





“Factors affecting non-performing finance in Islamic banking in Indonesia’s agricultural sector”

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FACTORS AFFECTING NON-PERFORMING FINANCE IN ISLAMIC BANKING IN INDONESIA'S AGRICULTURAL SECTOR

Abstract

This study aims to analyze the factors affecting Islamic banks' non-performing finance in financing Indonesia's agricultural sector. It uses secondary data from the annual financial statements of 12 Islamic commercial banks from 2014–2022 obtained from the Indonesian Financial Services Authority. The analysis used the partial least squares-structural equation modeling method to test the relationship between independent variables: murabahah financing, mudharabah, number of bank offices, and profit-sharing non-profit investment, with non-performing finance as the dependent variable. The financing-to-deposit ratio is a mediation variable that helps understand indirect influence. The results show that financing with murabahah and mudharabah contracts does not directly influence non-performing finance but becomes significant when mediated by the financing-to-deposit ratio. In contrast, the number of bank offices and profit-sharing non-profit investments did not significantly influence non-performing finance, either directly or through financing to deposit ratio. These findings indicate that the financing-to-deposit ratio plays a key role in managing the financing risk of Islamic banks in the agricultural sector, so an optimal liquidity management strategy is essential for maintaining financial stability. The study's implications show that Islamic banks need to manage the financing-to-deposit ratio more strategically to reduce the risk of non-performing financing. In addition, although murabahah and mudharabah financing can be the main instruments in supporting the agricultural sector, banks need to increase risk supervision so that non-performing finance remains under control. This study contributes to the Islamic banking literature by providing new insights into the role of financing-to-deposit ratio mediation in managing financing risk in the agricultural sector.

Keywords

non-performing financing, Islamic banks, agricultural financing, Indonesia

JEL Classification

Q14, G21, G23

INTRODUCTION

Non-Performing Financing (NPF) is a ratio to assess the health level of banks, where an increase in NPF value indicates good conditions and vice versa. Non-performing financing, such as bad loans in banks, is something that can disrupt the stability of financial performance in banking, including Islamic banks in providing financing facilities to their customers. Credit risk as the main cause in providing financing is the main risk experienced by many Islamic banks in the world (Ariffin et al., 2009; Misman, 2011). This is because the profit-loss sharing system, characteristic of Islamic banks, is considered to have the potential to generate higher credit risk than financing with fixed returns (Khan & Ahmed, 2001). Financing in Islamic banks generally offers flexibility, making the potential for vulnerability to increase NPF so that it can reduce the health level of Islamic banks' portfolios (Chamberlain et al., 2020; Fakhrunnas et al., 2022; Priyadi et al., 2021; Safar Nasir et al., 2022).



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One of the sectors that have a high-risk level for banks to finance is agricultural sector financing because although the agricultural sector in Indonesia has great potential, various factors such as rapid population growth, climate change, and land conversion are challenges for banks in distributing financing to these sectors (Ryandono et al., 2023; Zakik et al., 2022). Many banks are reluctant to channel credit to the agricultural sector because it is considered high risk due to fluctuations in commodity prices and natural factors. Islamic banks that carry out their activities by Islamic values and rules are required to not only provide services that can meet the needs of customers to the maximum but also must be in line to establish the Islamic bank itself (Nastiti & Kasri, 2019; Niswatin et al., 2023; OJK, 2023), namely serving the community in general (Muslim or non-Muslim) for blessings that are in line with the teachings of Islam.

Islamic banking has challenges in serving increasingly complex financing needs, especially in the agricultural sector. On the other hand, Islamic banks are also faced with financing risks that can at any time have a negative impact on the increase in NPF. Therefore, the study to investigate the factors that can affect NPF in Islamic banks is something urgent. Several previous studies have examined the role of Islamic banks in supporting the agricultural sector through special contracts contained in Islamic banking, including *salam* contracts (Mahmood & Arshed, 2024; Mulyany et al., 2022), *Qard-al-Hasan* (Saqib et al., 2015), and *muzara'ah* (crop-sharing contract on a partnership basis) (Daud & Sharif, 2024). In general, research related to Islamic banking and agriculture is still limited, whereas related studies are more dominantly studied through qualitative approaches and conceptual studies. Therefore, this study seeks to identify more deeply the factors that affect NPFs in financing Islamic banking contracts, especially in the agricultural sector.

1. LITERATURE REVIEW AND HYPOTHESES

NPF is the leading indicator for assessing Islamic banks' asset quality and financial health. The higher the NPF level, the greater the potential risk faced by banks in distributing financing. In Islamic banking, NPF are caused by various factors, including credit risk inherent in certain financing agreements, liquidity management, and macroeconomic conditions (Ariffin et al., 2009; Misman, 2011).

Financing in Islamic banks has unique characteristics compared to conventional banking because the system is contract-based by Islamic principles. Profit-sharing agreements, such as *mudharabah*, are riskier than sale and purchase agreements, such as *murabahah*, because banks must bear business risks with business partners (Khan & Ahmed, 2001). Previous studies have shown that *mudharabah* contracts often face challenges related to information asymmetry and moral hazards, which can increase the risk of NPF (Yustiardi et al., 2020).

On the other hand, *murabahah* financing, a sale and purchase contract with a fixed margin sys-

tem, is considered more stable because it has collateral in the form of goods being traded. However, risks remain, especially when customers have difficulty paying instalments as agreed (Alam et al., 2022; Dewantara & Bawono, 2020). Therefore, understanding the difference in risk in financing contracts is very important in managing NPF in Islamic banks.

The financing-to-deposit ratio (FDR) reflects the extent to which Islamic banks channel third-party funds into financing. A high FDR indicates that banks are more aggressive in distributing financing, which can increase liquidity risk and NPF if not balanced with sound risk management (Firmansyah, 2015; Suryanto, 2015). A study by Lin (2020) shows that banks with excessively high FDR tend to be more vulnerable to NPF increases, especially if financing is given to high-volatility sectors, such as agriculture. This is because the agricultural sector is highly dependent on external factors such as weather and fluctuations in commodity prices (Ryandono et al., 2023). Therefore, optimal FDR management is the key to mitigating NPF risks in Islamic banks.

Expanding branch offices can improve the accessibility of Islamic banking services and expand

financing reach. However, too many branch offices without being balanced with a thorough risk analysis can increase the potential for non-performing loans (Kartika et al., 2020). According to Solihin et al. (2017), an increase in the number of branch offices does not necessarily contribute to a decrease in NPF. This is due to several factors, such as high operational costs and challenges in monitoring each branch's financing quality. Therefore, the expansion strategy of Islamic banks must consider the balance between the growth of the branch network and the effectiveness of credit risk management.

Nonprofit investment profit sharing in Islamic banking refers to funds placed in investment projects or instruments not based on direct profit sharing. Credit risk can increase if these investments are not managed properly, especially if funds are placed in high-risk projects or less liquid financial instruments (Masmuna et al., 2024). Several previous studies have shown that diversification of investment portfolios can help Islamic banks reduce NPF risks (Lestari, 2019; Utama et al., 2019). Therefore, Islamic banks need to implement a more prudent investment strategy to optimize profitability without increasing the potential for non-performing financing.

Based on the literature review that has been described, it can be concluded that internal factors of Islamic banks, such as profit-sharing financing contracts (*mudharabah*), buying and selling (*murabahah*), profit-sharing non-profit investments, FDR, and the number of bank branches have a complex influence on NPF. These factors have a direct impact and, through FDR's mediation, can strengthen or weaken its influence. Therefore, a comprehensive understanding of the interaction between these variables is crucial in formulating financing risk mitigation policies in Islamic banking, especially in the agricultural sector.

This study aims to analyze the factors that affect NPF in Islamic banks for financing in the agricultural sector by taking into account the impact of PLS financing (*mudharabah* and *murabahah*), profit-sharing non-profit investment, and the number of bank branch offices with FDR as a mediating factor in the model. Therefore, this study formulates four main hypotheses:

H1: *The murabahah contract mediated by FDR affects NPF.*

H2: *FDR-mediated profit-sharing non-profit investments affect NPF.*

H3: *Number of bank offices mediated by FDR affects NPF.*

H4: *The mudharabah contract mediated by FDR affects NPF.*

2. METHODS

This study uses secondary data (annual report data) collected from OJK.id. and taken from 12 Islamic commercial banks in Indonesia. This research sample was selected to investigate the effect of *murabahah*, *mudharabah*, non-profit sharing investment, and the number of branch offices on NPF through the FDR, which specializes in Islamic banking in Indonesia. Therefore, this study focuses on the selection of Islamic banking data. The data were NPF as the dependent variable. Meanwhile, the independent variables of this study were the investment of non-profit sharing, the number of branch offices of Islamic banks in Indonesia, the contract of financing using *mudharabah*, and the contract financing using *murabahah*. This study also used a mediating variable, the FDR. There were 108 data found after being scrutinized using inclusive criteria. For example, the data must be in the form of a monthly report from December and must fully exist monthly. The data were taken from 2014–2022 as a monthly report. The data were only gathered for 9 years because of the data availability.

The data would be analyzed using path analysis of the PLS method. The software that would be used to analyze the data was SmartPLS. This study implemented four independent variables, one mediating variable, and one dependent variable. Since this study used secondary data, the reliability and validity tests commonly used for primary data would not be conducted. Instead, this study directly analyzed the direct and indirect effect of the variables using P-value or T-statistic.

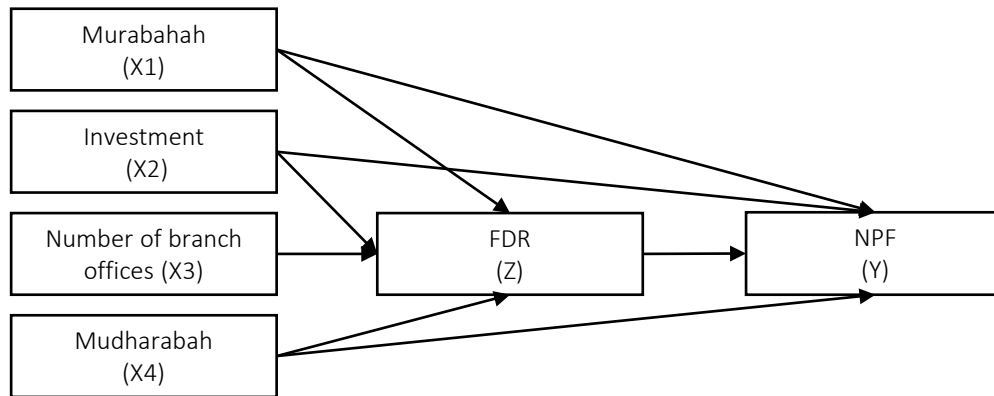


Figure 1. Model variables of the study

Table 1. Definition of variables

Variables	Indicator	Definition	Source
NPF (Y)	IDR Billion	The proportion of total financing provided by the bank that cannot be repaid according to the established schedule	Pradesyah and Triandhini (2021)
FDR (Z)	%	How large is the proportion of third-party funds (TPF) that Islamic banks have successfully distributed in the form of financing	Mointi et al. (2022)
Murabahah (X1)	IDR Billion	The amount of financing approved by Islamic banks in Indonesia using a Sharia contract of buying or selling the goods by stating the basic price.	Febriyanti et al. (2022)
Non-profit Sharing Investment (X2)	IDR Billion	The amount of funds collected by Islamic banks in Indonesia from customers, but do not share the results with customers	Pratiwi et al. (2022)
Number of branch offices (X3)	Unit	The number of branch offices of all Islamic banks operating in Indonesia	Rahman et al. (2022)
Mudharabah (X4)	IDR Billion	The amount of funds disbursed by Islamic banks to customers (<i>mudharib</i>) used for economic activities in the agribusiness sector. The profits generated from the business are then divided between the bank and the customer according to the agreed ratio (proportion)	Ghifara et al. (2022)

3. RESULT

Before the data were analyzed to find out whether independent variables had a significant effect on the dependent variable or not, this study analyzed the descriptive statistics of the data. The result would show mean, median, max, min, standard deviation, excess kurtosis, and skewness.

Table 2 shows that some variables' excess kurtosis/skewness score exceeds +2. According to the study

conducted by Sulaeman and Ninglasari (2020), the good excess kurtosis score of data must be between -2 to +2. That score was the threshold of the data, and if the data exceeded the threshold, the skewness of the data distribution was out of normal and needed to be deleted. Table 2 also shows that the number of branch offices had the highest standard deviation score than the others. Indicating that the data distribution of this variable was more variable than that of other variables. The results of the bootstrapping router model are in Figure 2.

Table 2. Result of descriptive analysis

Variables	Mean	Median	Min	Max	Standard Deviation	Skewness
NPF	-0.266	-0.245	-0.97	-0.002	0.146	-1.786
MURABAHAH	0.298	0.25	0.001	2.231	0.261	1.914
INVESTMENT	0.136	0	0	1.127	0.222	1.682
OFFICE	0.211	0	0	1	0.292	1.145
MUDHARABAH	0.486	0.4	0.2	1	0.227	0.443
FDR	0.079	0.057	0	0.921	0.085	0.793

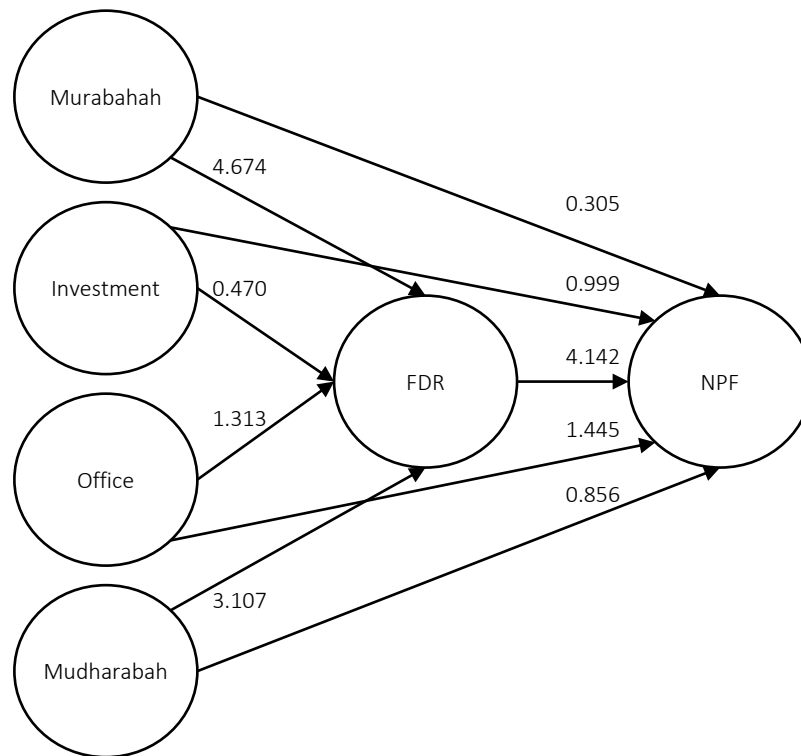


Figure 2. Outer model result of analysis

Figure 2 stated that several *mudharabah* and *murabahah* contracts of financing mediated by FDR significantly affected NPF in Islamic banks in Indonesia. Meanwhile, the direct effect of each of the independent variables did not significantly affect the NPF. It can be seen from Figure 2 that the T-statistics of the variables *mudharabah* and *murabahah* to FDR were >1.96 and the T-statistic score of FDR to NPF was also >1.96 . The T-statistic score of the independent variables and a mediating variable >19.6 was considered to have a significant effect on the dependent variable. This study used a T-statistic score of 1.96 as a threshold for significant results because this study used a standard error of 5%. Independent variables that did not have a score <1.96 were classified as having no significant effect on the dependent variable.

The results of the direct effect test of variables found that *murabahah*, non-profit sharing invest-

ment, number of bank offices, and *mudharabah* did not affect NPF. This is shown by the t-statistic value of all <1.96 (Table 3).

The indirect effect of variables can be observed in Table 4, which shows that the first hypothesis test shows that FDR-mediated *murabahah* affects NPF with a t-statistic value of 4.674 (>1.96). This variable testing shows that financing with *murabahah* contracts affects the decrease in NPF with an increase in FDR. The second hypothesis test shows that FDR-mediated non-profit sharing investment does not affect NPF with a t-statistic value of 0.470 (<1.96). Meanwhile, the variable test shows that non-profit sharing investment does not affect the decrease in NPF with an increase in FDR. The third hypothesis test shows that the number of bank offices mediated by FDR does not affect NPF, with a t-statistic value of 1.313 (<1.96). The variable test shows that the number of bank of-

Table 3. Direct effect between variables

Variable	t-Statistic	Decision
<i>Murabahah</i> → NPF	0.305	Rejected
Investment → NPF	0.999	Rejected
Office → NPF	1.445	Rejected
<i>Mudharabah</i> → NPF	0.856	Rejected

Table 4. Hypothesis testing results

Hypothesis	Statement	t-Statistic	Decision
H1	<i>Murabahah</i> contract mediated by FDR affected NPF	4.674	Accepted
H2	Non-profit sharing investment mediated by FDR affected NPF	0.470	Rejected
H3	The number of bank offices mediated by FDR affected NPF	1.313	Rejected
H4	<i>Mudharabah</i> contract mediated by FDR affected NPF	3.107	Accepted

fices does not affect the decrease in NPF with an increase in FDR. The fourth hypothesis test shows that FDR-mediated *mudharabah* affects NPF with a t-statistic value of 3.107 (> 1.96). Testing this variable shows that financing with *mudharabah* contracts does not affect the decrease in NPF with an increase in FDR.

The hypotheses test results (Table 4) show that two hypotheses were rejected and accepted. The rejected hypotheses were related to non-profit sharing investment and the number of bank offices, while the accepted hypotheses were related to *murabahah* and *mudharabah* contract transactions. These results show that financing with *murabahah* and *mudharabah* contracts has great potential to be used as a basis for financing services for the agricultural sector.

4. DISCUSSION

The study's findings show that FDR can mediate Islamic bank financing contracts in the form of *Mudharabah* and *Murabahah* to minimize financing risks in Islamic banks. It can be stated that the FDR was key in channeling both *murabahah* and *mudharabah* financing contracts in decreasing NPF. The results of this study align with the study conducted by Lin (2020), which states that if the FDR of an Islamic bank is high, it means that the bank has distributed most of its third-party funds in the form of financing. This can limit the availability of funds for new *mudharabah* contracts, including financing the agricultural sector. On the other hand, if the FDR is low, it signifies that the bank still has a lot of funds that have not been distributed. This condition allows the bank to aggressively distribute funds through *mudharabah* contracts, including financing the agricultural sector. Banks with low FDR have more room to accommodate risk, so they can provide greater flexibility in *mudharabah* contracts, including for small and medium farmers.

On the other hand, a study by Febriyanti et al. (2022) stated that increasing *murabahah* financing in Islamic banks can contribute to decreased NPF. *Murabahah* contracts are transparent and clear. Customers understand the goods purchased, the cost price, and the bank's profit. This can increase customer confidence and reduce the risk of payment arrears. *murabahah* financing is generally related to the purchase of tangible goods. These goods can be used as collateral or security for the bank so that if there is a default, the bank has assets that can be sold to cover losses. By obtaining *murabahah* financing, customers can increase their business production capacity. The increase in agricultural sector production could lead the debtor to gain more profit. Their ability to pay off debts also increases. The interesting thing in this study is that the number of Islamic bank branches, both direct effects and those mediated by FDR, does not necessarily affect NPF.

The results of this study are also in line with the findings of the studies by Rajindra et al. (2021) and Kartika et al. (2020). Islamic banks need to maintain FDR at a healthy level to avoid excessive liquidity and credit risks. Islamic banks in Indonesia also need to improve the quality of credit analysis by carefully assessing prospective customers and projects to be financed. For the portfolio, the management of Islamic banks in Indonesia needs to diversify the Financing Portfolio. Not only focusing on one type of financing, but also developing other financing products with lower risks. FDR is an important indicator in measuring Islamic banks' financial performance. Islamic banks can reduce NPF risk and increase profitability by managing FDR effectively. However, it should be remembered that FDR is only one factor that needs to be considered. Other factors, such as asset quality, risk management, and economic conditions, also greatly affect the NPF level (Wardhana et al., 2023).

Meanwhile, the FDR or financing ratio to third party funds in Islamic banks has a close relationship with the level of NPF. According to the study, most third-party funds have been chan-

neled through financing when the FDR is too high. This can cause liquidity pressure if many customers withdraw their funds simultaneously. Banks may be tempted to finance high-risk customers to achieve a high FDR. This increases the potential for NPF. Sharia principles that emphasize fairness and transparency should be able to reduce the risk of NPF. However, if this principle is not implemented properly, the risk of NPF remains high. The financing provided, for example, *murabahah* or *mudharabah*, will have different NPF risks. Unstable economic conditions can increase the risk of NPF, regardless of the FDR level.

The study findings show that third-party investments, either directly or indirectly mediated by FDR, do not affect NPF. The results of this research are relevant to the research. Lestari (2019) and Utama et al. (2019). FDR's mediation role is ineffective because the distribution of funds is still not optimal in the agricultural sector, even though FDR shows an aggressive level of fund distribution in other sectors. Islamic banks tend to be cautious in channeling financing into this sector due to high risks due to dependence on unstable seasons and weather, low

financial literacy, and farmers' access to modern agricultural technology (Sudarsono et al., 2019).

The study by Solihin et al. (2017) stated that although the increase in the number of Islamic bank branches can provide wider access to the community, it will not automatically be directly proportional to the decrease in NPF. A bank's ability to assess customer credit risk is much more important than the number of branches. The more branches, the more employees are needed. This will increase the salary burden. Opening a new branch requires a fairly large rental or building construction fee, as its utilities, equipment, and marketing costs will also increase as the number of branches increases. Opening a new branch requires a fairly large investment, both for infrastructure and operations (Qosim et al., 2023). If the increase in income from new branches is not comparable to the increase in operating costs, the bank's profitability can be depressed. In addition, if the funds collected from new branches are not immediately distributed in the form of financing, the bank's liquidity risk can increase. This further worsens the NPF condition of Islamic banks so that the opening of new branch offices needs to be analyzed carefully before being implemented (Mendo et al., 2023).

CONCLUSION

This study aims to analyze the factors that affect NPF in Islamic banking in Indonesia, especially in financing the agricultural sector. It identifies that *mudharabah* and *murabahah* financing mediated by FDR significantly influence NPF reduction in agricultural sector financing in Islamic banks. In contrast, the number of bank branches and profit-sharing nonprofit investments did not show significant influence, either directly or through FDR.

This result confirms that optimal FDR management can be an essential instrument for Islamic banks in managing financing risks, especially in the agricultural sector, which has its challenges. Therefore, Islamic banks are advised to prioritize more controlled financing schemes while strengthening risk management and diversifying financing portfolios. This study makes an academic contribution by filling the gap in the study of the relationship between *murabahah*, *mudharabah*, FDR, and NPF in the agricultural sector. This study also confirms the role of FDR mediation in reducing the negative impact of financing on the financial stability of Islamic banks. The limitations of the use of research variables, types of approaches, and alternative financing models in this study can be further recommendations for future research.

AUTHOR CONTRIBUTIONS

Conceptualization: Niswatin, Ivan Rahmat Santoso.

Data curation: Niswatin.

Formal analysis: Niswatin, Ivan Rahmat Santoso.

Funding acquisition: Niswatin.

Investigation: Niswatin, Ivan Rahmat Santoso.

Methodology: Niswatin, Ivan Rahmat Santoso.

Project administration: Niswatin, Ivan Rahmat Santoso.

Resources: Niswatin.

Software: Niswatin, Ivan Rahmat Santoso.

Supervision: Niswatin.

Validation: Niswatin.

Visualization: Niswatin, Ivan Rahmat Santoso.

Writing – original draft: Niswatin, Ivan Rahmat Santoso.

Writing – reviewing & editing: Niswatin, Ivan Rahmat Santoso.

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REFERENCES

1. Alam, A., Sukmana, R., Fianto, B. A., & Izzuddin, A. (2022). Comparative Analysis of Murabahah and Mudharabah Financing Risk from Islamic Microfinance Institutions Perspective. *Al-Muzara'ah*, 10(1), 79-92. <https://doi.org/10.29244/jam.10.1.79-92>
2. Ariffin, N. M., Archer, S., & Karim, R. A. A. (2009). Risks in Islamic banks: Evidence from empirical research. *Journal of Banking Regulation*, 10(2), 153-163. <https://doi.org/10.1057/jbr.2008.27>
3. Chamberlain, T., Hidayat, S., & Khokhar, A. R. (2020). Credit risk in Islamic banking: evidence from the GCC. *Journal of Islamic Accounting and Business Research*, 11(5), 1055-1081. <https://doi.org/10.1108/JIABR-09-2017-0133>
4. Daud, H. S., & Sharif, S. (2024). Exploring the feasibility of Muzara'ah based Islamic running finance model as an alternative for agriculture credit. *Journal of Islamic Accounting and Business Research*. <https://doi.org/10.1108/JIABR-12-2022-0352>
5. Dewantara, A., & Bawono, A. (2020). Influence Analysis of Mudharabah, Musharakah, and Murabahah Financing to Profitability of Sharia Commercial Bank in Indonesia 2016–2019 with Non Performing Financing as Intervening Variable. *Islamiconomic: Jurnal Ekonomi Islam*, 11(2), 109-126. <https://doi.org/10.32678/ijeiv11i2.197>
6. Fakhrunnas, F., Astuti, R. D., & Anto, M. B. H. (2022). Determinants of non-performing financing in Indonesian Islamic banks: A regional and sectoral analysis. *Banks and Bank Systems*, 17(4), 72-86. [https://doi.org/10.21511/bbs.17\(4\).2022.07](https://doi.org/10.21511/bbs.17(4).2022.07)
7. Febriyanti, A. R., Ratnasari, R. T., & Wardhana, A. K. (2022). The Effect of Economic Growth, Agricultural Land, and Trade Openness Moderated by Population Density on Deforestation in OIC Countries. *Quantitative Economics and Management Studies*, 3(2), 221-234. <https://doi.org/10.35877/454RI.qems828>
8. Firmansyah, I. (2015). Determinant of Non Performing Loan: the Case of Islamic Bank in Indonesia. *Buletin Ekonomi Moneter Dan Perbankan*, 17(2), 241-258. <https://doi.org/10.21098/bemp.v17i2.51>
9. Ghifara, A. S., Iman, A. N., Wardhana, A. K., Rusgianto, S., & Ratnasari, R. T. (2022). The Effect of Economic Growth, Government Spending, and Human Development Index toward Inequality of Income Distribution in the Metropolitan Cities in Indonesia. *Daengku: Journal of Human-*

- ties and Social Sciences Innovation*, 2(4), 529-536. <https://doi.org/10.35877/454RI.daengku1092>
10. Kartika, R., Jubaedah, S., & Astuti, A. D. (2020). The Influence of Financing to Deposit Ratio, Return on Assets and Non Performing Finance on Profit Sharing Finance of Sharia Banks in Indonesia. *Ist International Conference on Accounting, Management and Entrepreneurship (ICAMER 2019)* (pp. 136-140). <https://doi.org/10.2991/aebmr.k.200305.034>
 11. Khan, T., & Ahmed, H. (2001). *Risk Management: An Analysis of Issue in Islamic Financial Industry* (Occasional Paper No. 91). The Islamic Research and Teaching Institute (IRTI). Retrieved from <https://ideas.repec.org/p/ris/irtiop/0091.html>
 12. Lestari, T. (2019). Analysis of Islamic Bank Influence On Agricultural Financing Sector Period 2014–2016. *Journal of Islamic Economic Laws*, 2(1), 88-119. <https://doi.org/10.23917/jisel.v2i1.7706>
 13. Lin, L. (2020). Bank deposits and the stock market. *The Review of Financial Studies*, 33(6), 2622-2658. <https://doi.org/10.1093/rfs/hhz078>
 14. Mahmood, T., & Arshed, N. (2024). On improving the adoption of Bai' Salam by Islamic banks of Pakistan: an interpretive phenomenological analysis. *Journal of Islamic Accounting and Business Research*, 15(7), 1134-1155. <https://doi.org/10.1108/JIABR-10-2022-0261>
 15. Masmuna, H. T., Yuliani, Y., & Thamrin, K. M. H. (2024). The Influence of Financing Growth and CAR on ROA with NPF as a Moderating Variable. *KnE Social Sciences*, 9(14), 743-759. <https://doi.org/10.18502/kss.v9i14.16141>
 16. Mendo, A. Y., Singh, S. K., Yantu, I., Hinel, R., Bokingo, A. H., Dunga, E. F., Juana, A., Wardhana, A. K., Niroula, B., & Win, T. (2023). Entrepreneurial leadership and global management of COVID-19: A bibliometric study. *F1000Research*, 12(31), 31. <https://doi.org/10.12688/f1000research.109340.1>
 17. Misman, F. N. (2011). Financing Structures, Bank Specific Variables and Credit Risk: Malaysian Islamic Banks. *Journal of Business and Policy Research*, 7(1), 102-114. Retrieved from <https://www.yumpu.com/en/document/read/51239910/financing-structures-bank-specific-variables-and-credit-risk->
 18. Mointi, R., Syahribulan, & Kurnia, A. (2022). The Effect of ROA, FDR On The CAR of Islamic Commercial Banks and Sharia Business Units in Indonesia. *Economy Deposit Journal (E-DJ)*, 4(1), 208-214. Retrieved from <https://core.ac.uk/download/525640261.pdf>
 19. Mulyany, R., Indriani, M., & Indayani, I. (2022). Salam financing: from common local issues to a potential international framework. *International Journal of Islamic and Middle Eastern Finance and Management*, 15(1), 203-217. <https://doi.org/10.1108/IMEFM-01-2020-0008>
 20. Nastiti, N. D., & Kasri, R. A. (2019). The role of banking regulation in the development of Islamic banking financing in Indonesia. *International Journal of Islamic and Middle Eastern Finance and Management*, 12(5), 643-662. <https://doi.org/10.1108/IMEFM-10-2018-0365>
 21. Niswatin, Santoso, I. R., Amaliah, T. H., Monoarfa, R., & Hulopi, T. U. K. (2023). Factors and Actors in the Development of Islamic Financial Literacy: Experience from Indonesia. *International Journal of Professional Business Review*, 8(7), e02667. <https://doi.org/10.26668/businessreview/2023.v8i7.2667>
 22. Otoritas Jasa Keuangan (OJK). (2023). *Statistik Perbankan Syariah (SPS) [Islamic Banking Statistics (SPS)]*. (In Indonesian). Retrieved from <https://www.ojk.go.id/id/kanal/syariah/data-dan-statistik/statistik-perbankan-syariah/Pages/Statistik-Perbankan-Syariah--Juli-2022.aspx>
 23. Pradesyah, R., & Triandhini, Y. (2021). The Effect of Third Party Funds (Dpk), 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. Retrieved from <https://journal.rescollacomm.com/index.php/ijbesd/article/view/132>
 24. Pratiwi, A. C., Wardhana, A. K., & Rusgianto, S. (2022). Application of Vector Error Correction Model on Macroeconomic Variables toward Changes in the Composite Stock Price Index. *Daengku: Journal of Humanities and Social Sciences Innovation*, 2(2), 219-229. <https://doi.org/10.35877/454RI.daengku883>
 25. Priyadi, U., Utami, K. D. S., Muhammad, R., & Nugraheni, P. (2021). Determinants of credit risk of Indonesian Shari'ah rural banks. *ISRA International Journal of Islamic Finance*, 13(3), 284-301. <https://doi.org/10.1108/IJIF-09-2019-0134>
 26. Qosim, N., Ratnasari, R. T., Wardhana, A. K., Fauziana, H., & Barkah, T. T. (2023). Eight Years of Research Related to the Green Sukuk in the Global Stock Exchange Market to Support the Implementation of SDG: A Bibliometric Review. *Journal of Islamic Economic and Business Research*, 3(2), 161-180. <https://doi.org/10.18196/jiebr.v3i2.204>
 27. Rahman, I., Ratnasari, R. T., & Wardhana, A. K. (2022). Effect of Certificate of Bank Indonesia Sharia and Indonesian Bank Seven Days Repository Rate to Inflation Ratio in Indonesia During Covid-19 Pandemic. *Economic Education and Entrepreneurship Journal*, 5(1), 157-174. Retrieved from https://repository.unair.ac.id/118720/1/RirinTR_Artikel-T401_Effect-of-Certificate-of-Bank.pdf
 28. Rajindra, R., Guasmin, C., Burhanuddin, B., & Rasmi, A. N. (2021). Costs and operational revenue, loan to deposit ratio against return on assets: A case study in Indonesia. *The Journal of Asian Finance, Economics and Business*, 8(5), 109-115. <https://doi.org/10.13106/jafeb.2021.vol8.no5.0109>
 29. Ryandono, M. N. H., Mawardi, I.,

- Rani, L. N., Widiastuti, T., Ratnasari, R. T., & Wardhana, A. K. (2023). Trends of research topics related to Halal meat as a commodity between Scopus and Web of Science: A systematic review. *F1000Research*, 11(1562), 1562. <https://doi.org/10.12688/f1000research.123005.2>
30. Safar Nasir, M., Oktaviani, Y., & Andriyani, N. (2022). Determinants of Non-Performing Loans and Non-Performing Financing level: Evidence in Indonesia 2008-2021. *Banks and Bank Systems*, 17(4), 116-128. [https://doi.org/10.21511/bbs.17\(4\).2022.10](https://doi.org/10.21511/bbs.17(4).2022.10)
31. Saqib, L., Zafar, M. A., Khan, K., Roberts, K. W., & Zafar, A. M. (2015). Local agricultural financing and Islamic banks: is Qard-al-Hassan a possible solution? *Journal of Islamic Accounting and Business Research*, 6(1), 122-147. <https://doi.org/10.1108/JIABR-04-2012-0018>
32. Solihin, S., Achsan, N. A., & Saptono, I. T. (2017). The Islamic Banking and the Economic Integration in Asean. *Buletin Ekonomi Moneter Dan Perbankan*, 19(1), 81-106. <https://doi.org/10.21098/bemp.v19i1.601>
33. Sudarsono, H., Mifrahi, M. N., Susantun, I., Rudatin, A., & Ruchba, S. M. (2019). Analysis of factor affecting financing with Islamic banks in agriculture sectors. *Asian Journal of Islamic Management (AJIM)*, 1(2), 116-126. <https://doi.org/10.20885/ajim.vol1.iss2.art6>
34. Sulaeman, S., & Ninglasari, S. Y. (2020). An Empirical Examination of Factors Influencing the Behavioral Intention to Use Zakat-Based Crowdfunding Platform Model for Countering the Adverse Impact of COVID-19 on MSMEs in Indonesia. *International Conference of Zakat* (pp. 203-218). <https://doi.org/10.37706/iconz.2020.218>
35. Suryanto. (2015). Non Performing Loans On Regional Development Bank in Indonesia and Factors that Influence. *Mediterranean Journal of Social Sciences*, 6(4), 280-287. Retrieved from <https://www.richtmann.org/journal/index.php/mjss/article/view/6929>
36. Utama, S., Suwarsi, A. A., & Listiono. (2019). The role of Islamic banking in agriculture financing (Case study of Indonesian agriculture sector). *Humanities and Social Sciences Reviews*, 7(2), 261-269. <https://doi.org/10.18510/hssr.2019.7230>
37. Wardhana, A. K., Ratnasari, R. T., & Fauziana, H. (2023). Islamic Investment in Indonesia Before and During Pandemic of Covid-19: a Bibliometric Study. *Berkala Akuntansi Dan Keuangan Indonesia*, 8(1), 22-37. <https://doi.org/10.20473/baki.v8i1.33557>
38. Yustiardi, A. F., Diniyya, A. A., Faiz, F. A. A., Subri, N. S., & Kurnia, Z. N. (2020). Issues and Challenges of the Application of Mudarabah and Musharakah in Islamic Bank Financing Products. *Journal of Islamic Finance*, 9(2), 26-41. <https://doi.org/10.31436/jif.v9i2.482>
39. Zakik, Z., Kamil, A., Prasetyo, A. S., Ryandono, M. N. H., & Wijayanti, I. (2022). Economic development on Madura Island through halal tourism: A business feasibility study. *Al-Uqud: Journal of Islamic Economics*, 6(2), 289-303. <https://doi.org/10.26740/aluqud.v6n2.p289-303>

APPENDIX A

Table A1. List of Sharia commercial banks in Indonesia as of 2022 and their characteristics

Source: Otoritas Jasa Keuangan Indonesia (OJK, 2023).

No.	Name of Bank Islam	Characteristic
1	Bank Syariah Indonesia (BSI)	The largest Islamic bank in Indonesia, the result of the merger of three state-owned Islamic banks: Bank BNI Syariah, Bank Syariah Mandiri, and Bank BRISyariah. It offers a variety of Islamic banking products, including savings, financing, and digital services
2	Bank Muamalat Indonesia	The first Islamic bank in Indonesia, was established in 1991. Focus on Islamic banking services with various products such as savings, financing, and hajj services
3	Bank Mega Syariah	Bank Mega's subsidiary, offers Islamic banking products such as savings, financing, and digital services through the M- <i>Syariah</i> application
4	Bank BCA Syariah	BCA's subsidiary, provides Islamic banking services with the support of BCA's network, including access to BCA's ATMs and branch offices throughout Indonesia
5	Bank Panin Dubai Syariah	As a result of the collaboration between Bank Panin Indonesia and Dubai Islamic Bank, it became the first Islamic bank to list its shares on the Indonesia Stock Exchange in 2014 with the stock code PNBS
6	Bank KB Bukopin Syariah	Bank KB Bukopin's subsidiary, offers Islamic banking products such as savings, financing, and other services in accordance with <i>sharia</i> principles
7	Bank BTPN Syariah	Focus on empowering productive underprivileged women through Islamic banking services, offering savings and microfinance products
8	Bank Victoria Syariah	A subsidiary of Bank Victoria International, it provides Islamic banking services with various products such as savings, deposits, and financing
9	Bank Aladin Syariah	Previously named Bank Net Indonesia Syariah, it transformed into a sharia digital bank with a focus on digital banking services in accordance with <i>sharia</i> principles
10	Bank Jabar Banten Syariah	Regional Islamic banks operating in the West Java and Banten regions, offer Islamic banking products to support the regional economy
11	Bank NTB Syariah	Regional Islamic banks owned by the West Nusa Tenggara Provincial Government, focusing on Islamic banking services for the people of NTB
12	Bank Aceh Syariah	Regional Islamic banks owned by the Aceh Provincial Government, are committed to banking services following sharia principles for the people of Aceh