

## Analysis Of The Efficiency Of Sharia-Based Banks On Customer Interest In Indonesian

Safi'atus Sholikhah<sup>a</sup>; Putri Ayu Andesia<sup>a</sup>; Zufaruddin Zaidan<sup>a</sup>; Maida Nurul Adila<sup>a</sup>

<sup>a</sup>UIN Sunan Kalijaga Yogyakarta, Indonesia

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**Abstract:** This study analyzes the operational efficiency of Islamic banks in Indonesia using the Data Envelopment Analysis (DEA) method with an input-oriented approach. DEA is applied to evaluated how Islamic banks optimally utilize their resources in producing outputs. The input variables used include operating costs, total assets, and total labor, while the outputs include third-party funds (DPK), financing disbursed, and net income. The results show that there are variations in efficiency among banks, where some banks have achieved optimal efficiency, while others need improvement in resource management. This research provides strategic insights to improve the efficiency of Islamic banks at the regional level.

**Keywords:** : *Islamic Bank, Efficiency, Input-oriented, DPK, Data Envelopment Analysis (DEA).*

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### Introduction

The development of sharia-based banks in Indonesia is increasing rapidly, along with increasing public awareness of the banking system in accordance with sharia principles. The development of the Islamic banking industry in Indonesia shows rapid growth. Indonesia is one of the countries with great potential in the growth of Islamic banks, supported by a religious population and the need for financial services based on Islamic values. In 2024, the total assets of Islamic Commercial Banks reached IDR 586.055 trillion, while the success of Islamic banks is not only determined by the suitability of the sharia system, but also operational efficiency in attracting customers. The ability to grow and develop sustainably, have a significant market share, and become the first choice for the community. This can only be achieved if Islamic banks not only focus on sharia compliance but also have efficient operations so as to attract and retain customers through superior service, competitive products, and ease of access. This efficiency is a key factor for banks to remain competitive in the midst of competition with conventional banks.

State of the Art related to the efficiency of Islamic banks has been discussed in various previous studies. In previous studies, it was discussed that Islamic Commercial Banks will face bigger problems as the bank grows. The problem that often arises in BUS (Islamic Commercial Bank) is the effectiveness of banking performance itself, which can be caused by external (debtor error) or internal (managerial) reasons. The Data Envelopment Analysis (DEA) method is an effective approach to measure technical efficiency. This research does not rely on hypotheses like quantitative research in general. According to Sugiyono (2018, p.14) in Balaka's research (2022), quantitative methods based on positivism are data collection techniques using instruments and random sample analysis with statistical data analysis. In other words, empirical research using numerical data is called quantitative research (Syahrums & Salim, 2014). Such research often does not explore the effect of efficiency on customer interest in a regional context, especially in Indonesia. This study aims to fill the gap by focusing on the relationship between the operational efficiency of Islamic banks measured using the input-oriented DEA approach with the understanding that minimizing inputs without reducing output results and also measured by customer interest.

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\*Corresponding Author

 Safi'atus Sholikhah@student.uin-suka.ac.id (S.Sholikhah).

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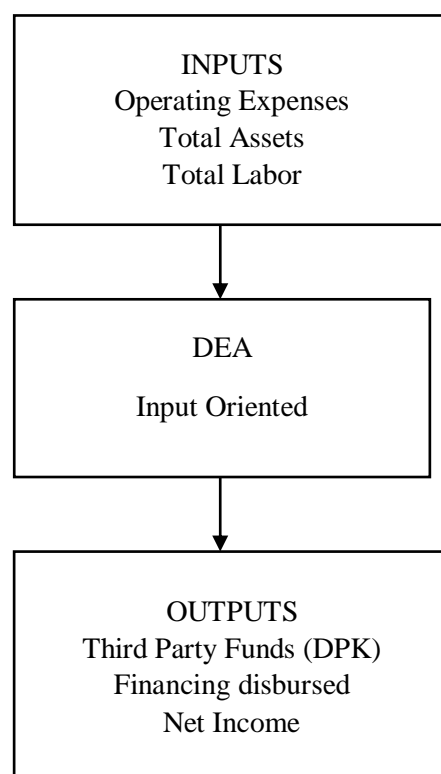
The research gap lies in analyzing how the efficiency of Islamic banks can directly affect the attractiveness of their services to the public. The scholarly contribution of this article is to provide new insights into the effectiveness of the DEA approach in supporting customer attraction strategies. The research we developed is based on a scientific article entitled “Efficiency Analysis of Islamic Commercial Banks in Indonesia”. This study aims to evaluate the efficiency of Islamic banks in Indonesia and to develop the scientific article using the DEA method. Islamic banking in Indonesia has experienced significant development in recent years. As a country with the largest Muslim population in the world, public interest in banking that adheres to the sharia system is increasing (Putra & Amanda Alvi Nurdiantoro, 2024). This study also identifies operational factors that influence customer preferences in choosing sharia-based services. Thus, the results of this study are expected to provide relevant strategic recommendations for the development of Islamic banks at the regional level.

## Methodology

This research method includes research design, location and time of research, population and sample, data collection techniques (web from the targeted bank), variable operationalization, and data analysis methods. The research location is focused on the country of Indonesia with the object of research in the form of Islamic commercial banks operating during 2020-2022. The sample selection was carried out purposively, namely Islamic banks that had complete financial statement data during the observation period.

The research design used is a quantitative approach with descriptive and analytical research types. This research model adopts the Data Envelopment Analysis (DEA) approach. This DEA method serves to compare the efficiency of several companies that have the best and comparable performance levels so as to produce a relative efficiency level of the company (Anggraeni et al., 2023). With input orientation, which is used to measure the relative efficiency among decision making units (DMUs) in the context of Islamic banks.

Figure 1. Input-Output Framework



\*Corresponding Author

Safi'atus Sholikhah@student.uin-suka.ac.id (S.Sholikhah).

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Shows the relationship between input and output variables in the efficiency analysis framework. Inputs in the form of operational costs, total assets, and total labor are assumed to contribute to the achievement of outputs such as third party funds (DPK), financing disbursed, and net income. Labor as an input and third-party funds as an output are relevant because both directly illustrate the use of human resources and the success of Islamic banks in raising public funds as the main operational and intermediary function of Islamic banks. The input-oriented DEA model is used to evaluate how efficient each Islamic bank is in managing inputs to produce outputs.

Table 1. Input Variables

Variable		
Input	Operating Expenses	<i>Total costs incurred by the Bank to run its day-to-day operations.</i>
	Total Assets	<i>Includes all things of economic value owned by the Bank.</i>
	Total Labor	<i>Human resources involved in bank operations.</i>

Table 2. Output Variables

Variable		
Output	Third Party Funds (DPK)	<i>Total funds raised by the Bank from the public in various forms.</i>
	Financing disbursed	<i>Total value of financing disbursed by the Bank to customers under various contracts.</i>
	Net Income	<i>Profit or gain that remains after all costs have been deducted from total revenue.</i>

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## Discussion Result

Operational efficiency is key for Islamic banks in utilizing resources such as labor to optimally collect Third Party Funds (DPK). The Data Envelopment Analysis (DEA) method is used to measure the relative efficiency of each bank, providing an overview of their ability to manage inputs to produce outputs. Empirical studies show that DEA is effective in identifying efficient banks and providing performance improvement recommendations for less efficient banks. With increasing competition in the banking sector, this analysis helps identify the most efficient banks while offering recommendations for performance improvement to banks with low efficiency. The data obtained will provide further insights to support competitiveness and customer interest in Islamic banks. Research in Indonesia has found that the efficiency of Islamic banks is still not optimal, with an average efficiency of around 83.5% to 99% depending on the period and bank studied. Factors such as labor management and the ability to collect deposits are key in improving the competitiveness of Islamic banks in the midst of fierce competition. The multicollinearity test is used to detect whether there is a correlation between independent variables in a regression model (Ghozali, 2018). A regression model is considered a good model if it does not have a correlation between independent variables. This study used a multicollinearity test seen by calculating the correlation coefficient between independent variables. If between independent variables has a fairly high correlation (greater than 0.90), then this is an indication of multicollinearity.

Islamic banks have operational principles that are in accordance with Islamic values, such as the prohibition of usury and fairness in transactions. Operational efficiency in the context of Islamic banking is the bank's ability to manage input resources effectively so as to produce optimal output, by minimizing operational costs without reducing the quality of services and products. This efficiency reflects the bank's ability to maximize the results of its various resources, such as labor, capital, and operational costs, to optimally generate revenue and third party funds (DPK). This makes Islamic banks an attractive choice for the community, especially in countries with a majority Muslim population such as Indonesia. Various ways are done by Islamic banks to remain competitive in the midst of intense competition, Islamic banks need to ensure their operations are efficient. Efficiency here is measured by the bank's ability to utilize resources such as labor to produce output, namely Third Party Funds (DPK) which reflects public trust in the bank. The more efficiently a bank manages its resources, the greater the chance of attracting customers.

Table 3. Efficiency Score

Banks	Efficiency Score (%)	Description
PT Bank Syariah Indonesia	93,9	Approaching full efficiency, decreasing curve
PT Bank Muamalat	99,04	Approaching full efficiency, decreasing curve
PT Bank Mega Syariah	65,9	Increasing curve, low efficiency
PT Bank KB Bukopin Syariah	100	Full efficiency
PT Bank Central Asia Syariah	85,3	Increasing Curve

\*Corresponding Author

 Safi'atus Sholikhah@student.uin-suka.ac.id (S.Sholikhah).

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This analysis uses the Data Envelopment Analysis (DEA) method to evaluate the operational efficiency of several Islamic banks in Indonesia, namely Bank Syariah Indonesia, Bank Muamalat, Bank Mega Syariah, Bank KB Bukopin Syariah, and BCA Syariah. This method helps compare the relative performance of each bank based on input (labor) and output (deposits). The results of the analysis provide an overview of the most efficient banks and identify areas that need improvement to attract more customers.

### Efficiency of Input (Labor) to Output (DPK)

The table shows the efficiency of the five Islamic banks based on labor (input) and Third Party Funds or DPK (output).

Table 4. Input-Output Efficiency Score

Unit	Input (Labor)	Output (DPK)	Efficiency
BSI	18.581	Rp 327,45 T	$327,45 \text{ T} : 18.581 = 17.622.840.536$
Bank Muamalat Syariah	3.851	Rp 4,61 T	$4,61 \text{ T} : 3.851 = 1.197.091.665$
Bank Mega Syariah	6.498	Rp 9,96 T	$9,96 \text{ T} : 6.498 = 1.532.779.316$
Bank KB Bukopin Syariah	64.497	Rp 6,8 T	$6,8 \text{ T} : 64.497 = 105.431.260$
BCA Syariah	1.542	Rp 13,2 T	$13,2 \text{ T} : 1.542 = 8.560.311.284$

Efficiency is calculated by dividing output by input, which shows the bank's ability to utilize human resources to raise funds. Comparative Analysis, BSI as the largest Islamic bank shows the highest efficiency in utilizing manpower to raise deposits. This shows that economies of scale and large operational capabilities can optimize labor productivity so as to be able to raise large amounts of funds. BCA Syariah, despite having a much smaller workforce than BSI, displays very high efficiency, indicating efficient and productive management of its workforce in raising deposits. Bank KB Bukopin Syariah has the lowest efficiency, possibly due to the imbalance between the very large number of workers (64,497) and the DPK raised, so that a lot of labor is not optimally utilized.

Interpretation of the data:

Table 5. Interpretation of Efficiency

Bank	Input (Labor)	Output (DPK)	Efficiency	Interpretation
Bank Syariah Indonesia	18.581	Rp 327,45 triliun	17.622,84	Bank dengan efisiensi tertinggi, memanfaatkan tenaga kerja secara optimal untuk menghimpun DPK besar.

\*Corresponding Author

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Bank Muamalat	3.851	Rp 4,61 triliun	1.197,09	Low efficiency; labor has not been used optimally in collecting deposits.
Bank Mega Syariah	6.498	Rp 9,96 triliun	1.532,77	Medium efficiency; there is potential for improvement in labor management and collection strategies.
Bank KB Bukopin Syariah	64.497	Rp 6,8 triliun	105,43	Lowest efficiency; requires in-depth evaluation of labor and operational management.
BCA Syariah	1.542	Rp 13,2 triliun	8.560,31	Very high efficiency; managed to maximize a small workforce to raise significant deposits.

#### Interpretation of Efficiency Results

1. BSI has the highest efficiency, indicating optimal labor management resulting in large deposits.
2. Bank Muamalat has low efficiency, illustrating the use of labor that has not been maximized.
3. BCA Syariah stands out with high efficiency despite having the smallest workforce.
4. Bank Mega Syariah is at the middle level.
5. KB Bukopin Syariah shows the lowest efficiency, with high labor but low deposits.

The data shows the efficiency of five Islamic banks in Indonesia based on the amount of labor (input) and Third Party Funds (DPK) collected (output). BSI has the highest efficiency with optimal utilization of labor to generate large deposits. BCA Syariah (1.197,09) is also very efficient despite having the smallest workforce. Bank Muamalat (1.197,09) and Bank Mega Syariah (1.532,77) have medium efficiency, while KB Bukopin Syariah (105,43) shows the lowest efficiency as a large workforce does not generate commensurate deposits. This data helps understand each bank's operational performance and strategy.

#### CONCLUSION

This study concludes that operational efficiency is a key factor in the success of Islamic banks in collecting third party funds (DPK). Analysis using the Data Envelopment Analysis (DEA) method shows that Bank Syariah Indonesia (BSI) has the highest efficiency, followed by BCA Syariah which also shows high efficiency despite having the smallest workforce. Meanwhile, Bank Muamalat and Bank Mega Syariah showed medium efficiency, indicating potential improvements in resource management and operational strategies. Bank KB Bukopin Syariah recorded the lowest efficiency, indicating that the use of a large workforce does not result in adequate output. These results provide important insights into the operational performance of each bank in the context of competitiveness and customer interest in sharia-based services in Indonesia. The limitation of this study lies in the scope of analysis that only focuses on quantitative data, namely labor and deposits as input and output variables. This study has not explored external factors such as government policies, financial literacy levels, and public trust in sharia services that also play an important role in bank operational efficiency. For future research, it is recommended to include external variables and deepen aspects of

\*Corresponding Author

 Safi'atus Sholikhah@student.uin-suka.ac.id (S.Sholikhah).

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service and product innovation to provide a more comprehensive analysis. Conclusion, Limitations, and Suggestions. As a strategic suggestion, low efficiency banks such as KB Bukopin Syariah need to evaluate workforce management and maximize marketing strategies to improve service attractiveness. Medium-efficiency banks such as Bank Muamalat and Bank Mega Syariah need to innovate products and improve customer engagement. While high efficiency banks such as BSI and BCA Syariah are advised to expand their services and improve competitiveness through digitization and targeted expansion strategies. This research is expected to make a real contribution to the development of Islamic banks in Indonesia.

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\*Corresponding Author

 Safi'atus Sholikhah@student.uin-suka.ac.id (S.Sholikhah).

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