BEST SHARIA BANK IN INDONESIA: AN ANALYTICAL HIERARCHY PROCESS (AHP) APPROACH

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ABSTRACT

This study aims to determine the performance of Islamic commercial banks in Indonesia using the following assessment criteria: capital, asset quality, efficiency, liquidity, Sharia Conformity & Profitability (SCnP), and the Maqasid Index. The sample includes the five best Sharia banks in Indonesia. All the data are obtained based on the annual reports of each bank taken from the bank's websites in 2019. Data were analyzed using the Analytical Hierarchy Process (AHP) method. This tool helps make decisions from several alternative choices of sharia bank institutions. The results show that Bank Muamalat Indonesia, Bank Syariah Mandiri, and BRI Syariah are the three best performing Sharia banks in 2019.

Keywords: Sharia bank performance; SCnP; *Maqasid* Index; Analytical Hierarchy Process

1. Introduction

Banks play an important role in preserving the stability of the economy of a country and are also a societal need. Currently, it is very unusual for individuals who do not have a partnership with a bank to act as either a savings institution or a lending institution. The

modern banking world uses interest as its key instrument; however, the use of interest is forbidden in Islam because it requires usury and does not comply with Islamic law. The Sharia bank has arisen from this requirement, and provides interest-free services to Muslims who are not pleased with the operation of the interest scheme.

As a nation with a majority Muslim population, Indonesia holds a very high potential market share. In 1991, Indonesia's first Sharia bank was Bank Muamalat Indonesia (BMI). Initially, the presence of Sharia banks did not receive attention from national banks and Sharia banks had no official legal basis, so the presence of Sharia banking was limited to being an alternative bank for the citizens of Indonesia. However, Sharia banks have shown positive growth over the course of time. In 2020, the Financial Services Authority known as (OJK) in Indonesia reported that the growth of sharia banking was slowing down, but still higher than traditional banks, namely 10.14% year-to-date (YTD) growth in loans and 9.35% YTD growth in assets.

As the organization controlling and overseeing banking in Indonesia, Bank Indonesia is charged with assessing whether a bank is in good health or not based on the bank's financial statements. Table 1 provides a description of Sharia banks' output growth in Indonesia based on financial ratios. This table shows that the overall average financial ratio, which is a bank performance measurement metric, exhibits a year-on-year rise. Currently, there are 14 sharia commercial banks in Indonesia. Bank Syariah Mandiri, Bank Muamalat Indonesia, BRI Syariah, BNI Syariah, and Bank Mega Syariah (Fadilah, 2019) are the five highest performing of those banks in Indonesia.

Table 1
Sharia commercial bank financial ratios

Financial Ratio	2016	2017	2018	2019
CAR	16.63	17.91	20.39	20.59
ROA	0.63	0.63	1.28	1.73
NPF	4.42	4.76	3.26	3.23
FDR	85.99	79.61	78.53	77.91
OER	96.22	94.91	89.18	84.45
NOM	0.68	0.67	1.42	1.92
Yield	58.84	51.29	47.69	46.46
Invest	34.64	35.22	36.56	39.89

Source: Financial Services Authority (2019)

Sharia banks' efficiency measures in Indonesia do not have their own instruments and still use the same measures as traditional banks, which are financial ratio calculation instruments. This is considered an inaccurate reflection of the success of Sharia banks because there are differences between traditional banks and Sharia banks in the main tasks and methods (Bedoui, 2012). In traditional banks, the CAMELS method (Capital, Quality of Assets, Management, Earning, Liquidity, and Sensitivity) can be used to measure performance. Kouser and Saba (2012), Ahsan (2016), Islami and Ashrafuzzaman (2015), Suresh and Bardastani (2016), Bashatweh and Ahmed (2020) are previous studies that used CAMELS as a benchmark for bank results.

Sharia banks have to pay attention to their results in the financial and non-financial aspects of the different characteristics between traditional banks and Sharia banks (Antonio, Sanrego, & Taufiq, 2012). To assess efficiency of the principles and practices of Sharia banks, some studies have used non-financial metrics. Other studies have used Sharia Conformity and Profitability (SCnP) from Ratnaputri (2013), Apriani, Kusnendi, and Firmansyah (2018), Djuwita (2019) and Kuppusamy, Saleh, and Samudhram (2010). The SCnP equation calculates the sharia variable with the average ratio of sharia compliance and traditional variables with the average ratio of profitability.

The Maqasid Index is used in other studies such as Rusydiana and Parisi (2016), Hartono and Sobari (2017), Mega, Isni, and Taufiq (2019), Lesmana and Haron (2019), Tarique, Islam, Mohamed, Razak, and Hamdan (2020) as an indicator of the success of Sharia banks. Tahdzib alFard (educating people), Iqomah Al-Adl (upholding justice), and Jablb Maslahah (welfare) are the concepts of the Sharia Maqasid Index that are related to the theory proposed by Abu Zaharah. Kholid and Bachtiar (2016) which stated that as a Muslim all the activities must be according to Islamic law, including economic activities. The three tests, namely the Maqasid Index, SCnP and CAMELS are combined by Ramdhoni and Fauzi (2020).

There are several alternative options of banks in Indonesia making customers selective in their choice of which bank is the best. The decision-making process is not simple and there are many aspects that need to be considered so as not to make the wrong choice. The Analytical Hierarchy Process (AHP) methodology is able to help solve decision-making problems. Previous scholars, including Shahhoseini, Khassehkhan, and Shanyani (2012), Abduh and Omar (2012), and Tabash (2017) have used the AHP approach in Sharia banks. Using the CAMELS, SCnP, and the Sharia Maqasid Index parameters with the Analytical Hierarchy Process to assist decision-making, this study aims to assess the performance of Sharia banking in Indonesia.

2. Literature review

2.1 Sharia banks

In Indonesia, Islamic banks are called sharia banks. They are financial institutions that carry out business activities based on sharia principles, namely the rules of an agreement based on Islamic law between banks and other parties for depositing funds or financing business activities or other activities declared in accordance with sharia. The legality of Islamic banks in Indonesia has been protected by law since the issuance of Banking Law No.7 of 1992 which was later refined according to banking conditions as stipulated in Law No. 21 of 2008 (Grant et al., 2017). One of the characteristics of Islamic banks is that they do not charge interest to customers, but use profit sharing as well as other rewards in accordance with the agreed contracts. The basic concept of Islamic banking is based on the Al Quran and Hadiths (Razak, 2015).

2.2 Sharia bank performance

1. Capital Adequacy Ratio (CAR)
   The Capital Adequacy Ratio (CAR) is the product of a comparison, taking into account market risk, between the capital ratio and the minimum capital adequacy ratio. High CAR demonstrates that the bank is capable of funding operation activities

and contributes profitability. Bateni, Vakilifard, and Asghari (2014) used CAR as an assessment of bank results, and below is the CAR formula:

$$\text{CAR} = \frac{\text{Capital}}{\text{Risk Weighted Assets}}$$

2. Non-Performing Financing (NPF)
   Non-Performing Financing (NPF) is a ratio that represents the bank management's willingness to deal with problem financing. The higher the ratio, the poorer the quality of the bank lending is, which results in a higher the degree of non-performing financing. To test the efficacy of funding disbursed by Sharia banks, the NPF ratio (Wulandari, Suryana, & Utami, 2019) can be calculated as follows:

$$\text{NPF} = \frac{\text{Non} - \text{Performing Financing}}{\text{Total Financing}}$$

3. Operating Efficiency Ratio (OER)
   The Operating Efficiency Ratio (OER) is the ratio of operating expenditures and operating revenue. In operational activities, this ratio is used to calculate the efficiency level and bank output. The lower the percentage of the OER ratio, the more productive the operating costs used by the bank are. High OER means that the bank does not operate effectively because a high value reflects the vast amount of operating costs required to gain operating profits.

$$\text{OER} = \frac{\text{Operating Expenses}}{\text{Operating Income}}$$

4. Financing-to-Deposit Ratio (FDR)
   FDR shows a bank's ability to repay withdrawals made by depositors by relying on loans offered as a source of liquidity. The higher the FDR level, the lower the banking liquidity capacity (Loen & Ericson, 2008). In this case, the bank must be able to monitor the amount of funds channeled and the third party funds that the bank collects in order for the FDR value to remain secure. After the FDR rises, the NPF will decrease. Good liquidity ensures that, to meet all commitments, the bank has a sufficient source of funds. The risk of loan problems with higher bank liquidity is reduced (Akbar, 2016). The FDR value is calculated with the following formula:

$$\text{FDR} = \frac{\text{Total Financing}}{\text{Total Deposits}}$$

2.3 Sharia conformity and profitability

Sharia Conformity and Profitability (SCnP) is an approach to assess a sharia bank's financial output by calculating the suitability of the sharia of a bank, but it does not neglect the profitability factor because profit is fundamentally one of the business institution's objectives (Kuppusamy et al., 2010). Three ratios, namely the Islamic expenditure ratio, Islamic benefit ratio, and profit sharing ratio, are used to calculate Sharia adherence variables. Three ratios, namely Return on Assets (ROA), Return on Equity (ROE), and Profit Margin (PM), are also measured by the profitability variable.

Each of the compliance ratios and profitability ratios of sharia will be summed resulting in a four quadrant graph where each quadrant is divided by all of the banks' average ratios (see Figure 1).

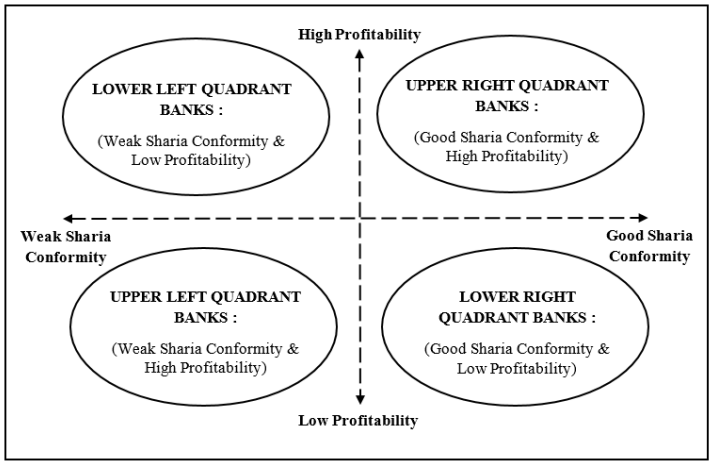

Figure 1 Model Sharia Conformity and Profitability (SCnP)
Source : Kuppusamy et al. (2010)

2.4 Maqasid index

By adapting the definition of Sekaran (2000), Mohammed (2008) describes Maqasid sharia as a measurement instrument to assess the efficiency of Sharia banking. The Maqasid Sharia index is intended to test Sharia banking, which not only highlights the financial dimensions, but also integrates the notion of noble Islamic principles. As seen in Figure 2 below, there are 3 instruments that can be used to calculate Maqasid Sharia.

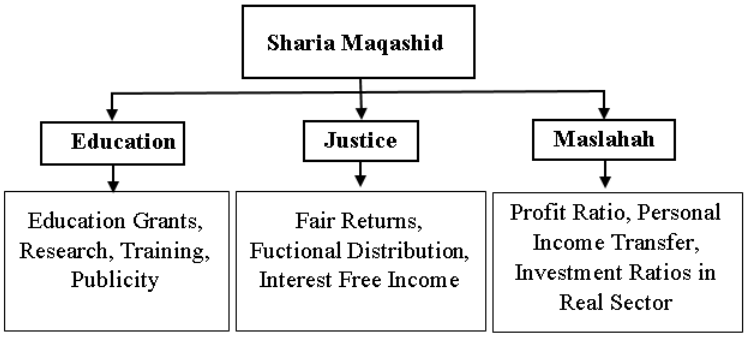

Figure 2 Sharia Maqasid
Source : Mohammed (2008)

2.5 Conceptual framework

Figure 3 shows a framework for the research.

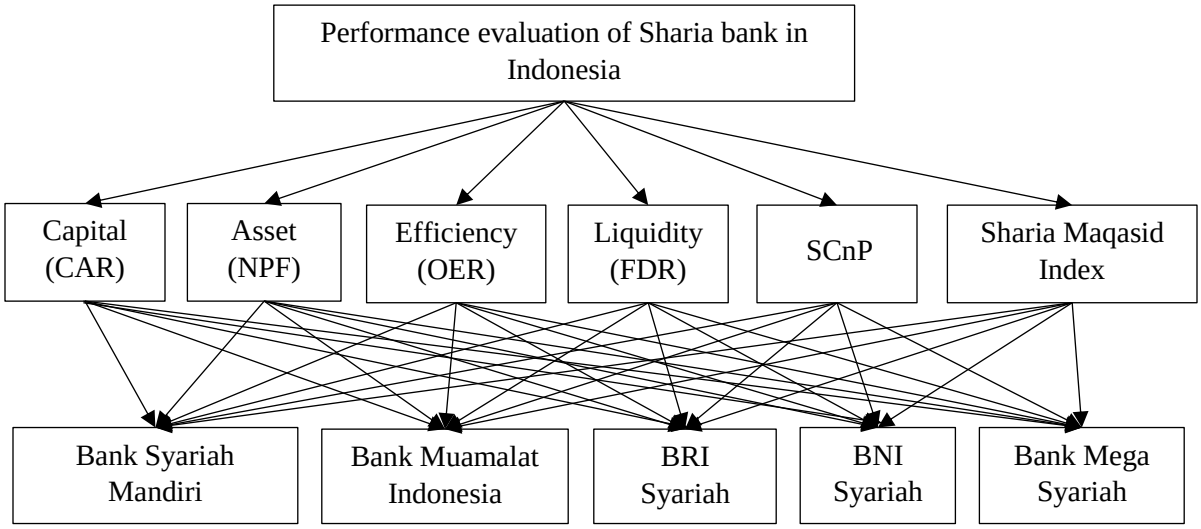

Figure 3 Research framework

3. Methodology

The Analytical Hierarchy Process (AHP) is used in this study as a technique to prioritize criteria that influence decision-making regarding the performance of Indonesia's best Sharia bank. The sample includes five Sharia banks that have done well in 2019. The calculation uses six metrics, namely capital, asset quality, production, liquidity, Sharia Conformity and Profitability (SCnP) and Sharia Maqasid Index, to assess the performance of Sharia banks.

The measurement of the Consistency Index (CI) and Consistency Ratio (CR) make the AHP approach different from other methods. The steps for using the AHP method are as follows:

a. Formulate a hierarchical composition
   To prioritize and review these requirements, a hierarchical structure should be created after deciding the key priorities, parameters, and alternatives.
b. Use the relative scale measurements shown in Table 2 to construct a pairwise comparison matrix (size n x n) for each lower level with one matrix for each factor at the level directly above it.

Table 2
Saaty scale

Intensity of importance	Definition	Explanation
1	Equally important	Two activities contribute equally to the objective(s)
3	Moderate importance of one over another	Experience and judgment slightly favor one activity over another
5	Essential or strong importance	Experience and judgment strongly favor one activity over another
7	Demonstrated importance	An activity is strongly favored and its dominance is demonstrated in practice
9	Extreme importance	The evidence favoring one activity over another is of the highest possible order of affirmation
2,4,6,8	Intermediate values between two adjacent judgments	Where compromise is needed

Source: Saaty (2008)

c. Calculate the Consistency Index (CI) with the formula:

$$CI = \frac{\lambda_{max} - n}{n - 1}$$

CI: Consistency Index
$\boldsymbol{\lambda}_{max}$: Eigen Value
n: Matrix size

d. Calculate the Consistency Ratio (CR) with the formula

$$CR = \frac{CI}{RI}$$

CR: Consistency Ratio
CI: Consistency Index
RI: Random Consistency Index

The RI table that is the reference for calculating CR in the AHP method can be seen in Table 3.

Table 3
Random Consistency Index

Size of matrix	1	2	3	4	5	6	7	8	9	10
RI	0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.49

Source: Saaty, 2008

The appropriate degree of inconsistency is below 10% for the AHP process. If the CR value is higher than 10%, the evaluation must be updated because a degree of inconsistency that is too high which will lead to an error.

4. Analysis of results

4.1 Performance of Sharia banks based on Sharia Conformity and Profitability (SCnP)

As measured by Sharia Conformity and Profitability (SCnP), the results of data processing related to the financial performance of Sharia banking in Indonesia can be seen in Table 4.

Table 4
Sharia bank performance based on SCnP in 2019

Sharia Bank	Sharia Conformity	Profitability	Quadrant
Bank Syariah Mandiri	79,13%	9,92%	URQ
Bank Muamalat Indonesia	77,52%	0,33%	ULQ
BRI Syariah	82,13%	1,31%	LRQ
BNI Syariah	78,41%	8,86%	LLQ
Bank Mega Syariah	76,59%	3,45%	ULQ

Source: Analysis results (2020)

Table 4 shows that Sharia commercial banks in Indonesia were divided into four quadrants in 2019, namely the upper right quadrant (URQ), the upper left quadrant (ULQ), the lower right quadrant (LRQ), and left lower quadrant (LLQ). The results are according to research conducted by Ratnaputri (2013) which states that the performance of Islamic commercial banks based on SCnP is spread over four quadrants. In this study, it is assumed that the sharia conformity indicator is more important than profitability considering the main objective of Islamic banking is the benefit of the people by carrying out economic activities in accordance with Islamic studies. In general, the performance of Islamic commercial banks using Sharia Conformity and Profitability (SCnP) can be seen in Figure 4.

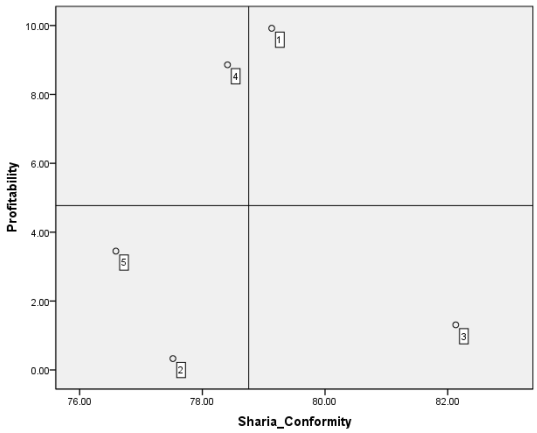

Figure 4 Graph SCnP
Source: Output SPSS (2020)

4.2 Performance of Sharia banks is based on the Maqasid Index

Table 5 below shows the results of a report on the ranking of Sharia banks in Indonesia based on the Maqasid Index.

Table 5
Rating of Sharia banks based on the Maqasid Sharia index in Indonesia

Sharia Bank	Ranked Maqasid Index
Bank Syariah Mandiri	2
Bank Muamalat Indonesia	1
BRI Syariah	3
BNI Syariah	4
Bank Mega Syariah	5

Source : Ramdhoni and Fauzi (2020); Nugraha, Nugroho, Lindra, and Sukiati (2020)

Bank Muamalat Indonesia occupies the first place (see Table 5) based on a Maqasid Index evaluation. These findings are consistent with the research results of Antonio et al. (2012), Prasetyowati and Handoko (2016), Ramdhoni and Fauzi (2020) and Nugraha et al. (2020), which state that Bank Muamalat is a sharia bank with the best performance based on the Maqasid Index.

4.3 Sharia bank performance based on CAMELS

This research used four indicators from CAMELS because it focuses on the financial factors, but did not use the profitability indicator because it has been calculated in the evaluation of the SCnP. The results of the CAMELS-based processing of financial performance data at Sharia banks in Indonesia can be seen in Table 6.

Table 6
Performance of Sharia banks based on CAMELS in 2019

Sharia Bank	Capital (CAR)	Asset Quality (NPF)	Efficiency (OER)	Liquidity (FDR)
Bank Syariah Mandiri	16,15%	1,00%	82,89%	75,54%
Bank Muamalat Indonesia	12,42%	4,30%	99,50%	73,18%
BRI Syariah	25,26%	3,38%	96,80%	80,12%
BNI Syariah	18,88%	1,44%	81,26%	74,31%
Bank Mega Syariah	19,96%	1,72%	93,71%	94,53%

Source: Annual Report (2019)

Table 6 shows that all Sharia banks in Indonesia were categorized as “very healthy” during 2019.

4.4 Sharia bank performance assessment using the AHP method

Following the collection of data about Sharia banks using SCnP, the Maqasid Index and CAMELS, the next step was to use the Expert Choice decision program to pick the best bank using the Analytical Hierarchy Process (AHP). The results are shown in Figure 4.

Figure 4 Criteria weights
Source: Output Expert Choice 11 (2020)

Based on the weighting of the criteria, the most important Sharia bank performance appraisal is the Maqasid Index (0.467). This is in line with research conducted by Al Ghifari, Handoko, and Yani (2015) and (Ramdhoni and Fauzi (2020). They stated that the use of the Maqasid Index as a measurement of the performance of Sharia banks is considered the most comprehensive because the Sharia Conformity and Profitability (SCnP) approach still adopts conventional ratios and therefore does not completely include Islamic aspects, while the CAMELS approach only uses conventional ratios. The consistency index (CI) is 0.08, and is accepted because it is lower than 0.10 (10%). The next step is to find the eigenvalues of each bank based on the criteria. The results are shown in Table 7.

Table 7
Alternative-criteria eigenvalues

	Capital (0.074)	Asset (0.039)	Efficiency (0,024)	Liquidity (0.140)	SCnP (0,257)	MI (0.467)
Bank Syariah Mandiri	0.063	0.485	0.268	0.135	0.325	0.261
Bank Muamalat Indonesia	0.033	0.035	0.034	0.486	0.056	0.513
BRI Syariah	0.513	0.068	0.070	0.071	0.401	0.129
BNI Syariah	0.129	0.273	0.496	0.272	0.140	0.063
Bank Mega Syariah	0.261	0.139	0.132	0.037	0.079	0.033

Source: Analysis results (2020)

The final step is weighting to determine which bank has the best performance based on the largest weight. The final weighting resuls can be seen in Table 8.

Table 8
Final assessment results

Sharia Bank	Final Weight
Bank Syariah Mandiri	0.254
Bank Muamalat Indonesia	**0.326**
BRI Syariah	0.214
BNI Syariah	0.137
Bank Mega Syariah	0.069
Total	1

Source: Analysis results (2020)

Table 8 shows that Bank Muamalat Indonesia has the largest weight, namely 0.326. Therefore, the performance of Bank Muamalat Indonesia is the best when compared to other Islamic banks. Bank Syariah Mandiri ranks second and BRI Syariah ranks third. These are the three best Sharia banks based on their 2019 performance.

5. Conclusion

The most important aspect in decision making is choosing the right criteria for achieving the stated goals. This research is based on several articles on the performance of Sharia banks, and uses several criteria, namely capital, asset quality, efficiency, liquidity, Sharia Conformity and Profitability, and the Maqasid Index. Data were collected based on the annual reports of each bank which were then analyzed using a multi-criteria decision making tool, namely the Analytic Hierarchy Process (AHP). Based on the results of data analysis, Bank Muamalat Indonesia is the best performing Islamic bank in Indonesia.

Bank Muamalat Indonesia is superior when using the Maqasid Index criteria, where in the pairwise comparison matrix for the criteria, the Maqasid Index has the greatest weight. Al Ghifari (2015) and Ramdhoni & Fauzi (2020) state that the use of the Maqasid Index as a measurement of the performance of Islamic banks is considered more comprehensive than other measures because the Sharia Conformity and Profitability (SCnP) approach still adopts conventional ratios and does not include Islamic aspects as a whole. Bedoui and Walid (2013) state that Maqashid Sharia covers all sides of life that intersect with individuals, social, society, economics, and intellectuals. The Maqasid Index and Sharia Conformity and Profitability (SCnP) can complement the CAMELS approach as instruments for measuring the performance of Islamic banks. The CAMELS analysis, which is a measurement tool for conventional banks, is considered less reflective of the performance of Islamic banks; therefore, the use of the SCnP and the Maqashid Index aim to provide better results when compared to measurements using conventional methods (Prasetyowati dan Handoko, 2016).

6. Practical implications

It is time for Islamic commercial banks to use performance measurement tools to measure their compliance with Sharia law in addition to the use of the conventional

performance measurement tools that are commonly used. This will help fully understand the financial achievements of Islamic banks and their relationship with the teachings and objectives of sharia. The implementation of Islamic banking performance measurement tools based on the Sharia Maqashid Index and Sharia Conformity and Profitability (SCnP) methods is expected to be considered by regulators in order to provide a more complete picture of the performance of Islamic banking that does not only consider the financial aspects.

7. Limitations and future research

The CAMELS method used in this study did not include all factors, such as sensitivity to market risk. This is because the data obtained by the researchers was incomplete, especially data related to additional capital and potential exchange rate losses which are used as a formula/ratio to calculate the sensitivity factor. In addition, the number of Islamic banks is limited, so hopefully more alternative choices will be available for future research and a longer period of time of data collection can be used to obtain more accurate results.

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