



THE ROLE OF WORSHIP VALUES IN ENHANCING THE EFFICIENCY OF ISLAMIC COMMERCIAL BANKS: A DATA ENVELOPMENT ANALYSIS (DEA) APPROACH

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ABSTRACT

This study investigates the efficiency of Islamic banking in Indonesia from 2018 to 2021 through the application of Data Envelopment Analysis (DEA), incorporating Islamic principles. The analysis utilizes secondary financial data from four Islamic banks, sourced from the Financial Services Authority (OJK) and other researchers. The input variables considered include third-party funds allocated for profit-sharing and labor costs, while the output variables consist of revenue derived from the management of public funds and other operational income. The DEA results indicate fluctuating efficiency levels among the Islamic banks, with Bank Syariah Y consistently achieving 100% efficiency, signifying its status as the most efficient institution. The study identifies that revenue from public fund management negatively impacts the growth of Islamic banks, whereas labor costs and other operational income positively influence their development. These findings highlight areas requiring improvement and the factors driving efficiency in the development of Islamic banking in Indonesia.

Keywords: Efficiency, Data Envelopment Analysis (DEA), Islamic Commercial Banks, Islamic Values

ABSTRAK

Penelitian ini menyelidiki efisiensi perbankan syariah di Indonesia dari tahun 2018 hingga 2021 melalui penerapan Analisis Data Envelopment (DEA), yang mengintegrasikan prinsip-prinsip Islam. Analisis ini menggunakan data keuangan sekunder dari empat bank syariah, yang bersumber dari Otoritas Jasa Keuangan (OJK) dan peneliti lainnya. Variabel input yang dipertimbangkan meliputi dana pihak ketiga yang dialokasikan untuk bagi hasil dan biaya tenaga kerja, sementara variabel output terdiri dari pendapatan yang diperoleh dari pengelolaan dana masyarakat dan pendapatan operasional lainnya. Hasil DEA menunjukkan tingkat efisiensi yang berfluktuasi di antara bank-bank syariah, dengan Bank Syariah Y secara konsisten mencapai efisiensi 100%, menandakan statusnya sebagai institusi paling efisien. Studi ini mengidentifikasi bahwa pendapatan dari pengelolaan dana masyarakat berdampak negatif terhadap pertumbuhan bank syariah, sedangkan biaya tenaga kerja dan pendapatan operasional lainnya berpengaruh positif terhadap perkembangan mereka. Temuan ini menyoroti area yang memerlukan perbaikan dan faktor-faktor yang mendorong efisiensi dalam pengembangan perbankan syariah di Indonesia.

Kata Kunci: Efisiensi, Analisis Data Envelopment (DEA), Bank Umum Syariah, Nilai-Nilai Islam



INTRODUCTION

Financial institutions, commonly referred to as banks, are integral to Indonesia's financial sector. Banks are entities that amass public funds through savings or current accounts and then redistribute these funds through loans aimed at enhancing community welfare (Auer et al., 2022). They serve as essential facilitators for payment transactions and international trade.

The banking industry, as defined by Law Number 10 of 1998, operates both conventionally and according to Sharia principles (Islamic banks). During the monetary crisis of the mid-1990s, Islamic banks demonstrated notable resilience compared to their conventional counterparts. While conventional banks faced significant difficulties, Islamic banks remained stable due to their profit-sharing model, which mitigated the adverse effects of high interest rates (Parsa, 2022).

The Islamic Financial Stability Index effectively captures the impact of global financial crises, such as the 2008/2009 recession and the recent COVID-19 pandemic. Positive shocks to Islamic financial stability have long-term beneficial effects on economic output, highlighting the efficacy of Islamic finance in bolstering economic performance. Conversely, negative shocks can impede economic growth, underscoring the necessity for robust macroprudential policies (Law & Ridhwan, 2022).

The Islamic finance industry, particularly Islamic banking, has

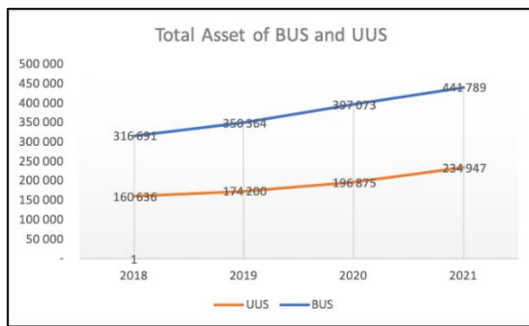
experienced exponential growth globally. Once considered a nascent industry, Islamic banking is now a significant player in the financial sector, offering an alternative to conventional banking (Alhamdi et al., 2022). According to the Finance Development Report (2020), Islamic Banking and Finance witnessed a 20% growth in 2018 compared to 2010, with total Islamic bank assets reaching \$2.88 trillion by the end of 2019 (Ur Rehman et al., 2022).

Since its inception in the 1970s, the Islamic Banking System has rapidly expanded in Muslim-majority countries such as Egypt, Sudan, Indonesia, and Malaysia (Raditya & Wibowo, 2021). A study in Malaysia highlighted the positive impact of Islamic banking on bank performance, particularly in small banks, suggesting increased investment in Islamic banking technology to enhance profitability (Rickingham, 2022). Similarly, in the US, Islamic banks have outpaced conventional banks in credit reach, driven partly by digital technology (Sidaoui et al., 2022).

In Indonesia, the Islamic banking sector has witnessed continuous growth in total capital and assets. From 2016 to 2018, total capital increased steadily, reflecting the industry's resilience and expansion (Aslam et al., 2022). Sharia Commercial Banks (BUS) and Sharia Business Units (UUS) have both experienced significant asset growth, underscoring the increasing prominence of Islamic banking in Indonesia's financial landscape.

Figure 1.

Asset Growth of Sharia Commercial Banks (BUS) and Sharia Business Units (UUS) from 2018 to 2021

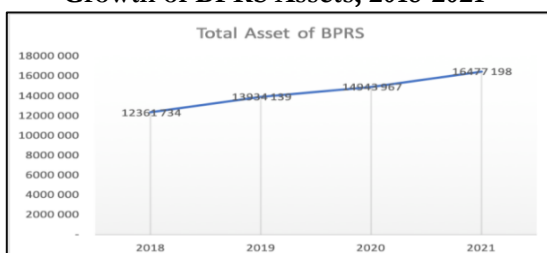


Source: The Financial Services Authority (OJK), 2024

Sharia People's Financing Banks (BPRS), widely established throughout Indonesia, possess total assets comparable to those of Sharia Commercial Banks (BUS) and Sharia Business Units (UUS). However, unlike these conventional Islamic financial institutions, BPRS is primarily focused on community-based financing activities and does not engage in payment transaction services. This unique characteristic highlights BPRS's role in addressing localized financial needs rather than engaging in broader commercial operations.

In 2018, BPRS reported total assets amounting to 12.36 trillion rupiahs, which saw a significant increase to 16.48 trillion rupiahs by 2021. Despite this impressive growth, the services offered by BPRS remain relatively limited, reflecting its specialized function within the Islamic banking sector.

Figure 2.
Growth of BPRS Assets, 2018-2021



Source: The Financial Services Authority (OJK), 2024

The advancement of the Islamic banking industry is evident through legislative changes, notably the transition from Law Number 7 of 1992 to Law Number 10 of 1998, which formally acknowledges the dual banking system—comprising both interest-based conventional banks and non-interest-based Islamic banks (Quang Trinh, 2022). Furthermore, governmental regulations, particularly Law Number 21 of 2008, underscore the significance of Islamic banks, further delineating their role within the financial landscape.

In the context of economic progress, banks serve as pivotal financial intermediaries, facilitating the flow of funds from surplus units to deficit units through financing and loans (Aramonte et al., 2021). This underscores the critical role banks play in meeting the financial needs of both local and international transactions, as well as investment activities. However, despite the growing importance of banking services, Islamic banks face marketing challenges compared to their conventional counterparts, with consumers showing varying degrees of loyalty towards traditional banking services (Warsito et al., 2022; Nugraha et al., 2022).

Efficiency emerges as a crucial metric in evaluating banking performance, particularly amid dynamic economic conditions and stiff competition (Habanyati, 2022). Efficiency, encompassing factors such as profitability, costs, and management, serves as a barometer for assessing a bank's ability to navigate

competitive landscapes effectively (Boone et al., 2022; Li et al., 2022).

Furthermore, in the quest for comprehensive analysis, it is imperative to integrate religious values, such as worship, into economic evaluations (Zaman, 2021). Islamic banking endeavors to harmonize doctrinal principles with practical realities, necessitating a holistic approach that bridges theoretical frameworks with practical applications (Furqani, 2021). Consequently, there is a call for analytical tools that reflect Islamic values, urging Muslim researchers to develop methodologies aligned with Islamic principles (Mia et al., 2022).

RESEARCH METHODS

This study investigates the efficiency levels of Islamic banks in Indonesia from 2018 to 2021, employing the Data Envelopment Analysis (DEA) method with a focus on Constant Return to Scale (CRS) and Salat Value. The methodology adopts a documentation approach, which includes literature studies, literature reviews, and the analysis of financial reports published during or before the study period.

The research encompasses both input and output variables. Input variables include third-party authority over operating result distribution and employee expenses, while output variables consist of income generated from managing public funds and other operating revenues aimed at the development of Islamic banks (Endri et al., 2022).

DEA analysis serves as the foundation for evaluating bank performance. DEA, a

non-parametric approach, assesses efficiency in resource allocation to achieve optimal results (Alorzuke et al., 2022). While DEA provides flexibility in handling multiple input-output combinations and creating efficiency frontiers, it is notably susceptible to measurement errors (Rostamzadeh et al., 2021).

Originally designed to address the limitations of ratio and multiple regression studies, DEA facilitates efficiency assessment even with complex input-output structures (Zhong et al., 2021). Efficiency, in the context of DEA, is defined by the ratio of weighted outputs to weighted inputs.

The chosen approach, Constant Return to Scale (CRS), posits that input-output ratios remain constant under proportional increases. Originating from the work of Charnes, Cooper, and Rhodes (1978), CRS assumes a direct relationship between input and output changes (Jamal et al., 2021).

Using the DEA method with the CRS approach, banks approaching a ratio value of 1 or 100% are deemed efficient, whereas those nearing 0 indicate inefficiency. However, the determination of weights in DEA requires careful consideration to ensure the accuracy of efficiency measures.

RESULTS AND DISCUSSION

Findings and Analysis

The following section outlines the methodology for assessing the efficiency levels of Sharia Banking institutions through the application of the Data Envelopment Analysis (DEA) method. Utilizing the

DEAWIN software, the analysis yields the subsequent results:

Table 1.
Sharia Commercial Bank Efficiency Level J, K, L, M (in percentage)

Sharia Bank	Year			
	2018	2019	2020	2021
J	100	97,50	95,20	100
K	95,65	88,78	100	100
L	100	100	94,70	100
M	93,40	100	100	100

Source: Analysis, 2024

The table above delineates the efficiency levels of four Sharia commercial banks from 2018 to 2021. In 2018, Sharia Bank 'J' demonstrated optimal efficiency with a perfect score of 100%. However, subsequent years saw a decline, with a decrease of 2.50% in 2019 and a further 2.30% in 2020. Notably, in 2021, Sharia Bank 'J' restored its efficiency level to 100%. In contrast, Sharia Bank 'K' started with an efficiency level of 95.65% in 2018 but experienced a drastic decline to 6.87% in 2019. Nonetheless, in both 2020 and 2021, Sharia Bank 'K' achieved optimal efficiency, reaching 100%.

Among the Sharia commercial banks examined, Bank 'L' stands out as the most efficient, maintaining a perfect efficiency level of 100% throughout the study period. This consistent optimal efficiency is supported by the stable development trajectory observed in the bank's variable data over the years. On the other hand, the lowest efficiency value, 93.40%, was recorded by Sharia Bank 'M' in 2018.

An aggregate analysis reveals that in 2018, the average efficiency level of the four Sharia commercial banks was 97.26%. This

level experienced a slight decline to 96.57% in 2019, followed by a rebound to 97.47% in 2020, and a significant rise to 100% in 2021. These results underscore the fluctuating nature of efficiency levels among Islamic banks over the designated research period. Notably, uniformity in efficiency levels across all Sharia banks was observed only in 2021, where efficiency reached its peak at 100%. Conversely, efficiency levels exhibited fluctuations during the 2018-2021 timeframe.

Additionally, the efficiency level calculations utilizing the prayer value method yielded the following weights for the Sharia commercial banks:

Table 2.
Prayer value weight

Sharia Commercial Bank	Prayer Value
Sharia Bank "J"	0,85
Sharia Bank "K"	0,30
Sharia Bank "L"	0,97
Sharia Bank "M"	0,55

Source: Analysis, 2024

The table above illustrates the significance of religious values, specifically the value derived from prayer, as obtained through a comprehensive process that evaluates and verifies the Worship Value executed by each Sharia Commercial Bank. Additionally, an H test was performed on each variable included in this analysis.

The findings highlight the relationship between efficiency and Prayer Value within the context of the input variable representing third-party authority over the distribution of operating results at each Sharia Commercial Bank.

Table 3.
Efficiency H At Input 1 Sharia Commercial Bank “J”

Sharia Bank “J” I1	
(H1) Result of Straight	(+)
(H2) Result of Loads	0,24
(H3) Result of Impact	Impact

Source: Analysis, 2024

Table 4.
Efficiency H At Input 1 Sharia Commercial Bank “K”

Sharia Bank “K” I1	
(H1) Result of Straight	(-)
(H2) Result of Loads	-0,33
(H3) Result of Impact	No Impact

Source: Analysis, 2024

Table 5.
Efficiency H At Input 1 of Sharia Commercial Bank “L”

Sharia Bank “L” I1	
(H1) Result of Straight	(+)
(H2) Result of Loads	0,56
(H3) Result of Impact	Impact

Source: Analysis, 2024

Table 6.
Efficiency H At Input 1 Sharia Commercial Bank “M”

Sharia Bank “L” I1	
(H1) Result of Straight	(+)
(H2) Result of Loads	0,17
(H3) Result of Impact	Impact

Source: Analysis, 2024

Based on the calculations conducted for each Sharia Commercial Bank using the H Test on the input variable concerning the third party’s authority over the distribution of operating results, the findings indicate that Sharia Bank “J,” Sharia Bank “L,” and Sharia Bank “M” enhance the authority of third parties in the distribution of operating results based on the Value of Prayer. This implies that Sharia Bank “J,” Sharia Bank

“L,” and Sharia Bank “M” operate efficiently according to the Value of Prayer. Conversely, the calculations show that Sharia Bank “K” does not exhibit any influence in augmenting the authority of third parties over the distribution of operating results based on the Value of Prayer, indicating that Sharia Bank “K” is not efficient by this metric.

The results of the calculations between efficiency and the Value of Prayer concerning the labor load input variable for each Sharia Commercial Bank are as follows:

Table 7.
Efficiency H At Input 2 Sharia Commercial Bank “J”

Sharia Bank “J” I1	
(H1) Result of Straight	(+)
(H2) Result of Loads	0,20
(H3) Result of Impact	Impact

Source: Analysis, 2024

Table 8.
Efficiency H At Input 2 Sharia Commercial Bank “K”

Sharia Bank “K” I1	
(H1) Result of Straight	(+)
(H2) Result of Loads	0,17
(H3) Result of Impact	Impact

Source: Analysis, 2024

Table 9.
Efficiency H At Input 2 Sharia Commercial Bank “L”

Sharia Bank “L” I1	
(H1) Result of Straight	(+)
(H2) Result of Loads	0,19
(H3) Result of Impact	Impact

Source: Analysis, 2024

Table 10.
Efficiency H At Input 2 Sharia Commercial Bank "M"

Sharia Bank "M" I1	
(H1) Result of Straight	(-)
(H2) Result of Loads	-0,22
(H3) Result of Impact	No Impact

Source: Analysis, 2024

Each Sharia commercial bank has conducted the H Test on the labor load input variable. The results from all H-tests indicate that three out of the four Sharia banks tested show an increase in workload. These banks are Sharia Bank 'J', Sharia Bank 'K', and Sharia Bank 'L'. In contrast, Sharia Bank 'M' exhibited no significant effect on the labor load variable.

These findings demonstrate that Sharia Bank 'J', Sharia Bank 'K', and Sharia Bank 'L' are efficient regarding labor load variables. Conversely, Sharia Bank 'M' is deemed inefficient based on the Prayer Value. The inefficiency in Sharia Bank 'M' is due to its labor load being above average, thus impacting the bank's overall efficiency.

The results of the correlation between efficiency and Prayer Value concerning the income output variable derived from public fund management at each Sharia Commercial Bank are as follows:

Table 11.
Efficiency H At Output 1 Sharia Commercial Bank "J"

Sharia Bank "J" O1	
(H1) Result of Straight	(+)
(H2) Result of Loads	0,10
(H3) Result of Impact	Impact

Source: Analysis, 2024

Table 12.
Efficiency H At Output 1 Sharia Commercial Bank "K"

Sharia Bank "K" O1	
(H1) Result of Straight	(-)
(H2) Result of Loads	-0,19
(H3) Result of Impact	No Impact

Source: Analysis, 2024

Table 13.
Efficiency H At Output 1 Sharia Commercial Bank "L"

Sharia Bank "L" O1	
(H1) Result of Straight	(+)
(H2) Result of Loads	0,42
(H3) Result of Impact	Impact

Source: Analysis, 2024

Table 14.
Efficiency H At Output 1 Sharia Commercial Bank "M"

Sharia Bank "M" O1	
(H1) Result of Straight	(-)
(H2) Result of Loads	-0,25
(H3) Result Of Impact	No Impact

Source: Analysis, 2024

The results of the calculation between efficiency and Prayer Value on the operationalization revenue output variables, namely:

Table 15.
Efficiency H At Output 2 Sharia Commercial Banks "J"

Sharia Bank "J" O2	
(H1) Result of Straight	(-)
(H2) Result of Loads	-0,35
(H3) Result of Impact	No Impact

Source: Analysis, 2024

Table 16.
Efficiency H At Output 2 Sharia Commercial Banks "K"

Sharia Bank "K" O2	
(H1) Result of Straight	(+)
(H2) Result of Loads	0,10
(H3) Result of Impact	Impact

Source: Analysis, 2024

Table 17.

Efficiency H At Output 2 Sharia Commercial Banks "L"

Sharia Bank "L" O2	
(H1) Result of Straight	(+)
(H2) Result of Loads	0,45
(H3) Result OF Impact	Impact

Source: Analysis, 2024

Table 18.
Efficiency H At Output 2 Sharia Commercial Banks "M"

Sharia Bank "M" O2	
(H1) Result of Straight	(-)
(H2) Result of Loads	-0,21
(H3) Result of Impact	No Impact

Source: Analysis, 2024

The H-test on the second output variable, namely the acceptance of other operations, has been conducted at each Islamic Bank. The results indicate that Islamic Commercial Banks 'K' and 'L' significantly contribute to increasing other operational revenues, demonstrating efficiency based on the Salat Value. Conversely, Sharia Banks 'J' and 'M' do not exhibit any significant impact on the acceptance of other operations, indicating inefficiency based on the Salat Value.

The results of the T-test through hypothesis testing reveal the relationship between the influence of the input variable and the output variable on the growth rate of Islamic Commercial Banks as follows:

Table 19.
T. Test Results

	Original Sample	T – Statistic	P values
The rights of third parties for profit sharing on the growth rate of Islamic banks	-4.911	3.555	0.000

Labor Burden on the Growth Rate of Islamic Banks	13.189	5.716	0.000
Fund Management Income Against the Growth Rate of Syariah Banks	-7.030	5.755	0.000
Other Operating Income Against Islamic Bank's Growth Rate	1.180	8.941	0.000

Source: Analysis, 2024

The results of the statistical T-tests reveal significant impacts of various input and output variables on the development of Islamic Commercial Banks. Notably, the input variable representing third-party authority over the distribution of operating results has a T-statistic of 3.555, surpassing the critical value of 1.96, thus indicating a significant negative effect. In contrast, the labor load variable, with a T-statistic of 5.716, demonstrates a significant positive impact.

Regarding output variables, the income generated from the management of public funds yields a T-statistic of 5.755, also exceeding 1.96, signifying a significant negative influence on the development of Islamic banks. Additionally, other operating income output variables exhibit a T-statistic of 8.941, indicating a positive influence, with a coefficient value of 1.180. Collectively, these findings underscore that both input and output variables significantly affect the development of Islamic Commercial Banks,

thereby supporting the alternative hypothesis.

Moreover, the average efficiency of Islamic Commercial Banks over the study period displays variability: 97.26% in 2018, 96.57% in 2019, 97.47% in 2020, and 100% in 2021. These fluctuations suggest notable instability in the efficiency levels of Islamic Commercial Banks during this period.

CONCLUSION

The conclusion regarding the effectiveness of Islamic commercial banks based on Islamic values can be drawn from the H test results. Among the four banks studied, only the “L” Islamic commercial bank demonstrated effectiveness and contributed to the bank’s development across all variables, both input and output. In contrast, the Islamic commercial banks J, K, and M did not show effective results with specific variables based on Islamic values, suggesting that these values indirectly influence the efficiency and effectiveness of Islamic commercial banks. To enhance the efficiency levels of these banks, it is recommended to adjust the proportion of input and output variables annually, aligning them with the desired targets while maintaining previously achieved targets.

Islamic commercial banks can achieve higher efficiency if they adhere to Islamic values rigorously. These values should be genuinely integrated into both the procedural and personal aspects of the bank’s operations. For example, the punctuality of employees during congregational prayers, courteous interactions such as answering greetings,

and transparency in financial statements are critical. Additionally, the presence of Muslim leaders and the appropriate representation of non-Muslims within the bank’s management structure also contribute to this weighting.

Spirituality at work is positively associated with various work outcomes when employees perceive spiritual aspects within the workplace. This includes strong interpersonal connections, the ability to express oneself, and engaging in meaningful work towards shared goals. Such spiritual experiences enhance employee happiness and health, foster positive organizational attitudes, and increase long-term productivity. Employees tend to work more collaboratively and remain more engaged when humanitarian and spiritual values are present within the organization. Ultimately, work serves as a mission to achieve personal and organizational goals, realize potential, and succeed in the workplace.

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