

THE EFFICIENCY OF KSPPS BMT UGT NUSANTARA BRANCHES IN EAST JAVA USING DATA ENVELOPMENT ANALYSIS (DEA) PERIOD 2018-2022



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Abstract

Performance assessment of Islamic financial institutions such as KSPPS BMT UGT Nusantara is crucial to ensure optimal resource utilisation and improved customer service. This study evaluates the efficiency of several branches of KSPPS BMT UGT Nusantara in East Java from 2018 to 2022 using the Data Envelopment Analysis (DEA) approach. Input variables include the number of employees, total assets, and operational costs, while output variables encompass the number of customers, total financing, and total income. The results show that during the 2018-2022 period, many branches of BMT UGT Nusantara had not yet reached optimal scale, although some had achieved efficiency levels in both production and intermediation approaches. In the production approach, 50% of branches achieved technical efficiency, pure technical efficiency, and scale efficiency, while in the intermediation approach, 55% of branches achieved the same efficiency levels. To address inefficiencies, recommended strategies include: adjusting the number of employees according to actual needs; reducing excessive operational costs by identifying and eliminating unnecessary expenses; and managing assets more effectively by reinvesting in revenue-generating activities.

Penilaian kinerja lembaga keuangan syariah seperti KSPPS BMT UGT Nusantara sangat penting untuk memastikan penggunaan sumber daya yang optimal dan peningkatan layanan nasabah. Penelitian ini mengevaluasi efisiensi beberapa cabang KSPPS BMT UGT Nusantara di Jawa Timur dari tahun 2018 hingga 2022 menggunakan pendekatan Data Envelopment Analysis (DEA). Variabel input meliputi jumlah karyawan, total aset, dan biaya operasional, sementara variabel output mencakup jumlah nasabah, total pembiayaan, dan total pendapatan. Hasil penelitian menunjukkan bahwa selama periode 2018-2022, banyak cabang BMT UGT Nusantara masih belum mencapai skala optimal, meskipun sebagian telah mencapai tingkat efisiensi dalam pendekatan produksi dan intermediasi. Dalam pendekatan produksi, 50% cabang mencapai efisiensi teknis, pure technical, dan skala, sementara dalam pendekatan intermediasi, 55% cabang mencapai efisiensi yang sama. Untuk mengatasi inefisiensi, strategi yang disarankan meliputi: menyesuaikan jumlah karyawan sesuai kebutuhan, mengurangi biaya operasional dengan mengidentifikasi pengeluaran tidak penting, serta mengelola aset lebih efektif dan menginvestasikan kembali dalam kegiatan yang menghasilkan pendapatan.

INTRODUCTION

The role of Islamic financial institutions is highly significant in empowering the Muslim community's economy (Andiko, 2018). This is due to their marked differences from conventional financial institutions, including principles, foundations, and roles in economic development (Sudjana & Rizkison, 2020). According to survey results, Indonesia has the most Islamic financial institutions worldwide (BAPPENAS, 2019). The presence of Islamic banks in the last decade reflects the community's commitment to applying sharia principles to create equality, honesty, and justice through a profit – sharing system. In this context, Islamic financial institutions have great potential to advance the Muslim community's economy with an approach based on Islamic values (Arfiansyah et al., 2023).

The history and origin of Islamic financial institutions in Indonesia did not begin with establishing an Islamic bank but rather with BMTs, the first Islamic financial institutions formed in Indonesia. As a result of the trial of the Islamic banking idea in 1980 pioneered by the Cooperative Jasa Keahlian Teknosa founded by activists of the Salman Mosque at ITB Bandung, on July 4, 1984, it officially operated as BMT, known as Bait At – Tamwil Salman ITB. In the following year, the Ridho Gusti Cooperative was also established in



Jakarta (Sakti, 2013). Another factor behind the establishment of BMTs was the need for alternative Sharia financing since most of Indonesia at that time implemented a conventional banking system that did not comply with Islamic principles (Husna et al., 2019; Mardani, 2015). However, as Sharia cooperatives developed, several non – uniform names emerged, including Sharia Multi – Purpose Cooperative (KSUS) and Sharia Financial Services Cooperative (KJKS), now known as Sharia Savings and Loans Cooperative (KSPPS) (Basyirah et al., 2023; Sukmayadi, 2020).

KSPPS functions as both a *baitul maal* and a *baitul tamwil* institution. The *Baitul Maal* serves as a community – based organisation that can collect and distribute funds in the form of financial and social contributions, including *zakat*, *infaq*, and *sadaqah*, distributing them to those entitled to receive them (Solekha et al., 2021). In fulfilling its *baitul tamwil* function, BMT engages in activities that develop productive enterprises, thereby enhancing the economic status of micro and small entrepreneurs, primarily by supporting financing and savings (Nugroho & Bararah, 2018; Rosihana et al., 2024). The presence of BMT in the community is expected to bring positive changes to the Muslim community, especially when economic activities still involve usurious principles in social activities or support funding for micro – enterprise empowerment or other economic activities (Mawadah, 2019).

The growth of KSPPS in Indonesia is currently experiencing rapid development. According to data released by the Ministry of Cooperatives and Small and Medium Enterprises until 2019, there are 4,046 KSPPS units in Indonesia, which is about 3.29% of the total 123,048 cooperative units operating nationwide (Humas Kementerian Koperasi dan UKM, 2021). East Java province has the most KSPPS units, with 1,952 units, or about 48.25% of the total KSPPS in Indonesia (Kemenkop, 2020). The presence of these KSPPS reflects the community's interest in utilising financial alternatives based on Sharia principles, which are increasingly gaining positive attention and acceptance across the country (Amri, 2022)

The rapid growth of KSPPS in Indonesia certainly contributes positively to the sustainability of entrepreneurs who face difficulties in obtaining business capital assistance (Mulia, 2019). Irsyad Mukhtar, in his book "100 Great Cooperatives in Indonesia," maps out the economic potential of cooperative institutions, including KSPPS. This assessment is based on the 2019 report, along with aspects of management, mastery of the latest information technology, and environmental concerns as additional values (Ratih Waseso, 2021). In this book, KSPPS ranks among the top three cooperatives in Indonesia in 2021. The three major cooperatives, according to the book, are as follows:

Table 1. *The largest cooperative according to the book "100 Koperasi Besar Indonesia"*

NO	Cooperative	Asset	Location
1	Kospin Jasa	9,6 T	Pekalongan, Central Java
2	KSP CU Lantang Tipo	3 T	Sanggau, West Kalimantan
3	Koperasi BMT – UGT Nusantara	2,6 T	Sidogiri, East Java

Source: *Book "100 Koperasi Besar Indonesia 2021"*

KSPPS BMT UGT Nusantara is one of the KSPPS located in East Java province, serving the community for over 23 years, starting from Rabiul Awal 5, 1421 H, or June 6, 2000 M. Initially, this institution was known as Koperasi BMT UGT Sidogiri, but in December 2020, it changed its name to KSPPS UGT Nusantara .This institution has become a prominent financial institution in the cooperative sector in Indonesia, with its achievements reflected in its ranking of third according to the book "100 Great

Cooperatives in Indonesia" in 2021 (Ratih Waseso, 2021). In 2012, it also received the Lifetime Achievement Award at the BSM UMKM Award 2012 and was awarded The Islamic Microfinance by Kasim Consulting Indonesia in 2014 (Ni'mah & Meylianingrum, 2022). Moreover, KSPPS BMT UGT Nusantara is the largest Sharia cooperative in Indonesia, with 298 branches consisting of main branches, sub – branches, and cash offices spread across 10 provinces in Indonesia (Nisaputri, 2021).

Performance assessment of an institution has various approaches to determine whether its performance can be categorised as good or bad. In principle, a performance measurement system must be able to provide an accurate evaluation of the institution's performance quality. Additionally, performance assessment should offer insights into how the institution's operational system can be improved by linking inputs and outputs to identify the achievements that should be attained (Puteri et al., 2017). In the context of assessing the performance of Islamic Savings and Loan Cooperatives (KSPPS), one crucial factor to measure is efficiency, as a high level of efficiency is expected to generate optimal profits and provide better services to the customers (Farras et al., 2020).

It can be said that an efficient KSPPS can perform its roles to the fullest (Ali & Ascarya, 2010). Efficiency is a significant factor in assessing the performance of financial institutions. Efficiency can be measured by its ability to reduce production costs to achieve the specified output and to optimise the use of available input combinations to maximise profits (Al Parisi, 2017; Rosyadi et al., 2024). A company or institution is considered economically efficient if it can reduce production costs as much as possible to achieve a certain level of output by applying the commonly used technology in the industry. These two measures are then combined into economic efficiency (Afriyenis & Sabrina, 2018; Ascarya & Yumanita, 2006). Measuring efficiency in financial institutions, besides being assessed by looking at the comparison of banking performance indicators and financial ratios, also involves other methods, namely parametric and non – parametric approaches. The parametric approach includes the stochastic frontier approach (SFA), distribution – free approach (DFA), and thick frontier approach (TFA), while the non – parametric approach uses data envelope analysis (DEA) and free disposable hulls (FDH) (Hidayat, 2014).

The non – parametric approach is considered more suitable for use in this research because it can produce efficiency values that correspond to the input and output variables used. The non – parametric FDH approach generates higher estimation values than DEA because FDH only includes the most efficient DEA values and is free from disposal hull points (Sulistyaningsih et al., 2019). Therefore, this study uses the non – parametric DEA approach instead of FDH. The advantages of DEA include its ability to measure many input and output variables, not requiring assumptions related to input and output variables, being able to handle different measurement units between input and output variables, and being able to measure with different input and output units (Sari & Saraswati, 2017). Based on the above background, this research aims to measure the efficiency level of several branches of KSPPS BMT UGT Nusantara from 2018 – 2022 in East Java. The reason for using the 2018 – 2022 period is to compare the performance of KSPPS BMT UGT Nusantara before and after the COVID – 19 pandemic. This time frame allows us to observe the institution's efficiency during the two years before the pandemic (2018 – 2019) and the two years after the pandemic began (2021 – 2022), as well as the changes that occurred during the pandemic in 2020.

METHOD

This study uses the Data Envelopment Analysis (DEA) approach to analyze the level of efficiency, an analysis method used to evaluate the extent to which a business unit utilizes available inputs to produce optimal output. With this method, the research will provide a comprehensive picture of the efficiency level and performance of this institution in various aspects of its operations. In conducting a DEA analysis, several stages must be completed. The following are the stages in conducting a DEA analysis:

Defining Decision Making Unit (DMU)

A DMU can be either a profit–orientated or non–profit–orientated nization (Tanjung & Devi, 2013). The DMU in this study is 4 branches of KSPPS BMT UGT Nusantara located in the province of East Java, namely, BMT UGT Surabaya, BMT UGT Pamekasan, BMT UGT Kalianget, and BMT UGT Malang City.

Defining the Approach

There is no specific theory that must be followed in measuring activity performance in the financial industry. There are three different approaches: the production approach, the intermediation approach, and the asset value approach. The choice of approach influences the selection of input and output variables to test efficiency. In this study, the production approach and the intermediation approach are applied because both are considered more suitable for measuring the efficiency of financial institutions, particularly KSPPS BMT UGT Nusantara in East Java Province.

Define input and output variables.

In this study, the input variables include the number of employees, total assets, and operational costs, while the output variables include the number of customers, total financing, and total income. This combination of variables reflects important dimensions of BMT performance relevant to this research (Puteri, n.d.)

Determining the DEA Model

In the DEA approach, there are usually three main models, namely CRS (constant returns to scale), which produces overall technical efficiency, VRS (variable returns to scale), which produces pure technical efficiency, and CCR/BCC, which produces scale efficiency. The determination of the DEA model will also affect the direction of the next analysis, whether to focus on input or output variables (Dewi et al., 2024)

Conducting Synthesis and Analysis

The final stage involves synthesising and analysing the data organised in tables, which is then imported into Banxia Frontier Analyst 3 software. The analysis results include charts of overall efficiency, technical efficiency, and scale efficiency, as well as assessments for Increasing Return to Scale (IRS), Constant Return to Scale (CRS), and Decreasing Return to Scale (DRS), providing a comprehensive view of each DMU's performance across various efficiency aspects (Siyoto & Sodik, 2015)

This study aims to determine the efficiency level of KSPPS BMT UGT Nusantara in East Java. The framework of this research can be seen in the figure below:

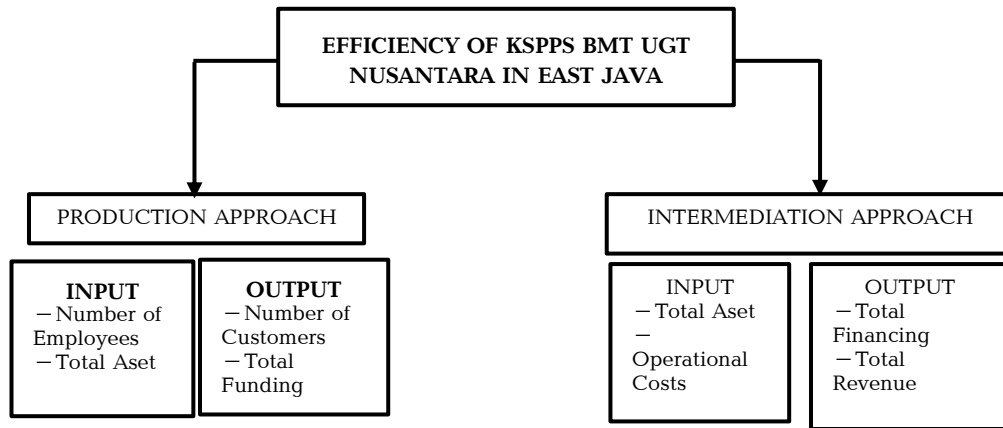


Chart 1. Research framework

The two approaches used in this study are the production approach and the intermediation approach. The following is the operational definition of the input and output variables of the two approaches as follow:

Table 2. Operational definition of variables

Input Production Approach	
Number of employees	The total number of employees in the branch office, including managerial and administrative staff, reflects the overall workforce involved in day – to – day operations.
Total asset	Total assets include all fixed assets owned by KSPPS. This includes various types of assets used in its operations, such as property, equipment, vehicles, and other assets owned by KSPPS to support operational activities and services to its members;
Output Production Approach	
Number of customers	The number of customers who are BMT members or customers who actively use the products and services provided, such as savings, financing, and other financial products
Total financing	Total financing includes all forms of financing provided by BMT to its customers. This includes total receivables in various forms such as Bai Bithaman Ajil (BBA), financing in the form of Musharakah and Mudharabah, and receivables in the Murabahah format. In addition, financing also includes loans in various forms such as Qard and other types of loans that can be provided by BMT to its customers

Input Intermediation Approach

Total asset	Total assets include all fixed assets owned by KSPPS. This includes various types of assets used in its operations, such as property, equipment, vehicles, and other assets owned by KSPPS to support operational activities and services to its members .
Operational costs	Operational costs include all expenses related to running KSPPS operations. This includes administrative costs, labor costs, and other costs incurred in order to keep KSPPS operating and provide services to its members.

Ouput Intermediation Approach

Total financing	Total financing includes all forms of financing provided by BMT to its customers. This includes total receivables in various forms such as Bai Bithaman Ajil (BBA), financing in the form of Musharakah and Mudharabah, and receivables in the Murabahah format. In addition, financing also includes loans in various forms, such as Qard and other types of loans that can be provided by BMT to its customers
Total revenue	Total revenue includes all sources of income earned by KSPPS from its various activities. This includes revenue from margin and profit sharing from financing and investments, revenue from provisions, other sources of revenue that may come from additional services or products, and revenue from transactions between BMT units if any

DEA was first introduced by Charnes, Cooper, and Rhodes in 1978 and 1979. Since its inception, this method has become very popular in research in the field of operations and management (Denizer et al., 1999, p. 9). One of the advantages of DEA compared to stochastic frontier analysis (SFA) is that it does not require a specific functional relationship between input and production or assumptions about error distribution. Additionally, DEA allows the use of a variety of inputs and outputs in analysis, providing greater flexibility. The DEA also produces highly detailed information on the efficiency levels of the units analysed and can identify the DMUs that are most often referenced by other DMUs (Kablan, 2014, p. 94). Therefore, DEA has proven to be a very important method in formulating strategies, policies, and resolving operational issues, providing in – depth insights, and aiding in better decision – making (Barr et al., 2002, p. 5). The formulation of DEA can be mathematically formulated as follows:

$$Efficiency\ of\ DMU_0 = \frac{\sum_{k=1}^p \mu_k y_{k0}}{\sum_{i=1}^m v_k x_{i0}}$$

DMU = UPK

N = UPK to be evaluated

M = Different inputs

P = Different outputs

x_{ij} = Number of inputs i consumed by UPKj

y_{kj} = Number of k outputs consumed by UPKj

The ratio number that will be generated varies between 0 and 1. BMT can be said to be efficient if it has a ratio number close to 1 or 100%; on the other hand, if it is close to 0, it indicates that the efficiency level of BMT is getting lower (Sutawijaya & Lestari, 2009, p. 57). There are two models that are often used in this approach, namely the model developed by Charnes, Cooper, and Rhodes (CCR), which is the constant return to scale (CRS) model, and the model developed by Banker, Charnes, and Cooper (BCC), namely the variable return to scale (VRS) (Ascarya & Yumanita, 2006, p. 15).

RESULT AND DISCUSSION

Result

There are four branches of BMT UGT Nusantara in East Java that are the subjects of this research: the KSPPS BMT UGT Nusantara branches located in East Java, namely, BMT UGT Surabaya, BMT UGT Pamekasan, BMT UGT Kalianget, and BMT UGT Malang Kota, from 2018 to 2022. The input variables include the number of employees, total assets, and operational costs. Meanwhile, the output variables involve the number of customers, total financing, and total revenue.

Table 3. Summary of efficiency calculation using the production approach

CCR MODEL	2018	2019	2020	2021	2022
Number of BMT	4	4	4	4	4
Efficient BMT	1	2	1	3	3
Average efficiency score	94,63	97,65	95,24	99,38	99,97
Inefficient average	92,83	95,305	93,65	97,53	99,89
% inefficient BMT	75,00%	50,00%	75,00%	25,00%	25,00%
BCC MODEL	2018	2019	2020	2021	2022
Number of BMT	4	4	4	4	4
Efficient BMT	4	4	1	4	4
Average efficiency score	100,00	100,00	95,71	100,00	100,00
Inefficient average	0,00	0,00	94,28	0,00	0,00
% inefficient BMT	0,00%	0,00%	75,00%	0,00%	0,00%
Scale Efficiency	2018	2019	2020	2021	2022
Number of BMT	4	4	4	4	4
Efficient BMT	1	2	1	3	3
Average efficiency score	94,63	97,65	99,51	99,38	99,97
Inefficient average	92,83	95,305	99,34	97,53	99,89
% inefficient BMT	75,00%	50,00%	75,00%	25,00%	25,00%

The efficiency analysis using the production approach for the period 2018–2022 indicates that 50% of BMT UGT Nusantara branches achieved efficiency in technical, pure technical, and scale aspects. Additionally, 11.67% of branches only achieved pure technical efficiency, while 38.33% of branches did not meet the expected efficiency levels. The branches that succeeded in achieving these efficiencies include UGT Pamekasan, UGT Surabaya, UGT Kalianget, and UGT Malang Kota, demonstrating their ability to manage input and output optimally. This result reflects that half of the branches operate at an optimal level in their production functions, achieving the desired output while minimizing input usage.

In addition to the production approach, the study also applies the intermediation approach to measure efficiency by assessing how the branches facilitate resources to meet customer needs. The results of efficiency using the intermediation approach will be presented next.

Table 4. Summary of efficiency calculation using the intermediation approach

CCR MODEL	2018	2019	2020	2021	2022
Number of BMT	4	4	4	4	4
Efficient BMT	4	2		2	3
Average efficiency score	100,00	98,84	96,24	99,55	97,90
Inefficient average	0,00	97,68	96,24	99,09	91,59
% inefficient BMT	0,00%	50,00%	100,00%	50,00%	25,00%
BCC MODEL	2018	2019	2020	2021	2022
Number of BMT	4	4	4	4	4
Efficient BMT	4	4	2	4	3
Average efficiency score	100,00	100,00	99,35	100,00	99,47
Inefficient average	0,00	0,00	98,70	0,00	97,86
% inefficient BMT	0,00%	0,00%	50,00%	0,00%	25,00%
Scale Efficiency	2018	2019	2020	2021	2022
Number of BMT	4	4	4	4	4
Efficient BMT	4	2		2	3
Average efficiency score	100,00	98,84	96,89	99,55	98,40
Inefficient average	0,00	97,68	96,89	99,09	93,59
% inefficient BMT	0,00%	50,00%	100,00%	50,00%	25,00%

Based on the efficiency analysis using the intermediation approach for the period 2018–2022, 55% of BMT UGT Nusantara branches achieved efficiency in technical, pure technical, and scale aspects. 10% of the branches achieved efficiency only in the purely technical aspect, while 35% of the branches did not meet the expected efficiency levels. The branches that achieved this include UGT Surabaya, UGT Pamekasan, UGT Kalianget, and UGT Malang Kota, demonstrating their ability to manage operations efficiently during the period studied.

The Data Envelopment Analysis (DEA) method is also used to evaluate changes in production capacity from year to year in terms of Return to Scale (RTS) conditions, which can be Increasing Return to Scale (IRS), Constant Return to Scale (CRS), or Decreasing Return to Scale (DRS). For example, if a one percent increase in input results in more than a one percent increase in output, it indicates IRS. Conversely, if a one percent increase in input results in less than a one percent increase in output, it indicates DRS. This analysis helps illustrate how efficiently BMT UGT Nusantara manages its resources to enhance output.

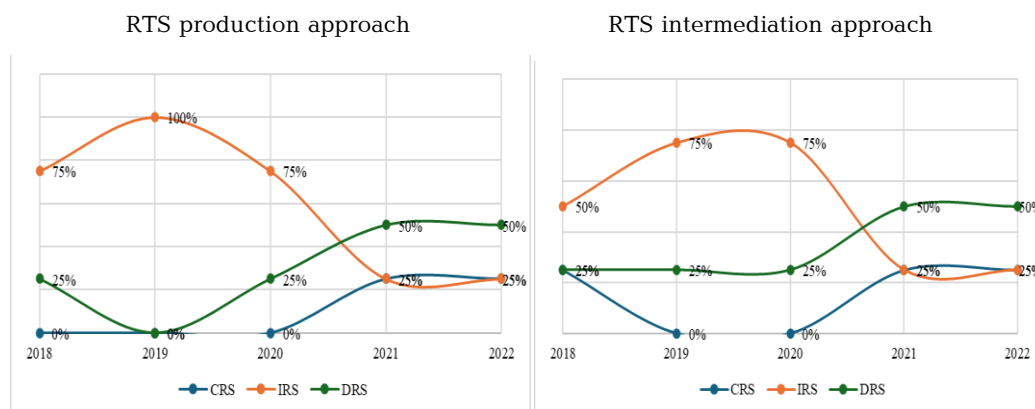


Figure 1. Return to Scale of BMT UGT Nusantara branch

Based on the production approach, in 2018, the majority of branches were in an Increasing Return to Scale (IRS) condition at 75%, while 25% were in a Decreasing Return to Scale (DRS) condition. In 2019, IRS increased to 100%, and DRS decreased to 0%. However, in 2020, IRS reverted to 75% and DRS increased to 25%. The year 2021 showed significant changes with IRS dropping to 25%, DRS increasing to 50%, and Constant Return to Scale (CRS) at 25%. In 2022, both IRS and CRS stabilized at 25%, while DRS remained at 50%.

In the intermedation approach, in 2018, the majority of branches were in an IRS condition at 50%, with CRS and DRS each at 25%. In 2019, IRS increased to 75%, while CRS decreased to 0% and DRS remained at 25%. In 2020, IRS stabilized at 75%, with CRS remaining at 0% and DRS at 25%. In 2021, IRS dropped to 25%, CRS increased to 25%, and DRS rose to 50%. In 2022, IRS and CRS each stabilized at 25%, with DRS remaining high at 50%. The fluctuations in Return to Scale (RTS) efficiency each year indicate the need for ongoing efforts to maintain and improve operational efficiency across BMT UGT Nusantara branches.

BMT UGT Nusantara Surabaya Branch

The Surabaya branch of UGT is inefficient in the production approach due to several key factors: an excessive number of employees, over-accumulation of assets, and a lack of disbursed financing. To address these issues, the Surabaya branch needs to take strategic steps. First, increase the amount of disbursed financing to optimize the use of available funds. Second, adjust the number of employees to match operational needs to avoid wasting human resources. Third, manage assets more efficiently, ensuring that the assets owned are not excessive and can contribute maximally to the branch's operations. By implementing these measures, the Surabaya branch is expected to improve its overall efficiency, reduce inefficiencies, and significantly enhance its performance.

Table 5. Potential improvement in production efficiency of BMT UGT Nusantara Surabaya Branch (%)

Min Input	2018	2019	2020	2021	2022	Max Output	2018	2019	2020	2021	2022
	Number of employees	—	—	0,00	—		0,00	Number of employees	0,00	0,00	0,00
Total assets	—	—	0,00	—	0,00	Total assets	0,00	0,00	0,00	0,00	0,00
Number of customers	0,00	0,00	0,00	0,00	0,00	Number of customers	0,00	0,00	0,00	0,00	0,00
Total financing	4,70	0,00	0,00	6,19	0,00	Total financing	0,00	0,00	0,00	0,00	0,00

The inefficiency of the UGT Surabaya branch in the intermediation approach is caused by two main factors: excessive operational costs and inefficient accumulation of assets. The use of operational costs exceeding the necessary amount leads to resource waste and reduces the branch's ability to operate optimally. Meanwhile, the accumulation of many assets indicates that the branch is not effectively utilizing these assets to support its operational activities.

Table 6. Potential improvement in intermediation efficiency of BMT UGT Nusantara Surabaya Branch (%)

Min Input	2018	2019	2020	2021	2022	Max Input	2018	2019	2020	2021	2022
	Total assets	0,00	—	—	—		0,00	Total assets	0,00	0,00	0,00
Operational costs	0,00	—	—	—	0,00	Operational costs	0,00	0,00	0,00	0,00	0,00
Total financing	0,00	0,00	0,00	0,00	0,00	Total financing	0,00	0,00	0,00	0,00	0,00
Total revenue	0,00	0,00	0,00	0,00	0,00	Total revenue	0,00	0,00	0,00	0,00	0,00

BMT UGT Nusantara Pamekasan Branch

The inefficiency at the Pamekasan branch in the production approach is caused by several main factors: an excess number of employees and the accumulation of excessive assets. This imbalance results in suboptimal resource utilisation, making it difficult for the branch to maximise output. To improve efficiency, the Pamekasan branch needs to focus on increasing the number of customers and the amount of financing disbursed.

Table 7. Potential improvement in production efficiency of BMT UGT Nusantara Pamekasan Branch

Min Input	2018	2019	2020	2021	2022	Max Output	2018	2019	2020	2021	2022
	Number of employees	0,00%	—	—	0,00%		0,00%	Number of employees	0,00%	0,00%	—
Total assets	0,00%	—	—	0,00%	0,00%	Total assets	0,00%	0,00%	0,00%	0,00%	0,00%
Number of customers	0,00%	0,00%	0,00%	0,00%	0,00%	Number of customers	0,00%	0,00%	16,26%	0,00%	0,00%
Total financing	0,00%	0,00%	0,00%	0,00%	0,00%	Total financing	0,00%	0,00%	20,81%	0,00%	0,00%

The inefficiency at the Pamekasan branch in the intermediation approach is caused by the accumulation of excessive assets and overly high operational costs. To maximize output, the branch needs to increase the amount of financing disbursed and boost revenue. By reducing asset accumulation and controlling operational costs, as well as focusing on increasing the amount of financing and revenue, the branch can achieve better efficiency and improve overall operational performance.

Table 8. Potential improvement in intermediation efficiency of BMT UGT Nusantara Pamekasan Branch

Min Input	2018	2019	2020	2021	2022	Max Input	2018	2019	2020	2021	2022
Total assets	0,00 %	5,54 %	19,07 %	0,00 %	8,41 %	Total assets	0,00 %	0,00 %	0,00 %	0,00 %	6,40 %
Operational costs	0,00 %	1,89 %	2,65 %	0,00 %	22,58 %	Operational costs	0,00 %	0,00 %	0,00 %	0,00 %	20,88 %
Total financing	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %	Total financing	0,00 %	0,00 %	0,00 %	0,00 %	2,19 %
Total revenue	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %	Total revenue	0,00 %	0,00 %	0,00 %	0,00 %	2,19 %

BMT UGT Nusantara Kalianget Branch

Inefficiency at the Kalianget branch in the production approach is caused by several factors, including an excess number of employees beyond operational needs, excessive accumulation of assets, and a lack of financing and customers. The imbalance between the number of employees and operational needs results in human resource waste and inefficient costs. Additionally, the excessive accumulation of assets indicates that these resources are not being utilized optimally, adding to cost burdens and reducing operational efficiency. To address this situation, the Kalianget branch needs to restructure its workforce to align the number of employees with operational needs and manage assets more efficiently to avoid resource waste. Furthermore, increasing the amount of financing and acquiring more customers are crucial steps to boost revenue.

Table 9. Potential improvement in production efficiency of BMT UGT Nusantara Kalianget Branch

Min Input	2018	2019	2020	2021	2022	Max Output	2018	2019	2020	2021	2022
Number of employees	29,46	0,00 %	1,02 %	0,00 %	0,11 %	Number of employees	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %
Total assets	17,33 %	0,00 %	1,02 %	0,00 %	0,11 %	Total assets	0,00 %	0,00 %	0,92 %	0,00 %	0,00 %
Number of customers	6,83 %	0,00 %	4,17 %	0,00 %	9,37 %	Number of customers	0,00 %	0,00 %	5,24 %	0,00 %	0,00 %
Total financing	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %	Total financing	0,00 %	0,00 %	0,12 %	0,00 %	0,00 %

The Kalianget branch is inefficient in the intermediation approach due to several factors, including the excessive accumulation of assets and the high operational costs. Additionally, there is a need to increase revenue to minimize input for maximum output. Conversely, to maximize output with reasonable input, this branch needs to reduce operational costs, increase the amount of financing, and boost revenue. By implementing

these measures, the Kalianget branch is expected to achieve better efficiency and improve overall operational performance.

Table 10. Potential improvement in intermediation efficiency of BMT UGT Nusantara Kalianget Branch

Min Input	2018	2019	2020	2021	2022	Max Input	2018	2019	2020	2021	2022
Total assets	0,00 %	0,00 %	1,28 %	0,45 %	0,00 %	Total assets	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %
Operational costs	0,00 %	0,00 %	1,28 %	0,45 %	0,00 %	Operational costs	0,00 %	0,00 %	3,35 %	0,00 %	0,00 %
Total financing	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %	Total financing	0,00 %	0,00 %	1,09 %	0,00 %	0,00 %
Total revenue	0,00 %	0,00 %	5,60 %	8,71 %	0,00 %	Total revenue	0,00 %	0,00 %	1,09 %	0,00 %	0,00 %

BMT UGT Nusantara Malang City

The Malang City branch is inefficient in the production approach due to several factors, including having more employees than needed for operational requirements and an excessive accumulation of assets. Additionally, there is a need to increase the number of customers to minimize input and achieve maximum output. To maximize output, this branch should reduce the number of employees and increase both the amount of financing and the number of customers.

Table 11. Potential improvement in production efficiency of BMT UGT Nusantara Malang City Branch

Min Input	2018	2019	2020	2021	2022	Max Output	2018	2019	2020	2021	2022
Number of employees	2,28%	0,00 %	15,66 %	0,00 %	0,00 %	Number of employees	0,00 %	0,00 %	11,11 %	0,00 %	0,00 %
Total assets	2,28%	0,00 %	3,68%	0,00 %	0,00 %	Total assets	0,00 %	0,00 %	0,00%	0,00 %	0,00 %
Number of customers	25,13 %	0,00 %	0,00%	0,00 %	0,00 %	Number of customers	0,00 %	0,00 %	9,68%	0,00 %	0,00 %
Total financing	0,00%	0,00 %	0,00%	0,00 %	0,00 %	Total financing	0,00 %	0,00 %	3,14%	0,00 %	0,00 %

The inefficiency in the intermediation approach at the Malang Kota branch of UGT is caused by excessive asset accumulation and high operational costs. Therefore, the necessary steps include reducing asset accumulation and cutting operational costs to achieve optimal output with minimal input. On the other hand, to maximize output, this branch should increase both the amount of financing and revenue.

Table 12. Potential improvement in intermediation efficiency of BMT UGT Nusantara Malang Kota Branch

Min Input	2018	2019	2020	2021	2022	Max Input	2018	2019	2020	2021	2022
Total assets	0,00 %	0,00 %	1,67 %	0,00 %	0,00 %	Total assets	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %
Operational costs	0,00 %	0,00 %	1,67 %	0,00 %	0,00 %	Operational costs	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %
Total financing	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %	Total financing	0,00 %	0,00 %	1,54 %	0,00 %	0,00 %
Total revenue	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %	Total revenue	0,00 %	0,00 %	2,34 %	0,00 %	0,00 %

Discussion

Analysis of efficiency using production and intermediation approaches for the period 2018–2022 shows that 50% of BMT UGT Nusantara branches achieved efficiency in technical, pure technical, and scale aspects, while 11.67% of branches only achieved pure technical efficiency. Additionally, 38.33% of branches did not meet the expected efficiency levels. In the intermediation approach, 55% of branches achieved efficiency in technical, pure technical, and scale aspects, but 10% were only efficient in pure technical aspects, and 35% did not meet the expected efficiency levels. This indicates that BMT UGT Nusantara branches are more efficient as intermediation institutions compared to production units. These findings are consistent with Masrifah's research, which showed that BMT Pesantren is also more efficient in its intermediation function than in its production function. The BMT successfully supports financing for micro entrepreneurs and the wider community. Both functions have potential for further improvement to achieve more optimal efficiency (Masrifah, 2020).

Although many branches of BMT UGT Nusantara have achieved efficiency in both production and intermediation approaches, this efficiency is not fully uniform, with some branches still struggling to reach it. Previous research, such as those by Valencia Kirana Rosadhillah & Fatin Fadhilah Hasib (2022, p. 186) and Hakim et al. (2018), indicates that some BMTs have not achieved optimal efficiency overall. Therefore, despite progress, BMT UGT Nusantara branches are not yet fully efficient and require ongoing efforts to improve resource management and operational strategies (Rosadhillaha & fadhilah Hasibb, n.d.; Wulandari & Djakfar, 2022).

For branches that have achieved efficiency, it is crucial to maintain and continually optimize their management and operational strategies. Conversely, branches that have not reached the desired level of efficiency should implement appropriate improvements, including operational evaluations and more effective strategies to maximize output. These improvements should be made considering Islamic economic principles that emphasize achieving operational efficiency.

The study also discusses the factors contributing to inefficiency and potential improvement opportunities to reach optimal efficiency. According to Hakim, several key factors leading to inefficiency in BMT in East Bandung include asset accumulation, suboptimal collection of third-party funds, and low revenue and total financing. Asset accumulation indicates that available resources are not being utilized productively to generate the expected output. Additionally, suboptimal collection of third-party funds shows that BMT struggles to attract investments or savings from the public, which in turn limits their ability to provide financing to customers. Low revenue and total financing also

reflect that BMT is not effectively leveraging market opportunities to generate profit (Wijaya et al., 2019)

Mashudi states that the factors contributing to inefficiency in BMT Masjid in Bandung include high operational costs and insufficient capital (Hariyanto, 2019). High operational costs indicate that expenditures for running the daily activities of BMT exceed the revenue generated, thus reducing profit margins and operational effectiveness. Additionally, insufficient capital poses a significant constraint, as limited capital restricts BMT's capacity to provide adequate financing to customers and invest in activities that could generate higher income. However, in terms of total assets, nearly all the seven BMT Masjid studied demonstrated a good level of efficiency, except for one BMT that has not yet achieved the expected efficiency (Jamaludin et al., 2023).

During the research period from 2018 to 2022, inefficiencies at the BMT UGT Nusantara branches can be addressed through several strategic adjustments. First, align the number of employees with the actual needs on the ground to enhance labor efficiency. Second, reduce excessive operational costs by identifying and eliminating unnecessary expenditures. Third, minimize the accumulation of non – productive assets by managing assets more effectively and reinvesting in income – generating activities.

In addition to these adjustments, certain factors need improvement to improve efficiency. Increasing revenue is a primary priority, which can be achieved through product and service diversification and improving customer service quality. Furthermore, increasing the number of customers is crucial, as a larger customer base allows BMT UGT Nusantara to increase the amount of financing provided to the community. This will not only boost revenue but also strengthen BMT's role as an Islamic financial institution supporting broader economic welfare.

Sharia reviews regarding improving input and output indicate that Islam provides clear guidelines for achieving optimal efficiency. Islam emphasizes the importance of efficient resource use and productivity enhancement. First, optimizing input means reducing unnecessary burdens to avoid waste. This includes managing resources such as electricity and building usage efficiently. Additionally, good management is highly recommended, as the hadith indicates that Allah loves work done accurately, purposefully, clearly, and completely. Fair wages are also emphasized in Islam, with the recommendation to pay wages on time according to the Prophet Muhammad SAW's teachings.

Islam prohibits fraud in business management. For instance, traders should not mix forbidden materials into their products. Additionally, operational costs should be managed wisely to avoid *israf* and *tabdzir*. Capital and asset management should be efficient to ensure resources are utilized optimally to achieve the desired output. Thus, BMT UGT Nusantara must manage input carefully and efficiently to achieve higher operational efficiency.

To maximize output, Islam teaches the optimization of natural resources and worker specialization. Everyone should work according to their expertise to improve productivity. Furthermore, the prohibition of *israf* and *tabdzir* in production emphasizes that producers should ensure that the products are beneficial to consumers and meet market demand. Islam also forbids earning profits through unlawful means, such as *riba*, *gharar*, and *maysir*, to ensure that profits are halal. By applying these principles, BMT UGT Nusantara can sustainably enhance revenue and efficiency by Sharia.

This study recorded a simultaneous decline in technical efficiency, pure technical efficiency, and scale efficiency at the BMT UGT Nusantara branches in 2020. This decline was primarily driven by the significant impact of the COVID – 19 pandemic, which

affected the global economy. The year was marked by a drastic slowdown in economic growth, with the growth rate decreasing from 5.02 percent in 2019 to 2.97 percent in 2020

Despite the decline in efficiency, the impact was not severe as the efficiency levels remained relatively stable, above 95%. This indicates that BMT UGT Nusantara branches were still able to manage their inputs and outputs efficiently despite facing significant economic challenges. The adaptations and adjustments made during the pandemic helped maintain operational efficiency. Furthermore, Putri, in her research, explains that Islamic banking exhibits better financial performance compared to conventional banking (Putri, 2023). In addition, Deputy Minister of State – Owned Enterprises Kartika Wirjoatmodjo explained that Islamic banking has advantages in terms of assets and liquidity. Islamic banking credits are backed by clear assets and use a profit – sharing system rather than interest, which provides stronger resilience compared to conventional banking (Aldi, 2020). Efendić stated in his research that during periods of crisis, Islamic microfinance institutions are considered more efficient compared to conventional financial institutions (Efendić & Hadžić, 2017). Various other studies indicate that Islamic banking and Islamic microfinance institutions perform better compared to conventional financial institutions, particularly during crises. Similarly, data shows that BMT UGT Nusantara branches remained relatively stable in facing the COVID – 19 pandemic.

CONCLUSION

The conclusion of this study indicates that thin East Javae operational efficiency of BMT UGT Nusantara branches during the 2018 – 2022 periods varied depending on the approach used. Overall, 50% of these branches achieved good efficiency with the production approach, while 55% achieved efficiency with the intermediation approach. However, some branches have not yet reached the expected efficiency, both in production and intermediation contexts. The decline in efficiency in 2020, primarily due to the impact of the COVID – 19 pandemic, underscores the importance of adapting and adjusting strategies to face economic challenges.

Although some BMT UGT Nusantara branches have successfully managed their operations efficiently, there are still significant opportunities for improvement, particularly in asset management and operational costs. Applying Sharia principles that emphasize resource optimization and waste avoidance can further enhance efficiency. Ongoing efforts to increase the number of customers, improve asset management, and reduce operational costs are crucial steps towards achieving optimal efficiency and supporting the long – term success of BMT UGT Nusantara branches.

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