

Islamic bank stability and efficiency: A cross-country analysis

Faaza Fakhrunnas^{1*}, Younes Boubachtoula², Katiya Nahda³, Mohammad Rezoanul Hoque⁴

¹Department of Economics, Faculty of Business and Economics, Universitas Islam Indonesia, Yogyakarta, Indonesia

²Department of Economics, International Islamic University of Malaysia, Selangor, Malaysia

³Department of Management, Faculty of Business and Economics, Universitas Islam Indonesia, Yogyakarta, Indonesia

⁴Department of Agriculture and Applied Economics, Texas Tech University, Texas, United States

*Corresponding author: fakhrunnasfaaza@uui.ac.id

Article Info

Article history:

Received 16 August 2023

Accepted 01 November 2023

Published 27 October 2024

JEL Classification Code:

G20, G21, G33.

Authors emails:

younesboubachtoula@gmail.com

katiya.nahda@uui.ac.id

homohamm@ttu.edu

DOI: [10.20885/ejem.vol16.iss2.art2](https://doi.org/10.20885/ejem.vol16.iss2.art2)

Abstract

Purpose — The study investigates the impact of the efficiency of Islamic banks on banking stability.

Method — A panel data analysis using the Least Square Dummy Variable Corrected (LSDVC) method is employed to examine the impact of efficiency on banking stability in Islamic banks. The study has a sample of 54 Islamic banks across eight countries from 2013 to 2021.

Findings — The findings reveal that the efficiency of Islamic banks has a positive and significant effect on banking stability. In addition, financial turmoil negatively and significantly affects the stability of Islamic banks but does not significantly affect institutional development. Additionally, financial turmoil can influence how effectively Islamic banks manage their businesses in response to banking stability. The outcomes are robust across various robustness methods.

Implications — The results imply that the efficiency of Islamic banks has a pivotal role in banking stability, considering the efficiency level. To ensure the stability of Islamic banks, practitioners and regulators of Islamic banks have to achieve and maintain the efficiency of Islamic banks by implementing the required policies and guidelines.

Originality/Value — Previous studies examining the impact of Islamic banks' efficiency on banking stability remain limited. The paper fills the research gap by examining how Islamic bank efficiency affects banking stability, considering the effects of financial turmoil and institutional development.

Keywords — Islamic bank, efficiency performance, banking stability, LSDVC, Institutional Development.

Introduction

Even though Islamic banks have been developing significantly (ICD-Refinitiv, 2022), there is still constant debate among the Islamic banking sectors over financial stability. Some studies reveal that Islamic bank has the same banking operations as conventional banks as explained by (Chong & Liu, 2009). As a result, the risk exposure of Islamic banks is no different than its counterparty, particularly in banking stability. On the contrary, studies from Abedifar et al. (2013) document that Islamic banks have different risk exposure because the banks have a different business model that aligns with the Shariah principle. Hence, the risks faced by Islamic banks are different from those

of conventional banks. Despite the debate, Islamic banks once failed in 2001, namely Ihlas Finans House in Turkey, when the country was experiencing a financial crisis (Ali, 2007). Therefore, understanding what factors contribute to banking stability, especially in the case of Islamic banks, becomes important in this issue.

The studies on Islamic banking stability are voluminous, in which banking efficiency empirically becomes a determinant of the level of stability of the bank. This is because efficiency is one of the critical indicators for measuring banking financial performance. Several studies regarding banking efficiency and how it impacts banking performance have been conducted previously by Al-Khasawneh et al. (2012) in Middle East and North African Countries, Ahmad and Luo (2010) in European Countries, Rosman et al. (2014) in global banking industry, Alqahtani et al. (2017) in Middle East countries, Safiullah and Shamsuddin (2022) conducted in 28 countries, and Asmild et al. (2019) was conducted specifically in Bangladesh.

Apart from that, some studies specifically examine the relationship between the level of efficiency and banking stability, which have also been carried out by previous researchers looking at them from various perspectives. For example, Danlami et al. (2022) conducted research on the relationship between banking efficiency and stability in the Organization of the Islamic Conference (OIC) countries (Miah & Sharmeen, 2015) in Bangladesh, Miah and Uddin (2017), Hidayat et al. (2021) and Alsharif (2021) in Middle East Countries, Sakti and Mohamad (2018) in Indonesia, and Saeed and Izzeldin (2016) in Middle East Countries and three non-Middle Eastern countries.

The findings of the study show that the level of efficiency reduces the level of stability of Islamic banking (Danlami et al., 2022). This is because of the presence of a "trade-off", where financial efficiency does not give banks sufficient flexibility to manage risk. It causes the risk of Islamic banking bankruptcy to increase. This is also similar to the findings of Saeed and Izzeldin (2016) and Miah and Uddin (2017), which state that banks with a lower efficiency level have a better level of banking stability. In contrast, Hidayat et al. (2021) recently found that the better the level of banking efficiency, the better the banking financial performance will be.

Regarding the influence of bank-specific variables, financial turmoil, and institutional development, previous studies document that size matters for banking stability (Ibrahim & Rizvi, 2017). Bigger Islamic banks tend to be more stable than smaller Islamic banks in terms of asset size. The bigger banks have also been found to be more profitable than the European banks (Terraza, 2015). In contrast, a bigger Islamic bank is more unstable because the bank tends to be more aggressive in financing activities (Aysun, 2016). During the financial turmoil reflected the COVID-19 pandemic period, some studies highlighted that the banking sector experienced an adverse effect of financial turmoil Demir and Danisman (2021), Elnahass et al. (2021), Anto et al. (2022), and Fakhrunnas et al. (2021) because it increased the financial risk. Institutional development also affects banking performance, as explained by Albaity et al. (2022) and Nabi and Suliman (2009) under the concept of institutional theory. On the contrary, Shakil et al. (2019) and Azmi et al. (2021) explain that in developing countries, institutional development is not significant because it has high economic uncertainty and an immature regulatory system.

Given the inconclusive findings, it is necessary to have more studies to find a clear understanding of the impact of efficiency performance on banking stability. Thus, the study aims to shed light on the effect of efficiency performance on banking stability in Islamic banks. In response to that objective, some questions then arise: (1) Does efficiency performance significantly influence Islamic banking stability? (2) does Islamic banks' size matter for efficiency performance on banking stability?, and (3) what is the impact of financial turmoil and institutional development on banking stability concerning the importance of efficiency performance?

The contribution of the study consists of threefold. Firstly, it enriches the previous research on examining the impact of the efficiency performance of Islamic banks on the banking performance as it has already been studied by Al-Khasawneh et al. (2012), Asmild et al. (2019), dan Alqahtani et al. (2017), and Danlami et al. (2022). Secondly, the study contributes to providing a novel perspective on the impact of a change in the bank's size on banking stability, considering the role of efficiency performance in Islamic banks. The role of size in the banking sector has been highlighted by Ibrahim and Rizvi (2017) to understand whether size matters for Islamic banks.

However, according to the recent literature, no studies examined the importance of Islamic bank size for efficiency performance in relation to Islamic banking stability. Understanding that relation sheds light on whether possessing a certain level of size will benefit efficiency performance or vice versa. Thirdly, the study elaborates on the role of financial turmoil, specifically during the COVID-19 pandemic, and institutional development to banking stability, considering the role of efficiency performance in Islamic banks.

Furthermore, there are numerous aspects of the study to go over. After the introduction section, the first section is the methodology that explains the data, research model, and analysis strategy. The second section is the results and analysis, ending with the conclusion and recommendation.

Method

To achieve the objective of the study, the study uses samples from Islamic banks in eight countries consisting of Saudi Arabia, Malaysia, United Arab Emirate (UAE), Kuwait, Bahrain, Bangladesh, Turkey, and Indonesia, which represent more than 80% Islamic banking development worldwide (ICD-Refinitiv, 2022). We exclude Islamic banks in Iran because it has a significant difference between Islamic banking concepts and practices in Iran and the rest of the world (Meisamy & Gholipour, 2020). The study period starts from 2013 to 2021 using balanced panel data, which is retrieved from Fitch Connect and the World Bank Indicator (WBI). Our sample consists of 54 Islamic Banks across countries. The model of the study is as follows;

$$Bank\ Stability_{it} = a_0 + a_1EFF_{it} + a_2Bank_{it-1} + a_3Macro_{jt} + a_4Gov_{jt} + a_5COVID_{jt} + \varepsilon_{ijt} \quad (1)$$

Where i shows bank-level variables while t and j are time and country-level variables, respectively. In addition, a_0 and ε_{ijt} are the symbols of constant and error-term for each. In the model, the dependent variable is bank stability, which is reflected by ZSCORE calculated from the log of $\frac{ROA+ETA}{SDROA}$, where ROA is return on total asset, and ETA stands for equity to total assets (Chiaromonte et al., 2016). A higher score of ZSCORE indicates the bank has more financial stability, and it means inversely when the bank has a low score of ZSCORE.

In addition, efficiency performance (EFF) is measured by the total cost divided by total revenue, meaning that a lower score indicates high-efficiency performance and a higher score is low performance (Danlami et al., 2022). We use a lagged bank-specific variable (Bank) to address the issue of reverse causality as suggested by Castro (2013). The bank-specific variables consist of CAPLIB, measured by the Islamic bank's capital compared to liabilities, LOANGR explaining the financing growth of the Islamic bank in each year, and ASSET measured by the log of the Islamic bank's total asset. Furthermore, the macroeconomic variable (Macro) is proxied by the yearly growth of gross domestic product (GDP), while institutional development (GOV) is proxied by the accumulative score of the governance index based on the world bank indicator. Furthermore, COVID is measured by dummy variable 1 is for period 2020 and 2021 while 0 represents other periods.

Furthermore, to answer the importance of Islamic bank's size on banking stability considering a change in efficiency performance, we follow Ibrahim and Rizvi (2017), Law et al. (2020), and (Danlami et al., 2022) to examine the marginal effect of Islamic bank's size due to a change in efficiency performance of Islamic bank. The equation is formulated as follows,

$$\frac{\partial ZSCORE_{it}}{\partial EFF_{it}} = \beta_2 + \alpha ASSET_{it} \quad (2)$$

Where β_2 explain the coefficient of EFF and α is the coefficient of interaction variable of EFF and ASSET.

Finally, we use a dynamic panel approach employing the least squared dummy variable corrected (LSDVC) as proposed by (Nickell, 1981) and (Bruno, 2005). The reasons behind adopting that method are: (1) The correlation is present between the error term and the first lag of

ZSCORE, causing an endogeneity problem. Hence, the use of fixed or random effect is not appropriate in the model (Ibrahim & Rizvi, 2017). (2) The use of panel dynamics, particularly employing the generalized method of moment (GMM), addresses the issue of the endogeneity problem. However, in this study, the number of N of the data is considered to be limited. The application of GMM will result in bias because it requires a high number of data (Dang et al., 2015; Ibrahim & Rizvi, 2017). (3) LSDVC allows the study to use the model even though the number of data is limited with error correction. In addition, LSDVC also addresses the endogeneity issue with a small sample (Dang et al., 2015).

Results and Discussion

Table 1 provides a descriptive statistic of the data used in the study. A total of 486 observations are used. The number of ZSCORE indicates that the stability among the Islamic banks does not have a big difference with referring to the standard deviation of the data. A higher level of ZSCORE indicates that Islamic bank has higher banking stability. Moreover, the data description from the efficiency performance explains that the mean is 0.568. It shows that the efficiency of Islamic banks can generate roughly two times higher total revenue compared to the total cost. The lower score of EFF indicates that the efficiency of Islamic banks performs better, and it will be less efficient when the score is higher.

Table 1. Descriptive Statistic

VARIABLE	OBS.	MEAN	STD. DEV.	MIN	MAX
ZSCORE	486	3.299	0.596	1.689	4.291
EFF	486	0.568	0.181	0.300	0.941
CAPLIB	486	14.1%	7.5%	6.8%	57.4%
LOANGR	486	11.1%	12.5%	-12.7%	44.6%
ASSET	486	12,100	18,700	24.65	166,000
GDPGR	486	3.5%	2.6%	-2.1%	7.1%
GOV	486	-0.024	0.478	-1.120	0.663

Note: ASSET is in USD Million

In addition, the financing growth (LOANGR) of Islamic banks is averagely high, with two-digit growth. It indicates the bank has aggressive financing activity in economic sectors. However, in some periods, the financing growth becomes negative due to an adverse effect of the pandemic that disturbs Islamic banking operations in some countries. In terms of the size of Islamic banks, the standard deviation value remains high, indicating that it has a big gap in Islamic bank's assets in the sample in which the largest Islamic bank has USD 166,000 million while the smallest Islamic bank only has USD 24.65 million in the total asset. Regarding the correlation analysis, shown in Table 2, it has a high correlation between ASSET and EFF, which is -0.602. Another correlation between variables that are considered to be high is between COVID and GDPGR, which is -0.516. However, overall correlation scores between the two variables are less than 0.8 or -0.8, indicating that there is no issue of autocorrelation in the research model.

Table 2. Correlation Result

	ZSCORE	EFF	CAPLIB	LOANGR	ASSET	GDPGR	COVID	GOV
ZSCORE	1.000							
EFF	-0.376	1.000						
CAPLIB	0.165	0.081	1.000					
LOANGR	-0.076	-0.121	-0.127	1.000				
ASSET	0.446	-0.602	-0.250	-0.011	1.000			
GDPGR	-0.164	0.159	-0.104	0.090	-0.252	1.000		
COVID	-0.039	-0.076	0.007	-0.115	0.095	-0.516	1.000	
GOV	0.127	-0.173	0.004	-0.132	0.209	-0.147	0.069	1.000

Furthermore, to examine the impact of efficiency performance on banking stability in Islamic banks, several methodologies are utilized. Firstly, we separate the analysis into four equations with engaging specific bank-level variables (model 1), bank-specific and macroeconomic variables (Model 2), bank-specific, macroeconomic, and financial turmoil variables (Model 3), and finally include all variables in the equation (Model 4). The objective of using different equations is to test the consistency of the results. According to the findings in the baseline result, it can be seen that efficiency performance has consistently been negative and significant to banking stability in Islamic banks. It indicates that the bank tends to have higher stability when efficiency performance is high.

For bank-specific variables, LOANGR has a negative and significant relationship to banking stability. It means that higher financing growth causes less financial stability in Islamic banks. The results are consistent in all four models. Moreover, the bank size has a positive and significant to the banking stability of Islamic banks, while financial turmoil during the COVID-19 pandemic reduces the level of banking stability. In contrast, CAPLIB and GOV are insignificant to banking stability, indicating that both variables econometrically do not affect the banking stability in Islamic banks.

Table 3. Baseline Result

VARIABLE	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
L.ZSCORE	0.74*** (13.63)	0.83*** (16.92)	0.75*** (13.00)	0.76*** (13.41)	0.73*** (12.45)	0.76*** (13.51)	0.77*** (13.59)
EFF	-0.21** (-2.21)	-0.20** (-2.50)	-0.22** (-2.23)	-0.22** (-2.26)	-1.91** (-2.03)	-0.22** (-2.24)	-0.23** (-2.35)
CAPLIB	-0.05 (-0.19)	-0.12 (-0.58)	-0.02 (-0.08)	-0.03 (-0.13)	-0.03 (-0.10)	-0.03 (-0.12)	-0.04 (-0.16)
LOANGR	-0.25*** (-3.63)	-0.30*** (-4.89)	-0.32*** (-4.24)	-0.32*** (-4.31)	-0.31*** (-4.01)	-0.32*** (-4.27)	-0.32*** (-4.37)
ASSET	0.02 (0.75)	0.06** (2.13)	0.07** (2.17)	0.08** (2.32)	-0.00 (-0.09)	0.08** (2.32)	0.08** (2.44)
GDPGR		1.27*** (4.13)	0.62 (1.45)	0.67 (1.58)	0.62 (1.39)	0.67 (1.58)	0.71* (1.67)
COVID			-0.06*** (-2.68)	-0.05** (-2.27)	-0.05** (-2.07)	-0.05** (-2.26)	-0.08 (-1.29)
GOV				-0.11 (-0.86)	-0.09 (-0.65)	-0.13 (-0.76)	-0.12 (-0.95)
EFF*ASSET					0.11* (1.80)		
EFF *GOV						0.04 (0.20)	
EFF *COVID							0.05 (0.48)
No. of Obs.	432	432	432	432	432	432	432
No. of Banks	54	54	54	54	54	54	54

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Secondly, the study interacts Islamic banks' size (Model 5) to efficiency performance to investigate the impact of banks' size on banking stability in relation to efficiency performance. According to the finding in Table 3 it shows that efficiency performance remains negative and has a significant relationship to banking stability in Islamic banks in the 5% level of significance. A decrease of one point in efficiency performance increases 1.91 points of banking stability. The interaction variables between Islamic bank's size and efficiency performance are also significant but in different directions within a 10% significance level.

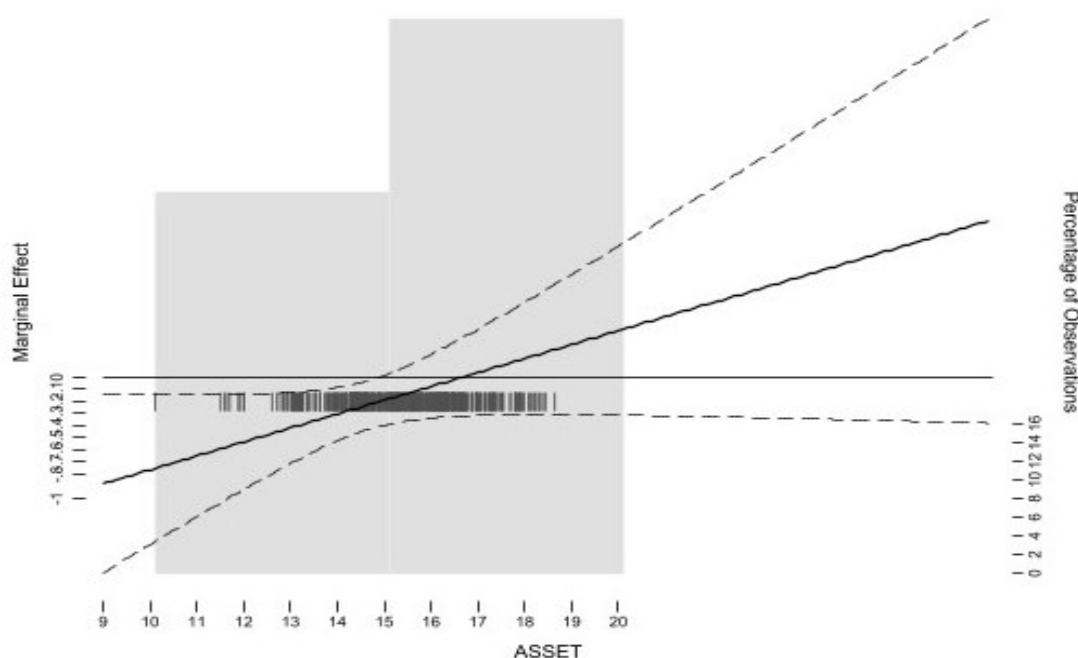


Figure 1. Marginal Effect of Islamic Bank's Size on Efficiency Performance-Banking Stability Nexus

Following the approach of [Law et al. \(2020\)](#), we adopt marginal effect measurement to understand whether the small-big size of Islamic banks has a different influence on banking stability concerning the role of efficiency performance, as shown in Figure 1. With using a 95% confidence level of significance, the X line is Islamic bank's size in all samples. According to the findings, it can be seen that most Islamic banks have a negative and significant relationship to banking stability. However, when the value of Islamic banks' size is bigger, where the X line is roughly above 16.5, it has a positive and significant relationship.

Thirdly, we also interact with the impact of financial turmoil reflected by COVID (Model 6) and institutional development (Model 7). The finding of the study reveals that efficiency performance is consistent with having a negative and significant relationship to banking stability in both models. However, COVID and GOV fail to moderate the role of efficiency performance in banking stability because all the interaction variables are not significant.

Finally, to check the robustness of the study, we decide to exclude the period of the outbreak (2020-2021) in the samples reducing the number of observations to 324. We argue that during financial turmoil, the condition of Islamic banking sectors is dynamic, as mentioned by [Rashid and Jabeen \(2016\)](#), [Demir and Danisman \(2021\)](#), and [Fakhrunnas et al. \(2022\)](#). Therefore, excluding the period of financial turmoil is expected to confirm the analysis result and whether the result is consistent compared to when the period of financial turmoil is included in the sample. According to the result of the robustness check shown in Table 4, from model 1 to model 5, efficiency performance has consistently had a negative and significant relationship to banking stability in Islamic banks. The findings confirm the baseline results, and then it can be concluded that the results are robust.

The above empirical analysis can be developed into a number of points. Firstly, efficiency performance holds a pivotal role in determining Islamic banking stability. It is found in all models and robustness checks. The finding is in line with [Hidayat et al. \(2021\)](#), who state that efficiency performance is the main determinant of banking performance. When the bank has higher efficiency, the bank can allocate the resources of funds effectively. It also means that the bank reaches its objective of having financial stability at the banking level by effectively allocating the funds to risk-management purposes. Additionally, having an efficient and effective allocation of funds resources also directly increases the probability of the bank having higher returns because the bank spends lower costs in its banking operation. In this case, Islamic banks possess good management practice that supports the future development of the Islamic banking sector

worldwide. Possessing efficient performance also indicates that the bank can suitably supervise lending-borrowing activities and properly manage the bank's portfolio management.

Table 4. Robustness Check

VARIABLE	Model 1	Model 2	Model 3	Model 4	Model 5
L. ZSCORE	0.76*** (9.38)	0.77*** (9.42)	0.79*** (9.34)	0.75*** (9.01)	0.79*** (9.41)
MGT	-0.21* (-1.70)	-0.21* (-1.77)	-0.21* (-1.81)	-3.43** (-2.55)	-0.22* (-1.81)
CAPLIB	-0.07 (-0.26)	-0.11 (-0.39)	-0.12 (-0.41)	-0.03 (-0.10)	-0.12 (-0.42)
LOANGR	-0.26*** (-3.35)	-0.28*** (-3.55)	-0.28*** (-3.65)	-0.27*** (-3.49)	-0.28*** (-3.48)
ASSET	0.09** (2.32)	0.10** (2.47)	0.10** (2.64)	-0.07 (-0.86)	0.10*** (2.59)
GDPGR		0.62 (0.99)	0.66 (1.08)	0.36 (0.59)	0.67 (1.09)
GOV			-0.08 (-0.61)	-0.03 (-0.25)	-0.18 (-0.86)
MGT*ASSET				0.22** (2.42)	
MGT1*GOV					0.16 (0.65)
No. of Obs.	324	324	324	324	324
No. of Banks	54	54	54	54	54

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Secondly, as mentioned by [Terraza \(2015\)](#), [Aysun \(2016\)](#), and [Ibrahim and Rizvi \(2017\)](#), banks' size significantly influences banking performance. The finding of this study reveals that the interaction between efficiency performance and bank size has a significant and positive relationship to banking stability. It means that efficiency performance tends to have a positive influence on banking stability if it has an increase in bank size in Islamic banks. Referring to this finding, we follow [Ibrahim and Rizvi \(2017\)](#), [Law et al. \(2020\)](#), and [Danlami et al. \(2022\)](#) to identify the marginal effect of size on banking stability if there is a change in efficiency performance. The result is interesting because the small-medium banks' size inclines to better efficiency performance, negatively affecting banking stability. Inversely, the large banks' size has a positive and significant relationship between efficiency performance and banking stability. It indicates that the large banks' size faces a trade-off between being efficient and effective. The bank's management can perform efficiently, but it increases the level of banking instability. As a larger bank requires more operational cost, for instance, to finance banking operations in more branches, attempting to have efficient performance has a consequence of reducing funds allocation to risk-management purposes. As a result, the large banks' size probably has more return due to lower costs, but at the expense of higher instability. The finding is supported by [Aysun \(2016\)](#), who also highlights that large banks' size tend to be risk-takers.

Thirdly, financial turmoil reflected by the period of the COVID-19 pandemic has a negative and significant relationship to Islamic banking stability. It can be explained that during the outbreak, Islamic banks became relatively unstable due to external financial shocks. The finding is in line with [Demir and Danisman \(2021\)](#), [Elnahass et al. \(2021\)](#), [Anto et al. \(2022\)](#), and [Fakhrunnas et al. \(2021\)](#), who state that the pandemic creates instability for the banking performance. However, the financial turmoil fails to moderate the role of efficiency performance in Islamic banking stability. It confirms that the efficiency of Islamic banks performs well during financial turmoil because the bank can maintain financial stability at the bank level.

Fourth, institutional development does not have a significant influence on Islamic banking stability. Institutional development also fails to moderate efficiency performance on banking

stability in Islamic banks. It indicates that institutional development does not matter for Islamic banking stability. The finding can be explained by the argument of [Shakil et al. \(2019\)](#) and [Azmi et al. \(2021\)](#), who state that in developing countries, considering most of the Islamic banks in this study come from developing economy, institutional development has a limited role in developing financial industry due to high uncertainty and lower attention to the stakeholders, particularly shareholder. Therefore, institutional performance at the management level of the bank has a significant role in the level of stability regardless of the level of institutional development in developing countries.

Conclusion

The main focus of the study is to examine the impact of efficiency performance on banking stability in Islamic banks. The study reveals that Islamic banks with good efficiency performance have financial stability. Additionally, the size of Islamic banks matters for the stability of Islamic banks in terms of efficiency performance. High-efficiency performance is found to increase the financial stability of small-medium Islamic banks, but it occurs inversely for large Islamic banks. It explains that the role of efficiency performance is different considering the size of Islamic banks and the efficiency level of the bank.

Furthermore, financial turmoil has a significant influence on Islamic banking stability. However, it fails to be a moderating variable for efficiency performance on banking stability. The insignificant influence of the institutional development variable and its failure to act as a moderating variable for efficiency performance indicates that institutional development does not have a pivotal role in Islamic banking stability.

The findings imply that Islamic banking institutions need to ensure efficient performance in their operation because it strengthens the level of financial stability in Islamic banks. In addition, for large-size Islamic banks, efficiency performance must consider the effectiveness of funds allocation, especially for risk-management performance. Indeed, these points need to be taken as a concern for financial authorities on how to regulate effectively and efficiently of Islamic banks in order to achieve and maintain financial stability, particularly for large-size Islamic banks that have more probability of having systematic risk to the financial system.

References

- Abedifar, P., Molyneux, P., & Tarazi, A. (2013). Risk in Islamic banking. *Review of Finance*, 17(6), 2035–2096. <https://doi.org/10.1093/rof/rfs041>
- Ahmad, W., & Luo, R. H. (2010). Comparison of banking efficiency in Europe: Islamic versus conventional banks. *International Finance Review*, 11(2010), 361–389. [https://doi.org/10.1108/S1569-3767\(2010\)0000011016](https://doi.org/10.1108/S1569-3767(2010)0000011016)
- Albaity, M., Mallek, R. S., Abu, A. H., & Al-Tamimi, H. A. H. (2022). Bank credit growth and trust: Does institutional quality matter? Evidence from the association of Southeast Asian Nations. *Asian Development Review*, 39(2), 223–259. <https://doi.org/10.1142/S0116110522500172>
- Ali, S. S. (2007). Financial distress and bank failure: Lessons from closure of Ihlas Finans in Turkey. *Islamic Economic Studies*, 14(1), 1–52.
- Al-Khasawneh, J. A., Bassedat, K., Aktan, B., & Darshini Pun Thapa, P. (2012). Efficiency of Islamic banks: case of North African Arab countries. *Qualitative Research in Financial Markets*, 4(2–3), 228–239. <https://doi.org/10.1108/17554171211252547>
- Alqahtani, F., Mayes, D. G., & Brown, K. (2017). Islamic bank efficiency compared to conventional banks during the global crisis in the GCC region. *Journal of International Financial Markets, Institutions and Money*, 51, 58–74. <https://doi.org/10.1016/j.intfin.2017.08.010>

- Alsharif, M. (2021). Risk, efficiency and capital in a dual banking industry: Evidence from GCC banks. *Managerial Finance*, 47(8), 1213–1232. <https://doi.org/10.1108/MF-10-2020-0529>
- Anto, M. H., Fakhrunnas, F., & Tumewang, Y. K. (2022). Islamic banks credit risk performance for home financing: Before and during Covid-19 pandemic. *Economic Journal of Emerging Markets*, 14(1), 113–125. <https://doi.org/10.20885/ejem.vol14.iss1.art9>
- Asmild, M., Kronborg, D., Mahbub, T., & Matthews, K. (2019). The efficiency patterns of Islamic banks during the global financial crisis: The case of Bangladesh. *Quarterly Review of Economics and Finance*, 74, 67–74. <https://doi.org/10.1016/j.qref.2018.04.004>
- Aysun, U. (2016). Bank size and macroeconomic shock transmission: Does the credit channel operate through large or small banks? *Journal of International Money and Finance*, 65, 117–139. <https://doi.org/10.1016/j.jimonfin.2016.04.001>
- Azmi, W., Hassan, M. K., Houston, R., & Karim, M. S. (2021). ESG activities and banking performance: International evidence from emerging economies. *Journal of International Financial Markets, Institutions and Money*, 70, 101277. <https://doi.org/10.1016/j.intfin.2020.101277>
- Bruno, G. S. F. (2005). Approximating the bias of the LSDV estimator for dynamic unbalanced panel data models. *Economics Letters*, 87(3), 361–366. <https://doi.org/10.1016/j.econlet.2005.01.005>
- Castro, V. (2013). Macroeconomic determinants of the credit risk in the banking system: The case of the GIPSI. *Economic Modelling*, 31(1), 672–683. <https://doi.org/10.1016/j.econmod.2013.01.027>
- Chiaromonte, L., Liu, F. H., Poli, F., & Zhou, M. (2016). How accurately can Z-score predict bank failure? *Financial Markets, Institutions and Instruments*, 25(5), 333–360. <https://doi.org/10.1111/fmii.12077>
- Chong, B. S., & Liu, M.-H. (2009). Islamic banking: Interest-free or interest-based? *Pacific-Basin Finance Journal*, 17(1), 125–144. <https://doi.org/10.1016/j.pacfin.2007.12.003>
- Dang, V. A., Kim, M., & Shin, Y. (2015). In search of robust methods for dynamic panel data models in empirical corporate finance. *Journal of Banking and Finance*, 53, 84–98. <https://doi.org/10.1016/j.jbankfin.2014.12.009>
- Danlami, M. R., Abduh, M., & Abdul Razak, L. (2022). CAMELS, risk-sharing financing, institutional quality and stability of Islamic banks: Evidence from 6 OIC countries. *Journal of Islamic Accounting and Business Research*, 13(8), 1155–1175. <https://doi.org/10.1108/JIABR-08-2021-0227>
- Demir, E., & Danisman, G. O. (2021). Banking sector reactions to COVID-19: The role of bank-specific factors and government policy responses. *Research in International Business and Finance*, 58(June 2020), 1–12. <https://doi.org/10.1016/j.ribaf.2021.101508>
- Elnahass, M., Trinh, V. Q., & Li, T. (2021). Global banking stability in the shadow of Covid-19 outbreak. *Journal of International Financial Markets, Institutions and Money*, 72, 101322. <https://doi.org/10.1016/j.intfin.2021.101322>
- Fakhrunnas, F., Nugrohowati, R. N. I., Haron, R., & Anto, M. B. H. (2022). The determinants of non-performing loans in the Indonesian banking industry: An asymmetric approach before and during the pandemic crisis. *SAGE Open*, 12(2), 1–13. <https://doi.org/10.1177/21582440221102421>
- Fakhrunnas, F., Tumewang, Y. K., & Anto, M. B. H. (2021). The impact of inflation on Islamic banks' home financing risk: Before and during the COVID-19 outbreak. *Banks and Bank Systems*, 16(2), 78–90. [https://doi.org/10.21511/bbs.16\(2\).2021.08](https://doi.org/10.21511/bbs.16(2).2021.08)

- Hidayat, S. E., Sakti, M. R. P., & Al-Balushi, R. A. A. (2021). Risk, efficiency and financial performance in the GCC banking industry: Islamic versus conventional banks. *Journal of Islamic Accounting and Business Research*, 12(4), 564–592. <https://doi.org/10.1108/JIABR-05-2020-0138>
- Ibrahim, M. H., & Rizvi, S. A. R. (2017). Do we need bigger Islamic banks? An assessment of bank stability. *Journal of Multinational Financial Management*, 40, 77–91. <https://doi.org/10.1016/j.mulfin.2017.05.002>
- ICD-Refinitiv. (2022). *ICD-refinitiv Islamic finance development report 2022; Embracing Change*.
- Law, S. H., Naseem, N. A. M., Lau, W. T., & Trinugroho, I. (2020). Can innovation improve income inequality? Evidence from panel data. *Economic Systems*, 44(4), 100815. <https://doi.org/10.1016/j.ecosys.2020.100815>
- Meisamy, H., & Gholipour, H. F. (2020). Challenges facing Islamic banking in Iran: Evaluation and policy implications. *Journal of Islamic Monetary Economics and Finance*, 6(3), 621–640.
- Miah, M. D., & Sharmeen, K. (2015). Relationship between capital, risk and efficiency: A comparative study between Islamic and conventional banks of Bangladesh. *International Journal of Islamic and Middle Eastern Finance and Management*, 8(2), 203–221. <https://doi.org/10.1108/IMEFM-03-2014-0027>
- Miah, M. D., & Uddin, H. (2017). Efficiency and stability: A comparative study between Islamic and conventional banks in GCC countries. *Future Business Journal*, 3(2), 172–185. <https://doi.org/10.1016/j.fbj.2017.11.001>
- Nabi, M. S., & Suliman, M. O. (2009). Institutions, banking development, and economic growth. *Developing Economies*, 47(4), 436–457. <https://doi.org/10.1111/j.1746-1049.2009.00093.x>
- Nickell, S. (1981). Biases in dynamic models with fixed effect. In *Econometrica* (Vol. 49, Issue 6, pp. 1417–1426).
- Rashid, A., & Jabeen, S. (2016). Analyzing performance determinants: Conventional versus Islamic Banks in Pakistan. *Borsa Istanbul Review*, 16(2), 92–107. <https://doi.org/10.1016/j.bir.2016.03.002>
- Rosman, R., Wahab, N. A., & Zainol, Z. (2014). Efficiency of Islamic banks during the financial crisis: An analysis of Middle Eastern and Asian countries. *Pacific Basin Finance Journal*, 28, 76–90. <https://doi.org/10.1016/j.pacfin.2013.11.001>
- Saeed, M., & Izzeldin, M. (2016). Examining the relationship between default risk and efficiency in Islamic and conventional banks. *Journal of Economic Behavior and Organization*, 132, 127–154. <https://doi.org/10.1016/j.jebo.2014.02.014>
- Safiullah, M., & Shamsuddin, A. (2022). Technical efficiency of Islamic and conventional banks with undesirable output: Evidence from a stochastic meta-frontier directional distance function. *Global Finance Journal*, 51, 100547. <https://doi.org/10.1016/j.gfj.2020.100547>
- Sakti, M. R. P., & Mohamad, A. (2018). Efficiency, stability and asset quality of Islamic vis-à-vis conventional banks: Evidence from Indonesia. *Journal of Islamic Accounting and Business Research*, 9(3), 378–400. <https://doi.org/10.1108/JIABR-07-2015-0031>
- Shakil, M. H., Mahmood, N., Tasnia, M., & Munim, Z. H. (2019). Do environmental, social and governance performance affect the financial performance of banks? A cross-country study of emerging market banks. *Management of Environmental Quality: An International Journal*, 30(6), 1331–1344. <https://doi.org/10.1108/MEQ-08-2018-0155>
- Terraza, V. (2015). The effect of bank size on risk ratios: Implications of banks' performance. *Procedia Economics and Finance*, 30(15), 903–909. [https://doi.org/10.1016/S2212-5671\(15\)01340-4](https://doi.org/10.1016/S2212-5671(15)01340-4)