banking can contribute to economic growth and inflation control. Economic growth and banking are interrelated so the welfare of the banking sector is influenced by economic growth and conditions, and vice versa.
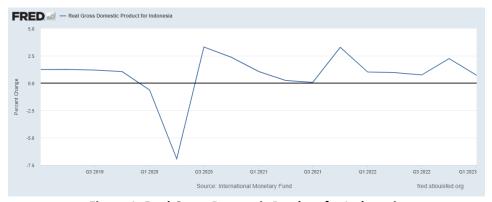

Figure 1. Real Gross Domestic Product for Indonesia
Source: Federal Reserve Bank of St. Louis, 2023

At the beginning of 2020, the world was shocked by the crisis due to the unprecedented COVID-19 pandemic. According to Surahman et al. (2022), this pandemic has had a significant impact on the real sector of the business and banking world in Indonesia. Economic growth in the second quarter experienced a contraction (Figure 1), and the current account balance and capital account experienced a deficit, as did the rupiah which weakened against the US dollar. Thus, during the pandemic, the government focused on these three sectors including health, the real sector, and banking.

According to Shah et al. (2023), during a pandemic customers and the government made more withdrawals from banks to support the economy, while borrowers did not return funds to banks which caused a large decrease in deposits. To overcome this liquidity problem, the central bank announced support for the banking sector by lowering the minimum statutory reserve fund, capital regulation, and buying sukuk. This pandemic has had a major impact on bank profitability and affected their financial performance. Habir and Wardana (2020), added that in the second quarter of 2020, the stock market also experienced a decline. However, in contrast to the 1997 monetary crisis, the current crisis resulted in a decline in loans.
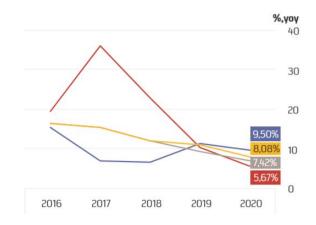
Figure 2. Islamic Banks Financing Trend
Source: OJK, 2020

According to the 2020 Financial Services Authority (OJK) Sharia Financial Development Report, the distribution of Islamic banking financing in 2020 grew by 8.08% (yoy), slowing compared to the previous year which grew by 10.89% (yoy). This slowdown was caused partly by the slowdown in the growth of Working Capital financing which slowed to 4.14% (yoy) compared to the previous year which was 6.00% (yoy) and Investment financing slowed to 0.16% year on year (yoy) from the previous year 14,84% (yoy). However, the OJK and Bank Indonesia (BI) adopted a policy to maintain bank liquidity by providing relief for non-performing loans through loan restructuring. This policy only applies to borrowers who have been harmed by the pandemic, especially those with loans under IDR 10 billion. However, not all restructured loans will be able to fulfill their obligations and thus some may still fall into Non-Performing Financing (NPF). If the NPF trend continues to increase then bank capital levels could erode if the economy does not recover sufficiently in 2021. According to Pambuko et al. (2018), as a developing country, Indonesia is still facing various shocks that can disrupt the stability of the financial system, including the Sharia banking industry. Financial crises that are more frequent, deeper, and wider make the stability of a country's financial system more vulnerable. Banking stability is very important both to support the growth of Islamic banking itself and the economy as a whole. To achieve good financial performance, banks must be supported by stable economic-monetary conditions to improve bank performance and reduce bank risk.

This research refers to several previous researchers. First, research by Pambuko et al. (2018) examines Islamic Banks' Financial Stability and Its Determinants: a Comparison Study With Conventional Banks in Indonesia from 2008 to 2013. The method used is the Vector Error Correction Model (VECM). As a result, the shock variable indicates that conventional banking is more vulnerable than Islamic banking. Islamic banking appears to be more shock-resistant and less volatile. Second, research by Istan and Fahlevi (2020), titled The Effect of External and Internal Factors on the Financial Performance of Islamic Banking. The method used is multiple linear

regression. The result has shown that GDP has a significant positive effect on ROA, Inflation has no significant or negative effect on ROA, and the interest rate has no significant effect on ROA. Meanwhile, FDR has no significant effect on ROA but has a positive effect and OER has a significant negative effect on ROA. Third, research by Karim et al. (2016), on macroeconomic indicators and bank stability, a case of banking in Indonesia. The method used is Autoregressive Distributive Lag (ARDL). Empirical results show that there is a long-term relationship between commercial bank stability and macroeconomic variables. These results also show a long-term relationship between overall banking stability and macroeconomic variables.

Fourth, research by Osundina et al. (2016), regarding the exchange rate and bank performance: evidence from Nigeria from 2005 to 2014. The method used is the ARCH LM test. The result is that Exchange rate fluctuations have an insignificant negative effect on bank profitability with ROA as an indicator, while exchange rate fluctuations have a significant negative effect on bank liquidity with LDR as an indicator. Fifth, research by Keshtgar et al. (2020), on The Impact of Exchange Rate volatility on Banking Performance (case of Iran) for the period 2007 to 2017. The method uses GARCH. The result shows that exchange rate fluctuations have a negative and significant effect on the bank's return on capital ratio. Exchange rate fluctuations contribute to increasing the ratio of bank loans to total deposits, but also increase the financial gap and create credit risk posed by the gap. Sixth, research by Moyo and Tursoy (2020), on the Impact of Inflation and Exchange Rates on the Financial Performance of Commercial Banks in South Africa from 2003 to 2019. The methods used are ARDL, FMOLS, and DOLS. The result is that there is a significant inverse relationship between inflation and ROE and there is a weak relationship between exchange rate and ROE.

Seventh, research by Sharif (2021), on the Impact of Real Exchange Rate and Real Interest Rate on Islamic Bank Performance, An Empirical Study from 2005 to 2019. The method used is Multiple Linear Regression. The results show that the performance of Islamic Banks responded negatively to real interest rates and real exchange rates. An increase in the real exchange rate will increase imports, and reduce exports and in the end, can lead to a decrease in domestic investment, and a decrease in deposits and facilities in Islamic banks, resulting in a decrease in ROA, ROE, and return on the stock. An increase in real interest rates will be followed by an increase in the rate of return on investment deposits, a decrease in profit margins in Islamic banks, and a decrease in ROA, ROE, and stock returns. And eighth, research by Kasri and Azzahra (2020), on Determinants of Bank Stability in Indonesia from 2015 to 2019. The method used is dynamic panel data. The results show that the main factors that influence banking stability in Indonesia are the exchange rate, financial inclusion, asset returns, and credit/financing growth. However, interest rates were found to hurt stability.

The research that has been conducted shows interesting findings related to the performance of Islamic banks in Indonesia in a macroeconomic context. One study

shows that Sharia banking was more stable than conventional banking during the 2008-2013 period. This highlights the resilience of Islamic banking in facing economic shocks. Other research explores the influence of macroeconomic factors such as GDP, inflation, and exchange rates on bank financial performance. In addition, several studies examine the impact of exchange rate fluctuations on bank profitability, liquidity, and credit risk.

In particular, research on Islamic banks provides deeper insight into the stability and performance of Islamic banks in the dynamics of the Indonesian economy. There are variations in research methods, bank objects studied, countries, and different periods, which provides a more complete understanding of the impact of economic factors on banking performance. Based on these conditions, this study aims to analyze the relationship between economic variables and the financial performance of Islamic banks in the era of the COVID-19 pandemic. The goal is to create synergy between the government as a policy maker and the banking sector in maintaining domestic economic stability. By knowing the causes and effects of shocks during a pandemic, policy formulation will be determined according to the needs of the banking sector.

LITERATURE REVIEW

Business Cycle Theory

Business Cycle Theory is a framework used to explain recurring economic fluctuations. This theory identifies four phases in the business cycle: expansion, peak, contraction, and bottom. During the expansion phase, the economy expands, and economic activity increases. The peak is the highest point of economic activity before entering the contraction phase, where economic activity declines. The base phase is the lowest point before entering the expansion phase again. This theory assumes that economic fluctuations are caused by changes in aggregate demand, investment, consumption, exports, imports, and other factors such as monetary and fiscal policies and changes in economic expectations. This theory says that a company's financial performance tends to fluctuate along with the economic business cycle. When the economy grows (expansion phase), companies usually experience increases in revenue and profits. However, during a recession (contraction phase), companies may face a decline in revenue and profits (Mankiw, 1997).

Financial Intermediation Theory

Financial Intermediation Theory states that financial institutions, such as banks, act as intermediaries between borrowers and depositors. They collect funds from depositors and provide loans to borrowers. In this process, they facilitate the flow of funds in the economy. Macroeconomic conditions can influence these intermediation activities. During a sluggish economy, demand for loans may decrease, while during economic growth, demand for loans may increase. Additionally, credit risk is likely to increase as more borrowers experience financial

difficulties. Therefore, banks need to manage these risks more stringently, which can affect their net profits (Mishkin, 2007).

The Relationship between Macroeconomics and Financial Performance

The macroeconomic conditions of a country will affect economic conditions and ultimately affect banking financial performance. According to Sari et al. (2022), interest rates are an implementation of monetary policy that determines a person's interest in saving or investing. The interest rate is the number of Rupiah held for using the funds as compensation. Changes in interest rates are changes in the demand for money (credit). An increase in interest in tariffs results in a decrease in aggregate demand or investment spending. In addition, the exchange rate is also an indicator of economic stability. Countries with strong exchange rates (having several transactions) have a strong influence on world economic fundamentals so market participants and investors will usually respond to the central bank policies of developed countries towards this interest rate to take advantage of this moment to get maximum profit. And, no less important is inflation. Inflation is an event of rising prices in the economy. In principle, not all inflation has a negative effect, because if managed properly, inflation can have a positive impact on the country's economic growth.

According to Milennia and Mesta (2022), the measurement of financial performance is an activity to assess the efficiency and effectiveness of a bank in obtaining profit and achieving a certain cash position in a certain period. Achieving good performance will determine the growth rate of the bank's performance as a whole. To measure the company's financial performance, financial ratios can be used. The financial ratios of banks are more complex compared to non-bank companies because the risks faced by banks are far greater than those of non-bank companies, so there is a special ratio to pay attention to the soundness of the bank. Financial performance can be measured through financial ratios that are reported each period including capital ratios, quality of earning assets, liquidity, profitability, and efficiency.

RESEARCH METHOD

The data used to see the relationship between economic variables and financial performance is panel data, which is a combination of cross-section and time series. The cross-section data used consists of 6 Islamic banks registered with the OJK, namely Bank Central Asia (BCA) Syariah, Bank Syariah Indonesia (BSI), Bank Tabungan Pensiun Nasional (BTPN) Syariah, Bank Mega Syariah, Bank Muamalat, and Bank Panin Syariah. The time series data used is the period 2020 quarter 1 to 2022 quarter 4. The economic variables in question are the exchange rate (ER), interest rates (IR), and the consumer price index as an inflation indicator (CPI). Financial performance uses four ratios including Financing to Deposit Ratio (FDR), Return on Assets (ROA), Non-Performing Financing (NPF), and Capital Adequacy Ratio (CAR). This study also

excludes exogenous variables and assumes all variables are endogenous so that the Panel Vector Autoregressive (PVAR) model is used. By using PVAR, this study examines the extent to which changes in financial performance indicators in several Islamic banks are caused by changes in economic conditions in Indonesia. To facilitate the computation of data processing, this research uses the help of E-views software. The data analysis model in this study is divided into several stages. First, the stationarity test. Before building a VAR Panel model, it is important to ensure the stationarity of the data set used in the study. Second, the cointegration test. This test is used to see the long-term relationship between variables in the model. Third, Panel Vector Autoregressive Test. The model in this test refers to Rezitis and Ahammad, (2015) which is formulated as follows.

$$Y_{it} = \alpha_{it} + A_{it}(L) Y_{t-1} + U_{it} \qquad U_{it}(0, \sigma^2_i) \qquad (1)$$

The monetary variables used are ER, IR, and CPI. While the financial performance variables used are FDR, ROA, NPF, and CAR. The model exhibits three important characteristics: first, the model coefficients are allowed to vary over time; second, dynamic relationships are allowed to be unit-specific; and third, dynamic feedback across units is possible and this allows for interdependence across lagging units. Fourth, the impulse response function (IRF) test. This test is one of the analyses in VAR to know the response of endogenous variables in the VAR system caused by shocks or changes in interference variables.

RESULTS AND DISCUSSION

Results

The results of the stationarity test or the unit root of the panel model using the Hadri Z-Stat test are described in Table 1.

Table 1. Unit Root Test

Variable	Statistic	Value Prob.	Information
CPI	8.62909	0.0000	Stationary at 1st Difference
IR	3.74268	0.0001	Stationary at 1st Difference
ER	3.29759	0.0005	Stationary at 1st Difference
FDR	5.59716	0.0000	Stationary at 1st Difference
ROA	2.63618	0.0042	Stationary at 1st Difference
NPF	10.6720	0.0000	Stationary at 1st Difference
CAR	8.94897	0.0000	Stationary at 1st Difference

Source: Author (2023)

Based on the results of the stationarity test, it can be concluded that the data is stationary on the 1st difference test. This can be seen from the probability value which is less than 5 percent or 0.05 in other words all variables are free from the unit root problem and the test can be continued at the next stage. Furthermore, the panel model cointegration test uses the Pedroni Residual Cointegration Test which is described in Table 2.

Table 2. Co-integration Test

Cointegration Test	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-1.188925	0.8828	-1.994350	0.9769
Panel rho-Statistic	2.278913	0.9887	2.377583	0.9913

Source: Author (2023)

In the cointegration test, the results show that the probability value on the v-statistic panel test and the rho-statistic panel exceeds a significance of 5 percent or 0.05, so it can be said that there is no long-term relationship between the research variables. In addition, this test also proves that the right model to be used in research is PVAR. According to Antonio et al. (2013) if the data is stationary at degree 1 and there is no integration, then the appropriate model is VAR. Next, the PVAR test is carried out using the t-statistical test as follows.

Table 3. PVAR T-Statistic Test

Vector Autoregression Estimates
Date: 05/12/23   Time: 20:18
Sample (adjusted): 2020Q3 2022Q4
Included observations: 57 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	ER	CPI	IR
FDR(-1)	3.703161	-0.008844	-0.000566
	(2.40984)	(0.00612)	(0.00175)
	[1.53668]	[-1.44501]	[-0.32415]
FDR(-2)	-3.625989	0.009015	0.000766
	(2.54162)	(0.00645)	(0.00184)
	[-1.42664]	[1.39658]	[0.41600]
ROA(-1)	20.00827	-0.051582	0.008554
	(14.6368)	(0.03717)	(0.01060)
	[1.36698]	[-1.38763]	[0.80696]
ROA(-2)	-21.23862	0.053879	-0.008536
	(13.9732)	(0.03549)	(0.01012)
	[-1.51995]	[1.51826]	[-0.84351]
NPF(-1)	12.87158	-0.034618	0.013060
	(23.4312)	(0.05951)	(0.01697)
	[0.54934]	[-0.58174]	[0.76961]
NPF(-2)	-9.459924	0.026347	-0.008428
	(23.2852)	(0.05914)	(0.01686)
	[-0.40626]	[0.44552]	[-0.49978]
CAR(-1)	1.569612	-0.002838	0.006527
	(4.45192)	(0.01131)	(0.00322)
	[0.35257]	[-0.25099]	[2.02438]

CAR(-2)	-1.391612	**0.002200**	**-0.006398**
	(4.50020)	**(0.01143)**	**(0.00326)**
	[-0.30923]	**[0.19253]**	**[-1.96315]**
C	-10969.50	-101.6596	-11.27071
	(5198.06)	(13.2014)	(3.76459)
	[-2.11031]	[-7.70067]	[-2.99387]
R-squared	0.965300	0.994096	0.988571
Adj. R-squared	0.953734	0.992127	0.984761
Sum sq. resids	468776.7	3.023587	0.245878
S.E. equation	105.6473	0.268310	0.076513
F-statistic	83.45656	505.0931	259.4858
Log likelihood	-337.8022	2.813811	74.33068
Akaike AIC	12.37902	0.427586	-2.081778
Schwarz SC	12.91667	0.965231	-1.544133
Mean dependent	14694.49	108.3530	3.868421
S.D. dependent	491.1649	3.023976	0.619809
Determinant resid covariance (dof adj.)		12.37272	
Determinant resid covariance		1.459104	
Log likelihood		-576.9244	
Akaike information criterion		23.92717	
Schwarz criterion		27.69069	
Number of coefficients		105	

Source: Author (2023)

Based on the results of PVAR test, the model estimation equation is obtained as follows.

CPI_t = -101.6596 - 0.008844 FDR $(-1)_{t-1}$ + 0.009015 FDR $(-2)_{t-1}$ - 0.051582 ROA$(-1)_{t-1}$ + 0.053879 ROA$(-2)_{t-1}$ - 0.034618 NPF$(-1)_{t-1}$ + 0.026347 NPF$(-2)_{t-1}$ - 0.002838 CAR$(-1)_{t-1}$ − 1.391612 CAR$(-2)_{t-1}$

The results of the PVAR test show that all financial performance variables at Islamic Banks have a significant effect on the CPI variable in both lag 1 and 2 where the probability value is less than 5 percent or 0.05 significance. This means that the ups and downs of the Bank's financial performance will have an impact on the Consumer Price Index, both positively and negatively.

IR_t = -11.27071 - 0.000566 FDR $(-1)_{t-1}$ + 0.000766 FDR $(-2)_{t-1}$ + 0.008554 ROA$(-1)_{t-1}$ - 0.008536 ROA$(-2)_{t-1}$ + 0.013060 NPF$(-1)_{t-1}$ - 0.008428 NPF$(-2)_{t-1}$ + 0.006527 CAR$(-1)_{t-1}$ − 0.006398 CAR$(-2)_{t-1}$

Furthermore, the financial performance variable also significantly influences the IR variable in both lag 1 and lag 2. The fluctuations in interest rates are more or less influenced by the variables FDR, ROA, NPF, and CAR both positively and negatively. Meanwhile, the exchange rate PVAR test results show no significant effect of financial performance variables.

Conversely, the ER variable has a significant effect on FDR, ROA, NPF, and CAR with a probability value of less than 5 percent or 0.05.

$FDR_t = 820.3921 + 0.009526\ ER\ (-1)_{t-1} - 0.000190\ ER\ (-2)_{t-1}$

$ROA_t = -17.06329 - 0.001142\ ER\ (-1)_{t-1} - 0.000507\ ER\ (-2)_{t-1}$

$NPF_t = 35.75728 + 0.001129\ ER\ (-1)_{t-1} + 0.000594\ ER\ (-2)_{t-1}$

$CAR_t = -248.3545 + 0.001065\ ER\ (-1)_{t-1} - 0.000911\ ER\ (-2)_{t-1}$

The ER variable affects FDR and CAR positively at lag 1 and negatively at lag 2. The ROA variable has a negative effect on lags 1 and 2. Meanwhile, the NPF variable has a positive effect on lags 1 and 2. Overall, it can be concluded that the financial performance variable is more influenced by changes in exchange rates, on the contrary, this variable affects economic variables through interest rates and the consumer price index. In addition, the value adjusts. R-squared shows a result of 0.95, this shows that the variables used can describe a good relationship between macroeconomic variables and the financial performance of Islamic banks by 95 percent. Where the rest is influenced by other variables not discussed in this model.

Furthermore, the IRF test is part of the PVAR estimation which is used to see how much influence a change in one standard deviation of a variable on the variable itself and other variables. The response to the financial performance of Islamic banks during the study period due to shocks in the economic variables is seen in the results of the IRF test in Figure 3.
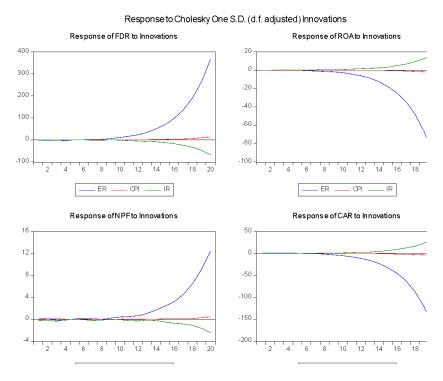

Figure 3. IRF Test

Source: Author (2023)

The results of the IRF test explain 4 conditions of each financial performance variable for 20 research periods. First, is the response to the FDR variable. Figure 3 shows that FDR responds to changes in economic conditions during the study period

both positively and negatively. FDR responded negatively to ER shocks in the 1st period of the study by -1.198637 points. Furthermore, the response turned positive in the 6th period by 0.896460 points and continued to increase until the 20th period by 366.3172 points. Furthermore, shocks to the CPI variable responded positively during the study period by 0.814414 points in the 1st period, then increase until the 20th period by 12.51294 points. Finally, the FDR response to the IR variable shock. In the short and long term, the response was negative by -1.144279 points in the 1st period then decreased until -67.16022 points in the 20th period.

Second, is the response of the ROA variable. Shocks to the ER variable responded positively by ROA of 0.039424 in the 1st period and turned negative in the 6th period by -0.272039 until the 20th period by -93.62997 points. CPI shocks responded positively in the short term by 0.137657 points in the 1st period to the 11th period of 0.111264 points. The response turned negative in the 12th period by -0.014535 to the 20th period by -2.666940 points. And, the shock of the IR variable responded positively by ROA in the 1st period at 0.151396 points and continued to increase until the 20th period by 18.00840 points.

Third, is the response of the NPF variable. Shocks on the ER variable responded positively in the 1st period of 0.106731 points. This response turned negative in the 2nd period by -0.020109 points and returned positive until the 20th period by 12.41640 points. NPF responded positively to shocks in the CPI variable in the 1st period by 0.107949 points and continued to increase until the 20th period by 0.464013 points. And, the shock of the IR variable responded negatively during the study period to -0.213624 in the 1st period and decreased to -2.394947 in the 20th period.

Fourth, is the response of the CAR variable. CAR responded positively and negatively to the shock of the ER variable throughout the study period. In the first period, the response was 0.019930 points and turned negative in the 6th period from -0.448268 to -168.7889 points in the 20th period. Furthermore, the CPI variable shocks were responded positively and negatively by CAR throughout the study period, where the response in the 1st period was 0.558278 points and decreased until the 20th period by -5.005542 points. Finally, the shock on the IR variable responded positively by CAR in the 1st period of 0.136123 points and continued to increase until the end of the study period of 32.49892 points.

And the last test. The results of the Variance Decomposition (VD) analysis explain the role of each variable on other variables so that it can be seen which variables contribute more to explaining changes in a variable in the financial performance of Islamic banks. The explanation for the VD test results will be presented in Figure 4.
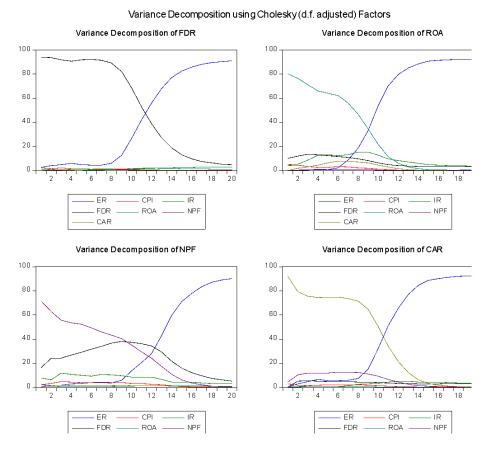
Figure 4. VD Test

Source: Author (2023)

Figure 4. explains how much the contribution of each variable to changes in the value of the financial performance of Islamic banks. First, is the FDR variable. Throughout the observation period, the FDR variation is determined by changes in the variables themselves. In the first period, the contribution was 94 percent and continued to decline until the 20th period by 4.7 percent. The ER variable makes a small contribution in the first period of 2.5 percent and expands to 91 percent at the end of the period as well as being the largest contributor in the long term to the FDR value. The CPI variable contributed 1.1 percent in the first period and decreased to 0.1 percent in the 20th period. The IR variable contributed 2.3 percent in the first period and stabilized at 2.9 percent until the end of the period. While the rest, namely the financial variables ROA, NPF, and CAR did not contribute to the FDR value in the first period. The contribution of the three was quite small until the end of the period with 0.98 percent on ROA, 0.03 percent on NPF, and 0.01 on CAR.

The second is the ROA variable. Overall, the ROA value is more influenced by this variable itself in the short term by 80 percent. The largest contribution was made by the ER variable in both the medium and long term by 53 percent in the 10th period and 92 percent in the 20th period. The CPI variable contributed 4.1 percent in the 1st period and decreased to 0.06 percent in the 20th period. The IR variable contributed by 4.9 percent in period 1, then increased by 13 percent in period 5 and then decreased to 3.5 percent in period 20. As for the financial variable, FDR contributed

10 percent in period 1 but decreased to 3.3 percent at the end of the period. On the other hand, the remaining two variables, namely NPF and CAR, only have a small long-term contribution of 0.08 percent and 0.01 percent.

Third, is the NPF variable. Over the period, the NPF value is determined by this variable alone by 71 percent in the short term. Meanwhile, in the long term, this variable is more influenced by other variables. The biggest contribution is provided by the ER variable of 90 percent in the long term, while in the short term, the largest contribution is provided by the FDR variable of 16 percent and IR of 7.6 percent. ROA and CAR variables have a very small contribution of 0.9 percent and 0.02 percent.

Fourth is the CAR variable. The CAR value in the short term is determined by this variable itself by 92 percent, and the rest is influenced by other variables. The contribution of other variables in the short term is more influenced by the NPF of 4.2 percent and the CPI of 2.7 percent. Meanwhile, in the long run, the ER variable is 92.3 percent, IR is 3.4 percent, and FDR is 3.2 percent. Other variables such as CPI, ROA, and NPF only contribute a small amount of 0.07 percent, 0.5 percent, and 0.1 percent. A summary of the results of the variance decomposition test can be seen in Table 4.

Table 4. VD Test

Period	S.E.	ER	CPI	IR	FDR	ROA	NPF	CAR
Variance Decomposition of FDR:								
1	105.6473	2.561931	1.182721	2.334833	93.92052	0.000000	0.000000	0.000000
5	257.0211	4.969502	0.640534	1.374718	91.73855	0.065443	0.573829	0.637423
10	1374.379	26.60919	0.361306	0.942794	68.52614	1.620458	0.808536	1.131580
15	7197.225	82.67590	0.152020	2.406513	12.99825	1.591965	0.064861	0.110488
20	36275.16	91.11644	0.108375	2.982008	4.756773	0.985913	0.039471	0.011016
Variance Decomposition of ROA:								
1	0.268310	0.338200	4.123289	4.987442	10.17210	80.37896	0.000000	0.000000
5	1.229408	0.810732	2.684129	13.13951	12.29096	64.19832	0.532863	6.343490
10	5.391398	53.43481	1.136711	12.47359	6.360165	21.60688	0.421377	4.566458
15	26.61481	90.62231	0.051804	4.942543	3.200296	0.805842	0.139706	0.237495
20	132.9409	92.45017	0.068008	3.565694	3.307674	0.514793	0.082240	0.011425
Variance Decomposition of NPF:								
1	0.076513	1.904708	1.948421	7.630358	16.41647	0.637102	71.46294	0.000000
5	0.383278	3.172578	3.823315	9.783971	29.15354	0.505547	52.24883	1.312217
10	2.231879	13.49319	3.226046	8.382850	37.44619	0.846363	35.14835	1.457016
15	11.57604	71.20714	0.789023	4.108313	15.96793	1.269996	6.230610	0.426991
20	58.33625	90.18003	0.143320	3.215735	5.174965	0.934364	0.327166	0.024425
Variance Decomposition of CAR:								
1	7.488657	0.003567	2.799293	0.166421	0.067113	0.541730	4.271296	92.15058
5	15.83107	5.588929	2.017140	0.352089	4.704532	0.427093	11.92339	74.98683
10	27.29645	32.11648	1.457108	3.004487	3.751363	0.240800	8.956280	50.47349
15	108.6579	88.60784	0.100234	4.119605	2.833630	0.268759	0.831268	3.238666
20	553.4272	92.39633	0.073413	3.483479	3.238833	0.564738	0.122565	0.120644

Source: Author (2023)

Overall, it can be concluded that the results of the variance decomposition test show that in the short term, namely the 1st period, the contribution of each variable

is more dominated by the variable itself, while in the long term, namely the 20th period, the largest contribution is provided by other variables. In this case, the exchange rate variable is the single biggest contributor that influences all variables, both economic variables and financial performance in Islamic banks.

Discussion

During the research period, Indonesia's economic conditions experienced ups and downs, this was due to the global economic shock caused by the Covid-19 virus pandemic. Almost most of the economic sectors experienced a decline in performance that more or less had an impact on the ups and downs of the performance of economic variables in the context of this study including exchange rates, interest rates, and the consumer price index as another indicator of inflation. When the pandemic occurred, the Indonesian economy was entering a recession which was marked by a decline in economic growth. According to Habir and Wardana (2020), the COVID-19 pandemic resulted in growth for the first quarter of 2020 declining from an average year-on-year (YoY) growth of 5.0% to 3.0%. This was followed by successive contractions of 5.3% in Q2 2020 and 3.5% in Q3 2020, bringing the cumulative growth to -2.0%. In addition, there was a significant decline in consumption, investment, and exports in the business sector. This condition certainly results in a snowball effect on variables and other economic sectors. In the first quarter of 2022, the Rupiah exchange rate weakened against the dollar reaching IDR 16367/US dollar, and was the weakest during the pandemic. Even though in the following quarter it showed a significant decline, entering 2022 it depreciated again to Rp. 15,731/US dollar. The weakening of the exchange rate had a significant impact on various sectors, both the real sector based on exports and imports, as well as the financial sector, especially in the form of foreign exchange transactions.

Furthermore, the level of the consumer price index also reacts to the pandemic. When compared to 2019 before the pandemic, from 2020 to 2022 the CPI value has decreased significantly. The existence of a social restriction policy implemented by the government and an increase in the unemployment rate were the main reasons for the decline in people's purchasing power during the pandemic. To overcome this, the government is trying to implement various policy packages in the form of social assistance for affected communities and business sectors so that even though the CPI tends to be low when compared to 2019, the trend continues to increase from 2020 to 2022. Another economic variable is the interest rate. This variable is part of the monetary policy implemented by Bank Indonesia (BI rate) to maintain the stability of currency circulation in society. When compared to 2019 before the pandemic occurred, throughout the research year the BI rate applied tended to decrease or be expansive. This is of course a response to the public's weak purchasing power, so the decline in the interest rate will trigger people's purchasing power in the real sector and increase currency circulation. The hope is that the wheels of the economy can turn again and save economic growth from the brink of recession. This policy lasts

until the third quarter of 2022, after which the government again increase the BI rate as a form of deciding on a contractionary monetary policy.

In addition, the impact will also continue in the financial sector, including banking. The financial performance of several banks, especially Islamic banks, has also fluctuated due to a decrease in productivity in the real sector during the pandemic. However, each bank shows a different performance from one another. The FDR value at the six Islamic Banks fluctuated from 2020 to 2022, but the trend tends to decline until the end of the period. The FDR value of Bank Panin Syariah is higher than the other five banks, and the lowest FDR value is at Bank Muamalat. Furthermore, the highest ROA value was achieved by bank BTPN Syariah, while the lowest value was achieved by Bank Panin Syariah which touched the minus level at the end of the 2021 quarter. Overall ROA fluctuations at each bank tend to be stable every quarter. Likewise, with the NPF value, the performance of several banks is quite stable except for Bank Muamalat which has experienced a significant decline from 2020 to 2022. However, the highest NPF value was also achieved by Bank Muamalat and the lowest score was achieved by Bank BCA Syariah. Finally, the performance of CAR. During the study period, the highest capital adequacy was found at Bank BTPN Syariah and the lowest at Bank Muamalat. According to Surahman et al. (2022), this impact on financial performance will affect the level of bank soundness so maintaining bank health is very important. Therefore, banks need to build coordination with various government agencies to design appropriate macroprudential policies during the COVID-19 pandemic crisis.

This study explains how the influence of one another on the economic and financial performance of Islamic banks. The results show that there is a relationship both short-term and long-term between economic variables and financial performance variables in Islamic Banks. However, each variable has a different relationship in influencing one another, besides that the magnitude of the response and contribution between variables is also different. Based on this, the discussion will be divided into three parts.

First, the relationship between exchange rate variables and financial performance. In this study, ER has a significant effect on FDR, ROA, NPF, and CAR in the short and long term. However, the effect is more dominant in the long term than in the short term. This is supported by test results which state that shocks to ER are responded to quite small in the short term and then continue to grow both positively and negatively by the four variables of Islamic Bank financial performance in the long term. In addition, the ER variable also has a very large contribution in the long term to all financial performance variables, rather than in the short term. So it can be concluded that the exchange rate is the most influential variable during the research period on the financial performance of Islamic banks in the long term, with the assumption of ceteris paribus.

The exchange rate plays an important role in Islamic banking operations in Indonesia. As the main indicator of economic activity, the exchange rate is the basis

for financial transactions carried out by Islamic banks. In this context, these banks need to ensure that the exchange rates they apply follow Sharia principles governing Islamic financial transactions. This not only concerns economic aspects but is also a reflection of compliance with the principles of justice and transparency in business. By maintaining stability and compliance with exchange rates by Sharia principles, Islamic banks can strengthen public trust and maintain the integrity and sustainability of their operations. The exchange rate will have a direct influence on Islamic banks in their operational activities related to foreign exchange, where foreign exchange transactions at Sharia banks can only be carried out for the benefit of customers and are not permitted for speculative purposes.

However, referring to the Annual Financial Reports of the six Islamic banks studied in 2022 show that not all Islamic banks use foreign currency in their operations. The bank in question is BCA Syariah, while five other banks, namely Muamalat, BSI, Mega Syariah, Panin Dubai Syariah, and BTPN Syariah already use foreign currency in their operational activities. Sharia banks use foreign exchange based on Sharia principles in the form of bilateral financing, hedging, as well as purchase and sale transactions using *aqd' al-Tahaww al-basith* and *Al Sharf* contracts. Apart from that, foreign currency is also used by four Sharia banks to store minimum statutory reserves by Regulation of Members of the Board of Governors ("PADG") No. 24/8/PADG/2022 dated 30 June 2022 concerning "Regulations for Implementing the Fulfillment of Mandatory Minimum Reserves in Rupiah and Foreign Currency for Conventional Commercial Banks, Sharia Commercial Banks, and Sharia Business Units". The realization of minimum statutory reserves in US Dollars in 2022 includes BSI at 1.18 percent, Bank Mega Syariah at 2.45 percent, Bank Muamalat at 1.84 percent, and Bank Panin Dubai Syariah at 3.33 percent.

According to Keshtgar et al. (2020), exchange rate uncertainty led to the expansion of financing and a decrease in savings and ultimately led to a deepening financial gap. Exchange rate volatility encourages speculators to enter the foreign exchange market and adversely affects the exchange rate, thereby reducing the ability to repay financing or even deviating from the allocation of funds, which increases the ratio of financing to deposits. In addition, exchange rate volatility has a negative and statistically significant effect on the bank's return on capital. Exchange rate volatility presents the banking system with various risks and thus reduces the profitability of banks. Exchange rate fluctuations can be one of the weaknesses faced by banks, especially in obtaining bank income from trading in the foreign exchange market. Thus, the effect of exchange rate fluctuations on the financial performance of Islamic banks is subjective to certain performance measures used in the study. The results of this study are in line with the research by Kasri and Azzahra (2020); Keshtgar et al. (2020); Moyo and Tursoy (2020); Osundina et al. (2016); Pambuko et al. (2018); and Sharif (2021).

Second, the relationship between interest rate variables and financial performance. In this study, the IR variable has no significant effect on FDR, ROA, NPF,

and CAR, but on the contrary, all financial performance variables have a significant effect on this variable. Even though it has no significant effect, shocks to the IR variable are also responded to by the four financial performance variables both in the short and long term, but the response is quite small. Likewise, with its contribution, the IR variable contributed no more than 13 percent throughout the study period.

In practice, Islamic banks do not use interest rates in their intermediary activities. This prohibition is also mentioned in the Holy Qur'an (2:278-279). According to Widagdo and Ika (2009), charging interest from someone who is forced to borrow to meet their essential consumption needs is considered an exploitative practice in Islam. In addition, the determination of interest on loans taken for productive purposes is also prohibited because it is not a form of a fair transaction. Thus, the differentiators from conventional Islamic banks are profit and loss sharing, implementation of zakat (Islamic taxpayers), avoiding *gharar* (speculation in conducting transactions or activities), and not being involved in the production or consumption of illegal goods and services. However, the interest rate in this context is more about the monetary policy implemented by Bank Indonesia to stabilize the economy due to the shock of the COVID-19 pandemic. As has been explained, to stabilize the economy expansionary monetary policy was implemented by the government through lowering interest rates. In this study, interest rates do not have a significant effect on the financial performance of Islamic banks, but the implementation of this policy will help stabilize the economy and will indirectly affect the performance of Islamic banks in the long term.

According to Maigua and Mouni (2016), the interest rate is one of the most important factors affecting the financial performance of banks. The interest rate is the price that borrowers pay for the use of the money they borrow from a lender or financial institution or the fee paid on assets borrowed. A positive response indicates that an increase in interest rates will increase the financial performance of Islamic banks. Although the magnitude of the effect is quite small, all of the variables respond to the shocks that occur. The negative response to the financial performance of Islamic banks shows that the higher the interest rate, the higher the non-performing financing will ultimately reduce other financial stability. On the other hand, positive responses indicate that high-interest rates can attract more customers to use Islamic bank products so that banks can raise more funds. The number of funds owned by the bank can maintain the balance of bank operations in collecting and distributing funds. In addition, the interest rate variable also contributed to the formation of the value of the financial performance variable with a relatively small percentage for each variable throughout the study period. In the short and long term, the contribution of interest rates is greater in the formation of CAR and ROA values than the NPF and FDR variables. The results of this study are in line with research by Karim et al. (2016); Kasri and Azzahra (2020); Pambuko et al. (2018); Sharif (2021).

Third, the relationship between the variable consumer price index and financial performance. In this study, the CPI variable does not have a significant effect on FDR,

ROA, NPF, and CAR, but on the contrary, the four financial performance variables do have a significant influence on CPI. Even so, shocks from the CPI were responded to both positively and negatively by all financial performance variables in the short and long term but the response was quite small. The CPI variable also contributes the least among ER and IR to the value of FDR, ROA, NPF, and CAR throughout the study period with a contribution of less than 5 percent. According to Marlina and Sudana (2022), price levels that are too low or too high indicate that the economy is not performing well. The price level that is by the targets set by the government has a positive influence in the sense that it can stimulate the economy to be good, increase national income, stimulate the real sector, and increase the ability to save people and is good for the investment climate. Inflation that occurred during COVID-19 did not meet the targets set by the government, which affected the performance of Islamic banks, even though the effect was not significant. This was due to the success of the government's program in maintaining macroeconomic stability so that the impact of the pandemic could be minimized.

Although the magnitude of the effect is quite small, all variables respond to shocks that occur both in the short and long term. The consumer price index reflects the level of inflation in a country's economic system. Shocks in the CPI tend to indicate weak levels of consumption and the industrial sector, this has an impact on higher levels of non-performing financing. This condition can lead to instability in the performance of Islamic banking. On the other hand, the positive response of Islamic banks to CPI shocks indicates that the CPI during the observation period was under control. So, the increase in profit sharing or profit margins is higher than the increase in costs and will ultimately increase the level of profitability and stability of Islamic banks. According to Keshtgar et al. (2020), Inflation has a negative impact on the performance of the banking system. Inflation also increases the cost of financing banks, because the net return on their investment depends on inflation. The higher the bank's liquidity index and the higher the rate of return, the higher the rate of return on capital. The results of this study are in line with research by Karim et al. (2016); Kasri and Azzahra (2020); Moyo and Tursoy (2020); Pambuko et al. (2018).

CONCLUSION

The financial performance of Islamic banks as measured by the ratio of profitability, solvency, and liquidity is not only influenced by the bank's internal factors but also by external factors such as stability in a country's economic conditions including exchange rates, interest rates, and the consumer price index. As a result, the exchange rate has a significant effect on the financial performance of Islamic banks as measured by the variables FDR, ROA, NPF, and CAR. Exchange rate shocks responded positively and negatively to the four variables in the long term. In addition, the exchange rate contributes the most to form the value of the financial performance variable. In contrast, the interest rate and consumer price index have no significant effect on all financial performance variables. However, shocks from the

two variables are still responded to by FDR, ROA, NPF, and CAR, although in relatively small amounts. The contribution of the two variables is also quite small in forming the value of the four Islamic Banks' financial performance variables.

The results of this study can be used as a reference for several parties. First, Islamic Banks, consider the condition of economic stability, especially exchange rates, consumer price index, and interest rates in maintaining their financial performance. Although the proportion of the effect is quite small, the financial performance of Islamic banks responds to changes in economic conditions. Second, customers, to consider financial performance as well as economic stability before using Islamic banking services, either as creditors or debtors. And third, the government is expected to provide insight for policymakers and market players in ensuring the stability of Islamic banking in Indonesia can be well maintained. The results of this study are also expected to enrich the literature on economics and banking, especially in emerging markets such as Indonesia.

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