

Research Article

Performance Assessment of Efficiency and Productivity of Indonesian Micro Waqf Banks

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In the observation period from 2018 to 2021, the growth of outstanding financing only grew 6.5% per year and the number of outstanding customers grew 4.91% per year, while the number of stagnant micro waqf banks did not grow at 62. Therefore, it is urgent to measure the efficiency and productivity of micro waqf banks so that the source of the causes of the suboptimal distribution of micro waqf bank financing to the community around the pesantren can be evaluated. Technical analysis with DEA and Malmquist Index was used to measure the efficiency and productivity. The input data used are the number of outstanding customers, the number of Kumpi, and the number of micro waqf bank offices. Output data uses the amount of outstanding financing. Micro waqf banks that have consistently been inefficient from 2018 to 2021 are waqf banks in Riau and West Java Provinces. The inefficient waqf bank according to this approach is only 27.75. Overall, micro waqf banks have very low technological innovation. Optimization of micro waqf bank financing can still be done by optimizing the function of micro waqf banks and activating micro waqf bank partners who have been passive.

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1. INTRODUCTION

Micro Waqf Bank is a sharia microfinance institution (MFI) registered and regulated by the Financial Services Authority (OJK) with the aim of providing capital to poor people who still do not have access to formal financial institutions. The issuance of Law Number 41 of 2004 concerning Waqf provides a conducive climate to optimize waqf in the economic empowerment of the people.

From data published by the Ministry of Religious Affairs (2022), waqf land in Indonesia is divided into 440.5 thousand points with a total area of 57.2 hectares. The potential

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of Indonesia's waqf sector, especially money endowments, is estimated to reach 180 trillion rupiah per year. The Indonesian Waqf Board stated that the collection of cash endowments until March 2022 was worth IDR 1.4 trillion. This amount increased from the collection of cash endowments of IDR 855 billion in 2018-2021 [1]. From these data, it can be seen that there is still a wide gap between the potential and realization of waqf collection in Indonesia. The ineffective acceptance of waqf according to [2]), due to the lack of positive perceptions from the public about waqf, not optimal government support, still low level of public trust and still lack of professionalism of waqf managers in Indonesia.

To optimize the collection of waqf, it is necessary to have an institution similar to a bank in waqf management. Waqf must be managed as banks manage customer funds with minimum risk and minimum moral hazard. The presence of micro waqf banks is an effort by OJK to manage waqf professionally. In 2020, the outstanding amount of financing distributed by micro waqf banks to students or communities around Islamic boarding schools amounted to Rp. 10.7 billion Rupiah with total cumulative financing of 55.6 billion Rupiah. In 2023, total outstanding financing will increase to IDR 13.5 billion with total cumulative financing of IDR 100.6 billion. Total outstanding financing increased by 6.54% annually while total cumulative financing increased by 20.23% annually. When viewed from the number of outstanding customers of micro waqf banks in 2020 there were 11,700 people and in 2023 it became 14,000 people or an increase of 4.91 percent per year. Meanwhile, the number of micro waqf banks from 2020 to 2023 did not increase, namely at 62 units [1]. This indicates the need to measure the efficiency of micro waqf institutions as professional waqf management institutions officially established by the government to empower margin groups in the pesantren environment. To accelerate growth, micro waqf banks need to evaluate the performance of each micro waqf bank spread throughout Indonesia using Data Envelopment Analysis (DEA). DEA is a tool that can be used to measure and compare the performance of a number of service units or businesses. With DEA, less efficient input performance can be evaluated in optimizing output achievement. Therefore, the purpose of this study is to measure the level of efficiency and productivity of micro waqf banks in Indonesia.

Efficiency is the comparison of input to output is like how output is optimized by using a certain number of inputs or minimization of inputs by achieving a certain output. Efficiency occurs in production activities. The performance of production activities is a scale of return. In production activities are said to be efficient if the scale of return is increasing or at least constant. A micro waqf bank is a business unit that manages waqf

funds. OJK created a micro waqf bank through POJK No. 62 of 2015 concerning the Operation of Microfinance Institution Business [1]. Micro Waqf Bank (BWM) is a Sharia Microfinance Institution registered and supervised by the Financial Services Authority (OJK) and aims to provide access to capital for small communities who do not yet have access to formal financial institutions.

According to [4], efficiency is the best comparison between inputs (inputs) and outputs (results between profits and resources used) and optimal results achieved with limited resources. Opinion [5] states that efficiency is a measure of the amount of cost collection used to generate revenue. Effective management, optimizing the use of available resources to achieve the desired goals to the maximum, and not wasting available resources in the implementation of its activities[2]. Waqf bank is one of the economic units that carries out production activities, namely managing waqf funds to be distributed back to the community in the form of community economic empowerment.

The concept of efficiency is classified into three, namely technical efficiency, allocative efficiency, and economic efficiency. Technical Efficiency (TE) is the ability of a company to get maximum output from the use of a set of inputs (bundles). Technical efficiency relates to a firm's ability to produce on isoquant frontier curves. Allocative Efficiency (AE) is the ability of a company (farm) to use inputs in optimal proportion at a given price and production technology. The combination of these two efficiencies is called economic efficiency (EE) or total efficiency[3], [4].

Micro waqf banks are cooperative legal entities established in pesantren. This cooperative functions as a sharia microfinance institution that distributes funds as loans to its members (customers) without the need for collateral. In addition, loans distributed by micro waqf banks also do not require guarantees from borrowers, and margins are set at a very low level, which is 3% per annum. The margin return to the micro waqf bank will be used to cover the working capital required for the micro waqf bank's operations.

Waqf means holding property and giving its benefits in the way of Allah. In Islamic law, waqf means handing over a durable property right (its substance) to a person or nadzir (guardian of waqf), either in the form of an individual or a managing body, provided that the proceeds or benefits are used for things that are in accordance with the teachings of Islamic shari'a. Through waqf, it is hoped that there will be a process of distribution of benefits to the wider community, from private benefits to social benefits [5]

2. METHOD

To measure the efficiency and productivity of waqf banks, a number of inputs and outputs are used. The input variables used are the number of waqf bank offices and the number of outstanding customers in micro waqf banks spread across 16 provinces in Indonesia [1]. The data used in this study includes: Financial Statements, micro waqf bank development reports for 2018 – 2021 from web site OJK. In Indonesia are Personnel Costs (X1), Operating Costs (X2), Socialization Costs (X3). As for the output variable, namely the amount of outstanding waqf. Opinion [9] states that efficiency is a measure of the amount of collection of costs used to generate revenue. Effective management (effective operation) optimizes the use of available resources to achieve the desired goals to the maximum, and does not waste available resources in the implementation of its activities [4].

To measure efficiency, the DEA analysis method is used. DEA can overcome the limitations of partial correlation analysis and multiple regression. DEA is a method specifically designed to measure the relative efficiency of a decision-making unit (DMU) that uses multiple inputs and outputs [6]. Basically, the working principle of DEA is to compare input and output data from an information organization (decision making unit, DMU) with input and output data from other similar DMUs. This comparison is done to get the efficiency value. [10] explains that three approaches are often used to determine the ratio of inputs and outputs in the financial operations of a financial institution [3].

To measure the level of productivity of the Micro Waqf Bank, the Malmquist Index analysis technique is used. The Malmquist Index is based on the concept of a production function that measures the maximum production function with predetermined input constraints. The Malmquist index consists of: efficiency change (EC), technological change (TC), pure efficiency change (PEC), economic scale change (ECC) and TFP change [11]. In contrast, the output distance function seeks minimal proportional expansion of the output vector for a constant input vector.

3. DISCUSSION

3.1. Efficiency Level of Micro Waqf Banks in Indonesia

Micro waqf banks that have a value of 100% will be a reference for banks that have a value of less than 100%. The reasons that make Micro Waqf Banks inefficient are: 1)

Relatively High Operating Costs: Due to limited business scale, Micro Waqf Banks face relatively high operational costs in carrying out their activities. The cost of recruiting, training, and maintaining human resources, technology infrastructure, and marketing and promotion costs can be a significant burden for the bank. Operational efficiency can be hampered by financial limitations faced by micro waqf banks; 2) Technology Challenges: Technological advancements have played an important role in improving the efficiency and accessibility of banking services. However, Micro Waqf Banks may find it difficult to adopt modern banking technology due to limited resources and finances. Lack of access to advanced technology Such a digital banking system or online banking infrastructure can hamper operational efficiency and a bank's ability to provide fast and effective services to customers; 3) Regulatory Constraints: Rules and regulations applicable to financial institutions can be an obstacle for Micro Waqf Banks. Strict compliance requirements, complex regulatory procedures, and complex bureaucracy can hamper a bank's ability to operate efficiently. Sometimes, micro waqf banks may also have limitations in offering various banking products and services due to regulations that restrict their activities; 4) Low Liquidity: Liquidity is an important factor in the efficient operation of waqf banks. Micro Waqf Banks face challenges in maintaining adequate liquidity levels to meet the needs of their customers. Lack of financial resources and limited access to capital can cause constraints in providing adequate banking services and meeting customer demand. Banks that are less efficient must make adjustments in their inputs and outputs to be efficient.

With the CRTS approach, it can be seen that from 2018-2021, on average, micro waqf banks are not yet efficient because the index value obtained is less than 100%. This can be confirmed by the efficiency performance in each year. In 2018, micro waqf banks that were already efficient only reached 11%, namely waqf banks in East Java and Banten. In 2019, efficient micro waqf banks increased to 22%, namely there were 4 efficient waqf banks including waqf banks in West Sumatra, Central Java, DI Yogyakarta and Banten. However, in 2020 and 2021, efficient waqf banks fell again, namely there were only two efficient waqf banks in 2020 (East Kalimantan and Banten) and 3 efficient micro waqf banks in 2021 (DI Yogyakarta, East Java and Banten). In the CRTS approach, it is assumed that micro waqf banks have operated at an optimal scale, namely the addition of one unit of input will increase output by one unit [5]. It can be concluded that micro waqf banks in Banten Province consistently from 2018-2021 have operated optimally.

In 2019, efficient micro waqf banks rose to 22%, namely there are 4 efficient waqf banks including waqf banks in West Sumatra, Central Java, Yogyakarta and Banten.

TABLE 1: Efficiency Level of Micro Waqf Banks in Indonesia.

PROVINCE	CRS EFFICIENCY			
	2018	2019	2020	2021
ACEH	0,089	0,558	0,750	0,715
NORTH SUMATRA	0,258	0,713	0,676	0,647
WEST SUMATERA	0,638	1,000	0,917	0,996
RIAU	0,342	0,667	0,605	0,459
JAMBI	0,342	0,556	0,799	0,626
EAST SUMATERA	0,077	0,348	0,549	0,301
LAMPUNG	0,207	0,452	0,528	0,476
WEST JAVA	0,534	0,887	0,702	0,592
CENTRAL JAVA	0,515	1,000	0,851	0,831
D.I. YOGYAKARTA	0,662	1,000	0,889	1,000
EAST JAVA	1,000	0,701	0,810	1,000
BANTEN	1,000	1,000	1,000	1,000
WEST NUSATENGARA	0,337	0,667	0,958	0,678
SOUTH KALIMANTAN	0,077	0,500	0,762	0,487
EAST KALIMANTAN	0,273	0,873	1,000	0,323
SOUTH SULAWESI	0,405	0,399	0,568	0,346
MALUKU	0,225	0,457	0,742	0,914
PAPUA	0,170	0,404	0,868	0,577
Mean	0,396	0,750	0,715	0,665

Source: Processed with Dea Program

However, in 2020 and 2021, efficient waqf banks fell again, namely there were only two efficient waqaf banks in 2020 (East Kalimantan and Banten) and 3 efficient micro waqf banks in 2021 (In Yogyakarta, East Java and Banten). Thus, it can be concluded that micro waqf banks in Banten Province consistently from 2018-2021 have been operating optimally.

In the VRTS approach, it assumes that the business unit is not yet optimal in its operational activities, because each one-fold increase in input will cause a change in output (either up or down) [12]. On average, micro waqf banks are not efficient in 2018 and 2021 because they have an index value smaller than 1. When viewed in more detail, the performance of micro waqf banks with the VRTS approach is much better than the CRTS approach because more micro waqf banks have achieved efficiency than those that are not efficient.

TABLE 2: Efficiency of Micro Waqf Banks with VRTS Approach.

PROVINCE	VRS EFFICIENCY			
	2018	2019	2020	2021
ACEH	1,000	1,000	1,000	1,000
NORTH SUMATRA	1,000	1,000	1,000	1,000
WEST SUMATERA	1,000	1,000	1,000	1,000
RIAU	0,613	0,917	0,634	0,601
JAMBI	1,000	1,000	1,000	1,000
EAST SUMATERA	1,000	1,000	0,754	0,944
LAMPUNG	0,597	0,574	0,529	0,618
WEST JAVA	0,596	0,925	0,780	0,613
CENTRAL JAVA	0,599	1,000	1,000	0,971
D.I. YOGYAKARTA	0,726	1,000	0,891	1,000
EAST JAVA	1,000	1,000	1,000	1,000
BANTEN	1,000	1,000	1,000	1,000
WEST NUSATENGARA	1,000	1,000	1,000	1,000
SOUTH KALIMANTAN	1,000	1,000	1,000	1,000
EAST KALIMANTAN	1,000	1,000	1,000	1,000
SOUTH SULAWESI	1,000	1,000	1,000	1,000
MALUKU	1,000	1,000	1,000	1,000
PAPUA	1,000	1,000	1,000	1,000
Mean	0,896	1,000	1,000	0,930

Source: processed using DEA

From the data processing results, there are differences in results between the CRTS and VRTS approaches. In the CRTS approach, it is assumed that a business unit can produce output proportional to inputs with a fixed scale of production. In other words, if the input doubles, the output will also double proportionally. In this approach, an optimal scale of production is required to achieve maximum efficiency. If the scale of production is less than optimal, then efficiency will decrease. In this case, the level of efficiency achieved will be less as there is potential to achieve a higher level of production using the same inputs. Meanwhile, the VRTS approach allows for different levels of efficiency at different scales of production. This means that a business unit can experience a different level of efficiency when its production scale changes.

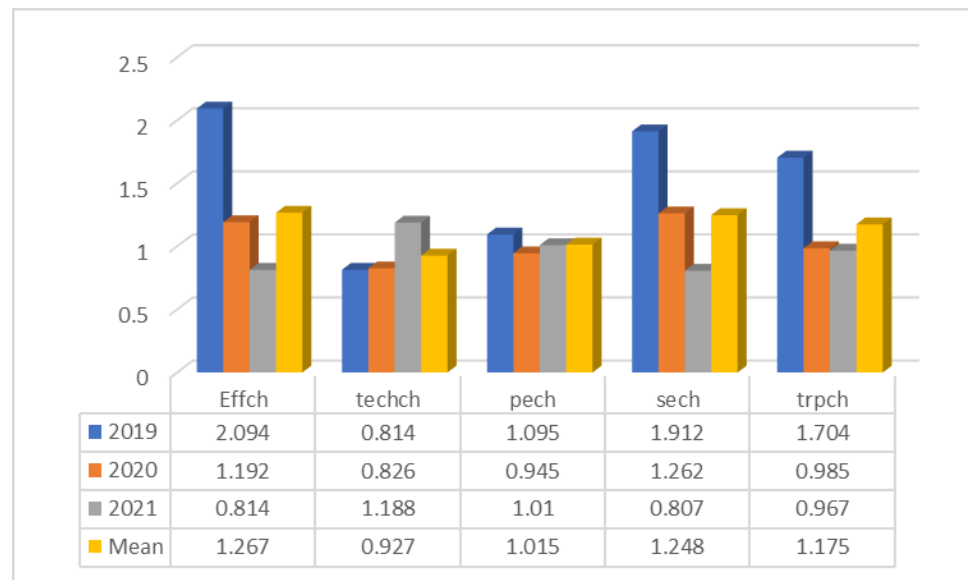


Figure 1: Annual Productivity Level of Micro Waqf Banks.

3.2. Productivity Level of Micro Waqf Banks in Indonesia

From the data above, the productivity level of micro waqf banks fluctuates. In 2019, the productivity level of micro waqf banks is still positive and greater than 1. This means that micro waqf banks still have innovation even though there is a very small increase in innovation. However, in 2020 and 2010, the overall productivity level of micro waqf banks decreased. The decline in productivity in 2020 and 2021 as a result of covid 19 which not only devastated health but also the economy. Many waqf bank-assisted business actors have gone bankrupt so that they cannot pay off their obligations. Limited knowledge[7], education and technology owned by micro waqf banks, social distancing policies really make their businesses bankrupt. Funds rolled out by waqf banks cannot be returned by business actors fostered by micro waqf banks. The derivation of Trpch waqf banks is very relevant with the low value of tech which is less than 1. This means that the inputs owned by the waqf bank (the number of micro waqf bank offices and the number of existing customers) have not been able to optimize the distribution of micro waqf bank financing. The productivity level of micro waqf banks seen from the performance of individual waqf banks spread across 18 provinces can be seen in the following table:

From the table above, it can be seen that the average increase in productivity growth (TFP) of micro waqf banks from 2018-2021 was 0.175 percent. The increase in productivity of micro waqf banks is very small, indicating the low level of innovation in micro waqf banks in Indonesia. If you look at the data in more detail, the positive

TABLE 3: Average Productivity Level of Micro Waqf Banks in Indonesia.

Province	Effch	Techch	Pech	Sech	Trpch
ACEH	2,000	0,766	1,000	2,000	1,532
NORTH SUMATRA	1,358	0,898	1,000	1,358	1,219
WEST SUMATERA	1,160	0,873	1,000	1,160	1,012
RIAU	1,103	0,849	0,994	1,110	0,936
JAMBI	1,245	1,095	1,000	1,245	1,364
EAST SUMATERA	1,577	0,804	0,981	1,608	1,268
LAMPUNG	1,321	0,826	1,012	1,305	1,091
WEST JAVA	1,035	0,800	1,010	1,025	0,828
CENTRAL JAVA	1,173	0,750	1,174	0,998	0,880
D.I. YOGYAKARTA	1,147	0,886	1,112	1,031	1,017
EAST JAVA	1,000	1,100	1,000	1,000	1,100
BANTEN	1,000	1,113	1,000	1,000	1,113
WEST NUSATENGARA	1,262	1,091	1,000	1,262	1,376
SOUTH KALIMANTAN	1,852	0,811	1,000	1,852	1,501
EAST KALIMANTAN	1,058	1,239	1,000	1,058	1,310
SOUTH SULAWESI	0,949	1,095	1,000	0,949	1,041
MALUKU	1,595	0,953	1,000	1,595	1,521
PAPUA	1,502	0,953	1,000	1,502	1,402
Mean	1,267	0,927	1,015	1,248	1,175

Source: DEA processed

cause of Trpch is because almost all waqf banks spread across 18 provinces have TFP values greater than 1 except for micro waqf banks Riau, West Java and Central Java. This means that micro waqf banks in these three provinces are very lacking in technological innovation. Although most micro waqf banks have a positive Trpch value, on average, micro waqf banks have a technical efficiency (TE) of less than one.

The low change in total productivity factors in micro waqf banks is influenced by a number of factors including: a) Technology. The average micro waqf bank does not yet have technology and innovation that can affect factor productivity; b) The quality of human resources in micro waqf banks is still very limited; 3) The operational scale of micro waqf banks is still very limited, so that the operational costs of micro waqf banks are less significant in encouraging the productivity of micro waqf banks; 4) Risk management of micro waqf banks is less effective because there is still very limited production capacity of micro waqf banks. However, even though the change in total

productivity is still very small, micro waqf banks can still optimize the distribution of financing to students or Islamic boarding school assisted communities by optimizing the role of micro waqf bank offices. In addition, in order for micro waqf banks to optimize their financing, micro waqf banks must activate customers who have been passive. Communication between customers must be intensified, identified problems from customers and solutions to all problems they face.

4. CONCLUSIONS

From the results of data processing using DEA and the CRTS approach, only 11-22 percent of waqf banks spread across Indonesia have been efficient during the 2018-2020 period. The waqf banks that were consistently inefficient during the study span were micro waqf banks in Riau and West Java provinces. Meanwhile, for the VRTS approach, the opposite result was obtained where some waqf banks were already efficient and those that were not yet efficient were only 27.75 percent. The difference in results is due to different approaches where in CRTS it is assumed that micro waqf banks are already operating at an optimal scale, namely every addition of one unit input will increase output by one unit as well, while in the VRTS approach, each addition of one unit input can result in a larger or smaller output change. The average value of changes in the total productivity of the micro waqf bank in the last 3 years is smaller than 1. This means that technological innovation in the micro waqf bank is not optimal, which has an impact on the less optimal empowerment of waqf funds in increasing the business activities of SMEs around the pesantren and the economic independence of the students of the pesantren. The limited function of the micro waqf bank is only channeling waqf funds which causes less than optimal human resources in managing the micro waqf bank.

References

- [1] "Peraturan-Pemerintah-tahun-2018-PP-25-2018".
- [2] Roghanian P, Rasli A, Gheysari H. Productivity Through Effectiveness and Efficiency in the Banking Industry. *Procedia Soc Behav Sci.* 2012;40:550–6.
- [3] E. Teknis et al., "EFISIENSI TEKNIS, ALOKATIF DAN EKONOMI PADA USAHATANI UBIKAYU DI KABUPATEN LAMPUNG TENGAH, PROVINSI LAMPUNG," 2016.

- [4] Erena OT, Kalko MM, Debele SA. Technical efficiency, technological progress and productivity growth of large and medium manufacturing industries in Ethiopia: A data envelopment analysis. *Cogent Econ Finance*. 2021;9(1):1997160.
- [5] Ula UM. Analisis Efisiensi Lembaga Pengelola Wakaf Tunai Di Indonesia. *J Chem Inf Model*. 2013;53(9):1689–99.
- [6] Henriques IC, Sobreiro VA, Kimura H, Mariano EB. Efficiency in the Brazilian banking system using data envelopment analysis. *Future Business Journal*. 2018 Dec;4(2):157–78.
- [7] R. Hadiyanto and L. Pusvisasari, “Efisiensi Pengumpulan dan Pendistribusian Zakat dan Wakaf di Indonesia,” *Jurnal Ilmiah Ekonomi Islam*, vol. 8, no. 02, pp. 2076–2082, doi: <https://doi.org/10.29040/jiei.v8i2.4738>.