



Digital Receipt

This receipt acknowledges that Turnitin received your paper. Below you will find the receipt information regarding your submission.

The first page of your submissions is displayed below.

Submission author: Naskah Publikasi
Assignment title: Muhammad Khoirul Fuddin
Submission title: 17. Sharia Banking Efficiency in Developing Countries
File name: 17._Sharia_Banking_Efficiency_in_Developing_Countries.pdf
File size: 575.29K
Page count: 20
Word count: 12,668
Character count: 72,723
Submission date: 11-Apr-2025 03:16PM (UTC+0700)
Submission ID: 2576602789

Jurnal REKSA: Rekayasa Keuangan, Syariah dan Audit
Vol. 11, No. 1, March 2024, pp. 42-61
ISSN 2089-6581 (print) | 2014-3720 (online)
http://jurnal2.usd.ac.id/index.php/rekasa/index

Sharia Banking Efficiency in Developing Countries

Muhammad Khoirul Fuddin^{1*}, Niken Heary Wulandari², Nur Shabrina Rahmahsari Suyono³, Robiatul Adawiah⁴

¹Universitas Muhammadiyah Malang, Malang, Indonesia
fuduf@ukd.um.ac.id¹, nikhe@gmail.com², suyon@gmail.com³, adawiah@gmail.com⁴
^{*}Corresponding Author

Received: 27 May 2024 Revised: 24 July 2024 Accepted: 25 August 2024

ABSTRACT
Several decades ago, the 1998 financial crisis in ASEAN developing countries had a limited impact on the performance of sharia banking due to its adherence to principles of transparency and fairness in its operations, allowing it to sustain growth under various conditions. This study examines the effect of CAR, ROA, and FDR on the efficiency of Islamic banking in developing countries, specifically the United Arab Emirates, Malaysia, Kuwait, and Qatar. Employing quantitative methods and panel data regression analysis, the findings reveal that CAR does not have a significant individual effect on Sharia banking efficiency, whereas FDR and ROA significantly enhance banking efficiency. This research contributes valuable insights into the role of these financial ratios in shaping the efficiency of Islamic banks in developing countries, providing practical implications for policymakers and banking professionals aiming to improve sharia banking performance.

KEYWORDS
CAR
FDR
ROA
Banking efficiency


This is an open access article under the CC-BY-SA license.

Introduction
The development of Sharia banking in developing countries continues to increase, which can be seen from the people who use Sharia banking services. This aligns with growing public confidence that Sharia banking is the best alternative financial institution for allocating financial activities even during an economic crisis. Meanwhile, the growth of the sharia economy, on the one hand, has raised optimism about the future of the Sharia economy as a replacement system for public financial institutions. Sharia banking has also brought synergy and harmonization in such a way as to encourage the development of Sharia finance in various countries. Many people will benefit from sharia economics, especially among people with low incomes (Syahputra, 2021).
The growth of Sharia banking in developing countries has been remarkable, driven by economic and cultural factors. In Indonesia, Sharia banking has become an international hub and offers opportunities for portfolio diversification. However, integration with other regions varies based on geographical proximity and bilateral trading relations (Mallini & Idris, 2020). The sector has significantly contributed to economic growth, with Islamic banks (IBs) playing a crucial role in the GDP of developing countries by integrating the assets of lenders and borrowers, thus supporting long-term, high-risk projects (Dady & Frikha, 2016). Despite its rapid development, the primary objectives of Sharia banking, such as poverty alleviation and unemployment reduction, remain challenging, although the non-financial aspects of economic activities are also growing (Fitriyah, 2020). In Jordan, a randomized marketing experiment showed that Sharia-compliant loan features increased the demand for credit, indicating that religious considerations significantly influence financial behavior in developing countries (Kattan et al., 2021). The legal frameworks in countries like Indonesia, Malaysia, and Brunei Darussalam have also evolved to support the growth of Sharia banking, with each country adopting different regulatory approaches to resolve economic disputes

10.12928/rekasa.v11i1.10579 rekasa@ec.usd.ac.id

Naskah Publikasi

17. Sharia Banking Efficiency in Developing Countries

 Muhammad Khoirul Fuddin

 EKONOMI PEMBANGUNAN PERIODE II TAHUN 2024

 University of Muhammadiyah Malang

Document Details

Submission ID

trn:oid::1:3212702117

Submission Date

Apr 11, 2025, 3:15 PM GMT+7

Download Date

Apr 11, 2025, 3:18 PM GMT+7

File Name

17_Sharia_Banking_Efficiency_in_Developing_Countries.pdf

File Size

575.3 KB

20 Pages

12,668 Words

72,723 Characters

7% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

Filtered from the Report

- ▶ Bibliography
- ▶ Quoted Text

Match Groups

- 24 Not Cited or Quoted 6%**
 Matches with neither in-text citation nor quotation marks
- 0 Missing Quotations 0%**
 Matches that are still very similar to source material
- 0 Missing Citation 0%**
 Matches that have quotation marks, but no in-text citation
- 0 Cited and Quoted 0%**
 Matches with in-text citation present, but no quotation marks

Top Sources

- 6% Internet sources
- 2% Publications
- 2% Submitted works (Student Papers)

Integrity Flags

0 Integrity Flags for Review

No suspicious text manipulations found.

Our system's algorithms look deeply at a document for any inconsistencies that would set it apart from a normal submission. If we notice something strange, we flag it for you to review.

A Flag is not necessarily an indicator of a problem. However, we'd recommend you focus your attention there for further review.

Match Groups

- 24 Not Cited or Quoted 6%**
 Matches with neither in-text citation nor quotation marks
- 0 Missing Quotations 0%**
 Matches that are still very similar to source material
- 0 Missing Citation 0%**
 Matches that have quotation marks, but no in-text citation
- 0 Cited and Quoted 0%**
 Matches with in-text citation present, but no quotation marks

Top Sources

- 6% Internet sources
- 2% Publications
- 2% Submitted works (Student Papers)

Top Sources

The sources with the highest number of matches within the submission. Overlapping sources will not be displayed.

- 1

Internet

www.journal2.uad.ac.id	3%
-------------------------------	-----------

- 2

Internet

journal2.uad.ac.id	3%
---------------------------	-----------

- 3

Publication

Dwi Irawan, Agung Prasetyo, Nugroho Wicaksono, Aviani Widyastuti, Rizki Febria...	2%
--	-----------

Sharia Banking Efficiency in Developing Countries

Muhammad Khoirul Fuddin^{a,1,*}, Niken Hesty Wulandari^{a,2}, Nur Shabrina Rahmahsari Suyono^{a,3}, Robiatul Adawiah^{a,4}

^aUniversitas Muhammadiyah Malang, Malang, Indonesia

¹khoirulfuddin@umm.ac.id; ²niken@gmail.com; ³suyono@gmail.com; ⁴adawiah@gmail.com

*Corresponding Author

Received: 27 May 2024

Revised: 24 July 2024

Accepted: 25 August 2024

ABSTRACT

Several decades ago, the 1998 financial crisis in ASEAN developing countries had a limited impact on the performance of sharia banking due to its adherence to principles of transparency and fairness in its operations, allowing it to sustain growth under various conditions. This study examines the effect of CAR, ROA, and FDR on the efficiency of Islamic banking in developing countries, specifically the United Arab Emirates, Malaysia, Kuwait, and Qatar. Employing quantitative methods and panel data regression analysis, the findings reveal that CAR does not have a significant individual effect on Sharia banking efficiency, whereas FDR and ROA significantly enhance banking efficiency. This research contributes valuable insights into the role of these financial ratios in shaping the efficiency of Islamic banks in developing countries, providing practical implications for policymakers and banking professionals aiming to improve sharia banking performance.



KEYWORDS

CAR

FDR

ROA

Banking efficiency



This is an open-access article under the [CC-BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.

Introduction

The development of Sharia banking in developing countries continues to increase, which can be seen from the people who use Sharia banking services. This aligns with growing public confidence that Sharia banking is the best alternative financial institution for allocating financial activities even during an economic crisis. Meanwhile, the growth of the sharia economy, on the one hand, has raised optimism about the future of the Sharia economy as a replacement system for public financial institutions. Sharia banking has also brought synergy and harmonization in such a way as to encourage the development of Sharia finance in various countries. Many people will benefit from sharia economics, especially among people with low incomes (Syahputra, 2021).

The growth of Sharia banking in developing countries has been remarkable, driven by economic and cultural factors. In Indonesia, Sharia banking has become an international hub and offers opportunities for portfolio diversification. However, integration with other regions varies based on geographical proximity and bilateral trading relations (Malini & Islahiyah, 2020). The sector has significantly contributed to economic growth, with Islamic banks (IBs) playing a crucial role in the GDP of developing countries by integrating the assets of lenders and borrowers, thus supporting long-term, high-risk projects (Daly & Frikha, 2016). Despite its rapid development, the primary objectives of Sharia banking, such as poverty alleviation and unemployment reduction, remain challenging, although the non-financial aspects of economic activities are also growing (Fitriyah, 2020). In Jordan, a randomized marketing experiment showed that Sharia-compliant loan features increased the demand for credit, indicating that religious considerations significantly influence financial behavior in developing countries (Karlan et al., 2021). The legal frameworks in countries like Indonesia, Malaysia, and Brunei Darussalam have also evolved to support the growth of Sharia banking, with each country adopting different regulatory approaches to resolve economic disputes

and promote financial stability (Mukti, 2020; Zulkifli, 2022). The performance of Islamic banking in Southeast Asia, particularly in Indonesia, has been impressive, with higher performance indices than neighboring countries, suggesting a strong potential for future growth (Wiyadi et al., 2016). Moreover, the principles of Sharia banking, such as the prohibition of *riba* (interest), *maisir* (speculation), and *gharar* (uncertainty), along with a commitment to social justice, provide a robust foundation for sustainable and inclusive economic development. The expansion of Islamic banking is not limited to Muslim-majority countries; it is also growing in countries with significant Muslim minorities, such as the United Kingdom and Japan, and is being considered in countries like India and Syria. With assets growing at double-digit rates, this global expansion highlights the increasing visibility and acceptance of Islamic banking as a viable alternative to conventional banking systems. The integration of Islamic and conventional banking methods has also been shown to improve economic growth, indicating that the coexistence of both systems can be mutually beneficial (Daly & Frikha, 2016). Overall, the growth of Sharia banking in developing countries is a multifaceted phenomenon influenced by legal, economic, and cultural factors, and it holds significant promise for future economic development and financial inclusion.

One of the things that has encouraged the increasing development of Sharia banking in developing countries is that it is practically by actual contemporary problems. The current situation increasingly shows that Sharia-compliant banking covers more than just monetary policy, fiscal policy, microeconomics, macroeconomics, public financing, and economic development. The development of Sharia financial institutions also aims to create micro waqf banks with the mission of providing services that enable access to funding for those who still need to be affiliated with formal financial institutions. (Fauzi & Wisesha, 2022).

Measuring the level of efficiency is one method for evaluating the performance of Islamic banks. As the Islamic banking sector develops, efficiency measurements are needed to assess how well Islamic banks will compete fiercely, both from the national and Islamic banking sectors, and their capacity to increase their market share. This makes measuring efficiency an essential indicator of a bank's survival ability. Meanwhile, if the efficiency of Islamic banking is not measured, it will affect a bank's profitability level.

Research conducted by Haryanto (2018) shows that risk, bank size, and CAR simultaneously affect efficiency. Then, Fauzi and Wisesha (2022) show that partially ROA has no significant effect on performance, while bank size and inflation substantially impact efficiency. Meanwhile, according to research by Fitriyah et al. (2020), FDR and bank size have a considerable positive effect, while NPF, GDP, and inflation significantly negatively affect the efficiency of Sharia banking.

This research will try to combine the variables CAR, FDR, and ROA to examine the efficiency of sharia banking because no previous research has combined these variables. The efficiency of sharia banking can be effectively tested using the Capital Adequacy Ratio (CAR), Financing to Deposit Ratio (FDR), and Return on Assets (ROA) as critical financial performance indicators. CAR is a crucial measure of a bank's capital, reflecting its ability to absorb potential losses and maintain financial stability. Studies have shown that CAR has a significant positive effect on the efficiency of Islamic banking, indicating that well-capitalized banks are more efficient in their operations. Additionally, CAR has positively influenced financial distress, suggesting that higher capital adequacy can mitigate financial risks (Daly & Frikha, 2016). Furthermore, CAR's impact on other financial metrics, such as ROA and ROE, has been mixed, with some studies indicating no significant effect on ROA but a positive effect on ROE (Destiani et al., 2023). FDR, which measures the proportion of a bank's deposits that are used for financing, is another critical indicator. The relationship between FDR and efficiency is complex. At the same time, some research indicates that FDR has a positive effect on ROA, suggesting that higher financing relative to deposits can enhance profitability (Destiani et al., 2023), other studies have found no significant impact on ROA or efficiency (Muslimin et al., 2023; Syahrir et al., 2023). Moreover, FDR's influence on financial distress and economic growth has been noted, with significant positive effects on GDP, highlighting its role in broader economic stability (Yulita & Musthofa, 2022). However, the impact of FDR on CAR has been inconsistent, with some studies showing a negative but not significant effect (Istiqoma et al., 2023). ROA, a measure of a bank's profitability

relative to its total assets, directly indicates efficiency. Higher ROA values typically signify more efficient management of assets to generate profits. Research consistently shows that ROA significantly influences the efficiency of Islamic banks, positively impacting both financial performance and economic growth (Yulita & Musthofa, 2022). ROA is also affected by various factors, including NPF, FDR, and CAR, with studies indicating that NPF negatively impacts ROA while CAR positively influences it (Muslimin et al., 2023). ROA's role in ISR disclosure has also been highlighted, suggesting that more profitable banks are more likely to engage in responsible and transparent reporting practices. In summary, CAR, FDR, and ROA are integral to assessing the efficiency of Sharia banking. CAR's role in ensuring financial stability and mitigating distress, FDR's complex relationship with profitability and economic growth, and ROA's direct indication of asset management efficiency collectively provide a comprehensive framework for evaluating the performance of Islamic banks. These indicators reflect the internal financial health of the banks and their broader impact on economic stability and growth, making them essential tools for both regulators and stakeholders in the Sharia banking sector. Previous studies usually used BOPO as the dependent variable. Here, the most recent research uses the dependent variable of Sharia banking efficiency, obtained from cost to income.

Various conditions challenge Sharia banks in developing countries, so an evaluation of their health performance is needed to remain competitive and survive. One way to do this is to look at banking efficiency, which can be used to develop strategies to face existing challenges. Efficiency needs to be considered in improving the bank's reputation in the eyes of stakeholders. Good efficiency can also channel more funds, quality services, and optimal profits. The performance of sharia banking in developing countries has been extensively studied through various methodologies and frameworks, revealing a multifaceted picture of its efficiency, governance, and sustainability. Research indicates that the Sharia governance system, particularly the role of the Sharia Supervisory Board (SSB), is crucial for ensuring that Islamic banks (IBs) adhere to Sharia principles, which in turn impacts their performance and stakeholder trust. However, empirical studies in GCC countries show mixed results, with SSB size negatively correlating with performance, while SSB expertise and board size positively correlate with performance (Prasojo et al., 2024). In terms of efficiency, global studies reveal that Sharia banking generally operates below optimal efficiency levels, with factors like Capital Adequacy Ratio (CAR) and Return on Assets (ROA) significantly influencing efficiency. In contrast, Non-Performing Financing (NPF) does not. In Indonesia, the relationship between Sharia governance and sustainability performance is significant, with the frequency of SSB meetings positively affecting sustainability. However, diversity within the SSB negatively impacts economic and social sustainability performance. Comparative studies using the Data Envelopment Analysis (DEA) and Sharia Maqashid Index (SMI) approaches show that only a few banks, such as BRI Syariah in Indonesia and Kuwait House Finance in Bahrain, consistently achieve perfect efficiency scores (Puspitasari & Kasri, 2023). During the COVID-19 pandemic, Indonesian Islamic banks demonstrated better financial performance and compliance than their Malaysian counterparts, as measured by the Maqashid Sharia Index (MSI) and CAMELS methods (Kurniawan et al., 2023). Further analysis in Indonesia shows that Islamic Corporate Social Responsibility (ICSR) positively impacts financial performance. At the same time, NPF and certain financing types like *Mudharabah* and *Musyarakah* do not significantly affect performance (Burhanuddin & Marsoem, 2024). Evaluations using the Islamic Performance Index (IPI) and MSI indicate that banks like BNI Syariah and BRI Syariah perform well. However, their profit-sharing ratios are lower due to less *musyarakah* and *mudharabah* financing (Sudirman et al., 2023). In Malaysia, SSB characteristics such as size, education, and reputation enhance Maqashid Sharia Performance (MSP), which in turn improves profitability due to more transparent Sharia assurance, unlike in Indonesia, where MSP does not significantly boost profitability (Taufik et al., 2023). Additionally, operational Sharia capital and strategic collaboration are critical for improving business performance in newly merged Islamic banks, emphasizing the need for innovation and strict adherence to Sharia rules (Thaib et al., 2024). Lastly, the *maslahah* performance approach, which assesses sharia-based performance, shows that the sharia business unit of Bank

Sumut Medan provides adequate benefits. However, there are challenges in deepening data analysis (Pasaribu et al., 2023). Collectively, these studies underscore the complexity and variability in the performance of sharia banking across different developing countries, influenced by governance structures, efficiency metrics, and socio-economic factors.

Literature Review

Sharia banking

Sharia banking is a type of banking instrument that uses an interest-free operating system whose products are based on the Al-Qur'an and As-Sunnah. It can be said that its main business is the provision of financing, payment services, and currency circulation, the implementation of which is by the teachings of Islamic law (Wilardjo, 2019). Sharia banking refers to all aspects of sharia banks and commercial entities, including their institutions, businesses, and business practices. A banking system based on Islamic sharia principles is known as "Islamic banking" or "Islamic banking." The distribution of profit and risk sharing between financial service providers (investors) and money users (entrepreneurs) is a feature of Islamic banking. So that parties can take advantage of these benefits, as with the conventional banking system, the highest level of income must also be considered by sharia principles. In addition, the parties will share responsibility for any losses that may occur. Besides managing zakat and avoiding business with prohibited items, Islamic banks also practice *maysir*, *gharar*, and usury (Pohan et al., 2021).

Sharia banking, also known as Islamic banking, operates by the principles of Islamic law (Shariah), which emphasizes moral and ethical values in financial transactions and prohibits the payment or receipt of interest (*riba*) (Basir, 2023; Hidayah et al., 2023). The legal framework for sharia banking in Indonesia includes various regulations, ranging from the 1945 Constitution to the DSN-MUI Fatwa, ensuring compliance with sharia principles. However, some regulations align with conventional banking laws (Faisal et al., 2023). Dispute resolution in sharia banking often occurs due to legal ambiguity and varying interpretations of existing rules, highlighting the need for more detailed regulations to ensure legal certainty and fairness in contracts. The performance of Islamic banks is not only measured by profitability but also by their compliance with sharia *maqasid*, which includes broader social and ethical objectives (Surury et al., 2022; Ullah et al., 2023). Islamic banks have various sharia capabilities, such as governance, compliance, monitoring, structuring, and learning, translating into value propositions such as sharia identity, *riba*-free transactions, and transparency (Lena et al., 2022). Effective Sharia audits are essential to ensure that all operations comply with Islamic principles, requiring auditors to have specialized knowledge and certification (Qayyum et al., 2023). Products offered by Islamic banks, such as *mudharabah* and running *musharakah*, are designed to avoid usury and promote profit sharing, although some products, such as running *musharakah*, face scrutiny regarding their sharia compliance (Nur, 2022; Rizqi, 2023). Financial literacy and promotional efforts positively influence people's interest in using Islamic banking services, emphasizing the importance of education and marketing in expanding the reach of sharia-compliant financial products. Applying sharia principles in banking ensures that financial institutions' ethical soundness and integrity align with Islamic law's broader objectives.

Banking Efficiency

A bank is said to be able to achieve coverage efficiency if it can operate in various locations. Technical efficiency is achieved from the production process's relationship between input and output. Allocative efficiency is achieved if a bank can determine various outputs that bring maximum input. Two points of view, micro and macro, are used to analyze efficiency in the banking sector. Banking Efficiency from a Micro Perspective: Competition in the banking industry is increasing, and banks must survive, develop, and run efficiently. Competing banks will only be able to match the bank's prices, product quality, or level of service if the bank does these things. Bank effectiveness is also affected. Customer trust in the quality of goods and services will decrease due to bank inefficiency. According to research on banking efficiency from a macro

perspective, an efficient banking sector can influence the prices of financial services (Suryanto & Susanti, 2020).

Banking efficiency is an essential measure of a bank's ability to utilize its resources effectively to generate revenues and manage costs. Studies have highlighted various determinants and impacts of banking efficiency in multiple regions. For example, in Pakistan, internal factors such as corporate governance and return on equity positively influence efficiency, while corporate risk management and financial leverage have an adverse effect (Ullah et al., 2023). In Ethiopia, efficiency is enhanced by the number of branches, bank size, and credit risk but is negatively affected by liquidity and fixed asset risks (Abdulahi et al., 2023). In India, the cost-to-income ratio negatively impacts profitability, whereas staff costs positively impact the return on assets (Dsouza et al., 2022). Comparatively, Islamic banks in the GCC are less cost-effective than conventional banks, with capital adequacy and size being positive determinants of efficiency (Ben Slimen et al., 2022). In Kenya, capital adequacy, market capitalization, bank size, liquidity risk, and leverage significantly influence efficiency (Ikapel et al., 2023). In Azerbaijan, the development of financial markets and the entry of foreign banks have increased banking efficiency. In Indonesia, labor and interest costs are the main determinants of cost efficiency, with private foreign exchange banks being the most efficient (Khalifaturafi'ah, 2022). A study of Ukraine and 17 European countries identifies efficient and inefficient banking systems, suggesting managerial tools for improvement (Korneyev et al., 2022). Efficiency in commercial banks can be measured using inputs such as third-party funds and operational costs and outputs such as financing and operating income, with tools such as Data Envelopment Analysis (DEA) and the Malmquist Productivity Index (MPI). Lastly, the PRREL method evaluates efficiency through profitability, resource use, revenue and expense management, and staff utilization, highlighting the need for comprehensive assessments beyond profit indicators. These mixed findings underscore the multifaceted nature of banking efficiency and the importance of tailored strategies to improve it in different banking environments.

The Influence of CAR on Sharia Banking Efficiency

The Capital Adequacy Ratio (CAR) plays a significant role in the efficiency of Sharia banking, as evidenced by multiple studies. CAR measures a bank's capital, which acts as a buffer against potential losses, ensuring stability and efficiency. Research indicates that CAR significantly affects the efficiency of Islamic banking globally, with higher CAR values generally contributing to better efficiency levels. However, the relationship between CAR and other performance metrics, such as Return on Assets (ROA) and Return on Equity (ROE), varies. For instance, while CAR does not significantly impact ROA in Sharia Rural Banks in Indonesia, it positively affects ROE, suggesting that a well-capitalized bank can generate higher returns on equity even if it does not directly translate to asset efficiency (Destiani et al., 2023). Additionally, CAR has been found to have a partial positive but insignificant effect on the Financial Sustainability Ratio (FSR), indicating that while it contributes to financial stability, its direct impact on sustainability might be limited (Anggraini et al., 2023). Regarding risk management, CAR is crucial as it influences organizational performance by providing a cushion against financial risks. However, it does not directly mediate risk management's effect on organizational performance (Mardiana, 2021). The impact of CAR on Non-Performing Financing (NPF) is also noteworthy; a higher CAR tends to reduce NPF, thereby enhancing the bank's efficiency by minimizing the risk of default (Hardana et al., 2023). However, some studies show that CAR does not significantly affect NPF in specific contexts, indicating that other factors might also play a role in managing non-performing assets (Hardana et al., 2023). Furthermore, CAR's influence on firm value is positive, suggesting that well-capitalized banks are perceived as more valuable, which can indirectly contribute to operational efficiency by attracting more business (Qoda'ah & Abdurrahman, 2023). Interestingly, while CAR significantly affects ROA in some studies, it does not in others, highlighting the complexity of its impact on different performance metrics (Muliadi, 2022; Nanda et al., 2019). The tight competition between Islamic and conventional banks necessitates that Islamic banks maintain a high CAR

to ensure credibility and attract more transactions, thereby improving overall efficiency. In summary, while CAR is a critical factor in enhancing the efficiency of Sharia banking by providing financial stability and reducing risks, its direct impact on various performance metrics can vary depending on the specific context and other influencing factors. Therefore, the initial hypothesis of this research is stated as follows:

H1. Capital Adequacy Ratio (CAR) has a significant influence on banking efficiency.

The Influence of FDR on Sharia Banking Efficiency

The financing-to-deposit ratio (FDR) plays a significant role in determining the efficiency of Sharia banking, impacting various financial performance metrics and overall bank sustainability. FDR measures the proportion of a bank's total deposits that are given out as loans, and its influence on efficiency is multifaceted. Research indicates that a high FDR can negatively impact Return on Assets (ROA), a key indicator of bank efficiency, as it suggests potential liquidity issues and higher risk exposure (Hasibuan et al., 2022; Kharazi, 2022). Specifically, studies have shown that FDR has a significant negative effect on ROA, implying that as banks allocate more deposits to financing, their profitability may decrease due to increased risk and potential non-performing financing (NPF) (Hasibuan et al., 2022; Kharazi, 2022). FDR's impact on efficiency is also moderated by macroeconomic factors such as GDP and inflation. For instance, a decrease in GDP can increase liquidity risk, thereby exacerbating the adverse effects of a high FDR on bank efficiency (Muliadi, 2022). Conversely, inflation tends to increase liquidity risk, further stressing the bank's financial stability when FDR is high (Muliadi, 2022). Moreover, the relationship between FDR and NPF is crucial, as higher FDR can lead to an increase in NPF, negatively affecting bank efficiency by increasing the cost of managing bad loans and reducing overall profitability (Hardana et al., 2023; Sahrullah & Suprayogi, 2022). On the other hand, some studies suggest that FDR can positively affect specific aspects of bank performance, such as Return on Equity (ROE), indicating that efficient management of deposits and financing can enhance shareholder value (Destiani et al., 2023). However, this positive impact is often contingent on the bank's ability to manage operational costs effectively, as indicated by the Operating Expenses to Operating Income (BOPO) ratio, which has been shown to influence both ROA and ROE significantly (Destiani et al., 2023; Hasibuan et al., 2022; Qoda'ah & Abdurrahman, 2023). Furthermore, the Capital Adequacy Ratio (CAR) also plays a moderating role, with higher CAR levels potentially mitigating the adverse effects of high FDR by providing a buffer against financial instability (Hasibuan et al., 2022; Qoda'ah & Abdurrahman, 2023; Rizky et al., 2023). In summary, while FDR is a critical factor in determining the efficiency of Sharia banking, its impact is complex and influenced by a combination of internal management practices and external economic conditions. Effective management of FDR, along with careful monitoring of NPF, CAR, and BOPO, is essential for maintaining the efficiency and sustainability of Sharia banks. Therefore, the second hypothesis of this investigation is articulated in the following manner:

H2. Financing to Deposit Ratio (FDR) has a significant influence on banking efficiency.

The Influence of ROA on Sharia Banking Efficiency

Return on Assets (ROA) is a critical metric in evaluating the efficiency of Sharia banking, reflecting a bank's ability to generate profit from its assets. Various studies have explored the impact of ROA on the efficiency of Sharia banks, revealing nuanced insights. For instance, research indicates that ROA significantly negatively influences the efficiency of Sharia banks in Indonesia, suggesting that higher profitability does not necessarily translate to greater operational efficiency (Sahrullah & Suprayogi, 2022). This negative relationship is further supported by findings that show ROA's significant adverse effect on the BOPO, a key indicator of banking efficiency (Rachmawati, 2023). Conversely, other studies highlight that ROA positively impacts the efficiency of Sharia banks, as seen in the global context where ROA significantly enhances banking efficiency, indicating that profitable banks tend to manage their resources more effectively. Additionally, the relationship between ROA and other financial ratios, such as the Capital

Adequacy Ratio (CAR) and Non-Performing Financing (NPF), also plays a role in determining efficiency. For example, CAR significantly impacts ROA, which can positively influence efficiency (Muslimin et al., 2023). However, NPF's impact on ROA is negative, which can detract from overall efficiency (Pramesti et al., 2023). The mixed results across different studies suggest that the impact of ROA on Sharia banking efficiency is context-dependent and influenced by factors such as market structure, regulatory environment, and internal management practices. For instance, in *mudharabah* financing, ROA does not significantly affect the financing system, indicating that profitability metrics might not always align with specific financing models in Sharia banking (Widyakto et al., 2023). Moreover, deferred tax expenses have negatively impacted ROA, reducing financial performance and efficiency in Sharia banks (Busra et al., 2023). Implementing green banking practices also indirectly affects ROA by influencing operational costs and efficiency (Mustika et al., 2023). Furthermore, macroeconomic factors such as inflation and GDP growth also interplay with ROA to affect Sharia banking efficiency, with inflation having a significant positive effect on Murabahah financing, thereby influencing overall efficiency (Yamin, 2022). In summary, while ROA is a vital indicator of profitability, its impact on the efficiency of Sharia banks is multifaceted and influenced by a range of internal and external factors. The relationship is complex and varies across different contexts, highlighting the need for a holistic approach to evaluating banking efficiency that considers profitability alongside other financial and operational metrics. The last hypothesis of this investigation is articulated in the following manner:

H3. Return on Assets (ROA) has a significant influence on efficiency in banking.

Research Method

This research was conducted at Sharia banking institutions in the developing countries of the United Arab Emirates, Malaysia, Kuwait, and Qatar. The basis for choosing this object is that the number of Sharia banks in developing countries continues to increase. Sharia banking is also one of the sectors resistant to economic crises. This research uses quantitative methods from IFSB (Islamic et al.) publications. The quantitative data used includes CAR, FDR, ROA, and Efficiency in the form of quarterly data from 2017 Q1 to 2021 Q4. The data collection technique used is documentation.

CAR is the level of bank capability that calculates how good the bank's capital is about assets that produce risk. CAR is a solvency ratio that covers the potential risk of losses that banks may experience. The higher the CAR, the better the bank's ability to withstand the risks of each loan and risk-weighted income asset (Rahmani, 2017). A bank must meet minimum capital requirements, known as the capital adequacy ratio (CAR). If a banking business has sufficient capital, all industrial activities can be carried out there. All needed to support Bank operations are financed with bank capital.

$$CAR = \frac{\text{Tier Capital}}{\text{Risk - weighted assets}} \times 100\%$$

The Capital Adequacy Ratio (CAR) is an essential financial metric used to evaluate a bank's capital about its risk-weighted assets, ensuring that the institution can absorb a reasonable amount of losses and comply with legal capital requirements. Various studies have examined the impact of CAR on bank performance and profitability, such as research on PT. Bank Negara Indonesia (Persero) Tbk. found that CAR did not significantly affect profitability. Likewise, studies of rural banks in Batam City and Islamic commercial banks in Indonesia show that CAR does not considerably affect Return on Assets (ROA) (Kalsum & Hidayat, 2023; Saputra & Angriani, 2023). However, contrasting results were observed in other contexts. For example, research at PT Bank Mandiri (Persero) Tbk shows that CAR significantly negatively affects ROA. (Akbar, 2023; Rismanty & Suraya, 2023). Additionally, a study of commercial banks in Vietnam revealed that increasing CAR hurt Return on Equity (ROE), indicating that higher capital requirements could reduce profitability. In contrast, research on banking companies listed on the Indonesia Stock Exchange (BEI) shows that CAR positively and significantly influences profitability (Shrestha, 2023). In addition, CAR was found to have a positive but insignificant influence on the Credit Deposit Ratio

(LDR) in state-owned banks in Indonesia (Astuti et al., 2023). CAR determinants include factors such as liquidity, management efficiency, operational efficiency, and bank size, which play a positive role. In contrast, financial performance as measured by ROE and lending policy as measured by the ratio of total loans to total assets play an inverse role (Tami & Dewi, 2022). These mixed findings highlight the complex and context-dependent nature of CAR's impact on bank performance and profitability.

The FDR ratio compares the amount of financing with the amount of public savings. Bank liquidity decreases with increasing FDR ratio. The growth of FDR will show that banks will always be the best in encouraging their physical industry because they will manage people's savings effectively (Lestari, 2021). FDR is a tool to measure the health of a bank and how well the bank carries out its function as an institution that collects public funds, which has advantages and disadvantages of money. Because FDR cannot be determined and is influenced by the total amount of financing provided and the total amount of funds raised through third parties, Islamic banks must assess the FDR ratio according to the required standards to ensure smooth banking operations (Munandar, 2022).

$$FDR = \frac{\text{Total Financing}}{\text{Total Third Funding}} \times 100\%$$

The financing-to-deposit ratio (FDR) is an essential metric in Islamic banking, reflecting the proportion of a bank's financing activities relative to its deposits. It serves as an indicator of liquidity and financial health. Research shows that FDR significantly influences various financial performance metrics. For example, Karmila's study indicates that FDR influences Return on Equity (ROE) by 42.9% at PT. Bank Mandiri Syariah (Karmila, 2022). However, its influence on Return on Assets (ROA) is more nuanced. While some studies show a negative and insignificant impact on ROA (Kharazi, 2022; Siswoyo et al., 2023), others find a significant negative effect (Ernayani, 2023; Hasibuan et al., 2022). In addition, FDR's relationship with non-performing financing (NPF) is very complex; some studies have shown no significant effect (Hartanti & Yanti, 2022). At the same time, others highlight a substantial impact on profitability (Zafani et al., 2022; Kartini, 2022). FDR also plays a role in the growth of certain deposits, such as maharajah deposits, which have a significant positive effect (Bellinda, 2022). In addition, FDR is essential to maintain bank liquidity and reputation, as proven by the positive reputation of BCA Syariah Bank due to its adequate liquidity management from 2015 to 2021 (Mulyana et al., 2022). Overall, FDR is a multifaceted ratio that influences various aspects of a bank's financial health, from profitability and return on assets to liquidity and reputation, underscoring its importance in the strategic management of Islamic banks.

ROA is the amount of capital used to invest in all banking assets to generate profits. ROA focuses on the profitability level of bank operations. When the profits generated by the bank increase, it will produce a high ROA. Therefore, banks manage their assets better to generate expected profits (Prasaja, 2018). The profitability ratio describes the effectiveness of bank operations. The ROA ratio is critical because it prioritizes the bank's profitability value, which is determined by its productive assets, most of which come from third-party funds (DPK). The level of profit a bank generates and its position in terms of asset utilization are both enhanced by higher ROA returns. The formula for calculating ROA return on assets, which compares profit before tax for all assets within a specific time, is as follows (Suhandi, 2019):

$$ROA = \frac{\text{Net Income}}{\text{Total Aset}} \times 100\%$$

Return on Assets (ROA) is a significant financial metric that measures a company's ability to generate profits from its total assets. This is widely used to assess the efficiency of company management in utilizing its assets to generate income. Research shows that ROA significantly impacts stock returns, as higher profitability usually increases stock prices. (Irdawati et al., 2023; Karyadi et al., 2023). Credit distribution significantly influences ROA in the banking sector, with research showing that credit distribution accounts for 72.1% of the variation in ROA (Handayani, 2023). Additionally, ROA is positively correlated with firm value, as demonstrated in manufacturing companies during the COVID-19 pandemic, where higher ROA leads to increased firm value (Septiani & Wulandari, 2023). In the pharmaceutical sector, ROA and the

intellectual capital coefficient significantly influence firm value, although asset turnover does not (Wally et al., 2023). In contrast, a higher Equity Ratio (DER) hurts ROA in the consumer goods sector, indicating that increasing debt levels can reduce net income and ROA (Lestiyadi & Karina, 2023). Furthermore, ROA is influenced by various financial ratios, such as the Capital Adequacy Ratio (CAR) and Deposit Ratio (LDR), with CAR having a negative impact and LDR having a positive effect on the banking sector (Rismanty & Suraya, 2023). Regarding share prices, while ROA significantly influences share prices in the banking sector, it does not significantly impact share prices for PT Charoen Pokphand Indonesia, Tbk, where Earnings Per Share (EPS) plays a more critical role (Anggraini et al., 2023). Lastly, ROA is also positively related to profit growth in consumer goods companies, highlighting its importance in evaluating their financial health and growth potential. Overall, ROA is a multifaceted indicator that provides valuable insight into a company's profitability, asset utilization, and overall economic performance.

The population in this study came from four developing countries: the United Arab Emirates, Malaysia, Kuwait, and Qatar. The sampling method used in this research is purposive, based on specific criteria according to the problem and research objectives. The criteria used are developing countries that continue to experience increased use of Sharia banking and have complete data according to the variables to be tested.

The analysis method uses panel data regression, combining cross-section and time series data. The following are the procedures used for data analysis with regression models, selecting the best model for panel data, and hypothesis testing.

The three modeling approaches used in panel data regression are Common Effect Method (CEM), Fixed Effect Method (FEM), and Random Effect Method (REM). The Chow test compares Fixed Effect (FE) and Common Effect (CE) to select the best model. After FE is determined as the best model, a selection is made between FE and RE using the Hausman test. If the FE technique is not selected twice in the Chow or Hausman tests, the Lagrange Multiplier (LM) test is the next step in the model selection process. However, choosing the best model between RE and CE requires LM testing if the Hausman RE test is preferred.

Results and Discussion

The best model for panel data is selected using a model selection test based on the estimation method of the chosen model. Based on the test results, the fixed effect model was chosen. The Common Effects, Fixed Effects, and Random Effects approaches are used to estimate panel data regression models in Table 1 for a more thorough explanation. The panel data regression model with the common effects approach is as follows:

Table 1. Common Effects Model

Variables	Coefficient
C	109.902
CAR_X1	- 3.934
FDR_X2	- 0.110
ROA_X3	0.620

The constant of 109.902 states that without being influenced by CAR, FDR, and ROA, the total efficiency of Sharia banking is 109.902. The regression coefficient is -3.934, meaning that for every additional CAR of 1, the efficiency of Sharia banking will decrease by 3.934%. Based on the FDR regression coefficient of - 0.110, every additional 1 unit of FDR will decrease Sharia banking efficiency by 0.110 percent. The ROA regression coefficient is 0.620, so Sharia banking efficiency will increase by 0.620 percent for every additional 1 unit of ROA.

Table 2. Fixed Effects

Variables	Coefficient
C	35.860
CAR_X1	0.369
FDR_X2	- 0.091
ROA_X3	- 2.434

Based on Table 2, the panel data regression model with fixed effects estimation is as follows:

$$Y_{it} = 35.860 + 0.369 \text{ CAR} - 0.091 \text{ FDR} - 2.434 \text{ ROA}$$

The constant of 35.860 states that without being influenced by CAR, FDR, and ROA, the total efficiency of Islamic banking is 35.860. The regression coefficient is 0.369, meaning that for every additional CAR of 1, the efficiency of Sharia banking will increase by 0.369 percent. Based on the FDR regression coefficient of - 0.091, every additional 1 unit of FDR will decrease Sharia banking efficiency by 0.091 percent. The ROA regression coefficient is -2.434, so Sharia banking efficiency will decrease by 2.434 percent for every more ROA unit.

Table 3. Random Effects

Variables	Coefficient
C	109.902
CAR_X1	- 3.934
FDR_X2	- 0.110
ROA_X3	0.620

The results of Table 3, the panel data regression model with random effects estimation, are as follows:

$$Y_{it} = 109.902 - 3.934 \text{ CAR} - 0.110 \text{ FDR} + 0.620 \text{ ROA}$$

The constant of 109.902 states that without being influenced by CAR, FDR, and ROA, the total efficiency of Sharia banking is 109.902. The regression coefficient is -3.934, meaning that for every additional CAR of 1, the efficiency of Sharia banking will decrease by 3.934%. Based on the FDR regression coefficient of - 0.110, every additional 1 unit of FDR will decrease Sharia banking efficiency by 0.110 percent. The ROA regression coefficient is 0.620, so Sharia banking efficiency will increase by 0.620 percent for every additional 1 unit of ROA. Standard, fixed, and random effect models are three regression models that will be considered in estimating panel data regression models. The following tests are carried out to select the appropriate panel data regression estimation model:

Table 4. Chow test

Effects Test	Statistics	df	Prob.
Cross-section F	379.532	(3.73)	0.000
Chi-square cross-section	224.738	3	0.000

Based on Table 4 Chow-Test, the prob F = 0.000 is obtained. This value is smaller than 0.05, so it can be decided to accept H1, making the FE model more suitable than CE. Hausman Test in Table 5, Prob F = 0.000; this value is smaller than 0.05, so it can be decided to accept H1. So, it can be concluded that the FE model is more suitable than RE. The fixed effects model is suitable for analyzing Sharia banking efficiency data by selecting panel data regression estimation techniques. When FE is selected, the analysis is complete. We will also continue to test the significance of parameters in the panel data regression equation for the best model.

The purpose of hypothesis testing is to determine the significance of the regression coefficient. If the regression coefficient is not equal to zero, the predictor variable does not have sufficient evidence to influence the response variable. The T-test (partial test), F-test (simultaneous test), and analysis of the coefficient of determination (R-Square) must be used in assessing the regression coefficient.

Table 5. Hausman test

Test Summary	Chi-Sq. Statistics	Chi-Sq. df	Prob.
Chi-square cross-section	1,138.596	3	0.000

Table 6. was tested using the Eviews 12 program. The CAR variable showed results, namely that it had no significant effect on banking efficiency, the FDR variable had a significant impact on banking efficiency, and the ROA variable had a significant effect on banking efficiency. The results of the F test in this study simultaneously obtained a prob (F-statistic) value of 0.000, with a significance value of less than 0.05, indicating that the variables CAR, FDR, and ROA significantly influence banking efficiency (Y). The R square value in Table 6 above is 0.950, proving that each independent variable simultaneously explains 95% of the dependent variable, and other variables explain the other 5%.

Table 6. Hypothesis Testing

Variables	Coefficient	Std. Error	t-Statistics	Prob.
C	35.860	9.300	3.855	0.000
CAR_X1	0.369	0.541	0.682	0.497
FDR_X2	-0.091	0.030	-3.028	0.003
ROA_X3	-2.434	1.015	-2.397	0.019
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.950	Mean dependent var		33.263
Adjusted R-squared	0.946	SD dependent var		14.189
SE of regression	3.294	Akaike info criterion		5.305
Sum squared resid	792.421	Schwarz criterion		5.514
Log-likelihood	-205.237	Hannan-Quinn Criter.		5.389
F-statistic	232.051	Durbin-Watson stat		0.442
Prob(F-statistic)	0.000			

The Influence of CAR on Sharia Banking Efficiency

Based on the data analysis, a significance value of 0.497 was more significant than 0.05. This shows that CAR has no effect on sharia banking efficiency in developing countries in 2017-2021. Even though public trust is prioritized in the banking sector, the CAR variable does not affect efficiency because it has yet to succeed in increasing public confidence. This is because capital management activities in various profitable business activities do not follow the increasing CAR value. The increasing CAR value in Islamic banking shows that these institutions choose safe conditions to avoid using excessive capital in various risky commercial ventures. So, much of their capital needs to be more active and influential. The economic instability caused by the COVID-19 outbreak is one of the reasons why Islamic banks save their capital. This strategy is being used by other banks, which involves holding back capital from being used in high-default-risk investment ventures to increase the efficiency of its financing. This research is consistent with the research of Wiriani and Mukarramah (2020) and Sari and Saraswati (2017).

As proven by several studies, the Capital Adequacy Ratio (CAR) does not appear to influence the efficiency of Sharia banking in developing countries significantly. For example, research on Islamic Rural Banks in Indonesia found that CAR did not affect Return on Assets (ROA), a key efficiency indicator (Destiani et al., 2023). Similarly, another study on Islamic Commercial Banks shows that CAR does not affect ROA, further supporting the idea that CAR has no direct impact on efficiency (Iqbal & Anwar, 2022). Additional research on the efficiency of Islamic banks in Indonesia concludes that CAR does not significantly affect the Operating Efficiency Ratio (OER), a direct measure of banking efficiency (Hariyanto & Nafi'ah, 2022). Additionally, studies examining the relationship between CAR and Non-Performing Financing (NPF) found no significant effect, indicating that CAR does not affect financing quality, which is critical for operational efficiency (Bawono & Falakh, 2018). In addition, research on the *mudharabah* financing system in Sharia Banks also shows that CAR does not significantly impact this financing method, which is an integral part of the bank's operational efficiency (Shidiqi & Rachmawati, 2018). Lastly, a study on Islamic banking performance highlights that while CAR does not affect ROA, Operating Costs on Operating Income (BOPO) have a significant impact, underscoring that factors other than CAR are more critical for efficiency (Tsanja et al., 2022). These findings suggest that while CAR is critical to maintaining financial stability, it does not directly affect the operational efficiency of Islamic banks in developing countries. In contrast, other factors such as operational costs, quality of financing, and risk management play a more critical role in determining efficiency (Khalifaturofi'ah, 2018; Mardiana, 2021; Nanda et al., 2019; Widyakto et al., 2023).

The Influence of FDR on Sharia Banking Efficiency

The results of the data analysis showed a significance of 0.003, meaning less than 0.05. This can be interpreted as saying that the FDR variable influences the efficiency of Sharia banking in developing countries in 2017-2021. The efficiency of Islamic banking will increase with each increase in the FDR ratio. This is because an increase in the FDR ratio indicates an increase in loans or financing, and the ratio of total credit or total financing to deposits favors bank operational efficiency. Because credit and financing are the primary sources of bank income, increasing credit and financing distribution will increase the likelihood that the bank will profit and increase its operational efficiency. The results of this research are from research conducted by Miftahurrohman (2019).

Financing to Deposit Ratio (FDR) is an essential metric in assessing the efficiency of Sharia banking, especially in developing countries. Research shows that the influence of FDR on profitability and efficiency in Islamic banks varies. For example, research has demonstrated that FDR does not significantly impact profitability in some cases, suggesting that other factors may play a more dominant role in determining efficiency (Damanik et al., 2019; Saâdaoui & Khalfi, 2024; Simatupang & Franzlay, 2018). However, other research highlights that FDR can significantly affect the return on assets (ROA), a proxy for profitability that indirectly affects efficiency (Yusuf & Hidayat, 2022; Sahrullah & Suprayogi, 2022). In developing countries, the efficiency of Islamic banks is often linked to broader economic indicators such as GDP and governance-related variables such as the Sharia Supervisory Board and board committees, which have been shown to have a significant positive effect on efficiency (Imamah et al., 2018). Additionally, operational efficiency (BOPO) and non-performing financing (NPF) ratios are also important, as they can hurt profitability and, by extension, efficiency (Gusmawanti et al., 2020; Hasibuan et al., 2022; Ma'isyah & Mawardi, 2015). Mixed results from various studies show that while FDR is an essential factor, its influence on efficiency is often intertwined with other variables such as capital adequacy ratio (CAR), operational costs, and external economic conditions (Wati, 2019). Therefore, while FDR does play a role in influencing the efficiency of Islamic banks in developing countries, it is essential to consider it within a broader framework of financial and economic indicators to understand its impact fully.

The Influence of ROA on Sharia Banking Efficiency

Based on data analysis, the significance is 0.019, which is smaller than 0.05. This shows that the ROA variable influences the efficiency of sharia banking in developing countries in 2017-2021. As a proxy for bank profitability, using ROA positively impacts banking efficiency. Banks with larger profit margins are considered efficient because they can manage their resources effectively. The results of this research are from previous research by Pramesti et al. (2023) and Wally et al. (2023), both of which said that ROA significantly affects bank efficiency.

Return on Assets (ROA) significantly impacts the efficiency of Islamic banking in developing countries, as proven by several studies. ROA, the primary profitability ratio, is influenced by various internal and external factors affecting Islamic banks' efficiency. For example, a survey of Indonesian Sharia banks found that ROA significantly negatively influenced bank efficiency, indicating that higher profitability does not always translate to better efficiency due to market competition and other factors such as NPF ratio, FDR ratio, inflation, and interest rates (Sahrullah & Suprayogi, 2022). In addition, research using the Multivariate Adaptive Regression Splines (MARS) method shows a strong relationship between Islamic banking efficiency and GDP in developing regions, highlighting the importance of macroeconomic factors in shaping efficiency (Saâdaoui & Khalfi, 2024). Other studies have shown that NPF and OER negatively impact ROA, while CAR positively impacts it, further complicating efficiency dynamics (Falikhatus & Mudrikah, 2022; Muslimin et al., 2023). Deferred taxes also hurt financial performance, reducing ROA and impacting efficiency (Bawono & Falakh, 2018). Intellectual capital dimensions, incredibly human and structural capital, positively influence ROA, indicating that investments in this area can increase profitability and efficiency (Damanik et al., 2019). However, the relationship between ROA and efficiency is not straightforward; for example, while FDR and NOM do not significantly affect ROA, OER has a significant negative impact, indicating that operational efficiency is critical to improving ROA and overall bank efficiency (Istan & Fahlevi, 2020; Mukhibad & Anisykurlillah, 2020; Shidiqi & Rachmawati, 2018). Furthermore, the role of the Sharia Supervisory Board (SSB) in mediating the relationship between financing products and ROA underscores the importance of governance in improving efficiency. Overall, while ROA is an important factor, its impact on the efficiency of Islamic banking in developing countries is mediated by a complex interaction of internal and external variables.

The Influence of CAR, FDR, and ROA on Sharia Banking Efficiency

This research occurred because the variables CAR, FDR, and ROA are related; the higher the CAR the bank will get, the more profits by having significant capital; this is because the bank has a relatively low risk to its capital due to the increasing CAR condition. When FDR can channel more financing to customers with more accessible credit terms, it can reduce high bank operational costs. On the other hand, ROA shows that the bank has operated as efficiently as possible in generating profits and increasing efficiency. From this relationship, it can be concluded that the independent variables in this study influence variations in the efficiency value of Islamic banking. As a result, Islamic and conventional banks in developing countries can use this information to analyze and consider potential problems with bank efficiency if it declines.

Conclusion

The research results show that partial CAR does not significantly affect the efficiency of Sharia banking because it saves its capital to avoid using it in investments at risk of default and pays more attention to increasing the effectiveness of its financing. FDR partially had a significant effect on the efficiency of sharia banking because when financing increases, banks may earn large profits. ROA partially has a substantial impact on the efficiency of Islamic banking, meaning that if the level of profit obtained by the bank is more important, it indicates that it has efficiency because it can effectively control its resources. CAR, ROA, and FDR simultaneously significantly affect Sharia banking efficiency.

For the sharia banking industry in developing countries, in determining the level of efficiency of sharia banks, they must pay attention to the components of financial ratios; based on research findings, CAR has no significant positive effect, while FDR and ROA have a substantial adverse impact on the efficiency of sharia banks in developing countries, this shows that sharia banking, it is recommended that if you want to be efficient, you must immediately reduce FDR and ROA.

An increase in the FDR ratio will result in several financing problems, some of which may need to be collected. Therefore, Islamic banks must be more selective in funding specific sectors. It is recommended that customers who have good financial potential be given preference. Reducing the FDR ratio can be done by increasing the growth of third-party funds so that the profits obtained are expected to increase, and Islamic banks remain efficient.

An increase in ROA shows that the bank is managing its assets successfully, so the profits are enormous. Therefore, Islamic banking requires strict control and monitoring of profits obtained so that there is no decline in profits. This can be done by increasing operational costs and credit to reduce the ROA amount.

References

- Abdulahi, S. M., Yitayaw, M. K., Feyisa, H. L., & Mamo, W. B. (2023). Factor affecting technical efficiency of the banking sector: Evidence from Ethiopia. *Cogent Economics and Finance*, 11(1). <https://doi.org/10.1080/23322039.2023.2186039>
- Akbar, M. (2023). Analysis of the effect of Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), and Operating Cost Operating Income (BOPO), Net Interest Margin (NIM) to Loan to Deposit Ratio (LDR) of state-owned Banks in Indonesia. *Journal of Social Research*, 2(5). <https://doi.org/10.55324/josr.v2i5.868>
- Angraini, D. G., Ahmadi Bi Rahmani, N., & Ikhsan Harahap, M. (2023). The Effect of Capital Adequacy Ratio (CAR), Operating Expenses and Operating Income (BOPO), and Net Core Operating Margin (NCOM) on Financial Sustainability Ratio (FSR) in Islamic Banking in Indonesia for the 2017-2021 Period. *PKM-P*, 7(2). <https://doi.org/10.32832/jurma.v7i2.2111>
- Astuti, E. P., Hermawati, R., & Handayani, R. (2023). Pengaruh Capital Adequacy Ratio dan Loan To Deposit Ratio Terhadap Return On Asset pada PT Bank Mandiri. *Scientific Journal Of Reflection : Economic, Accounting, Management and Business*, 6(1). <https://doi.org/10.37481/sjr.v6i1.628>
- Basir, C. (2023). Sharia principles in the material law of the national banking legal system. *International Journal of Environmental, Sustainability, and Social Science*, 4(3). <https://doi.org/10.38142/ijess.v4i3.571>
- Bawono, A., & Falakh, F. (2018). An Analysis of financial ratio effect with liquidity and profitability as intervening on sharia banking performance in Indonesia for the years 2015-2018. *Human Falah*, 6(2).
- Bellinda, E. (2022). Pengaruh Financing To Deposit Ratio (FDR), Biaya Operasional terhadap Pendapatan (BOPO) dan pandemi COVID-19 terhadap profitabilitas bank umum syariah di Indonesia tahun 2018-2020. *Bandung Conference Series: Economics Studies*, 2(2). <https://doi.org/10.29313/bcses.v2i2.4773>
- Ben Slimen, R., Belhaj, F., Hadriche, M., & Ghroubi, M. (2022). Banking Efficiency: A comparative study between Islamic and conventional banks in GCC Countries. *Copernican Journal of Finance & Accounting*, 11(1). <https://doi.org/10.12775/cjfa.2022.005>
- Burhanuddin, B., & Marsoem, B. S. (2024). Determinants of financial performance of sharia commercial banks with Capital Adequacy Ratio and sharia supervisory board as moderator variables. *DEVOTION: Journal of Research and Community Service*, 5(1). <https://doi.org/10.59188/devotion.v5i1.659>

- Busra, B., Anisah, Y., Irawan, Y., Syarifudin, S., & Nufus, H. (2023). The impact of deferred tax and tax-to-book ratio on the financial performance of the sharia commercial banks in Indonesia. *Oblik i Finansii*, 2(100), 147–152. [https://doi.org/10.33146/2307-9878-2023-2\(100\)-147-152](https://doi.org/10.33146/2307-9878-2023-2(100)-147-152)
- Daly, S., & Frikha, M. (2016). Banks and economic growth in developing countries: What about Islamic banks? *Cogent Economics and Finance*, 4(1). <https://doi.org/10.1080/23322039.2016.1168728>
- Damanik, D. N., Astuty, W., & Sari, M. (2019). The influence of Problematic financing, liquidity ratio, and Operational Efficiency Ratio (OER) on the profitability of Sharia Commercial Banks. *Multi-Disciplinary International*.
- Destiani, I. R., Mayasari, I., Tamara, D. A. D., & Setiawan, S. (2023). Pengaruh CAR, NPF, FDR dan BOPO terhadap profitabilitas BPRS di Indonesia. *Journal of Applied Islamic Economics and Finance*, 3(2). <https://doi.org/10.35313/jaief.v3i2.3766>
- Dsouza, S., Rabbani, M. R., Hawaldar, I. T., & Jain, A. K. (2022). Impact of bank efficiency on the banks' profitability in India: An empirical analysis using panel data approach. *International Journal of Financial Studies*, 10(4). <https://doi.org/10.3390/ijfs10040093>
- Ernayani, R. (2023). Peran Non Performing Financing (NPF), Financing To Deposit Ratio (FDR), pembiayaan mudharabah dan musyarakah pada profitabilitas. *Jesyia*, 6(1). <https://doi.org/10.36778/jesyia.v6i1.970>
- Faisal, Y., & Nuryatno, M., (2023). Shariah banking soundness in review from RGEC and maqashid syariah. *International Journal of Business and Applied Economics*, 2(2). <https://doi.org/10.55927/ijbae.v2i2.2510>
- Falikhhatun, F., & Mudrikah, S. (2022). Intellectual capital dimensions and profitability of sharia banking in OIC Countries. *Share: Jurnal Ekonomi dan Keuangan Islam*, 11(2). <https://doi.org/10.22373/share.v11i2.15443>
- Fauzi, M. Y., & Wisesha, P. (2022). Peran bank syariah indonesia di masa pandemi dalam meningkatkan ekonomi masyarakat. *Asas: Jurnal Hukum Ekonomi Syariah*, 14(02), 31–39. <https://doi.org/10.24042/asas.v14i02.13925>
- Fitriyah, T. N. (2020). Development of sharia banking and its contributions to the development of national banking. *International Journal of Nusantara Islam*, 8(1). <https://doi.org/10.15575/ijni.v8i1.8532>
- Gusmawanti, A., Supaijo, S., Iqbal, M., & Fasa, M. I. (2020). The Nexus between FDR, NPF, and BOPO toward the profitability of Indonesian Islamic Bank. *Al-Amwal: Jurnal Ekonomi Dan Perbankan Syari'ah*, 12(2). <https://doi.org/10.24235/amwal.v12i2.7155>
- Handayani, R. (2023). The Influence of Tax Avoidance, Return on Assets (ROA), Current Ratio (CR), And Debt to Equity Ratio (DER) On Company Value During The Covid-19 Pandemic. *EPRA International Journal of Economic and Business Review*. <https://doi.org/10.36713/epra13843>
- Hardana, A., Syahuri Zein, A., Johanna, A., & Avinash, B. (2023). Factors influencing Non-Performing Financing (NPF) in Sharia Banking. *Journal Markcount Finance*, 1(2). <https://doi.org/10.55849/jmf.v1i2.87>
- Hariyanto, H., & Nafi'ah, B. (2022). Pengaruh Aktivitas Lembaga Keuangan Syariah terhadap Pertumbuhan Pembiayaan UMKM. *Jurnal Ilmiah Ekonomi Islam*, 8(1). <https://doi.org/10.29040/jiei.v8i1.3780>
- Hartanti, M. F., & Yanti, S. (2022). Pengaruh tingkat bagi hasil deposito mudharabah dan financing to deposit ratio (fdr) terhadap pertumbuhan deposito mudharabah pada Bank Syariah Mandiri periode 2013-2019. *TSARWAH*, 6(2). <https://doi.org/10.32678/tsarwah.v6i2.6712>
- Hasibuan, A. A., Zulpahmi, Z., Wahyudin, N., & Nurlaila, A. (2022). The effect of Financing To Deposit Ratio (FDR), Non-Performing Financing (NPF), Capital Adequacy Ratio (CAR), Operating Expenses, and Operating Income (BOPO) on ROA In Islamic Commercial Ban. *AL-FALAH: Journal of Islamic Economics*, 7(2). <https://doi.org/10.29240/alfalah.v7i2.5395>

- Hidayah, N., Azis, A., Mutiara, T., & Larasati, D. (2023). Sharia banking disputes settlement: analysis of religious court decision in Indonesia. *Al-Risalah: Forum Kajian Hukum Dan Sosial Kemasyarakatan*, 23(1). <https://doi.org/10.30631/alrisalah.v23i1.1347>
- Ikapel, F. O., Namusonge, G. S., & Sakwa, M. M. (2023). Determinants of banking sector efficiency in Kenya: application of non-parametric Data Envelopment Analysis (DEA) Model. *Asian Journal of Economics, Business and Accounting*, 23(13). <https://doi.org/10.9734/ajeba/2023/v23i13991>
- Imamah, K. & Munif, A. (2018). Pengaruh Capital Adequacy Ratio (CAR) terhadap Return On Assets (ROA) Perbankan Syariah (Studi Kasus: Bank Umum Syariah Devisa di Indonesia Periode 2012-2016). *WADIAH*, 2(2). <https://doi.org/10.30762/wadiah.v2i2.2999>
- Iqbal, M., & Anwar, S. (2022). Pengaruh Capital Adequacy Ratio, Non Performing Financing, Financing To Deposit Ratio, Operational Efficiency Ratio, dan profit sharing ratio terhadap kinerja keuangan Bank Umum Syariah. *Jurnal Revenue: Jurnal Ilmiah Akuntansi*, 2(2). <https://doi.org/10.46306/rev.v2i2.69>
- Irdawati, Ng, S., Safira, R. D., Prananingrum, D. K., & Azizi, M. (2023). Efektivitas return on asset terhadap return saham pada perusahaan: studi manajemen keuangan. *Entrepreneurship Bisnis Manajemen Akuntansi (E-BISMA)*. <https://doi.org/10.37631/ebisma.v4i1.834>
- Istan, M., & Fahlevi, M. (2020). The effect of external and internal factors on the financial performance of Islamic Banking. *Jurnal Ekonomi & Studi Pembangunan*, 21(1). <https://doi.org/10.18196/jesp.21.1.5036>
- Istiqoma, L., Rafidah, & Martaliah, N., (2023). Pengaruh aspek rentabilitas dan likuiditas terhadap kesehatan Bank Umum Syariah tahun 2017-2021. *Jurnal Publikasi Manajemen Informatika*, 2(3). <https://doi.org/10.55606/jupumi.v2i3.2133>
- Kalsum, U., & Hidayat, R. (2023). Biaya Operasional Pendapatan Operasional (BOPO) Dan Capital Adequacy Ratio (CAR) terhadap Profitabilitas Bank Umum Syariah Di Indonesia. *Balance : Jurnal Akuntansi Dan Bisnis*, 8(1). <https://doi.org/10.32502/jab.v8i1.6125>
- Karlan, D., Osman, A., & Shammout, N. (2021). Increasing financial inclusion in the Muslim world: evidence from an Islamic finance marketing experiment. *World Bank Economic Review*, 35(2). <https://doi.org/10.1093/wber/lhaa010>
- Karmila, K. (2022). Pengaruh Financing to Deposit Ratio (FDR), Capital Adequacy Ratio (CAR), Terhadap Return on Equity (ROE) pada PT. Bank Syariah Mandiri. *Journal Of Institution And Sharia Finance*, 5(1). <https://doi.org/10.24256/joins.v4i1.3377>
- Kartini, C. A. (2022). Analisis pengaruh financing to deposit ratio dan non performing financing terhadap return on aset di tiga Bank Syariah Periode 2013-2019. *Jurnal Muamalat Indonesia - JMI*, 2(2). <https://doi.org/10.26418/jmi.v2i2.56612>
- Karyadi, K., Masnaya, M., & Putri, S. K. (2023). Pengaruh penyaluran kredit terhadap Return on Assets (ROA) pada bank BJB KCP Leuwi Panjang. *EKBIS (Ekonomi & Bisnis)*, 11(1). <https://doi.org/10.56689/ekbis.v11i1.1036>
- Khalifaturofi'ah, S. O. (2018). Cost efficiency, total assets, and profitability: evidence from an Islamic bank. *Jurnal Keuangan Dan Perbankan*, 22(4). <https://doi.org/10.26905/jkdp.v22i4.2218>
- Khalifaturofi'ah, S. O. (2022). Cost efficiency in the banking industry. *Jurnal Ilmu Keuangan Dan Perbankan (JIKA)*, 12(1). <https://doi.org/10.34010/jika.v12i1.8411>
- Kharazi, M. (2022). Pengaruh FDR Dan NPF terhadap Profitabilitas (ROA) Bank Syariah yang terdaftar di Bursa Efek Indonesia (Periode 2018-2022). *SYARIAH: Journal of Islamic Law*, 4(2). <https://doi.org/10.22373/sy.v4i2.635>
- Korneyev, M., Berezniuk, I., Dzhyndzhoian, V., Nebaba, N., & Voytov, S. (2022). Efficiency assessment of banking systems performance. *Banks and Bank Systems*, 17(3). [https://doi.org/10.21511/bbs.17\(3\).2022.07](https://doi.org/10.21511/bbs.17(3).2022.07)

- Kurniawan, M., Normasyhuri, K., & Anggraeni, E. (2023). Exploring the cross-country endurance, evidence of Indonesian and Malaysian sharia bank's financial performance. *Jurnal Ilmiah Akuntansi Dan Bisnis*, 18(2). <https://doi.org/10.24843/jiab.2023.v18.i02.p05>
- Lena, S. S., & Syarofi, M. (2022). Penetapan Margin dan Nisbah Bagi Hasil Pada Pembiayaan Mudharabah di Bank Syariah Indonesia. *Jurnal Ekonomi Dan Bisnis Islam (JEBI)*, 2(2). <https://doi.org/10.56013/jebi.v2i2.1529>
- Lestari, A. T. (2021). Pengaruh Financing to Deposit Ratio (FDR) terhadap Return on Asset (ROA) pada Bank Syariah anak perusahaan BUMN di Indonesia periode 2011-2019. *Wadiah*, 5(1), 34-60. <https://doi.org/10.30762/wadiah.v5i1.3176>
- Lestiyadi, A. P., & Karina, H. (2023). Pengaruh Return on Assets (ROA) dan Earning Per Share (EPS) terhadap harga saham PT. Charon Pokphan Indonesia Tbk. period 2012 - 2021. *Jurnal Ilmiah PERKUSI*, 3(2). <https://doi.org/10.32493/j.perkusi.v3i2.29580>
- Ma'isyah, R., & Mawardi, I. (2015). Pengaruh kecukupan modal, fungsi intermediasi, efisiensi operasional, dan pembiayaan bermasalah terhadap profitabilitas (Studi pada Bank Syariah periode Januari 2010 - Juli 2014). *Jurnal Ekonomi Syariah Teori dan Terapan*, 2(3). <https://doi.org/10.20473/vol2iss20153pp248-264>
- Malini, H., & Islahiyah, D. (2020). Sharia banks integration and diversification in Asian and Middle Eastern countries. *Sriwijaya International Journal Of Dynamic Economics And Business*. <https://doi.org/10.29259/sijdeb.v3i4.315-328>
- Mardiana, M. (2021). Financial performance as a mediator of risk management on organizational performance. *Management and Economic Journal (MEC-J)*, 5(2). <https://doi.org/10.18860/mec-j.v5i2.11454>
- Miftahurrohman. (2019). Analisis faktor-faktor yang mempengaruhi tingkat efisiensi perbankan syariah dengan pendekatan data envelopment analysis (Studi pada Bank Syariah Negara-Negara Asean). *Jurnal Lentera Akuntansi*, 2339-2991, 71-91.
- Mukhibad, H., & Anisykurillah, I. (2020). Evaluation Study: Does the sharia supervisory board directly affect profitability? *Muqtasid: Jurnal Ekonomi Dan Perbankan Syariah*, 11(1). <https://doi.org/10.18326/muqtasid.v11i1.55-69>
- Mukti, H. U. (2020). Sharia banking development in Indonesia with Malaysia (study of comparison of history, legal products, and assets). *QISTIE*, 13(1). <https://doi.org/10.31942/jqi.v13i1.3429>
- Muliadi, S. (2022). Pengaruh rasio keuangan terhadap kinerja Bank Umum Syariah (BUS) Periode 2019-2021. *Global Financial Accounting Journal*, 6(2). <https://doi.org/10.37253/gfa.v6i2.6812>
- Mulyana, S. A., & Wirman, W. (2022). Pengaruh Non Performing Financing (NPF) dan Financing to Deposit Ratio (FDR) terhadap Profitabilitas. *Al-Kharaj: Jurnal Ekonomi, Keuangan & Bisnis Syariah*, 5(3). <https://doi.org/10.47467/alkharaj.v5i3.1622>
- Munandar, A. (2022). Faktor - Faktor Yang Memengaruhi Financing to Deposit Ratio (FDR) serta Implikasinya Terhadap Return on Assets (ROA) dan Net Operating Margin (NOM) pada Bank Umum Syariah. *Jurnal Pemikiran Dan Pengembangan Ekonomi Syariah*, 7(2), 105-116.
- Muslimin, M. I., Nurwahidin, & Hannase, M. (2023). Determinants of Return on Asset (ROA) at Sharia Commercial Banks 2016 - 2021. *Al Iqtishod: Jurnal Pemikiran Dan Penelitian Ekonomi Islam*, 11(2). <https://doi.org/10.37812/aliqtishod.v11i2.669>
- Mustika, S. N., Kristianingsih, K., Triuspitorini, F. A., & Djuwarsa, T. (2023). Analisis pengaruh penerapan green banking dan efisiensi biaya operasional terhadap profitabilitas Bank Umum Syariah di Indonesia. *Journal of Applied Islamic Economics and Finance*, 3(2). <https://doi.org/10.35313/jaief.v3i2.3861>
- Nanda, A. S., Hasan, A. F., & Aristyanto, E. (2019). Pengaruh CAR dan BOPO terhadap ROA pada Bank Syariah pada tahun 2011-2018 (The Effect of CAR and BOPO Against ROA in Islamic Banking in 2011-2018). *Perisai: Islamic Banking and Finance Journal*, 3(1).

- Nur, A. (2022). Implementasi prinsip syariah dalam pengawasan perbankan syariah oleh Otoritas Jasa Keuangan. *Ijd-Demos*, 4(3). <https://doi.org/10.37950/ijd.v4i3.329>
- Pasaribu, M. J., Aisyah, S., & Sugianto. (2023). Analisis pengukuran kinerja unit usaha Syariah Bank Sumut Medan dengan pendekatan mashlahah performa. *Jurnal Penelitian Ekonomi Akuntansi (JENSI)*, 7(1). <https://doi.org/10.33059/jensi.v7i1.7674>
- Pohan, A., Wibowo, A., & Jannah, N. (2021). Peran perbankan syariah dalam memajukan ekonomi di Indonesia. *Journal of Management, Accounting, Economic and Business*, 02(04), 537–542.
- Pramesti, H., Rachelia Christianita, N., & Mujiyono, M. (2023). The Effect of financial ratios on return on sharia rural bank assets in Surakarta Residence. *Journal Of Economics, Finance And Management Studies*, 06(06). <https://doi.org/10.47191/jefms/v6-i6-34>
- Prasaja, M. (2018). Determinan kinerja keuangan perbankan syariah. *Kinerja*, 15(2), 57–67.
- Prasojo, Muhfiatun, Listiyorini, I., & Utami, R. D. (2024). Linkages Shariah governance and Islamic Banks Performance: Evidence from Gulf Cooperation Council (GCC) Countries. *Media Riset Akuntansi, Auditing & Informasi*, 24(1), 35–50. <https://doi.org/10.25105/mraai.v24i1.18060>
- Puspitasari, N. D., & Kasri, R. A. (2023). Shariah board governance and sustainability performance: analysis of sharia banking in Indonesia. *Jurnal Ekonomi & Studi Pembangunan*, 24(2). <https://doi.org/10.18196/jesp.v24i2.20133>
- Qayyum, H., Madni, A., & Khadam, N. (2023). The practices of running musharakah by Islamic Financial Institutions: The Shariah Analysis. *Journal of Southwest Jiaotong University*, 58(1). <https://doi.org/10.35741/issn.0258-2724.58.1.51>
- Qoda'ah, G., & Abdurrahman, A. (2023). Financial performance on firm value mediated by Islamic performance at Islamic commercial banks in Indonesia. *JPS (Jurnal Perbankan Syariah)*, 4(2). <https://doi.org/10.46367/jps.v4i2.1304>
- Rachmawati, T. (2023). Pengaruh struktur pasar terhadap tingkat efisiensi perbankan syariah. *Taubidinomics: Journal of Islamic Banking and Economics*, 2(1). <https://doi.org/10.15408/thd.v2i1.23940>
- Rahmani, N. A. B. (2017). Analisis pengaruh Capital Adequacy Ratio (CAR) dan Financing to Deposit Ratio (FDR) terhadap Return On Asset (ROA) dan Return On Equity (ROE) pada perusahaan Bank Umum Syariah di Indonesia. *HUMAN FALAH: Jurnal Ekonomi Dan Bisnis Islam*, 4(2), 300–316.
- Rismanty, V. A., & Suraya, A. (2023). Pengaruh capital adequacy ratio (CAR) dan loan to deposit ratio (LDR) terhadap return on assets (ROA) pada PT Bank Mandiri. *Scientific Journal Of Reflection : Economic, Accounting, Management And Business*, 6(2). <https://doi.org/10.37481/sjr.V6i2.658>
- Rizky, E. F., Tamara, D. A. D., & Hadiani, F. (2023). Analisis determinan financing to deposit ratio pada bank umum syariah di Indonesia periode 2017-2022. *Journal of Applied Islamic Economics and Finance*, 3(3). <https://doi.org/10.35313/jaief.v3i3.5339>
- Rizqi, A. M. (2023). The impact of financial literacy and promotional strategies on the intention to use sharia-based banking: a case study of Brimob Polda Metro Jaya. *Hawalab: Kajian Ilmu Ekonomi Syariah*, 1(3). <https://doi.org/10.57096/hawalab.v2i1.13>
- Saâdaoui, F., & Khalfi, M. (2024). Revisiting Islamic banking efficiency using multivariate adaptive regression splines. *Annals of Operations Research*, 334(1–3). <https://doi.org/10.1007/s10479-022-04545-2>
- Sahrullah, A. A., & Suprayogi, N. (2022). Analisis persaingan pasar, faktor internal dan eksternal bank terhadap efesiensi Bank Syariah di Indonesia. *JURNAL AL-QARDH*, 7(1). <https://doi.org/10.23971/jaq.v7i1.3958>
- Saputra, A. J., & Angriani, R. (2023). Pengaruh Capital Adequacy Ratio (CAR), Non Performing Loan (NPL), Net Interest Margin (NIM), Loan To Deposit Ratio (LDR) dan Biaya Operasional

- Pendapatan Operasional (BOPO) Terhadap Return On Asset (ROA) pada Bank Perkreditan Rakyat (BPR) di Kota Batam. *Akuntansi Dan Manajemen*, 18(1). <https://doi.org/10.30630/jam.v18i1.210>
- Sari, P. Z., & Saraswati, E. (2017). The Determinant of Banking Efficiency in Indonesia (DEA Approach). *Journal of Accounting and Business Education*, 1(2), 208. <https://doi.org/10.26675/jabe.v1i2.8489>
- Septiani, M., & Wulandari, E. (2023). Pengaruh return on assets (ROA), total assets turnover (TATO), dan value-added intellectual coefficient (VAICTM) terhadap nilai perusahaan. *Management and Accounting Expose*, 6(1). <https://doi.org/10.36441/mae.v6i1.1578>
- Shidiqi, K. A., & Rachmawati, A. (2018). Determinants of sharia banks' efficiency in Indonesia: panel data analysis. *Jurnal Ekonomi Pembangunan: Kajian Masalah Ekonomi Dan Pembangunan*, 19(2). <https://doi.org/10.23917/jep.v19i2.6405>
- Shrestha, P. M. (2023). What determines the capital adequacy ratio of Nepal's joint venture commercial banks? Evidence from panel data analysis. *Journal of Mathematics Instruction, Social Research and Opinion*, 2(1). <https://doi.org/10.58421/misro.v2i1.66>
- Simatupang, A., & Franzlay, D. (2018). Capital Adequacy Ratio (CAR), Non Performing Financing (NPF), Efisiensi Operasional (BOPO) dan Financing to Deposit Ratio (FDR) terhadap profitabilitas bank umum syariah di Indonesia. *Jurnal Administrasi Kantor*, 4(2).
- Siswoyo, S. T., Japlani, A., & Almutsiroh, L. (2023). Analisis Pengaruh Rasio Pembiayaan (Financing To Deposit Ratio) dan Rasio Perputaran Aktiva (Total Asset Turn Over) terhadap Pembiayaan Bermasalah (Non Performing Financing) pada Bank Syariah Indonesia periode 2016-2020. *Jurnal Manajemen DIVERSIFIKASI*, 3(2). <https://doi.org/10.24127/diversifikasi.v3i2.2315>
- Sudirman, Blongkod, H., Rasjid, H., Hamin, D., Mahmud, M., & Ilham. (2023). Measuring the performance of sharia commercial banks in Indonesia using the Islamicity Performance Index (IPI) and Maqashid Sharia Index (MSI). *Quality - Access to Success*, 24(196). <https://doi.org/10.47750/QAS/24.196.14>
- Suhandi, S. (2019). Pengaruh Capital Adequacy Ratio (CAR) Terhadap Profitabilitas Dengan Loan to Deposit Ratio (LDR) sebagai variabel intervening (Studi Empiris pada Sektor Perbankan Bank BUMN Yang Terdaftar Di Bursa Efek Indonesia (BEI) Periode 2009 – 2018). *Sains Manajemen*, 5(1), 1–19. <https://doi.org/10.30656/sm.v5i1.1521>
- Surury, A.N., & Ainaulyaqin, M.H., (2022). Studi literatur: Pelaksanaan audit syariah pada perbankan syariah. *SINOMIKA Journal: Publikasi Ilmiah Bidang Ekonomi Dan Akuntansi*, 1(4). <https://doi.org/10.54443/sinomika.v1i4.386>
- Suryanto, D. A., & Susanti, S. (2020). Analisis Net Operating Margin (NOM), Non Performing Financing (NPF), Financing to Debt Ratio (FDR) dan pengaruhnya pada efisiensi perbankan syariah di Indonesia. *Jurnal Riset Akuntansi Dan Keuangan*, 8(1), 29–40. <https://doi.org/10.17509/jrak.v8i1.19331>. Copyright
- Syahputra, A. (2021). Kondisi ekonomi syariah di Indonesia pasca mergernya Bank Syariah BUMN. *JESKaPe: Jurnal Ekonomi Syariah, Akuntansi Dan Perbankan*, 5(1), 90–106.
- Syahrir, L. O., Ali Nuridin, A., Heryanto, H. K., & Syarief, M. E. (2023). Pengaruh CASA, FDR, CAR, dan Inflasi terhadap ROA pada Bank Umum Syariah di Indonesia. *Journal of Applied Islamic Economics and Finance*, 3(2). <https://doi.org/10.35313/jaief.v3i2.3752>
- Tami, S. U. P., & Dewi, R., K. (2022). The Effect of Capital Adequacy Ratio (CAR), Loan Deposit Ratio (LDR), and Non-Performing Loans (NPL) on Return on Asset (ROA) In Banking Companies Listed on The Indonesia Stock Exchange from 2016 to 2020. *Journal of Scientific Research, Education, and Technology (JSRET)*, 1(2). <https://doi.org/10.58526/jsret.v1i2.120>
- Taufik, M., Muhammad, R., & Nugraheni, P. (2023). Determinants and consequences of maqashid sharia performance: evidence from Islamic banks in Indonesia and Malaysia. *Journal of Islamic Accounting and Business Research*, 14(8). <https://doi.org/10.1108/JIABR-07-2021-0205>

- Thaib, I., Puspaningrum, A., Hussein, A. S., & Prabandari, S. P. (2024). Islamic banking performance and internal sharia capital collaboration. *Revista de Gestao Social e Ambiental*, 18(1). <https://doi.org/10.24857/rgsa.v18n1-120>
- Tsania, N., Tamara, D. A. D., & Setiawan, S. (2022). Pengaruh CAR, FDR, BOPO dan PDRB terhadap Non-Performing Financing pada Bank Umum Syariah BUMD di Indonesia. *Journal of Applied Islamic Economics and Finance*, 2(3). <https://doi.org/10.35313/jaief.v2i3.3065>
- Ullah, K., Ashfaq, M., Atiq, M., Khan, M., & Hussain, A. (2023). Shariah capabilities and value propositions of Islamic banking. *International Journal of Islamic and Middle Eastern Finance and Management*, 16(4). <https://doi.org/10.1108/IMEFM-12-2019-0518>
- Ullah, S., Majeed, A., & Popp, J. (2023). Determinants of bank's efficiency in an emerging economy: A data envelopment analysis approach. *PLoS ONE*, 18(3 March). <https://doi.org/10.1371/journal.pone.0281663>
- Wally, M., Lamasidonda, J., & Sahupala, J. (2023). Pengaruh Return on Asset (ROA) dan Earning Per Share (EPS) terhadap harga saham (studi pada perusahaan sektor perbankan yang terdaftar di Bursa Efek Indonesia). *Indo-Fintech Intellectuals: Journal of Economics and Business*, 3(1). <https://doi.org/10.54373/ifjeb.v3i1.84>
- Wati, T. T. (2019). Pengaruh likuiditas, kualitas aktiva, sensitivitas terhadap pasar, efisiensi dan profitabilitas terhadap Capital Adequacy Ratio (CAR) pada Bank Umum Syariah Devisa. *In Jurnal Akuntansi dan Keuangan*.
- Widyakto, A., Santoso, A., Hanifah, R. U., & Taruna, M. S. (2023). Effect of ROA, CAR, NPF, and BOPO on Mudharabah Financing (Empirical Study of Indonesian Sharia Commercial Banks in 2018-2020). *Jurnal Maksipreneur: Manajemen, Koperasi, Dan Entrepreneurship*, 12(2). <https://doi.org/10.30588/jmp.v12i2.1225>
- Wilardjo, S. B. (2019). Peran dan perkembangan Bank Syariah. *Value Added*, 53(9), 3.
- Wiriani, E., & Mukarramah. (2020). Pengaruh inflasi dan kurs terhadap pertumbuhan ekonomi Indonesia. *Jurnal Samudra Ekonomi*, 4(1), 41–50.
- Wiyadi, Meilani, S. E. R., Trisnawati, R., & Pramesti, W. (2016). The sharia banking performance is based on Islamic Indices in the ASEAN Countries. *Malaysia Indonesia International Conference on Economics, Management and Accounting*.
- Yamin, B. (2022). The effect of Return on Asset (ROA), Operational Efficiency Ratio (BOPO), Inflation, credit interest rate, and Gross Domestic Product (GDP) towards murabahah financing in Sharia banking in Indonesia (2016-2019). *Asian Journal of Economics, Business and Accounting*. <https://doi.org/10.9734/ajeba/2022/v22i1930661>
- Yulita, N., & Musthofa, M. W. (2022). Effect of sharia banking RGEC toward Indonesian GDP. *EkBis: Jurnal Ekonomi Dan Bisnis*, 6(2). <https://doi.org/10.14421/ekbis.2022.6.2.1694>
- Yusuf, M., & Hidayat, R., (2022). Pengaruh rasio perbankan syariah terhadap profitabilitas Bank Syariah Indonesia periode 2016-2020. *Jurnal Akuntansi Dan Manajemen Bisnis*, 2(2). <https://doi.org/10.56127/jaman.v2i2.192>
- Zafani, D. A., & Islamiyah. (2022). Penilaian kesehatan likuiditas bank syariah melalui Financing to Deposit Ratio (FDR) Dan Dampaknya Pada Reputasi Bank (Studi Kasus Bank BCA Syariah). *IQTISADIE: Journal of Islamic Banking and Shari'ah Economy*, 2(2). <https://doi.org/10.36781/iqtisadie.v2i2.281>
- Zulkifli. (2022). Perbandingan perkembangan prinsip hukum ekonomi syariah di Indonesia, Malaysia, dan Brunei Darussalam. *Journals of Indonesian Multidisciplinary Research*, 1(1). <https://doi.org/10.61291/joinmr.v1i1.9>