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Differences in Efficiency and Effectiveness of Micro Waqf Banks In Indonesia Before and During The Covid-19 Pandemic

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ABSTRACT
The decline in economic activity induced by covid-19 affects the financial and social efficiency of microfinance institutions (MFIs). This study aims to analyze the efficiency and effectiveness of Micro Waqf Banks before and during the covid-19 pandemic. The sample of this research is Micro Waqf Banks located throughout Indonesia that have complete data to be obtained using Data Envelopent Analysis (DEA). The findings of this study are that in 2018 the efficient Micro Waqf Banks were 25 units or around 78% which were effective there were 22 units or around 93% the average efficiency value was 95%, while the average effectiveness value was 81%. In 2019, there were 29 efficient Micro Waqf Bank units or around 58%, of which there were 19 effective units or around 37% with an average efficiency value of 87%, while the average effectiveness value was 78%. In 2020, efficient Micro Waqf Banks increased to 41 units or around 82%, effective ones increased from 2019 to 22 units, with an average efficiency value of 93% with an average effectiveness value of 77%.

Keywords: efficiency, effectiveness, bank, waqf, micro.

INTRODUCTION

The COVID-19 pandemic has changed the economic landscape of the world, including Indonesia. The MSME sector, which is the base of Micro Waqf Banks, has been significantly impacted by restrictions and reduced consumption. This raises questions regarding the efficiency and effectiveness of Micro Waqf Banks before and during the pandemic.[1] The impact of COVID-19 pandemic has reduced the financial efficiency level of 2 Islamic microfinance institutions in East Java, namely KSU al Ikhas from 85.08% to 81.41% and Malabar Pasrepan Islamic Consumer Cooperative from 82.38% to 80.18%. The study concludes that the risk-sharing principles inherent in Islamic Financing help small and medium enterprises (SMEs) overcome existing weaknesses. The precautionary principle

[1] Yumna, Aimatul, Joan Marta, and Ramel Yanuarta Re. "The impact of waqf-based microfinance program on clients' well-being during COVID-19 pandemic: empirical evidence from Indonesia." dalam *Journal of Islamic Accounting and Business Research* (2024).

and other principles of economic democracy found in sharia law are other positive aspects of sharia financing.

As Islamic Microfinance Institutions (MFIs) play an essential role in fostering the growth of small businesses, especially in the face of the current COVID-19 pandemic, they must be kept alive and improved through careful and competent management.[2] In recent decades, efforts have been to measure the effectiveness of financial management, supervision, and monitoring.[3] As a result, it is imperative to assess how well economic financial institutions function today. Correspondingly, knowledge of the efficiency of financial institutions and the underlying factors that influence efficiency is essential. In particular, during a pandemic like the one that is still present today, such knowledge is required to give insights to managers, regulators, policymakers, and other stakeholders to develop measures to increase the efficiency of the financial system.

Therefore, this study aims to analyze the differences in efficiency and effectiveness of Micro Waqf Banks in Indonesia before and during the COVID-19 pandemic. Previous research has extensively discussed the efficiency and effectiveness of microfinance institutions, especially those that are Sharia-based. For example, research by Ali found that underutilized financing disbursement and factors such as capital strength and BMT size affect the efficiency of BMTs.[4] Ahmad Azhari Pohan's and Himmawan & Firdausi's research shows that Islamic Commercial Banks have efficient performance, while some Islamic People's Financing Banks (BPRS) have fluctuating efficiency.[5,6] Rachmah Damayanti's research found that inefficiency in BPRS was caused by excess input and lack of output in Financing.[7] A number of studies have also been conducted outside

[2] Jamaludin, Nur, Miftahurrahmah Miftahurrahmah, and Muizzudin Muizzudin. "Islamic Micro Finance Institutions' Existence, Role, and Challenges in Developing the Indonesian Micro Business Sector Post Covid 19 Pandemic." dalam *EKONOMIKA SYARIAH: Journal of Economic Studies*, Vol 7, No. 2 (2023): 155-165.

[3] Guluma, Tolossa Fufa. "The impact of corporate governance measures on firm performance: the influences of managerial overconfidence." dalam *Future Business Journal*, Vol.7, No. 1 (2021): 50.

[4] Muhammad Mahbubi Ali. "Analisis Efisiensi Baitul Maal Wat Tamwil Dengan Pendekatan Two Stage Data Envelopment Analysis (Studi Kasus Kantor Cabang BMT MMU Dan BMT UGT Sidogiri)", dalam *TAZKIA/ Islamic Finance & Business Review*, Vol.5, No..2, (2010), 115.

[5] Ahmad Azhari Pohan. "*Efisiensi Kinerja Bank Umum Syariah (BUS) dan Bank Pembiayaan Rakyat Syariah (BPRS) di Indonesia*", (2015).

[6] Himmawan, M. Fikri, and Novian Abdi Firdausi. 2021. "Projection of Indonesian Islamic Commercial Banks Efficiency and Stability in the Covid-19 Period Using DEA and Panel ARDL". dalam *Jurnal Ekonomi & Keuangan Islam*, Vol. 7 (1):17-30. https://doi.org/10.20885/jeki.vol7.iss1.art2.

[7] Umi Rachmah Damayanti. "Analisis Tingkat Efisiensi Kinerja Lembaga Keuangan Mikro Syariah Dengan Pendekatan Data Envelopment Analysis", dalam *Tansiq*, Vol.1, No.2 (2018), 120–136.

Indonesia, such as the study by Surender Singh et al. on the efficiency of MFIs in India.[8]

However, few studies have specifically focused on Micro Waqf Banks, especially in the context of differences in efficiency and effectiveness before and during the COVID-19 pandemic. Therefore, this study will bridge the gap by analyzing and comparing the efficiency and effectiveness of Micro Waqf Banks in Indonesia before and during the COVID-19 pandemic.

Literature Review

Efficiency

The definition of efficiency in its simplest form is the absence of waste. In his book Management Control Systems, Arif Suadi defines efficiency as the ability to compare and contrast output with goals, the relationship between output and the goals to be achieved, and the ability to get the job done right.[9] Effectiveness is usually described as performing tasks most effectively. It is closely related to a company's means of achieving its goals.[10] As a result, the idea of efficiency is usually interpreted in terms of savings. When converting inputs into outputs, companies constantly strive to save costs without sacrificing quality.

Silkman wrote in Liu et al. [11]That efficiency measurement can be done through one of the Frontier approaches. This approach has two types parametric and non-parametric. The parametric approach consists the Stochastic Frontier Approach (SFA) an extension the original deterministic model measure the effects the stochastic frontier the production frontier,[12] The Distribution Free Approach (DFA) which is a cost-efficiency measure of how close the cost of a bank is to the lowest cost required to produce the same output under the same conditions,[13] and Thick Frontier Approach (TFA), while non-parametric includes Data Envelopment Analysis (DEA), which is a fractional linear programming model that can include many outputs and inputs without the need to determine weights for each variable beforehand,[14] without the need for explicit explanation of the functional relationship between inputs and outputs (unlike regression). The

[8] Surender Singh., dkk. "Technical efficiency and its determinants in microfinance institutions in India: a firm level analysis", dalam *Journal of Innovation Economics & Management*, Vol.11, No.1, (2013) 15–31.

[9] Arif Suadi. *Sistem Pengendalian Manajemen*. (Yogyakarta: BPFE, 2013), 132

[10] Kuzior, Aleksandra,dkk. "The factorial-reflexive approach to diagnosing the executors' and contractors' attitude to achieving the objectives by energy supplying companies." Dalam *Energies,* Vol.14, No. 9 (2021): 2572.

[11]Hui-hui Liu, dkk. "Cross-efficiency evaluation in data envelopment analysis based on prospect theory", dalam European Journal of Operational Research. (2018), 3.

[12] Nguyen, Hung T. "A closer look at stochastic frontier analysis in economics." dalam *Asian Journal of Economics and Banking* Vol.4, No. 3 (2020): 3-28.

[13] Kolia, Dimitra Loukia, and Simeon Papadopoulos. "Integration in banking efficiency: a comparative analysis of the European Union, the Eurozone, and the United States banks." dalam *Journal of Capital Markets Studies*, Vol.6, No. 1 (2022): 48-70.

[14] Li, Yongjun, Qian Zhang, Lizheng Wang, and Liang Liang. "Regional environmental efficiency in China: An empirical analysis based on entropy weight method and non-parametric models." dalam *Journal of cleaner production*, Vol. 276 (2020): 124147.

frontier approach is superior because of the use of program or statistical techniques that eliminate the influence of differences in output prices (unlike regression).[15] Inputs and other exogenous factors in influencing performance will be observed. This method has been applied more frequently in regulatory analysis, specifically to quantify the effects of mergers and acquisitions, capital regulation, deposit rate deregulation, changes in regional branching limitations, and holdings of acquiring corporations. This method's key benefit is that it uses an objective quantitative measure that eliminates the impact of market pricing and other external variables on the performance that will be evaluated.[16]

Effectiveness

According to Beni, effectiveness is the extent to which the amount of production, policies, and organizational processes contribute to achieving the goals that have been set.[17] According to Mardiasmo, effectiveness is how well an organization achieves its goals.[18] The measure of effectiveness is how well objectives are achieved. An organization, program, or activity will be more successful if its products significantly help achieve its goals. However, measuring effectiveness can be difficult because the outcomes are usually less clear and more difficult to measure.[19] The problem in assessing effectiveness is that the achievement of outcomes can often not be known in words (judgment), meaning that if the quality produced is good, then the effectiveness is also good. Outcomes, programs and activities are considered effective if they achieve their intended objectives and/or provide a good return on investment.

Framework

The primary function of microfinance institutions is to increase the financial and economic possibilities available to the poor, and they are seen as a practical means of reducing poverty and attaining other socioeconomic advantages. The underlying presumption is that a lack of economic opportunity is one of the

[15] Bravo-Ureta, Boris E., Mario González-Flores, William Greene, and Daniel Solís. "Technology and technical efficiency change: evidence from a difference in differences selectivity corrected stochastic production frontier model." dalam *American Journal of Agricultural Economics*, Vol. 103, no. 1 (2021): 362-385.

[16]Lokot Zein Nasution. "Peran Lembaga Pembiayaan Syariah dalam Mempercepat Pemulihan UMKM di Masa Pandemi", dalam Jurnal Islamic Circle, Vol.2, No.1, (2021), 7.

[17]Beni Pekei. Konsep dan Analisis Efektivitas Pengelolaan Keuangan Daerah di Era Otonomi. In Keuangan Daerah dan Pemerintahan (Jakarta: Taushia, 2016), 180.

[18] Mardiasmo. 2016b. Perpajakan. (Yogyakarta: Andi Offset), 113.

[19] Joas, Adrian, dkk. "Towards Leveraging Process Mining for Sustainability–An Analysis of Challenges and Potential Solutions." *In International Conference on Business Process Management*, pp. 354-371. 2024.

factors contributing to poverty, which microfinance may alleviate.[20,21] The benchmark for microfinance success lies in actual performance, one of which is success in poverty alleviation. In particular, the neighborhoods surrounding pesantren will benefit greatly from the Micro Waqf Bank, one of the many microfinance organizations to be established by the end of 2017. The success of the Micro Waqf Bank depends on its ability to manage its commercial affairs effectively and thus realize its objectives. The DEA technique, developed by Ho and Zhu and implemented in two stages, will be used to evaluate the performance of the Micro Waqf Bank.[22] The calculation of the efficiency and effectiveness of the Micro Waqf Bank is based on the intermediation approach. In phase I, the efficiency of the Micro Waqf Bank will be measured using input variables consisting of Operating Expenses, Capital, Assets, Number of Customers, Number of kumpi, namely the number of community business groups around the pesantren of the Micro Waqf Bank. For output variables used Financing disbursed. The results of the Financing efficiency score distributed from stage I will be processed in stage II plus the input variable, namely deposits as an input variable where in stage II the output variable is the income of the Micro Waqf Bank. Both stages are carried out on input and output variables before and during the covid-19 pandemic. From the results of the efficiency value of each Micro Waqf Bank, the efficiency and effectiveness will be compared between 2019 before the pandemic and 2020 when the pandemic is still ongoing.

The following can be seen as a picture of the framework of this research:

[20]Flavio Comim. *Poverty Reduction through Microfinance: A Capability Perspective. In Microfinance and Public Policy: Outreach, Performance and Efficiency*. (London : Palgrave Macmillan, 2007), 47–59.

[21] Kimmitt, Jonathan, and Dimo Dimov. "The recursive interplay of capabilities and constraints amongst microfinance entrepreneurs." dalam *International Journal of Entrepreneurial Behavior & Research*, Vol.27, No. 3 (2021): 600-628.

[22]Chien-Ta Ho, & Dauw-Song Chien-Ta. "Performance measurement of Taiwan's commercial banks", dalam *International Journal of Productivity and Performance Management*, Vol.53, No.5, (2004), 430.

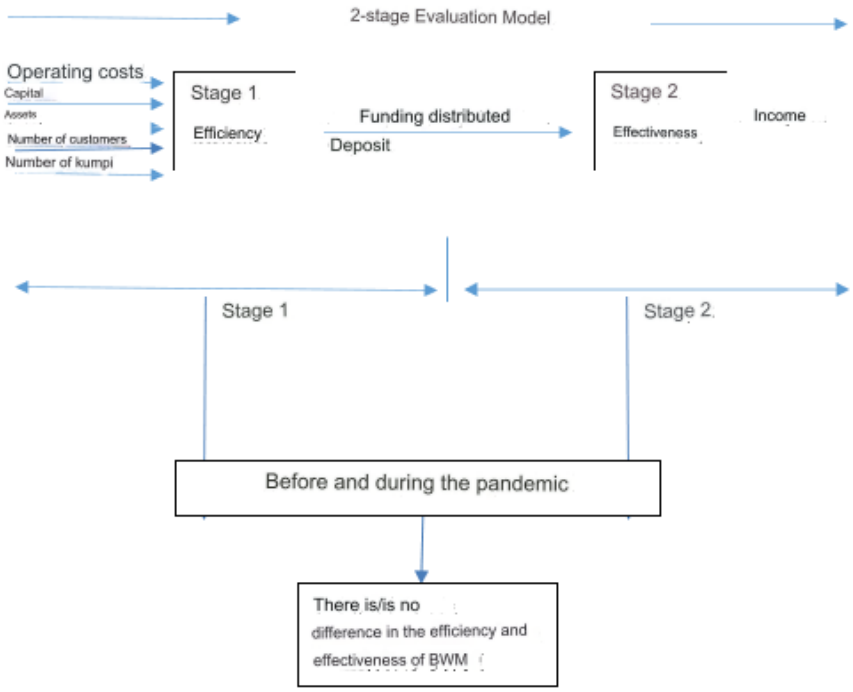

Figure 1. Framework of Thought

METHODS

Research Design

The purpose of this study requires a quantitative research strategy to assess the level of efficiency and effectiveness of Micro Waqf Banks before and during the COVID-19 outbreak. The main objective of quantitative research is to test hypotheses by collecting numerical data on research variables and interpreting them statistically.[23]

Population and Sample

Population is a statistical grouping of items or people with a predetermined set of characteristics, from which conclusions can be drawn. The Population in this study is the Micro Waqf Banks located in 20 provinces in the territory of Indonesia, totaling 56 Micro Waqf Banks that have complete data.

Collecting information from the entire population, researchers take a sample of the population. The sample in this study is all the population, namely 56 Micro Waqf Banks in 20 provinces in Indonesia as of December 31, 2020 which have complete data.

Data Collection Methods

The success or failure of a study depends on the accuracy and rigor of the data collected. Therefore, care must be taken when determining the methods to be used to collect data. The websites of the Financial Services Authority (OJK), the Micro Waqf Bank Application, and LAZNAS BSM Umat were used to collect data for this study.

[23]Nur Indriantoro & Bambang Supomo. 2013. *Metodologi Penelitian Bisnis Untuk Akuntansi & Manajemen*. (Yogyakarta: BPFE, 1st ed, 2013), 93.

To determine the inputs and outputs that can be used in calculating efficiency and effectiveness based on the intermediation approach, this study collects data related to the level of technical efficiency and effectiveness of the Micro Waqf Bank measured using DEA as the dependent variable. The following are the input factors used to calculate the efficiency and effectiveness of the Micro Waqf Bank:

Table 1. Operational definition of variables

No	Variabel	Indicator	Definition of indicators variables
1	Input Variables Efficiency	Operating Expenses	All costs incurred in supporting operational activities Micro Waqf Bank
		Capital	The initial capital obtained from LAZNAS BSM umat comes from individual waqf funds and corporate CSR.
		Number of active customers	all active customers who obtained loans from the Micro Waqf Board
		Total Assets	Total assets owned by the Micro Waqf Bank
		Number of KUMPI	Number of community effort groups around Indonesian pesantren
2	Variable Output Efficiency	Financing disbursed	Total Financing disbursed to customers as of December 31 of the current year
3	Input Variable Effectiveness	Financing disbursed	Total Financing disbursed to customers as of December 31, current year
		Deposito	Total deposits held by the Micro Waqf Bank
4	Variable Output Efficiency	Micro Waqf Bank Income	Total income from Financing disbursed to customers and from endowment funds deposited

Data Analysis Method

Data Analysis Envelopment (DEA)

DEA was presented by Charnes, Cooper, and Rhodes in 1978. DEA technique was developed to assess the efficiency of a particular task in an entity (in this case, a business). First, the efficiency assessed is technical and not economic; second, DEA analysis only considers the absolute value of one variable; and third, the character of efficiency assessment using DEA method is different from efficiency in general. Price, weight, length, content, and other basic units that indicate the monetary value of each variable are ignored. As a result, patterns consisting of several variables with different units can be calculated. The second problem is that the efficiency numbers found are only valid in the context of a comparable set of SEEs (Single Economic Entity). If you have a process with multiple inputs and outputs but cannot aggregate them, then you need this procedure to estimate the relative efficiency of the SEEs.

Efficiency in DEA. analysis is measured as a weighted input-to-output ratio; individual economic units are believed to have complete autonomy over how much emphasis they place on each input and output variable as long as they fulfill two necessary conditions. Weight (1) must be less than zero, and (2) must not result in very high or shallow values for the efficiency indicator when applied to other economic units. The efficiency metrics of the DEA model can be used to determine the sub-sectors of the economy that need attention when formulating strategies to improve the productivity of sectors currently operating inefficiently. The efficiency and effectiveness of Micro Waqf Banks will be measured both before and after the COVID-19 pandemic using the output methodology and a two-stage reform of the DEA method that isolates these two dimensions. The scientists created two levels for their measurement, with the first level focusing on selecting inputs and outputs that represent efficiency and the second level focusing on inputs and outputs that represent effectiveness. Efficiency output variables will be used as effective inputs. The data collection process can identify elements that contribute to the inefficiency and lack of effectiveness of the Micro Waqf Bank.

RESULT AND DISCUSSION

Data Envelopment Analysis (DEA)

We obtained the development of the efficiency conditions of Micro Waqf Banks in Indonesia from 2018 to 2020 using the Data Envelopment Analysis (DEA) technique, which can be seen in the following figure.

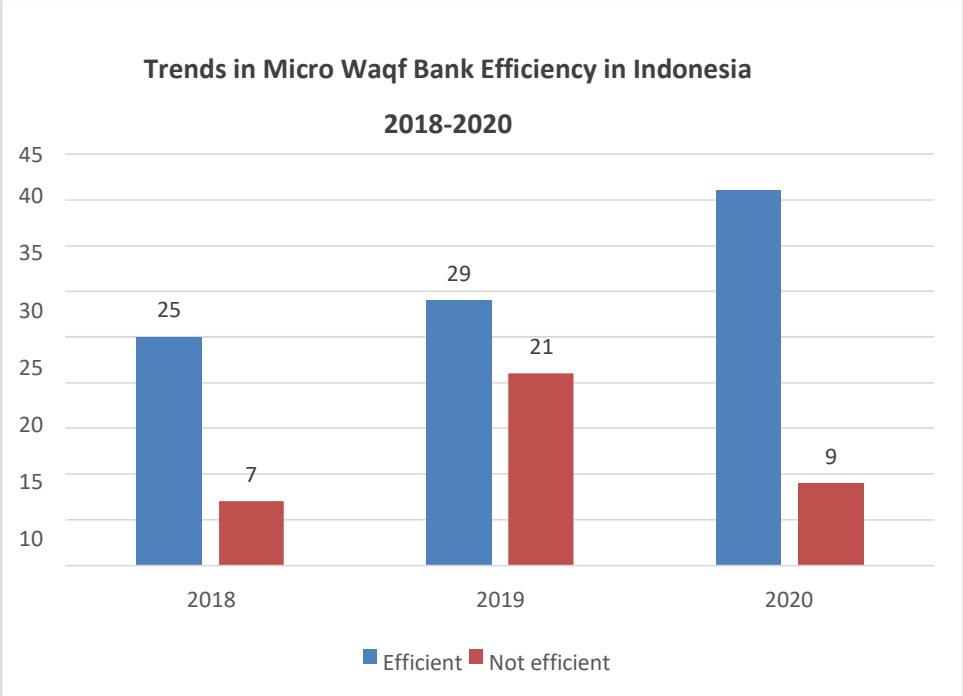

Figure 2. Development of Efficiency of Micro Waqf Banks in Indonesia in 2018-2020

In 2018, the number of Micro Waqf Banks that were established was 40, but only 32 units had complete data that could be processed. Figure 2 above shows that of the 32 Micro Waqf Bank units in 2018, there were 25 efficient Micro Waqf Bank units, or around 78%, and 7 Micro Waqf Bank units were in an inefficient condition. In 2019, according to data from OJK, there were 56 units of Micro Waqf Banks spread across 18 provinces in Indonesia. Still, the Micro Waqf Banks with complete data to be processed in 2019 were 50 units of Micro Waqf Banks 29 or 58% of them in efficient conditions, and 21 BWM. units were in inefficient conditions, and in 2020 from a sample of 50 units, the number of efficient Micro Waqf Banks increased to 41 units or around 82%.

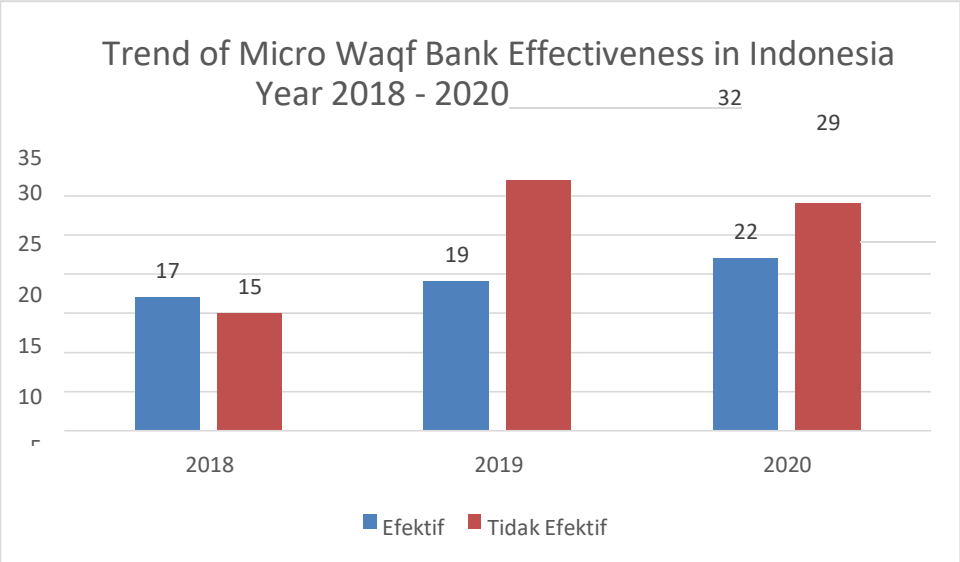

Figure 3. Trend of Micro Waqf Bank Effectiveness in Indonesia in 2018 - 2020

Figure 2 above shows the number of efficient Micro Waqf Banks in Indonesia from 2018 to 2020. In 2018, out of 32 Micro Waqf Banks units with complete data, there are 17 units or around 53% effective BWMs. In 2019, out of 51 units of Micro Waqf Banks that have complete data, 19 units or around 37 BWMs are effective, which is very low compared to the number of ineffective Micro Waqf Banks, which is 32 BWM units. 2020, at the beginning of the COVID-19 pandemic, the number of compelling Micro Waqf Banks increased to 22 units or around 43%.

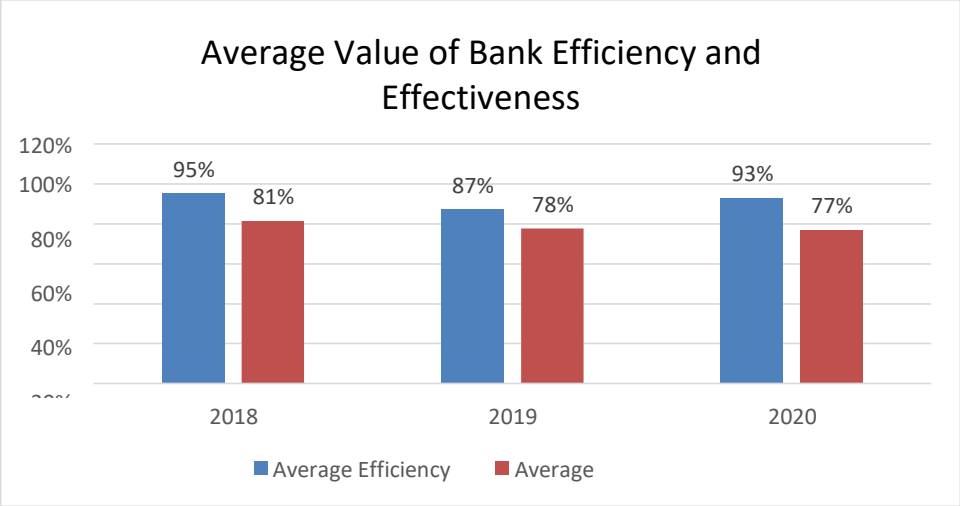

Figure 4. Average Efficiency and Effectiveness of Micro Waqf Banks

Figure 4 shows that the average practical value of the Micro Waqf Bank in 2018 is 95% while the average effectiveness value is 81%. In 2019, the average efficiency value of the Micro Waqf Bank was 87%, while the average effectiveness value was 78%. For 2020, the average efficiency value of the Micro Waqf Bank in

2018 was 95% while the average effectiveness value was 81%. It can be seen that the average effectiveness value from 2018 to 2020 is always below the average efficiency value. Based on the Micro Waqf Bank group, the average value of efficiency and effectiveness can be seen in the following figure.

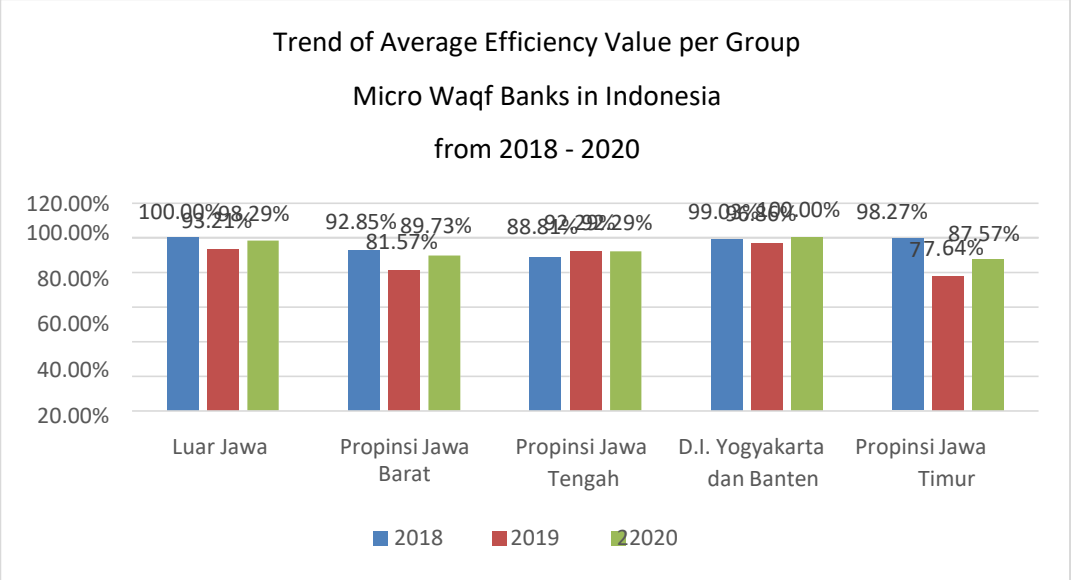

Figure 5. Trend of Average Efficiency Score of Perk Group of Micro Waqf Banks

From Figure 5, it can be seen that the average efficiency value in the group of Micro Waqf Banks located outside Java in 2018 was 100%; in 2019, it decreased to 93.21%, and during the covid-19 pandemic, namely in 2020, the efficiency value increased to 98.29%. The average efficiency value in the group of Micro Waqf Banks located in West Java province in 2018 was 92.85%; in 2019, it decreased to 81.57%, and in 2020 the efficiency value increased to 89.73%. The average efficiency value in the group of Micro Waqf Banks located in Central Java province in 2018 was 88.81%; in 2019, it increased to 92.29%, and in 2020 the efficiency value increased slightly to 92.75%. Micro Waqf Banks included in the D.I.Yogyakarta and Banten groups in 2018 had an efficiency value of 99.03%; in 2019, it fell to 96.86%, and in 2020, it became efficient because it reached a value of 100%. The BWM group in East Java province in 2018 had an efficiency value of 98.27%; in 2019, the efficiency value fell to 77.64%; in 2020, it rose to 87.57%.

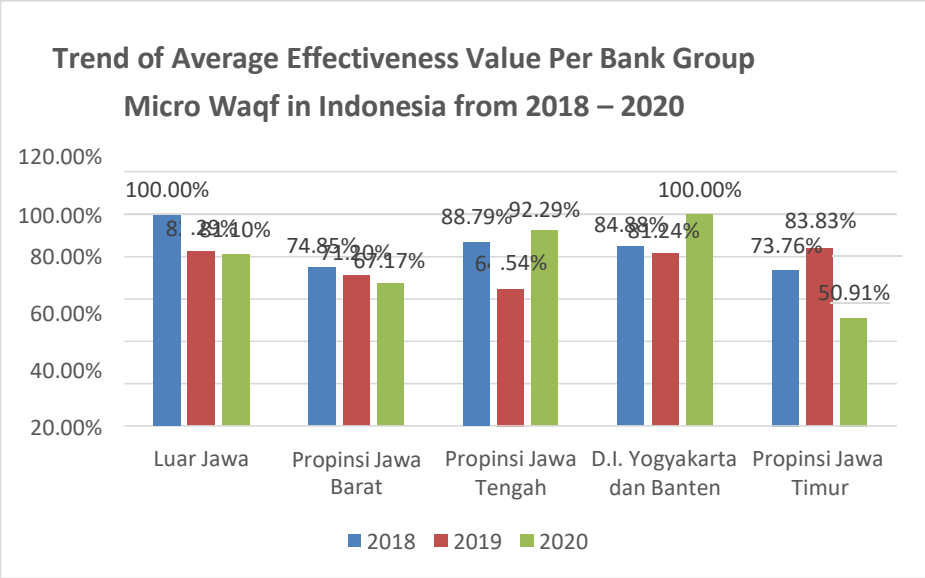

Figure 6. Trend of Average Effectiveness Score Per BWM Group

From Figure 6. it can be seen that the average effectiveness value in the group of Micro Waqf Banks located outside Java in 2018 was 100%; in 2019, it fell to 82.29%, and during the COVID-19 pandemic, namely in 2020, the efficiency value fell to 81.10%. The average efficiency value in the group of Micro Waqf Banks located in West Java province in 2018 was 74.85%; in 2019, it dropped to 71.20%, and in 2020 the efficiency value dropped again to 67.17%. The average efficiency value in the group of Micro Waqf Banks located in Central Java province in 2018 was 88.79%; in 2019, it decreased to 81.24%, and in 2020 the efficiency value increased to 92.29%. Micro Waqf Banks included in the D.I.Yogyakarta and Banten groups in 2018 had an efficiency value of 73.76%; in 2019, it rose to 83.83%, and in 2020, it fell again to 50.91%.

Thus, in Figure 5. the average efficiency value of Micro Waqf Banks in areas outside Java in 2018 was the highest; in other Micro Waqf Bank groups, none reached an average value of 100%; this indicates that the Micro Waqf Bank group located outside Java has been able to operate efficiently. In 2019, the highest average efficiency value of the Micro Waqf Bank in the D.I. Yogyakarta and Banten group, was 97%, and for 2020, the Micro Waqf Bank groups in D.I. Yogyakarta and Banten all operate in an efficient condition because they have an average efficiency value of 100%, while the other Micro Waqf Bank groups have an average efficiency value below 100%.

In 2019, the Micro Waqf Bank in the D.I. Yogyakarta and Banten group had the highest average efficiency value, 97%. For 2020, the Micro Waqf Bank groups in D.I. Yogyakarta and Banten all operate efficiently because they have an average efficiency value of 100%, while the other Micro Waqf Bank groups have an average efficiency value below 100%.

Discussion

Efficiency and Effectiveness Analysis of Micro Waqf Banks Before the Covid-19 Pandemic

When an economic unit performs its duties well, the unit is efficient. Efficiency can also be described mathematically as the ratio of output to input, or the quantity of output produced from one input. An organization is considered efficient if:[24]

1) If greater output can be achieved with the same input.
2) Fewer inputs are required to achieve the same result.
3) More significant inputs can produce better output results.

"efficiency" refers to the practical and economical utilization of assets in performing organizational tasks. In this context, "efficiency" refers to using fewer inputs to obtain the same output. Efficiency can be defined as the ratio between planned and actual input consumption. Efficiency can be measured in several ways, including the Ratio, Regression, and Frontier approach.[25] The Stochastic Frontier Approach (SFA) is a parametric form of the frontier approach, while Data Envelopment Analysis (DEA) is a non-parametric form. The frontier method is preferred over regression because it can explain changes in output prices using programming or statistical techniques. Since inputs and other exogenous factors can significantly impact observed performance, these methods are increasingly being adopted to determine the efficiency of economic units.

Micro Waqf 2018 is out of 32 units of Micro Waqf Banks measured; 25 units or around 78% efficient and inefficient. There are 7 BWM units. The Micro Waqf Bank group outside Java has an average efficiency value of 100%, meaning that all Micro Waqf Banks operate efficiently, it is possible that only 3 BWM units were sampled due to limited data obtained. The percentage achieved is undoubtedly quite large, and economically it is certainly a success for the parties who gave birth to the Micro Waqf Bank. This efficient condition in efficiency theory is that the Micro Waqf Bank has been able to maximize its input to produce its output. 2018 is the second year of operation of the Micro Waqf Bank in Indonesia, and from this young age, almost all of them can achieve 100% technical efficiency. This result supports the research results of Singh et al., who said that new companies can also achieve higher levels of efficiency with solid fundamentals, rational policies, and management.[26]

In 2019, the number of Micro Waqf Banks has increased from 2018 to 56 units, and of the 50 Micro Waqf Bank units that have complete data, 29 units or around 58% are in an efficient condition. The percentage of the number of efficient Micro

[24]Iskandar. "Studi Efisiensi Perbankan Syariah Di Kota Lhokseumawe Dan Aceh Utara", dalam *Al-Tahrir*, Vol.12, No.1, (2012), 67.

[25] Tachega, Mark Awe, dkk. "Energy efficiency evaluation of oil producing economies in Africa: DEA, malmquist and multiple regression approaches." dalam *Cleaner environmental systems*, Vol.2 (2021): 100025.

[26]Singh, Surender., dkk. "Technical efficiency and its determinants in microfinance institutions in India: a firm level analysis", dalam *Journal of Innovation Economics & Management*, Vol.11, No.1, (2013), 28.

Waqf Banks is greater than the number of other Microfinance Institutions in Indonesia, namely BPRS, which was only 17% in 2015, even though the Micro Waqf Bank is the latest form of Microfinance Institution. The average technical efficiency of Micro Waqf Banks in Indonesia in 2019 was 87%, while the lowest efficiency value was 39%. This percentage is still higher than some empirical findings related to the efficiency of microfinance institutions in Tanzania.[27,28,29] where the average value of technical efficiency ranges from 14.5% to 69.0%. In Indonesia, the research findings using DEA method on the efficiency value of 11 cooperatives in Jakarta area with CRS method or the average efficiency value of CRS method is 60.07 percent and VRS is 76.46 percent.[30]

Figure 2 shows that in 2018, the Micro Waqf Bank had an efficiency rate of 95% and an average effectiveness value of 81%, while in 2019, the figures were 87% efficient and 78% effective, respectively. It is clear that the average efficiency score is higher than the average effectiveness score from 2018-2019, and the average effectiveness score is lower than the average efficiency score. This finding is consistent with the findings of Ascarya and Yusgiantoro & Trinugroho, who found that efficiency does not always equal effectiveness.[31,32] Technical efficiency, which is measured by the extent to which a given level of input produces a desired level of output, is the type of efficiency considered here. When the minimum amount of effort yields the maximum profit, it is efficient. The difference between efficiency and effectiveness lies in the fact that the former requires activities to consider issues of cost, energy, and time. At the same time, the latter does not because to achieve a target or goal, it is necessary to do anything, while efficiency requires activities to consider issues of cost, energy, and time. The following table displays the results of the researcher's measurements, which show that many Micro Waqf Banks have managed to combine efficiency and effectiveness effectively:

[27]Ahmad Azhari Pohan. . "*Efisiensi Kinerja Bank Umum Syariah (BUS) dan Bank Pembiayaan Rakyat Syariah (BPRS) di Indonesia*", (2015),54.

[28]Erasmus Kipesha. "Production and Intermediation Efficiency of Microfinance Institutions in Tanzania", dalam *Research Journal of Finance and Accounting*, Vol.4, No.1, (2013), 155.

[29]Nyankomo Marwa & Meshach Aziakpono. "Technical and scale efficiency of Tanzanian saving and credit cooperatives", dalam *Journal of Developing Areas*, Vol.50, No.1, (2016), 34.

[30] Nihal Palitha Jayamaha, dkk. "Empirical analysis of the Baldrige Criteria as both an organisational performance measure and a theoretical model", dalam *Measuring Business Excellence,* Vol.15, (2011), 26.

[31] Ascarya, Ascarya. "An investigation of waqf-based Islamic micro financial institution models to identify the most effective model for Indonesia." dalam *Journal of Islamic Accounting and Business Research* (2024).

[32] Yusgiantoro, Inka, Putra Pamungkas, and Irwan Trinugroho. "The sustainability and performance of Bank Wakaf Mikro: waqf-based microfinance in Indonesia." dalam *International Journal of Islamic and Middle Eastern Finance and Managemen*t, Vol.17, No. 1 (2024): 86-101.

Table 6. List of Efficient and Effective BWMs in 2018 -2020

Tahun 2018	Tahun 2019	Tahun 2020	Keterangan	
BWM 2	BWM 5	BWM 5	Luar Jawa	
BWM 3	BWM 8	BWM 9	Jawa Barat	
BWM 9	BWM 15	BWM 15	Jawa Tengah	
BWM 10	BWM 16	BWM 20	D.I Yogyakarta dan Banten	
BWM 14	BWM 20	BWM 21	Jawa Timur	
BWM 16	BWM 23	BWM 23		
BWM 21	BWM 24	BWM 24		
BWM 23	BWM 35	BWM 26		
BWM 26	BWM 43	BWM 28		
BWM 34	BWM 44	BWM 29		
BWM 35	BWM 52	BWM 33		
BWM 51	BWM 54	BWM 51		
BWM 52	BWM 57	BWM 53		
	BWM 59	BWM 57		

Source: Data Processing Results

From the table above, it can be seen that in 2018, where the number of BWMs established was 40 units and whose efficiency and effectiveness could be measured, there were 32 BWM units; those operating efficiently and effectively were 13 BWM units or around 40%. This is undoubtedly a good thing, considering that 2018 was the second year of establishing the Micro Waqf Bank in Indonesia. When viewed from this condition, the results of this measurement do not support the results of Soemitra's research, which concluded that high efficiency does not necessarily indicate high effectiveness.[33]

A company's effectiveness can be measured by how well it meets its objectives. When an organization is well-managed, it is successful in achieving its goals. One measure of a program's success is its description of the full range of outcomes obtained from its inputs.[34] The effectiveness of a work process is measured by how much the results it produces help the organization get closer to its goals. Measuring effectiveness is challenging because the outcomes are more intangible and difficult to define. The achievement of outcomes is often not known in the short term but in the long term after the program is successful, making it difficult to measure effectiveness, consequently effectiveness measures are usually expressed qualitatively based on quality in the form of statements (judgment), so that if the quality produced is good, then the effectiveness is also good.

The number of members can judge the efficiency of an Islamic microfinance organization it can lift out from under the poverty line, or the distribution of its members' income generation. In order to improve people's lives and reduce inequality and poverty, the Micro Waqf Bank was established as a resource for

[33] Soemitra, Andri, dkk. "The role of micro Waqf bank in women's Micro-Business empowerment through Islamic social finance: Mixed-Method evidence from Mawaridussalam Indonesia." dalam *Economies*, Vol.10, No. 7 (2022): 157.

[34] Ika, Lavagnon A., and Jeffrey K. Pinto. "The "re-meaning" of project success: Updating and recalibrating for a modern project management." dalam *International Journal of Project Management*, Vol.40, No. 7 (2022): 835-848.

small communities across Indonesia that do not have access to capital or Financing through traditional banking channels. The ultimate goal is to reduce the overall number of disadvantaged people, especially surrounding the Micro Waqf Banks. BPS determines the poverty level based on the population's consumption level of basic needs, which includes food and non-food items.[35]

Some research findings suggest that microfinance institutions play a role in poverty alleviation. Islamic microfinance programs seem to spur more ethical behavior and economically lead to poverty alleviation. Findings from Prasetyo, et al.[36] This shows the feasibility of Islamic microfinance in terms of application, spending, utilization, and repayment. In addition, Islamic microfinance has a favorable influence on microenterprise success and poverty reduction. According to Safitri & Sukmana,[37] The value of funding provided by LKMS Denanyar Sumber Barokah (X) is positively correlated with the endogenous variable, namely poverty, as measured by customer income (Y), which indicates that Micro Waqf Banks, especially LKMS Denanyar Sumber Barokah, are beneficial in alleviating poverty. Thus, there are several Micro Waqf Banks that are in an efficient and effective condition but still cannot be said to be fully effective because the measurements taken are still limited to technical measurements, not economic ones, because, as previously explained, economic effectiveness measurements are somewhat difficult to measure in the short term, because outcomes can only be achieved in the long term.

Efficiency and Effectiveness Analysis of Micro Waqf Banks during the Covid-19 Pandemic

In 2020, the world had to face a major problem: the spread of a disease caused by a virus known as the coronavirus, or COVID-19 for short. Almost every aspect of modern life is shifting, and this is causing widespread concern. COVID-19 has paralyzed all sectors, including the economic sector. Several researchers, such as Hadiwardoyo have studied the impact of the COVID-19 pandemic on the economy.[38] The pandemic has also affected Islamic microfinance institutions because many of the institutions' markets, M.S.M.E.s, have closed their businesses due to the COVID-19 pandemic.[39] The pandemic negatively influences microfinance institutions' performance because MSME players are the main customers for microfinance institutions. [40]

[35] Ulber Silalahi. *Asas-asas manajemen*. (Bandung: Refika Aditama, 2017), 158.

[36]Ageng Prasetyo, dkk. "The Effectiveness of Islamic Microfinance Distribution on Microbusiness Owner's Poverty Alleviation (Case Study: BMT Bina Masyarakat Purworejo)", dalam *Afkaruna*, Vol.14, No.1, (2018), 18.

[37]Revita Adelia Safitri & Raditya Sukmana. "Efektifitas Bank Wakaf Dalam Mengurangi Kemiskinan", dalam *Jurnal Ekonomi Syariah Teori Dan Terapan*, Vol.6, No.10, (2019), 1943.

[38]Wibowo Hadiwardoyo. "Kerugian Ekonomi Nasional Akibat Pandemi Covid- 19", *Baskara: Journal of Business and Entrepreneurshi*p, Vol.2, No.2, (2020), 85.

[39] Herianingrum, Sri, dkk. "The role of Islamic economics and social institutions during the time of Covid-19." dalam *Journal of Islamic Marketing*, Vol.15, No. 8 (2024): 2144-2162.

[40]Ermawati, Tuti., dkk. "The COVID-19 pandemic and its impact on microfinance institutions in Indonesia", dalam *Enterprise, Development and Microfinance*, Vol.32, No.1–2, (2021), 8

The problems faced by MSMEs will certainly have an impact on the operations of microfinance institutions and will affect the efficiency and effectiveness of microfinance institutions. The findings of Zheng & Zhang,[41] The covid-19 pandemic's impact on the decline in economic activity has an impact on both the financial and social efficiency of microfinance institutions (MFIs), with the financial efficiency of MFIs declining while the social efficiency of MFIs increasing. From the results of data processing, it is obtained that the average efficiency value of Micro Waqf Banks in Indonesia in 2020 is 93% and the average value of effectiveness is 77%, which has increased from 2019, where the average efficiency value is 87% and the average value of effectiveness has decreased by 1% from 2018. This result is different from Zheng & Zhang's findings where covid -19 has weakened the efficiency of 73 Microfinance Institutions in 11 Asian developing countries, (including 5 Microfinance institutions from Indonesia), due to high loan interest rates resulting in customer defaults.

CONCLUSION

Based on the research conducted, two conclusions can be drawn regarding the efficiency and effectiveness of Micro Waqf Banks when before the COVID-19 pandemic, based on analysis using the Data Envelopment Analysis (DEA) method, in 2018 of the 32 Micro Waqf Bank units measured, around 78% or 25 units of them were efficient, while 7 units were inefficient. The average efficiency value of Micro Waqf Banks in 2018 was around 95%. Furthermore, about 93% or 22 units of the total banks were considered effective with an average effectiveness score of 81%. It was also found that Micro Waqf Banks outside Java had the highest average efficiency and effectiveness scores in 2018, reaching 100%. In 2019, although efficiency decreased to around 58% or 29 units out of 51 units measured, the average efficiency still reached 87%. Effectiveness also decreased to around 37%, with an average effectiveness of 78%. Micro Waqf Banks in D.I. Yogyakarta and Banten showed the highest efficiency value of 97%, while the group of Micro Waqf Banks in East Java had the highest effectiveness of around 83.83%.

Furthermore, in 2020 at the onset of the COVID-19 pandemic, the measurement results showed an improvement in the efficiency and effectiveness of the Micro Waqf Banks. Of the 50 units sampled, around 82% or 41 of them were considered efficient, with an average efficiency score of around 93%. The number of units considered effective also increased from 2019 to 22 units, with an average effectiveness of 77%. Micro Waqf Banks in D.I. Yogyakarta and Banten are still performing the best with the highest efficiency and effectiveness scores of 100% and 98.35% respectively. This shows that despite the pandemic challenges, the performance of Micro Waqf Banks remains relatively consistent

[41]Zheng, Chen & Zhang, Junru. 2021. "The impact of COVID-19 on the efficiency of microfinance institutions", dalam *International Review of Economics and Finance*, Vol.71, (2021), 218.

in terms of efficiency and effectiveness. The advice that can be given from the research results is that the Management of the Micro Waqf Bank needs to make a budget, especially for operational costs and the disbursed financing budget, based on data from the previous period so that activities can run consistently, efficiently and effectively. Furthermore, further research is expected to create a performance assessment model for the Micro Waqf Bank because the characteristics of the Micro Waqf Bank are different from other Islamic microfinance institutions.

Author's Contribution

Heriyati Chrisna: Contribute to formulating research ideas, collecting data, processing data, and interpreting data.

Asmuni: Contributing to writing systematics, researchmethods, analyzing interpretation results.

Andri Sumitra: Contributed to compiling a literature review.

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The author declares that there is no conflict of interest.

Ethical Approval

Ethical approval No patient-identifying parts in this paper were used or known to the authors. Therefore, no ethical approval was requested.

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