Journal of Islamic Economics, Management, and Business (JIEMB)
Vol. 5, No. 1 (2023), 1-24, DOI: 10.21580/jiemb.2023.5.1.15220
Magister of Sharia Economy, Faculty of Islamic Economics and Business
Universitas Islam Negeri Walisongo (p-ISSN: 2721-0197; e-ISSN: 2721-0324)
Published online in http://journal.walisongo.ac.id/index.php/JIEMB

Determinants of Islamic banking financing in Indonesia: An empirical analysis of internal and macroeconomic factors

Dini Rahmayanti[1], Mail Hilian Batin[2], Suryati[3], Diyah Ariyani[4], Khusnul Ifada[5]

1,4 Universitas Islam Negeri Salatiga, Indonesia
2 Universitas Islam Negeri Raden Fatah Palembang, Indonesia
3 Universitas Islam Negeri Raden Mas Said Surakarta
5 Universiti Islam Sulthan Sharif Ali Brunei Darussalam
Corresponding author: dinirahmayanti10@uinsalatiga.ac.id

Abstract

This article examines the internal and macroeconomic determinants affecting Islamic banking financing in Indonesia, focusing on Sharia Commercial Banks, Sharia Business Units, and Sharia People's Financing Banks. Using a quantitative methodology with monthly panel data spanning from 2019 to 2022, the study employs Vector Autoregression (VAR) and Vector Error Correction Model (VECM) techniques. The analysis incorporates variables such as Total Assets, Third Party Funds (TPF), Net Operating Margin (NOM), Financing to Deposit Ratio (FDR), Non-Performing Financing (NPF), Return on Assets (ROA), Equivalent Rates of mudharabah and musyarakah, BI Rate, and Inflation. Findings reveal that in the long run, TPF, NOM, ROA, and the Equivalent Rate of Musyarakah positively influence Islamic banking financing, whereas NPF and inflation exert a significant negative impact. In the short run, TPF, NOM, ROA, and the Equivalent Rate of Mudharabah are significant influencers of financing. These results highlight the critical role of effective fund management and a stable economic climate in fostering the expansion of Islamic banking financing. The study offers valuable insights for policymakers and banking institutions aiming to improve financial inclusion and economic stability through enhanced Islamic banking practices.

Keywords: Islamic banking; financing; macroeconomic factors; VAR model; VECM analysis

Introduction

Islamic banking serves as an intermediary institution, with one of its most critical functions being the channeling of collected funds to the community. The primary goal of Islamic banking financing is to support development, increase justice, promote togetherness, and ensure the equitable distribution of people's welfare (Wangsawidjaja, 2012). The community's need for financing services from Islamic banks is driven by the absence of interest,

favoring profit-sharing mechanisms, and offering a variety of products and services such as ijarah, musyarakah, mudharabah, and murabahah contracts. The expectation is that disbursed financing will foster economic growth through business expansion, job creation, and increased production, ultimately generating more income.

The volume of financing disbursed by Islamic banks is affected by a range of internal and external factors. The diagram below depicts the distribution of financing according to the types of contracts employed.

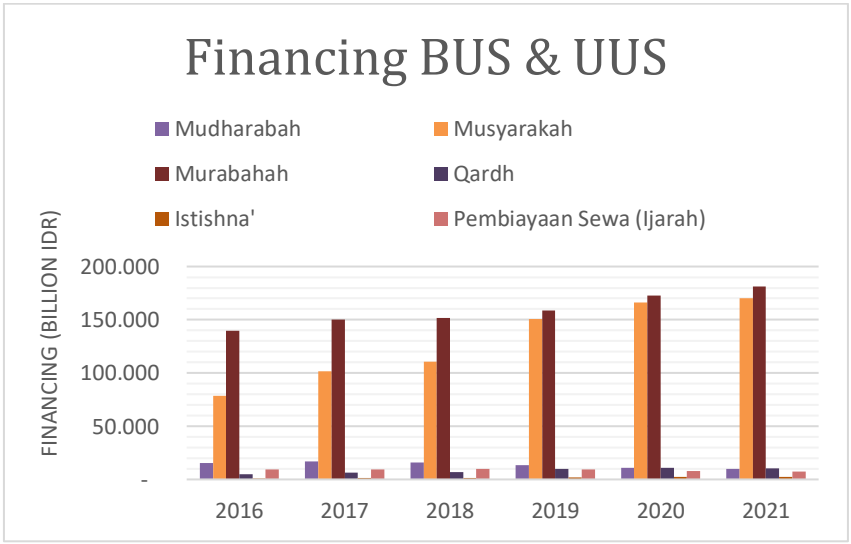

Figure 1. Financing BUS and UUS
Source: Sharia Banking Statistics (data processed)

Based on Figure 1, it is clear that the financing provided by Islamic Commercial Banks and Sharia Business Units by contract type from 2016 to 2021 has increased. The most frequently used contracts are murabahah, followed by musharakah and mudharabah contracts. In contrast, the utilization of ijarah, istishna, qardh, and mudharabah contracts remains low. During the Covid-19 pandemic (2019-2021), although there was an increase in financing distribution, the growth rate was modest. Musyarakah contracts were mainly employed by the community for business financing, with capital contributed by both parties. This indicates that recipients of Islamic banking financing are typically individuals with existing businesses and sufficient capital, aiming to expand their operations. Such conditions ensure smoother returns, minimizing

the risk of bad loans since customers already have established businesses and adequate capital.

Islamic banks, through financial intermediation and disbursed financing, affect asset growth within the institution. Data from the observation period 2019-2022 show that total Islamic banking assets increased annually, with total assets for 2019-2021 being Rp. 350,364, Rp. 397,073, and Rp. 441,789 billion, respectively. Higher asset values enhance the bank's capital structure, ensuring the placement of productive assets, including credit provision. Research by Kurniawanti (2014) supports this, indicating that total bank assets significantly positively influence the volume of profit-sharing-based financing in Islamic commercial banks in Indonesia.

The growth of Third Party Funds (TPF) reflects the performance of Islamic banks in raising funds, which in turn influences the financing they can provide. The performance of Islamic banks can also be assessed by their liquidity and profitability levels, as reflected in financial ratios. Studies have shown that TPF has a significant positive effect on financing (Adzimatinur, Hartoyo, & Wiliasih, 2015; Mughits & Wulandari, 2016; Khotmi, Wahyullah, & Fachrozi, 2021; Hermuningsih, Sari, & Rahmawati, 2020). TPF comprises funds collected from the public in the form of savings, time deposits, and other demand deposits. Therefore, as TPF increases, financing also increases, ultimately boosting bank profits.

Net Operating Margin (NOM) is used to assess a bank's management capability in handling productive assets to generate profit-sharing income (Antonio, 2001). This income is derived from operating income minus profit-sharing funds and operational costs. An increase in NOM signifies higher Islamic banking financing. Research indicates that NOM positively affects financing (Farianti et al., 2020).

The Financing to Deposit Ratio (FDR) assesses a bank's liquidity and its capacity to fulfill short-term obligations or swiftly provide financing. An elevated FDR signifies enhanced liquidity and a greater capability to efficiently allocate collected funds as loans. Studies indicate that FDR has a notably positive impact on financing, including for MSMEs (Saputri & Wibowo, 2018; Astarini et al., 2016).

The rate of return on investment in mudharabah and musyarakah systems in banks increases financing disbursed. Higher returns attract more investors to deposit funds using these systems,

thus increasing financing distribution. This is supported by research (Andraeny, 2011) indicating that profit-sharing rates significantly positively affect the volume of profit-sharing-based financing.

The Covid-19 pandemic posed significant challenges for businesses, affecting almost all sectors. Many business owners needed capital to recover, but Islamic banking financing must consider various factors for success. One critical consideration is the ability to manage business risks. Despite the pandemic's adverse impacts, businesses that managed to survive still faced capital challenges. Financing cannot be indiscriminately distributed; it must account for productive assets.

Macroeconomic factors, such as inflation, influence the volume of financing. Inflation affects the value of money collected by banks and the profitability of providing loans. Higher inflation rates lead to higher lending rates, reducing demand for credit and decreasing money circulation in the community (Nadya, Tanjung, & Sugianto, 2020). Interest rates also impact financing, with higher rates making credit more expensive and reducing borrowing (Sharif, 2016).

Based on the aforementioned discussion, the performance of Islamic banks greatly impacts the financing they offer. This research aims to investigate the factors influencing Islamic banking financing in Indonesia, considering both short-term and long-term perspectives. The study will concentrate on Sharia Commercial Banks (Bank Umum Syariah, BUS), Sharia Business Units (Usaha Unit Syariah, UUS), and Sharia People's Financing Banks (Bank Pembiayaan Rakyat Syariah, BPRS), assessing both internal and macroeconomic factors.

Literature review

The growth of banking assets is directly correlated with an increase in the funds channeled to customers. Silalahi et al. (2012) found that bank assets have a significant positive effect on lending activities in foreign banks in Indonesia. Larger assets in foreign bank affiliates tend to increase lending activities (Pontines & Siregar, 2012). When optimizing portfolios for asset placement, ownership of securities in the money or stock market shows significant negative results. This is because credit and securities placements are substitutes.

The increase in Third Party Funds (TPF) accumulated by Islamic banks promotes a rise in the financing provided. On the other hand, a reduction in collected funds leads to a decrease in the financing volume. Granting credit is a key priority for banks because their funding sources are derived from the public; hence, banks must redistribute the collected funds back to the public as loans (Yasnur & Kurniasih, 2017). The allocation of financing is the core operation of Islamic banks as profit-oriented business entities. Consequently, TPF has a substantial positive impact on financing, aligning with the findings of Siringoringo & Sijuang (2023), Giri et al. (2019), and Nur'aeni & Setiawan (2020).

Husaeni (2016) examined murabahah financing in Islamic Commercial Banks, concluding that the Financing to Deposit Ratio (FDR) has a substantial positive influence on murabaha financing. He indicated that an elevated FDR could present a liquidity risk for Islamic banks, potentially diminishing their financing portfolios. Hence, to ensure that a rising FDR results in increased financing, it is crucial to balance it with the amount of funds accumulated from the public. FDR has been found to have a notable positive impact on both MSME and non-MSME financing (Endri et al., 2020).

A higher Net Operating Margin (NOM) drives foreign banks to provide credit (Silalahi et al., 2012). Effective management of productive assets in Islamic banks to obtain revenue sharing leads to improved financing distribution and higher profit sharing.

Non-Performing Financing (NPF) ratio reflects the non-current payments in banking, correlating with reduced financing because the funds and profits expected to be returned to the banking system are hampered. This reduction decreases Return on Assets (ROA) and financing disbursement (Huljak et al., 2022). Reducing the NPF ratio can significantly benefit the financial condition and overall economy.

ROA increases financing since positive returns boost the profits received by banks, encouraging more financing activities (Husaeni, 2016). However, Astarini et al. (2016) found that ROA does not significantly impact financing for MSMEs or non-MSMEs.

The equivalent rates of mudharabah and musyarakah affect financing disbursal. Higher returns on deposits or investments increase funds accumulated in banks, leading to more financing distribution. Interest rates impact financing, serving as a crisis

prevention tool. High-interest rates reduce financing distribution due to higher returns required from borrowers, potentially leading to non-current payments. Interest rate policies impact bank credit growth (Rahmananingtyas, 2022; Tanjung, Sadalia, & Irawati, 2022).

Inflation triggers higher lending rates set by banks, affecting the credit burden on creditors. According to supply and demand theory, when prices of goods and services rise, banks increase lending rates. Higher interest rates make bank credit expensive, reducing demand for credit and subsequently decreasing the money circulating in the community (Azizah, Apriliani, Santoso, & Hapsari, 2021).

Research methods

In line with the research objectives, the authors aimed to comprehend and examine the integration of Islamic banking financing and the impact of macroeconomic shocks on financing within Islamic banks. The research design involves quantitative analysis using Islamic banking panel data from 2019 to 2022, based on monthly data. The study employs the VAR (Vector Autoregression)/VECM (Vector Error Correction Model) model, which is adept at estimating both short-term and long-term relationships.

To evaluate the intensity and speed of adjustment or response of each variable in the study, the VAR or VECM panel approach is utilized. This research adopts the restricted VAR model, also referred to as the Vector Error Correction Model (VECM). Additional restrictions are implemented due to the data's non-stationary nature at the cointegrated data level and level.

The standard mathematical equation of the VECM model derived from the VAR model is as follows:

$$\Delta X_{t-1} = \mu t + \Pi X_{t-1} + \sum \Delta X_{t-1} + \mu t$$

where Π and Γ are functions of A_i; matrix Π can be decomposed into two-dimensional matrices (nxr) α and β: Π = αβT, where α is called the adjustment matrix, and β is the cointegration vector, with r being the cointegration rank. This can be tested using the unit root test. When unit roots cannot be found, traditional econometric methods can be applied (Enders, 2014).

The VAR model is an autoregressive form that arises due to an increase in the lag value of disturbances in the dependent variable

and the error term in the equation. The variables utilized to analyze Total Assets, Third Party Funds, Financing Debt Ratio, Net Operating Margin, ERP Mudharabah, ERP Musyarakah, BI Rate, and Inflation on Islamic Bank Financing are defined as follows:

$$\begin{bmatrix} \Delta TA \\ \Delta DPK \\ \Delta FDR \\ \Delta NOM \\ \Delta NPF \\ \Delta ROA \\ \Delta ERPMudh \\ \Delta ERPMusy \\ \Delta BIRATE \\ \Delta INFLASI \end{bmatrix}_{it} = \begin{bmatrix} \alpha_0 \\ \alpha_1 \\ \alpha_2 \\ \alpha_3 \\ \alpha_4 \\ \alpha_5 \\ \alpha_6 \\ \alpha_7 \\ \alpha_8 \\ \alpha_9 \end{bmatrix} + \sum_{t-1}^{k} \tau_{it} \begin{bmatrix} \Delta TA \\ \Delta DPK \\ \Delta FDR \\ \Delta NOM \\ \Delta NPF \\ \Delta ROA \\ \Delta ERPMudh \\ \Delta ERPMusy \\ \Delta BIRATE \\ \Delta INFLASI \end{bmatrix}_{it} + \pi \begin{bmatrix} TA \\ DPK \\ FDR \\ NOM \\ NPF \\ ROA \\ ERPMudh \\ ERPMusy \\ BIRATE \\ INFLASI \end{bmatrix}_{it-1} + \begin{bmatrix} v_0 \\ v_1 \\ v_2 \\ v_3 \\ v_4 \\ v_5 \\ v_6 \\ v_7 \\ v_8 \\ v_9 \end{bmatrix}$$

Where:

α_0 is the intercept,

α_1 - α_7 are the variable coefficients,

TA_{it} represents the Total Assets of Islamic Banking iii in year t,

TPF_{it} represents Sharia Banking Third Party Funds i in year t,

FDR_{it} represents Sharia Banking Financing Debt Ratio i in year t,

NOM_{it} represents Sharia Banking Net Operating Margin i in year t,

NPF_{it} represents Non-Performing Financing i in year t,

ROA_{it} represents Return on Asset i in year t,

$ERPMudh_{it}$ represents the Equivalent Rate of Sharia Banking Mudharabah Financing i in year t,

$ERPMusy_{it}$ represents the Equivalent Rate of Sharia Banking Musyarakah Financing i in year t

BIRATEit represents the BI Rate i in year t,

INFLATION represents Sharia Banking Inflation i in year t,

v_0 -v_7 are the error term

t is the year 2019-2022

i includes BUS, UUS, and BPRS.

The stages of the VECM test are as follows:

1. **Stationarity test data**

The unit root test is a concept that has become increasingly popular for testing the stationarity of time series data using the Augmented Dickey-Fuller test (ADF) with significance levels of 1%, 5%, and 10%.

Stationarity test equation with ADF analysis:

$\Delta Y = \alpha_0 + {}_{\gamma}Y_{t-1} + \beta_i \sum^{P} \Delta Y_{t-i+1} + \varepsilon_i$

where:

ΔY_t is the form of first different,

α_0 is the intercept,

Y is the variable tested for stationary,

P is the length of the lag used in the model,

ε is the error term.

2. **Optimum lag length test**

The second step is to determine the optimal lag length for the VAR system to identify long-term relationships between variables. The determination of lag in the VAR model follows the information criteria recommended by AIC, SIC, HQ, and FPE. The criterion with the smallest value is the lag that will be used. This lag test helps prevent autocorrelation problems in the system (Basuki & Yuliadi, 2014).

3. **Cointegration test**

Cointegration is a linear relationship of non-stationary variables, all of which must be integrated to the same degree. Widarjono (2007) explains that one approach used in cointegration tests is Johansen's Multivariate Cointegration Test method.

$y_t = \alpha_1 y_t\text{-}1 + \ldots + \alpha_p y_{tp} + \beta\pi_t + \xi_t$

where:

y_t is the vector k of non-stationary variables,

π_t is the vector d on a deterministic variables,

ξ_t is the innovation vector.

if there is a cointegration relationship, the Vector Error Correction Model (VECM) is used.

4. Granger causality analysis

According to Basuki and Yuliadi (2014), the Granger causality analysis method can be conducted using Granger's Causality and Error Correction Model Causality methods. The Granger causality equation is as follows (Kuncoro, 2011):

$$Y_t = a_i Y_{t-i} + b_j X_{t-j} + v_t \text{ ..... (1)}$$

$$X_t = c_i X_{t-i} + d_j Y_{t-j} + v_t \text{ .....(2)}$$

From the above equation, it can be explained that the X_t variable does not affect the Y_t variable. If $b_j = 0$ (i = 1.2k), then X_t fails to cause Y_t (Kuncoro, 2011). To see whether the variables in the study have a causal relationship, it can be observed through the α (alpha) value (Basuki & Yuliadi, 2014). If the probability value is less than α, then H_0 is rejected, indicating a causal relationship in each variable or that the variables become leading indicators (indicators that affect price changes), and vice versa.

5. Impulse response function analysis

The impulse response function is used to see the response of endogenous variables over time to certain variable shocks and the duration of these shocks ((Basuki & Yuliadi, 2014)

Results and discussion

Stationarity test results (Augmented Dickey-Fuller (ADF))

Table 1. The ADF test results using intercept at the level and first difference

Variables	Prob. Levels	Prob. 1st Difference
P	0.0087	0.0000*
TA	0.7297	0.0000*
TPF	0.0000*	0.0000*
NOM	0.0170*	0.0000*
FDR	0.5823	0.0000*
NPF	0.5697	0.0000*
ROA	0.0775	0.0000*
ERPMUDH	0.7333	0.0000*
ERPMUSY	0.9216	0.0000*
Birate	0.0551	0.0000*
Inflation	0.5823	0.0000*

*Stationary Data

Source: Data processed in 2022

Based on the results of the unit root test using the Augmented Dickey-Fuller (ADF) test, it was observed that if the probability in the

ADF test is less than the McKinnon Critical Value at a 5% significance level, and the probability at the first difference level is below 0.05, then the time series data is considered stationary. The unit root test results showed that three variables were stationary at the level, indicating that in the original research data, only three variables were stationary at this level, while the other variables were not. Consequently, a unit root test at the first difference level was conducted. It was found that at the first difference level, the probability for each variable was below 0.05, confirming that the time series data used in this study were stationary at the first difference level.

Lag length test

Before constructing the VAR model, it is crucial to identify the optimal lag length since the exogenous variables are essentially the lags of the endogenous variables along with other exogenous variables. The findings indicate that the optimal lag length for this test is 3.

Table 2. Lag length criteria

lag	LogL	LR	FPE	AIC	SC	HQ
0	-6824.195	NA	9.67e+42	130.1942	130.4722	130.3069
1	-6038,411	1391960	3.10e+37	117.5316	120.8681*	118.8836*
2	-5915.828	191.4635	3.22e+37	117.5015	123.8963	120.0928
3	-5729,501	251.9847*	1.12e+37*	116.2572*	125.7103	120.0878

*indicates lag order selected by the criterion

Source: Data processed 2022

In this research, the optimal lag length was established by analyzing the outcomes of the LR statistics, AIC, and FPE at lag 3, which yielded values of 251.9847, 1.12e+37, and 116.2572, respectively. Consequently, the third lag was identified as the most suitable for the VECM model based on these findings.

VAR stability test

Table 3. The root of characteristic polynomia

Roots	Modulus
0.921426 - 0.121164i	0.929358
0.921426 + 0.121164i	0.929358
0.901243	0.901243
0.777414 - 0.370933i	0.861374
0.777414 + 0.370933i	0.861374
0.684216 + 0.497799i	0.846142
0.684216 - 0.497799i	0.846142

Roots	Modulus
0.832185 - 0.130389i	0.842338
0.832185 + 0.130389i	0.842338
0.492452 + 0.598698i	0.775209
0.492452 - 0.598698i	0.775209
0.127405 - 0.720608i	0.731784
0.127405 + 0.720608i	0.731784
0.196884 - 0.704678i	0.731665
0.196884 + 0.704678i	0.731665
-0.564907 + 0.444437i	0.718779
-0.564907 - 0.444437i	0.718779
0.498404 + 0.472407i	0.686713
0.498404 - 0.472407i	0.686713
0.671023	0.671023
-0.476923 - 0.413495i	0.631216
-0.476923 + 0.413495i	0.631216
-0.616712 - 0.096677i	0.624244
-0.616712 + 0.096677i	0.624244
-0.377146 - 0.354493i	0.517595
-0.377146 + 0.354493i	0.517595
0.248932 - 0.393496i	0.465624
0.248932 + 0.393496i	0.465624
-0.142080 + 0.406219i	0.430350
-0.142080 - 0.406219i	0.430350
-0.347915	0.347915
-0.033418	0.033418

Source: Data processed 2022

Based on the table 3. all values of the roots and modulus are less than 1, and the VAR model fulfills stability criteria, which states that “No root lies outside the unit circle.” This indicates that it can be used in the VAR model.

Johansen cointegration test

Before proceeding with an analysis using VECM, it is crucial to carry out a cointegration test. The existence of non-stationary variables, as revealed by the stationarity test outcomes, suggests a higher likelihood of a cointegration relationship among the variables. The cointegration test is instrumental in detecting long-term associations between the variables.

Table 4. Johansen cointegration test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistics	Critical Values	Prob.**
None *	0.815809	514.6378	263.2603	0.0001
At most, 1 *	0.607082	343.7679	219.4016	0.0000
At most, 2 *	0.509970	249.4183	179.5098	0.0000
At most, 3 *	0.402966	177.3760	143.6691	0.0002

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistics	Critical Values	Prob.**
At most, 4 *	0.339862	125.2822	111.7805	0.0052
At most 5	0.278495	83.33619	83.93712	0.0552
At most 6	0.229857	50.36819	60.06141	0.2507
At most 7	0.096208	23.98907	40.17493	0.7066
At most 8	0.090624	13.77230	24.27596	0.5562
At most 9	0.037957	4.177692	12.32090	0.6852
At most 10	0.002663	0.269333	4.129906	0.6640

Source: Data processed 2022

The results of the Johansen cointegration test indicate a long-term integration relationship between the independent variables (Total assets, TPF, NOM, FDR, NPF, ROA, ERPMudharabah, ERPMusyarakah, BI Rate, and Inflation) and the dependent variable (Islamic Banking Financing). A variable is considered cointegrated if the trace-statistics value exceeds the critical value. The data reveals that there are five cointegrated equations at a 5% significance level.

VECM test analysis

Table 5. VECM test results

VECM test results in the short term			VECM test results on the long term		
Variables	**Coefficient**	**T-Statistics**	**Variables**	**Coefficients**	**T-Statistics**
CointEq1	-0.019701	[-4.54863]*	TA(-1)	-3,388,254	[-0.60712]
D(TA(-1))	3.855174	[0.65044]	TPF(-1)	57.77287	[10.2327]*
D(TA(-2))	8.590538	[1.26520]	NOM(-1)	12648901	[2.60323]*
D(TA(-3))	7.353793	[1.19101]	FDR(-1)	-569998.6	[-1.08034]
D(TPF(-1))	1.208075	[4.60423]*	NPF(-1)	-13270930	[-3.84989]*
D(TPF(-2))	1.174109	[4.21724]*	ROA(-1)	18087162	[1.75814]*
D(TPF(-3))	0.553488	[2.21569]*	ERPMUDH(-1)	-1805562.	[-1.07474]
D(NOM(-1))	-860925.6	[-1.97848]*	ERPMUSY(-1)	4381917.	[2.77136]*
D(NOM(-2))	-8,538,576	[-0.02047]	BIRATE(-1)	12284478	[10.8021]*
D(NOM(-3))	-537739.6	[-1.46940]	INFLATION(-1)	-1,484,935	[-1.77724]*
D(FDR(-1))	33653.57	[0.67098]			
D(FDR(-2))	56403.68	[1.16335]			
D(FDR(-3))	40553.59	[0.85043]			
D(NPF(-1))	-177803.4	[-0.73347]			
D(NPF(-2))	-87554.30	[-0.37029]			
D(NPF(-3))	-214007.1	[-0.83184]			
D(ROA(-1))	1652975.	[2.36243]*			
D(ROA(-2))	73081.35	[0.10833]			
D(ROA(-3))	-1393144.	[-2.30353]*			
D(ERPMUDH(-1))	282767.1	[1.83322]*			
D(ERPMUDH(-2))	157839.1	[1.10451]			
D(ERPMUDH(-3))	55088.68	[0.44910]			
D(ERPMUSY(-1))	5734422	[0.05178]			

VECM test results in the short term			VECM test results on the long term		
Variables	**Coefficient**	**T-Statistics**	**Variables**	**Coefficients**	**T-Statistics**
D(ERPMUSY(-2))	-172553.5	[-1.10931]			
D(ERPMUSY(-3))	-210961.6	[-1.59890]			
D(BIRATE(-1))	33531.47	[0.21082]			
D(BIRATE(-2))	157036.3	[1.06878]			
D(BIRATE(-3))	247389.9	[1.61136]			
D(INFLATION(-1))	3.020066	[0.33719]			
D(INFLATION(-2))	-1,109,135	[-0.90149]			
D(INFLATION(-3))	-1,900,847	[-2.10865]*			
R-squared	0.572526				
Adj. R-squared	0.361979				
F-statistics	2.719230				

*significan (<5%)

Source: Data processed 2022

The VECM estimation results indicate that the coefficient of determination stands at 0.572526, suggesting that 57.2526% of the variability in Islamic banking financing models can be accounted for by the independent variables considered in this study (Total Assets, TPF, NOM, FDR, NPF, ROA, ERPMUDH, ERPMUSY, BI Rate, Inflation). The remaining 42.7474% is attributed to other variables not included in this research.

The VECM test outcomes reveal a long-term association involving Total Assets, Third Party Funds, Net Operating Margin, Financing to Deposit Ratio (FDR), Non-Performing Finance (NPF), Return on Assets (ROA), Equivalent Rate of Mudharabah, Equivalent Rate of Musyarakah, BI Rate, and Inflation with Islamic Banking Financing. In the long-term perspective, TPF, NOM, NPF, ROA, ERP Musyarakah, BI Rate, and Inflation significantly influence the financing, with varying directions of significance. NPF and Inflation exhibit a negative significance on Islamic banking financing, whereas TPF, NOM, ROA, ERP Musyarakah, and BI Rate show a positive significance. Variables like Total Assets, FDR, and ERP Mudharabah do not exhibit significant effects in the long-term.

In the short-term VECM test with a lag of 3, several variables such as TPF, NOM, ROA, Equivalent Rate of Mudharabah, and Inflation significantly affect short-term relationships. Other variables do not show significant effects at lags 1, 2, or 3.

The long-term VECM estimation indicates that the Total Assets variable does not significantly impact Islamic banking financing, with a t-statistical value of -0.60712 < t-table 1.65765. This suggests that the proportion of funds channeled to financing customers is

independent of the total assets held by Islamic banks. Data reveal that while total assets for Islamic Commercial Banks, Islamic Business Units, and Islamic People's Financing Banks grow monthly, this growth is not substantial, possibly due to an increase in non-productive assets. These findings are consistent with Khotmi et al. (2021) but contrast with Kurniawanti (2014), who found a significant impact of total assets on profit-sharing-based financing in Islamic Commercial Banks in Indonesia.

Short-term VECM estimation results also demonstrate that the Total Assets variable does not influence Islamic banking financing at lags 1, 2, or 3. This implies that asset changes are not a critical factor in determining the funds channeled by Islamic banking, which must consider various other factors to manage default risk effectively.

Third Party Funds (TPF) exhibit a significant positive impact on Islamic banking financing, with a statistical value of 10.2327 > t-table 1.65765. This finding aligns with the research by Hermuningsih et al. (2020), Astarini et al. (2016), Yasnur & Kurniasih (2017), Pradesyah & Triandhini (2021), and Husaeni (2016). An increase in TPF leads to higher financing volumes, as shown in both short and long-term estimates where TPF affects the financing disbursed by Islamic banking.

Net Operating Margin (NOM) has a significant positive impact, with a t-statistic value of 2.60323 > t-table. The ability of Islamic banks to generate profits is crucial for their sustainability, evidenced by the significant positive effect of NOM on Islamic banking financing. However, in the short term, NOM shows a significant negative effect in the first lag, indicating that immediate increases in NOM do not promptly increase disbursed financing.

Both short-term estimates at lags 1, 2, and 3 and long-term estimates indicate that the Financing to Deposit Ratio (FDR) has no significant effect on financing, with a t-statistic value of -1.08034 < t-table. These results are consistent with Khotmi et al. (2021) and Arbi et al. (2019) but differ from Astarini et al. (2016), who found a significant effect of FDR on MSME and non-MSME financing.

Non-Performing Financing (NPF) exhibits a significant negative effect on financing, with a t-statistic value of -3.84989 > t-table, indicating that higher NPF reduces disbursed financing. This finding aligns with Pradesyah & Triandhini (2021) and Ivakhnenkov et al.

(2021). In the short term, changes in NPF do not significantly impact financing but have long-term effects.

Return on Assets (ROA) shows a significant positive effect on financing, with a t-statistic value of 1.75814 > t-table, supported by research from Husaeni (2016) and Hermuningsih et al. (2020). ROA reflects how efficiently a company uses its assets to generate profits, indicating that higher ROA increases Islamic banking financing.

In short-term estimates, the relationship between ROA and financing is significant at lags 1 and 3, emphasizing the importance of maintaining positive profits for increasing disbursed financing.

The Equivalent Rate of Mudharabah does not significantly impact financing, as shown by a t-statistic value of -1.07474 < t-table, possibly due to the combined use of various financing contracts in the dependent variable. Only the Equivalent Rate of Mudharabah in lag 1 significantly affects disbursed financing.

The Equivalent Rate of musyarakah has a significant positive effect on financing, with a t-statistic value of 2.77136 > t-table. High musyarakah rates attract investors, increasing financing disbursed by banks. This aligns with Setiyoaji & Mawardi (2019), Kurniawanti (2014), and Andraeny (2011).

The BI rate significantly positively affects financing, with a t-statistic value of 10.8021, indicating that higher BI rates increase financing. This aligns with the need for funds to address rising costs due to inflation.

Inflation has a significant negative effect on financing, with a t-statistic value of -1.77724 in long-term relationships and significant effects in the short term at lag 3, indicating that increased inflation reduces financing

Granger causality analysis

Table 6. Causality test results

Null Hypothesis:	F-Statistics	Null Hypothesis:	F-Statistics
TA - P	0.32362	NPF - NOM	0.83225
P-TA	0.06951	NOM - NPF	1.06996
TPF - P	6.94847	ROA - NOM	3.39034
P - TPF	0.44057	NOM - ROA	1.37420
NOM - P	0.48177	ERPMUDH - NOM	1.95307
P-NOM	0.18013	NOM - ERPMUDH	0.49438
FDR - P	0.30316	ERPMUSY - NOM	1.56276
P-FDR	0.32579	NOM - ERPMUSY	2.36132

Null Hypothesis:	F-Statistics	Null Hypothesis:	F-Statistics
NPF - P	0.15903	INFLATION - NOM	0.83393
P - NPF	1.00557	NOM - INFLATION	0.35589
ROA - P	0.38807	BIRATE - NOM	2.75621
P-ROA	0.64889	NOM - BIRATE	1.30409
ERPMUDH - P	0.14395	NPF - FDR	0.17870
P - ERPMUDH	0.83951	FDR - NPF	0.87575
ERPMUSY - P	0.11373	ROA - FDR	0.66047
P - ERPMUSY	1.13420	FDR - ROA	1.71541
INFLATION - P	0.15930	ERPMUDH - FDR	0.12887
P - INFLATION	1.46680	FDR - ERPMUDH	0.52026
BIRATE - P	3.15877	ERPMUSY - FDR	0.27349
P - BIRATE	0.29585	FDR - ERPMUSY	0.65186
TPF - TA	0.02289	INFLATION - FDR	0.46499
TA - TPF	0.07042	FDR - INFLATION	1.08538
NOM - TA	0.41704	BIRATE - FDR	6.63039
TA - NOM	1.56170	FDR - BIRATE	0.05357
FDR - TA	0.60486	ROA - NPF	0.02527
TA - FDR	0.80197	NPF - ROA	0.12486
NPF - TA	0.00341	ERPMUDH - NPF	0.25017
TA - NPF	0.87030	NPF - ERPMUDH	1.80224
ROA - TA	0.09646	ERPMUSY - NPF	0.32759
TA-ROA	2.84298	NPF - ERPMUSY	0.71602
ERPMUDH - TA	0.12143	INFLATION - NPF	0.23010
TA - ERPMUDH	0.57676	NPF - INFLATION	0.92303
ERPMUSY - TA	0.04019	BIRATE - NPF	1.80556
TA - ERPMUSY	0.49341	NPF - BIRATE	0.15535
INFLATION-TA	0.50016	ERPMUDH - ROA	0.44027
TA-INFLATION	1.70935	ROA - ERPMUDH	0.01822
BIRATE-TA	8.83017	ERPMUSY - ROA	0.14295
TA-BIRATE	0.91315	ROA - ERPMUSY	0.11686
NOM-TPF	0.31831	INFLATION - ROA	3.22699
TPF-NOM	18.1055	ROA - INFLATION	0.35726
FDR-TPF	0.04912	BIRATE - ROA	5.81442
TPF-FDR	0.26012	ROA - BIRATE	0.01088
NPF-TPF	2.10963	ERPMUSY - ERPMUDH	3.02206
TPF-NPF	0.79208	ERPMUDH - ERPMUSY	1.76849
ROA-TPF	0.23079	INFLATION - ERPMUDH	0.90971
TPF-ROA	1.41516	ERPMUDH - INFLATION	0.36206
ERPMUDH - TPF	0.37479	BIRATE - ERPMUDH	1.98185
TPF - ERPMUDH	0.66432	ERPMUDH - BIRATE	0.73688
ERPMUSY - TPF	0.17389	INFLATION - ERPMUSY	0.57246
TPF - ERPMUSY	1.36518	ERPMUSY - INFLATION	0.90835
INFLATION - TPF	0.73615	BIRATE - ERPMUSY	1.47440
TPF - INFLATION	0.58348	ERPMUSY - BIRATE	0.57822
BIRATE - TPF	0.32466	BIRATE - INFLATION	1.88526
TPF - BIRATE	0.04890	INFLATION - BIRATE	2.29785
FDR - NOM	0.31755		
NOM - FDR	0.28597		

Source: Data processed 2022

The Granger causality test results show that most causal relationships in this study are unidirectional, indicating that changes in one variable respond to changes in another without reciprocal relationships. Islamic banking financing volumes in long-term relationships exhibit a tendency to respond to changes in various directions.

A significant unidirectional relationship exists between Third Party Funds (TPF) and Islamic banking financing, indicating that TPF strongly influences the financing distributed by Islamic banks in Indonesia. Conversely, fluctuations in financing do not affect TPF.

The BI rate also shows a unidirectional relationship with Islamic bank financing, suggesting that the bank's offers and financing demands follow the BI rate set by the central bank. However, the determination of the BI rate is not influenced by the financing channeled by Islamic banks.

Additionally, Total Assets have a one-way relationship with Return on Assets (ROA), indicating that the productive assets owned by Islamic banks impact their profitability. Nevertheless, ROA does not affect Total Assets.

ROA affects NOM but not vice versa, indicating that profits obtained by Islamic banks depend on managing productive assets, but NOM does not significantly impact ROA.

The BI rate has a unidirectional relationship with NOM, indicating that the central bank sets the BI rate to regulate macroeconomic issues, including money circulation in society, ensuring economic stability. The BI rate also has a unidirectional relationship with FDR, but FDR does not significantly impact the BI rate.

Inflation has a one-way relationship with ROA, affecting the profitability of Islamic banks, but bank performance does not strongly influence inflation. The BI rate also has a one-way relationship with ROA, highlighting the influence of macro variables on Islamic bank variables.

Analysis of impulse response function

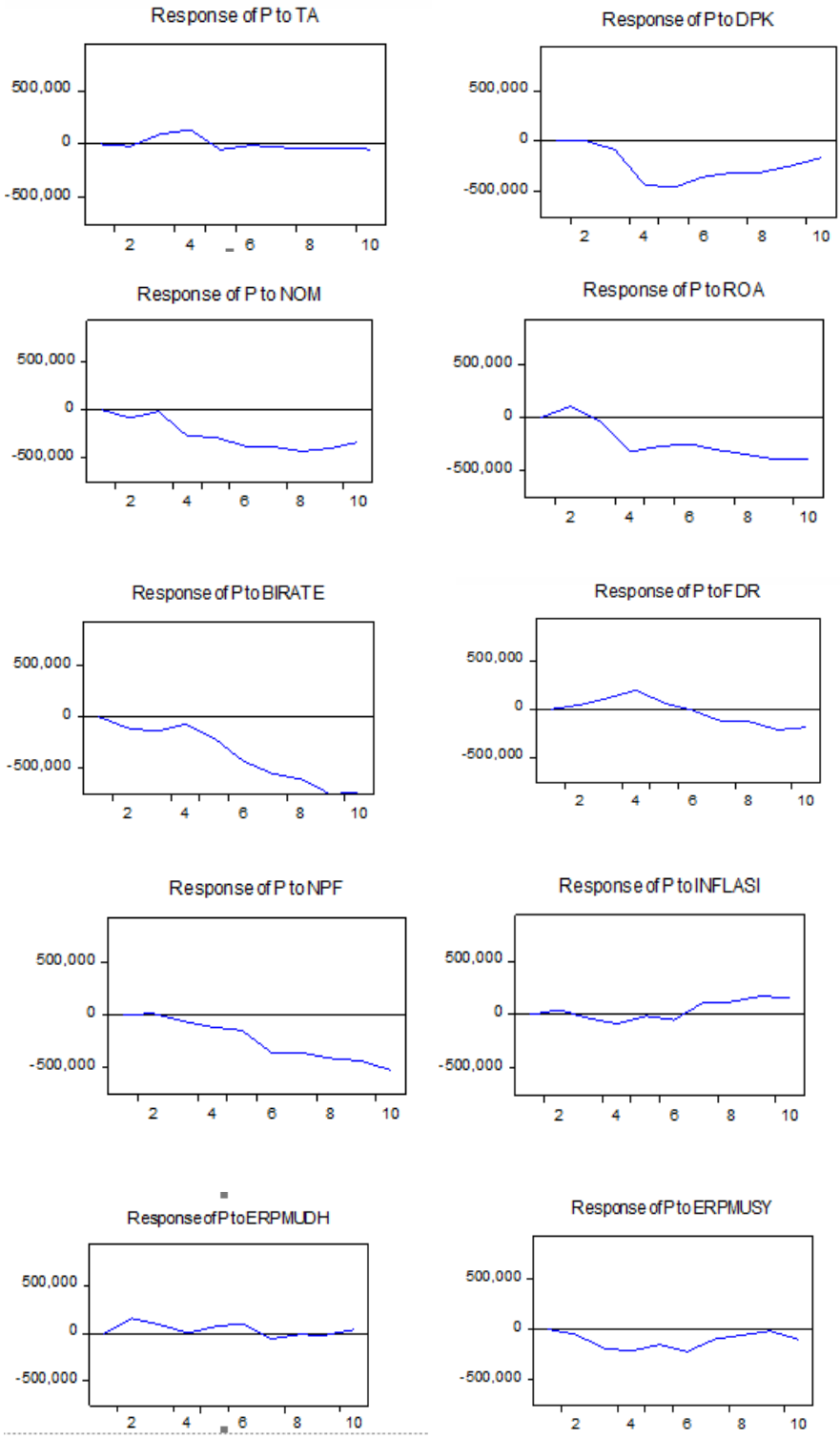

Figure 2. Impulse Respose Function

The IRF plots above show the response of Islamic banking financing to shocks from other variables over the next 10 months.

The response from financing to shocks from total assets increases in the second to fourth months but weakens in the following months, reaching a negative value.

Financing responds negatively to third-party fund shocks, indicating that shocks from TPF lead to a negative reaction in Islamic banking financing.

The response from financing to NOM shocks is negative, with a significant decline from the fourth to ninth months. Financing reacts negatively to NOM shocks.

Financing responds positively to FDR shocks from the first month to the fifth month but declines towards negative in the sixth month and beyond.

The response from financing to NPF shocks decreases significantly from the first month and remains negative until the tenth month, indicating that NPF shocks lead to a prolonged negative response in financing.

The response from financing to ROA shocks is positive in the first month but declines in the third month.

The response from financing to ERPMUDH shocks fluctuates but remains insignificant, with a positive direction initially but a negative value in the middle of the year.

Financing responds negatively to ERPMUSY shocks in the long term.

Financing responds negatively to BI rate shocks, with a significant decline each month. Similarly, the response to inflation shocks is not prominent, with significant effects only within limits.

Conclusion

The study aimed to analyze the factors influencing Islamic banking financing in Indonesia, focusing on internal and macroeconomic factors. The results indicate that Third Party Funds (TPF), Net Operating Margin (NOM), Return on Assets (ROA), and the Equivalent Rate of Musyarakah significantly positively affect Islamic banking financing in the long term. Conversely, Non-Performing Financing (NPF) and inflation negatively impact financing. The findings underscore the importance of these

variables in shaping the financing capabilities of Islamic banks, with TPF being the most influential factor. These insights highlight the critical role of efficient fund management and the economic environment in supporting the growth of Islamic banking financing.

However, the study faced limitations due to the reliance on historical data from 2019 to 2022, which may not fully capture the long-term trends and external shocks impacting Islamic banking. Additionally, the study's focus on specific financial ratios and macroeconomic indicators might overlook other relevant factors such as regulatory changes and technological advancements that could influence Islamic banking financing. Future research should consider a broader range of variables and extend the observation period to provide a more comprehensive understanding of the dynamics affecting Islamic banking.

To build on the current findings, future studies could explore the impact of digital banking innovations on Islamic financing and investigate the role of regulatory frameworks in enhancing the stability and growth of Islamic financial institutions. Additionally, comparative studies between different regions or countries could provide valuable insights into the global trends and best practices in Islamic banking. Such research would contribute to developing strategies for improving financial inclusion and sustainable economic growth through Islamic banking.

References

Adzimatinur, F., Hartoyo, S., & Wiliasih, R. (2015). Faktor-Faktor yang Memengaruhi Besaran Pembiayaan Perbankan Syariah di Indonesia. *Al-Muzara'ah: Journal of Islamic Economics and Finance*, *3*(2), 106–121. https://doi.org/https://doi.org/10.29244/jam.3.2.106-121

Aji, S., & Mawardi, I. (2019). Tingkat Bagi Hasil Deposito Melalui Variabel Intervening Dana Pihak Ketiga Terhadap Pembiayaan Mudharabah Bank Syariah. *Jurnal Ekonomi Syariah Teori Dan Terapan*, *6*(5), 957–967. https://doi.org/https://doi.org/10.20473/vol6iss20195pp957-967

Andraeny, D. (2011). Analisis Pengaruh Dana Pihak Ketiga, Tingkat Bagi Hasil dan Non Performing Fiannce Terhadap Volume Pembiayaan Berbasis Bagi Hasil Pada Bank Syariah. *Simposium Nasional Akuntansi(SNA) XIV*, 1–25.

Antonio, M. S. (2001). *Bank Syariah dan Praktek*. Jakarta: Gema Insani.

Arbi, H., Ahmadsyah, I., & Zainul, Z. R. (2019). Pengaruh Non Performing Financing (NPF), Financing to Deposit Ratio (FDR) dan Tingkat Suku Bunga Deposito Bank Konvensional terhadap Pembiayaan Mudharabah pada Bank Umum Syari'ah di Aceh. *JIHBIZ: Global Journal of Islamic Banking and Finance.*, *1*(1), 1–15. https://doi.org/10.22373/jihbiz.v1i1.4598

Azizah, S. N., Apriliani, W., Santoso, S. B., & Hapsari, I. (2021). Analysis of the Effect of TPF, CAR, NPL, and Inflation and BI Rate on Loan Distribution (Empirical Study on Commercial Banks Listed on the Indonesia Stock Exchange for the Period 2017-2019). *IJATB: Internasional Journal of Accounting, Tax, and Bussines*, *2*(2), 26–34.

Banu, I. M. (2013). The Impact of Credit on Economic Growth in the Global Crisis Context. *Procedia Economics and Finance*, *6*(February 2007), 25–30. https://doi.org/10.1016/s2212-5671(13)00109-3

Basuki, A. T., & Yuliadi, I. (2014). *Electronic Data Processing (SPSS 15 dan EVIEWS 7)*. Yogyakarta: Penerbit Danisa Media.

Enders, W. (2014). *Applied Econometric Time Series* (4th ed.). New York: John Wiley & Sons.

Endri, Marlina, A., & Hurriyaturrohman. (2020). Impact of internal and external factors on the net interest margin of banks in Indonesia. *Banks and Bank Systems*, *15*(4), 99–107. https://doi.org/http://dx.doi.org/10.21511/bbs.15(4).2020.09

Fakhri, U. N., & Darmawan, A. (2021). Comparison of Islamic and Conventional Banking Financial Performance during the Covid-19 Period. *International Journal of Islamic Economics and Finance (IJIEF)*, *4*(SI), 19–40. https://doi.org/10.18196/ijief.v4i0.10080

Farianti, R., Pramuka, B. A., & Purwati, A. S. (2020). Pengaruh NPF, NOM dan FDR Terhadap Pembiayaan Murabahah dengan TPF Sebagai Variabel Moderating. *MALIA: Journal of Islamic Banking and Finance*, *3*(1), 17–32. https://doi.org/10.21043/malia.v3i1.5665

Giri, N. P., Rediatni, P., Sri, A. A. G., Luh Sri, P. J., Made, I. M., & Amerta, S. (2019). Effect of third party funds and BI rate on credit distribution of BNI. *International Journal of Social Sciences and Humanities*, *3*(3), 147–156. https://doi.org/https://doi.org/10.29332/ijssh.v3n3.371

Hermuningsih, S., Sari, P. P., & Rahmawati, A. D. (2020). The Influence of Third-Party Funds, Non-Performing Loans (NPL) on Credit Distribution With Profitability As Intervening Variable in Commercial Banks. *International Journal of Economics, Business and Accounting Research (IJEBAR)*, *4*(02), 40–50. https://doi.org/10.29040/ijebar.v4i02.988

Huljak, I., Martin, R., Moccero, D., & Pancaro, C. (2022). Do non-performing loans matter for bank lending and the business cycle in euro area countries? *Journal of Applied Economics*, *25*(1), 1050–1080. https://doi.org/10.1080/15140326.2022.2094668

Husaeni, U. A. (2016). The Variables that Affect Murābaḥa Financing in Islamic Commercial Banks. *International Journal of Nusantara Islam*, *4*(2), 1–16. https://doi.org/https://doi.org/10.15575/ijni.v4i2.1446

Ivakhnenkov, S., Hlushchenko, S., & Sverenko, K. (2021). Macroeconomic factors that influence the bank loans rate in international and Ukrainian practice. *Economics of Development*, *19*(4), 35–47. https://doi.org/10.21511/ed.19(4).2020.04

Jayawarsa, A. K., Wulandari, I. G. A. A., Saputra, K. A. K., & Saputri, N. M. M. D. (2021). Public financial deposits in state owned banks: from an inflation perspective and bank indonesia interest rates. *International Journal of Business, Economics and Law*, *24*(1), 105–112.

Jessica, T., & Chalid, D. A. (2021). Determinants of Bank Loans in Indonesia. *Proceedings of the Asia-Pacific Research in Social Sciences and Humanities Universitas Indonesia Conference (APRISH 2019)*, *558*(Aprish 2019), 505–512. https://doi.org/10.2991/assehr.k.210531.064

Khotmi, H., Wahyullah, M., & Fachrozi. (2021). Determinan Pembiayaan yang Diberikan (Studi pada Bank Umum Syariah di Indonesia Periode 2018-2020). *Journal Ilmiah Rinjani: Media Informasi Ilmiah Universitas Gunung Rinjani*, *9*(2), 1–10. https://doi.org/10.53952/jir.v9i2.337

Klein, N. (2013). Non-Performing Loans in CESEE: Determinants and Impact on Macroeconomic Performance. *IMF Working Papers*, *13*(72), 1. https://doi.org/10.5089/9781484318522.001

Kuncoro, M. (2011). *Metode Kuantitatif: Teori dan Aplikasinya untuk Bisnis dan Ekonomi* (4th ed.). Yogyakarta: UPP STIM YKPN.

Kurniawanti, A. (2014). *Analisis Faktor-Faktor Yang Mempengaruhi Volume Pembiayaan Berbasis Bagi Hasil Pada Bank Umum Syariah Di Indonesia*. Universitas Muhammadiyah Surakarta.

Mughits, M., & Wulandari, R. (2016). Kontribusi Pembiayaan Bank Syariah untuk Sektor Pertanian di Indonesia. *Al-Muzara'ah*, *4*(1), 61–75. https://doi.org/https://doi.org/10.29244/jam.4.1.61-75

Nadya, A., Tanjung, M., & Sugianto, S. (2020). Analisis Faktor Eksternal dan Internal terhadap Pembiayaan pada Bank Umum Syariah yang Terdaftar di OJK. *JIEFeS: Journal of Islamic Economics and Finance Studies*, *1*(2), 153. https://doi.org/10.47700/jiefes.v1i2.2095

Nur'aeni, & Setiawan. (2020). Third Party Funds and Non-Performing Financing for Mudharabah Financing in Indonesia's Sharia Banking. *International Journal of Business, Economics, and Social Development*, *1*(4), 178–184. https://doi.org/10.46336/ijbesd.v1i4.96

Odah, M. H., Sadig, A., Bager, M., & Mohammed, B. K. (2017). Tobit Regression Analysis Applied on Iraqi Bank Loans. *American Journal of Mathematics and Statistics*, *7*(4), 179–182. https://doi.org/10.5923/j.ajms.20170704.06

Pontines, V., & Siregar, R. (2012). How Should We Bank with Foreigners? - An Empirical Assessment of Lending Behavior of International Banks to Six East Asian Economies. In *ADBI Working Paper No. 386*. https://doi.org/10.2139/ssrn.2159088

Pradesyah, R., & Triandhini, Y. (2021). The Effect of Third Party Funds (TPF), Non Performing Financing (NPF), and Indonesian Sharia Bank Certificates (SBIS) on Sharia Banking Financing Distribution In Indonesia. *International Journal of Business, Economics, and Social Development*, *2*(2), 72–77. https://doi.org/10.46336/ijbesd.v2i2.132

Rahmananingtyas, N. A. (2022). The Effect of Interest Rates and Inflation on Loan Growth and Non Performing Loan (Literature Review of Financial Management). *Dinasti International Journal of Education Management and Social Science*, *4*(1), 128–137. https://doi.org/https://doi.org/10.31933/dijemss.v4i1.1522

Saputri, S., & Wibowo, M. G. (2018). Determinan Pembiayaan UMKM di Indonesia Tahun 2011-2015: Pendekatan Generalized Method of Moment (GMM). *Al-Amwal: Jurnal Ekonomi Dan Perbankan Syari Ah*, *10*(1), 1–47. https://doi.org/http://dx.doi.org/10.24235/amwal.v10i1.2809

Silalahi, T., Wibowo, W. A., & Nurliana, L. (2012). Impact of Global Financial Shock to International Bank Lending in Indonesia. *Buletin Ekonomi Moneter Dan Perbankan*, *15*(2), 77–114. https://doi.org/10.21098/bemp.v15i2.63

Siringoringo, M. J., & Sijabat, J. (2023). Car, LDR and Third Party Funds on the Amount of Credit Disbursed by Rural Banks in North Sumatera, Indonesia. *Dinasti International Journal of Economics, Finance & Accounting*, *4*(1), 1–16. https://doi.org/https://doi.org/10.38035/dijefa.v4i1.1686

Syarif, A. (2016). The Growth of Islamic Banking and SMEs Financing in Indonesia. *HUMAN FALAH*, : *Volume 3*.

Tanjung, O. M., Sadalia, I., & Irawati, N. (2022). The Effect of Macroeconomics on Non-Performing Loans with Credit Growth as an Intervening Variable at PT. Bank SUMUT. *International Journal of*

Research and Review, *9*(7), 535–549. https://doi.org/10.52403/ijrr.20220758

Wangsawidjaja. (2012). *Bank Syariah Financing*. Jakarta: Gramedia Pustaka Utama.

Yasnur, M., & Kurniasih, A. (2017). Factors Affecting Bank Lending Growth: Cases In Indonesia. *International Journal of Scientific and Research Publications*, *7*(11), 69–76.