
Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

The Efficiency of Conventional Rural Banks and Sharia Rural Banks: Case in Central Java

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ABSTRACT

This research is quantitative research with a non-parametric approach. This study aims to analyze the efficiency of Conventional Rural Banks (BPRK) and Sharia Rural Banks (BPRS) in Central Java from 2018-2021. This study used a Data Envelopment Analysis (DEA) analysis tool with a VRS (Variable Return to Scale) approach. The research objects used are 5 BPRK and 5 BPRS in Central Java. Variables were used in this research is input and output variable. The input variables Total Asset, Third-party funds, Labor costs and the outputs variables are total credit and total income. The results showed that 3 BPRK and 3 BPRS had achieved perfect efficiency. In 2018 the average efficiency value was 0.959, in 2019 it was 0.989, in 2020 it was 0.990 and in 2021 it was 0.998. The average efficiency value during the 2018-2021 period was 0.984. In addition, for inefficient BPRK and BPRS, they can manage inputs and outputs by looking at other BPRs that have achieved perfect efficiency and become benchmarks in this study, namely BKK Bapas 69, BKK Purwodadi, BPR Surya Yudhakencana, BPRS Artha Surya Barokah, BPRS Buana Mitra officer and BPRS Harta Insan Karimah.

Keywords: efficiency, bpr, data envelopment analysis (DEA)

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

INTRODUCTION

The position of the bank as an entity that serves as a go-between, bringing together parties with various interests in terms of money collection and distribution as well as the support of financial transactions and payment traffic. Because banks are required to thoroughly and accurately evaluate each credit application filed by a prospective debtor, channeling funds in the form of providing credit or financing and various other types of productive assets is the role that is most at risk. Since no one can predict the future, banking activities are naturally fraught with danger and are therefore referred to as risk assets (risk assets) (USANTI & SHOMAD, 2016).

Banks are obviously involved in fundraising efforts and the distribution of money to individuals and businesses. Financial reports are one of the informational tools used to assess a company's performance, including banks. We are able to assess the performance of banking activities over a specific time period based on the financial statements. Whether the bank can fulfill the necessary aims or not is the objective to be attained (SARI & TANJUNG, 2020).

Banking must perform well in order to play its vital role as a financial institution. Efficiency is one sign. The efficiency level attained is an indication of high-caliber performance. An anticipated performance metric is a capacity to generate the greatest output from the currently available input (CHOLLISNI & AMINUDDIN, 2015). Menurut (HIDAYAH N. , 2016) asserts that the evaluation of bank efficiency is crucial since efficiency depicts a bank's performance. Additionally, banks must maximize their output while using the least amount of input feasible in order to operate efficiently. Additionally, it is a component that banks must take into account in order to act sensibly and reduce the amount of banking risk in their operations.

Efficiency is one of the most used performance metrics in the banking industry. It is also commonly utilized because it provides a solution to the challenges associated with computing banking performance measurements (KISMAWADI, 2018). Banking must operate well because it is one of indonesia's emerging financial institutions. Efficiency is one approach to gauge a bank's performance, with the utilization of inputs and outputs used in bank operations serving as a proxy for banking efficiency (NUGRAHA & WAHYU, 2013). Efficiency is defined simply as the ratio between input and output, (ROSYADI, 2017).

There is no such thing as efficiency in islam. According to the producer's theory, pressing costs as much as possible to obtain the greatest profit will lead to despotic actions that are not consistent with the spirit of islam. In islam, achieving optimal profit is accomplished by making an optimal effort (working hard) to produce something while upholding sharia ethics and a sense of balance (takaful). The earnings must be matched against the effort and hardship put in (DAMAYANTI, 2018).

Efficiency is a fundamental economic principle that serves as a barometer for all economic behavior, but in the absence of defined guidelines, it is very possible for this concept to be abused and exploited by market participants for fraudulent purposes. Consequently, from an islamic perspective, neither the phrase efficiency nor economy is value-free (ARISATUL, 2013).

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

"Entrepreneurship on Global Economics Development in the Era of Society 5.0"

Islam views economics, or *iqtishad*, as a branch of justice and balance (derived from the arabic term *qosdun*) (equally balanced).

The greek word translated as "simple" in the : "وَأَفْصِدْ فِي مَشَلِّكَ", passage is "and simplify in walking," or "and make simple." middle, not fast or slow, according to tafsir ibn katsir (6/342) and al-qurbuty (14/17) (YUNIA & KADIR, 2014). When a muslim is able to maximize his personality as effectively as possible, even the prophet saw placed islamic values on that person. In this context, efficiency is defined as doing all work that is useful and leaving work that is ineffective and a waste of time (ARISATUL, 2013).

BPR, a component of the banking system that significantly contributes to the Indonesian economy, is known for being more active in selling its goods in rural or traditional markets. Banking industry competition is currently tightening as Sharia banks, which do business according to Islamic law, start to appear. The inevitable competition between conventional banks and Islamic banks affects a bank's development in both positive and bad ways. One of the steps a bank can take to set itself apart from other banks is to improve the effectiveness of the banking process itself. This is crucial in order to optimize the output while using the least amount of input possible by banks. If banks can operate in these conditions, they can be regarded as effective (Adilho & Setyowati, 2014).

A mathematical method that can ascertain a bank's overall productivity is required to evaluate its performance. The efficiency analysis method is another name for this method. In this instance, relative efficiency is in doubt. A BPR's relative efficiency is its performance in comparison to other BPRs in the sample that employ the same inputs and outputs. The ratio of the total weighted output to the entire weighted input is what is known as the relative efficiency value (Septianto & Widiarsih, 2010). It will eventually have an impact on the level of productive activity from loaned funds to increase the amount of output generated from production activities in the form of loan loans (Akbar & Wuryani, 2018). Banks are anticipated to be able to carry out a minimal input level with a certain output or produce an ideal output with an existing input level in order to measure efficiency. Allocating inputs and outputs will allow for a deeper investigation of the reasons for inefficiency (Setyono, Yusuffia, Ilmundhita, & Mujib, 2021).

Rural banks that operate according to sharia law or conventional business practices are referred to as conventional rural banks. BPRK and BPRS are an option for the community and MSMEs who need financing on a relatively small scale due to the simple process and affordable access, allowing the assets controlled by BPRK and BPRS to grow. In order to work with the government and society to improve the welfare of the ummah by developing the economy in accordance with the requirements of each financial institution's regulations, both conventional and Islamic sharia-based, BPRK and BPRS constantly strive to be solid, dependable institutions and professionals (Meriyati & Hermanto, 2021).

Previous studies on the effectiveness of financial institutions have been conducted. (Fauzi, 2018) used the DEA Approach to examine the effectiveness of the BPRS in the Central Java Province from 2012 to 2016, with effective results for 5 straight years. Data Envelopment Analysis is used (Almas, 2018) to assess the effectiveness of BPRS and BPRK in East Java. The results show that there are 2 BPRK out of 5 samples of effective Conventional BPR. The DEA Window Analysis technique was also used by (Ni'mah & Laila, 2022) to conduct research on Islamic Commercial Banks.

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

Without utilizing samples, studies comparing the effectiveness of Islamic and conventional banks were also conducted, with the conclusion that Islamic banks can lessen the consequences of the world financial crisis (Novandra, 2014). The study's findings (Amirillah, 2014) indicate that BPRS is not included in the average efficiency of Islamic banking, which is 99.94%.

The purpose of this study was to examine the level of conventional BPR and Islamic BPR in Central Java, which had never been investigated previously, based on prior research.

Perhaps by identifying the contributing elements to inefficiency, initiatives to enhance the performance quality of Conventional BPRs and Sharia BPRs, which are not yet efficient in Central Java, can be put into place.

METHOD

This form of quantitative research uses secondary data gathered from the Financial Services Authority's official website. The population of conventional BPR and sharia BPR in Central Java provided the research subject. Because BPRK and BPRS have a similar propensity for lending to and financing the MSME sector and have relatively little capital compared to commercial banks, those factors led to the selection of this study object. The five conventional people's credit banks (BPRK) and the five Islamic people's financing banks (BPRS) with the biggest assets that were active in Central Java between 2018 and 2021 served as the study's sampling criteria.

Table 1. Central Java examples of conventional and sharia BPRs

No.	BPR Name	No.	BPRS Name
1	BPR BKK BAPAS 69	6	BPRS Artha Surya Barokah
2	BPR BKK Karangmalang	7	BPRS Buana Mitra Perwira
3	BPR BKK Purwodadi	8	BPRS Harta Insan Karimah Surakarta
4	BPR BKK Purwokerto	9	BPRS Sukowati Sragen
5	BPR Surya Yudhakencana	10	BPRS Suriyah

Source: Data processed

This study compares input and output factors to make them comparable. Total assets, third-party funds (DPK), and labor costs are employed as input factors; total loans and total income are used as output variables. The choice of these factors is influenced by the strategy employed, specifically intermediation, which serves as a bridge between parties who have surplus funds and those who need them, and the primary functions of Islamic banks as a type of bank (Rifki, 2015). It was decided to employ input and output variables since it was thought to be the most suitable for BPR.

Table 2. Data Types and Sources

No.	Variable Name	Variable Type	Unit	Data Source
1	Total Asset	Input	Thousand Rupiahs	OJK
2	Third-party funds	Input	Thousand Rupiahs	OJK
3	Labor costs	Input	Thousand Rupiahs	OJK
4	Total Credit	Output	Thousand Rupiahs	OJK
5	Total Income	Output	Thousand Rupiahs	OJK

Source: Data processed

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

"Entrepreneurship on Global Economics Development in the Era of Society 5.0"

Data Envelopment Analysis, a non-parametric methodology, is used in this work (DEA). The DEA is a non-parametric frontier method that compares the output and input ratios for all comparable units in a population using a linear program (Ramadhan, Purnomo, Muhtarom, & Chuzaimah, 2017). The purpose of DEA analysis is to assess efficiency in the use of resources (inputs) to achieve results (outputs) whose purpose is to maximize efficiency. Additionally, DEA compares an organization's efficiency to the best organizational performance in the same group to determine its relative effectiveness. Decision Making Units (DMUs) are the acronym for the discrete units that make up a DEA analysis. According to Muharam and Pusvitasari (2007), the CCR and BCC DEA models are two that are frequently used to gauge effectiveness. Model CCR developed by Charnes, Cooper, dan Rhodes pada tahun 1978 yang mengasumsikan adanya Constant Return to Scale (CRS). By assuming a Constant Return to Scale, Charnes, Cooper, and Rhodes created the CCR model in 1978. (CRS). According to the CRS assumption, a proportional change in any level of input will result in a corresponding change in the level of output (eg, a 1 percent increase in the input will result in a 1 percent increase in output). The VRS makes the assumption that all measurable inputs will result in changes at various output levels and that production size can have an impact on efficiency. This sets it apart from the CRS premise, which claims that the scale of production has no bearing on efficiency (Naufal & Firdaus, 2017).

This analysis method was selected since DEA shows each DMU's efficiency in comparison to the other DMUs in the sample. An analyst can use this efficiency score to determine which DMUs require the greatest attention and to develop remedial actions for those who are less/less efficient (Septianti & Widiharih, 2010). The Variable Return of Scale (VRS) approach model is used in this study because it aims to determine the true level of efficiency without being constrained by any restrictions.

$$\begin{aligned} Eff &= \text{Min} \sum_{i=1}^m ViXij + Uo \\ \sum_{r=1}^s UrYrj - \sum_{i=1}^m ViXij + Uo &\geq 0; j = 1, \dots, n \\ \sum_{r=1}^s UrYrj &= 1 \\ Ur &\geq 0; r = 1 \\ vi &\geq 0; i = 1, \dots, m \end{aligned}$$

RESULT AND DISCUSSION

The Data Envelopment Analysis (DEA) approach will be used in this discussion to show the efficiency levels of 5 conventional rural banks (BPRK) and 5 sharia rural banks (BPRS) during the 2018–2021 study period, as well as the average efficiency level attained by BPRK and BPRS. The BPRK and BPRS Central Java Quarterly Financial Reports at the Financial Services Authority provided information on input and output variables. A BPRK or BPRS is capable of optimizing all of its resources if the measurement result that appears in DEA is 1 or 1,000, however, if the score is less than 1 or 1,000, the BPRK or BPRS is not yet performing at its best in its capacity as an intermediary institution. Previous research revealed that between 2012 and 2016, 5 BPRS had an efficiency level of 26 BPRS (Fauzi, 2018). Only 2 of the 21 BPRS in Central Java included in the same research from 2016 to 2018 met the efficient level (Hidayah, Alfie, & Ayuningtyas, 2020). The Central Java People's Credit Bank is classified as unhealthy between 2015 and 2017 when looking at the

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

BOPO ratio because the resulting ratio is too high, making it ineffective (Nurullasari, Yusroni, & Astuti, 2018).

Table 3. Results of Analysis using Data Envelopment Analysis (DEA)

No	Bank name	Results	Predicate
1	BPR BKK BAPAS 69	1,000	Efficient
2	BPR BKK Karangmalang	0,930	Inefficient
3	BPR BKK Purwodadi	1,000	Efficient
4	BPR BKK Purwokerto	0,965	Inefficient
5	BPR Surya Yudhakencana	1,000	Efficient
6	BPRS Artha Surya Barokah	1,000	Efficient
7	BPRS Buana Mitra Perwira	1,000	Efficient
8	BPRS Harta Insan Karimah Surakarta	1,000	Efficient
9	BPRS Sukowati Sragen	0,965	Inefficient
10	BPRS Suriyah	0,982	Inefficient

Source: Results of DEA data processing

Table 3 summarizes the results of the Data Envelopment Examination (DEA) analysis of banking efficiency levels for the BPR and BPRS groups in the years 2018 to 2021. The analysis of the data reveals that throughout the 2018 - 2021 research period, three conventional BPRs BPR BKK BAPAS 69, BPR BKK Purwodadi, and BPR Surya Yudhakencana achieved an efficiency of 1,000. With a score of 0.998, BPR BKK Purwokerto is extremely near the efficient level. The lowest rating was earned by BPR BKK Karang Malang.

Then, in the results of the data processing, three BPRS, namely BPRS Artha Surya Barokah, BPRS Buana Mitra Perwira, and BPRS Harta Insan Karimah, all had an average efficiency of 1,000. The average value of BPRS Syria is close to the efficient level of 0.982 and the average efficiency level there is 0.965, making it the country with the lowest average efficiency level. Despite the fact that some members of the Conventional BPR and Sharia BPR groups have not yet gained efficiency, each sample of Sharia BPR has attained a respectable level of efficiency.

DISCUSSION

The Data Envelopment Analysis (DEA) approach was used by Conventional Rural Banks (BPRK) and Islamic Rural Banks (BPRS) to determine the level of efficiency that was attained throughout the 2018–2021 period.

Table 4. Average Efficiency Levels of BPRK and BPRS in Central Java

Name BPR and BPRS	2018	2019	2020	2021
BPR BKK BAPAS 69	1,000	1,000	1,000	1,000
BPR BKK Karangmalang	0,843	0,945	0,952	0,979
BPR BKK Purwodadi	1,000	1,000	1,000	1,000
BPR BKK Purwokerto	0,943	0,966	0,950	1,000
BPR Surya Yudhakencana	1,000	1,000	1,000	1,000
BPRS Artha Surya Barokah	1,000	1,000	1,000	1,000

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

Name BPR and BPRS	2018	2019	2020	2021
BPRS Buana Mitra Perwira	1,000	1,000	1,000	1,000
BPRS Harta Insan Karimah Surakarta	1,000	1,000	1,000	1,000
BPRS Sukowati Sragen	0,861	1,000	1,000	1,000
BPRS Suriyah	0,945	0,982	1,000	1,000
Average	0,959	0,989	0,990	0,998

Source: Results of DEA data processing

The highest average efficiency level 0.998 occurs in 2021, according to the Technical Efficiency (VRS) results of an analysis of the efficiency level of 5 samples of conventional rural banks and 5 samples of Islamic rural banks during the 2018–2021 research period. The lowest efficiency level 0.959 occurs in 2018. Conventional Rural Banks (BPRK) and Sharia Rural Banks (BPRS) efficiency measurement findings for the 2018–2021 timeframe do not yet reflect perfect efficiency. The efficiency level in 2018 was attained by 3 BPRK samples and 3 BPRS samples, as can be seen. BPRK BKK Karangmalang, which had the lowest average of 0.843 in 2018, was the most inefficient BPRK in 2018. There were only 3 inefficient samples in 2019, and they were BPR Karangmalang (0.945) and BPRS Purwokerto (0.966), with an average of 0.989. Two inefficient BPRKs, Karangmalang BPR with a value of 0.952 and BPR BKK Purwokerto with a result of 0.950, were found in the BPRK and BPRS samples in 2020. While only 1 BPRK, BPR BKK Karangmalang, had inefficiency in 2021 with an average of 0.998 and a result of 0.979, it was the year with the highest average efficiency.

The inefficiencies in BPRK and BPRS arise from all inputs with varying levels of efficiency, including Total Assets, Third Party Funds (DPK), and Labor Costs, as well as all output variables, including Total Credit and Total Income. Both BPRK and BPRS are inefficient on the input side; these inefficiencies are only caused by the variables Third Party Funds (DPK) and Labor Costs. On the other hand, the two output variables Total Credit and Total cause inefficiencies on the output side. Although it is still not at an effective level, it is sufficient to fulfill its function as an intermediary institution.

Inefficiency of 2018

Two BPRK and two BPRS had inefficiencies in 2018, with a combined average of 0.959. Tables 5, 6, 7, and 8 show methods for using BPRK and BPRS to increase efficiency.

Table 5. Value of Original Value and Projected Value of BKK Karangmalang Tahun 2018

Variable	Original Value	Radial Movement	Slack Movement	Projected Value
Output 1	449.699.292.000	83.506.544.897	0.000	533.205.836.897
Output 2	79.900.308.000	14.837.022.819	0.000	94.737.330.819
Input 1	636.967.287.000	0.000	0.000	636.967.287.000
Input 2	555.859.348.000	0.000	-230.106.057.707	325.753.290.293
Input 3	37.659.828.000	0.000	-883.635.879	36.776.192.121

Source: Results of DEA data processing

According to Table 5, BKK Karangmalang is short on two outputs: Total Credit needed to add 83,506,544,897 in the radial movement to reach a project value of

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

533,205,836,897, and Total Revenue needed to add 14,837,022,819 in a radial movement to reach a project value of 94,737,330,819. BKK Karangmalang also had inefficiencies in 2 inputs, Third Party Funds (DPK), which required a reduction in slack movement of 230,106,057,707 to achieve a project value of 325,753,290,293 and Labor Costs, which required a reduction in slack movement of 883,635,879 to achieve a project value of 36,776.192,121.

Table 6. Value of Original Value and Projected Value of BKK Purwokerto Tahun 2018

Variable	Original Value	Radial Movement	Slack Movement	Projected Value
Output 1	483.622.086.000	29.014.379.980	139.794.954.523	652.431.420.502
Output 2	106.965.746.000	6.417.293.356	0.000	113.383.039.356
Input 1	864.317.668.000	0.000	0.000	864.317.668.000
Input 2	750.859.675.000	0.000	-108.965.882.712	641.893.792.288
Input 3	45.222.897.000	0.000	0.000	45.222.897.000

Source: Results of DEA data processing

In order to attain a Project Value of 652,431,420,502 in Table 6, BKK Purwokerto must, in the meantime, add radial movement of 29,014,379,980 to the total credit output and slack movement of 139,794,954,523. Input inefficiencies were also a problem for BKK Purwokerto; Third Party Funds (DPK) had to reduce Slack Movement by 108,965,882,712 to reach a Project Value of 641,893,792,288.

Table 7. Value of Original Value and Projected Value of BPRS Sukowati Sragen Tahun 2018

Variable	Original Value	Radial Movement	Slack Movement	Projected Value
Output 1	137.528.062.000	22.257.200.541	0.000	159.785.262.541
Output 2	19.374.700.000	3.135.553.407	3.941.469.285	26.451.722.691
Input 1	196.068.566.000	0.000	0.000	196.068.566.000
Input 2	133.128.934.000	0.000	-30.679.021.897	102.449.912.103
Input 3	13.248.269.000	0.000	-799.786.011	12.448.482.989

Source: Results of DEA data processing

Table 7 shows a project value of 159,785,262,541 for BPRS Sukowati Sragen, total credit must add radial movement of 22,257,200,541 and total revenue must add radial movement of 3,135,553,407 and slack movement of 3,941,469,285 to accomplish the project value of 26,451,722,691. Third-Party Funds (DPK) were required to reduce slack movement by 30,679,021,897 to obtain a project value of 102,449,912,103, while Labor Costs had to reduce slack movement by 799,786,011 to achieve a project value of 12,448.482,989. BPRS Sukowati Sragen also experienced inefficiencies in 2 inputs.

Table 8. Value of Original Value and Projected Value of BPRS Suriyah Tahun 2018

Variable	Original Value	Radial Movement	Slack Movement	Projected Value
Output 1	133.742.499.000	7.738.147.789	0.000	141.480.646.789
Output 2	15.037.428.000	870.043.861	5.124.643.783	21.032.115.644
Input 1	180.004.279.000	0.000	0.000	180.004.279.000

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

Variable	Original Value	Radial Movement	Slack Movement	Projected Value
Input 2	137.248.573.000	0.000	-21.404.731.467	115.843.841.533
Input 3	10.903.460.000	0.000	0.000	10.903.460.000

Source: Results of DEA data processing

Table 8 shows BPRS Suriyah also encountered a shortage of 2 outputs, namely Total Credit, which required an additional Radial Movement of 7,738,147,789 to achieve a Project Value of 141,480,646,789, and Total Revenue, which required an additional Radial Movement of 870,043,861 and Slack Movement of 5,124,643,783 to achieve a Project Value of 21,032,115,644. Both BPRS Suriyah's input and output were inefficient, and Third Party Funds (DPK) had to reduce Slack Movement by 21,404,731,467 to reach a Project Value of 115,843,841,533 as a result.

Inefficiency of 2019

Inefficiency with an average of 0.989 was observed in 2 BPRK and 1 BPRS in 2019. Tables 9, 10, and 11 show methods for utilizing BPRK and BPRS to increase efficiency.

Table 9. Value of Original Value and Projected Value of BKK Karangmalang Tahun 2019

Variable	Original Value	Radial Movement	Slack Movement	Projected Value
Output 1	495.699.737.000	28.839.684.972	11.860.402.877	536.399.824.849
Output 2	88.991.991.000	5.177.531.465	0.000	94.169.522.465
Input 1	681.644.762.000	0.000	0.000	681.644.762.000
Input 2	591.649.370.000	0.000	-34.030.823.356	557.618.546.644
Input 3	64.484.439.000	0.000	0.000	64.484.439.000

Source: Results of DEA data processing

Table 9 shows BKK Karangmalang added Radial Movement of 28,839,684,972 and Slack Movement of 11,860,402,877, which resulted in inefficiencies in both outputs. In order to reach a Project Value of 557,618,546,644, Third Party Funds (DPK) are required to minimize Slack Movement by 34,030,823,356 due to input inefficiencies at BKK Karangmalang.

Table 10. Value of Original Value and Projected Value of BKK Purwokerto Tahun 2019

Variable	Original Value	Radial Movement	Slack Movement	Projected Value
Output 1	543.117.006.000	18.874.359.204	148.419.985.228	710.411.350.431
Output 2	122.316.530.000	4.250.734.369	0.000	126.567.264.369
Input 1	897.876.785.000	0.000	0.000	897.876.785.000
Input 2	774.066.652.000	0.000	-14.363.897.844	759.702.754.156
Input 3	88.276.881.000	0.000	0.000	88.276.881.000

Source: Results of DEA data processing

Table 10 shows BKK Purwokerto has inefficiencies in both of its outputs: Total Credit by adding Radial Movement of 18,874,359,204 and Slack Movement of 148,419,985,228 to create a Project Value of 710,411,350,431 were inefficient. In order to reach a Project Value

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

of 759,702,754,156, Third Party Funds (DPK) are required to minimize Slack Movement by 14,363,897,844 at BKK Karangmalang due to input inefficiencies.

Table 11. Value of Original Value and Projected Value of BPRS Suriyah Tahun 2019

Variable	Original Value	Radial Movement	Slack Movement	Projected Value
Output 1	150.221.305.000	2.691.956.967	0.000	152.913.261.967
Output 2	15.702.561.000	281.388.971	2.288.248.037	18.272.198.008
Input 1	196.298.648.000	0.000	0.000	196.298.648.000
Input 2	142.052.327.000	0.000	-8.898.143.293	133.154.183.707
Input 3	12.407.105.000	0.000	0.000	12.407.105.000

Source: Results of DEA data processing

Table 11 shows BPRS Suriyah, on the other hand, encountered inefficiencies in both outputs, specifically Total Credit by adding Radial Movement of 2,691,956,967 to obtain a Project Value of 152,913,261,967. To get a Project Value of 18,272,198,008 in the Total Income Variable, it is necessary to add a Radial Movement of 281,388,971 and a Slack Movement of 2,288,248,037. Additionally, BPRS Suriyah had inefficient inputs, requiring Third Party Funds (DPK) to reduce Slack Movement by 8,898,143,293 in order to reach a Project Value of 133,154,183,707.

Inefficiency of 2020

2 BPRKs had inefficiencies in 2020, with an average inefficiency of 0.990. Tables 12 and 13 show strategies for utilizing BPRK and BPRS to increase efficiency.

Table 12. Value of Original Value and Projected Value of BKK Karangmalang Tahun 2020

Variable	Original Value	Radial Movement	Slack Movement	Projected Value
Output 1	504.641.520.000	25.364.645.673	53.267.415.102	583.273.580.775
Output 2	96.928.270.000	4.871.876.623	0.000	101.800.146.623
Input 1	736.725.769.000	0.000	-6.333.472.912	730.392.296.088
Input 2	640.296.726.000	0.000	-39.687.674.703	600.609.051.297
Input 3	71.201.882.000	0.000	0.000	71.201.882.000

Source: Results of DEA data processing

Table 12 There were inefficiencies in BKK Karangmalang at 2 inputs and 2 outputs. To reach a project value of 583,273,580,775, a Radial Movement of 25,364,645,673, and a Slack Movement of 53,267,415,102 must be added to the total credit variable. To reach a Project Value of 101,800,146,623, the Total Revenue variable needs an extra Radial Movement of 4,871,876,623. Then, due to the excess Total Assets of 736,725,769,000, there is inefficiency in the inputs. By lowering Slack Movement by 6,333,472,912, it will be possible to obtain an efficiency of Project Value of 730,392,296,088. It was essential to decrease the slack movement by 39,687,674,703 in order to increase efficiency with a project value of 600,609,051,297 because the excess labor costs reached 640,296,726,000.

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

Table 13. Value of Original Value and Projected Value of BKK Purwokerto Tahun 2020

Variable	Original Value	Radial Movement	Slack Movement	Projected Value
Output 1	547.582.877.000	28.592.309.199	127.810.743.800	703.985.930.000
Output 2	118.520.832.000	6.188.623.526	0.000	124.709.455.526
Input 1	881.115.834.000	0.000	0.000	881.115.834.000
Input 2	759.968.202.000	0.000	-27.584.601.455	732.383.600.545
Input 3	88.073.590.000	0.000	0.000	88.073.590.000

Source: Results of DEA data processing

Table 13 shows BKK Purwokerto also encountered inefficiencies at two outputs and one input. To get to the project value of 703,985,930,000, you must add a Radial Movement of 28,592,309,199 and a Slack Movement of 127,810,743,800 to the total credit variable. However, in order to reach a Project Value of 124,709,455,526 for the Total Revenue variable, there must be an extra Radial Movement of 6,188,623,526. Following input inefficiencies brought on by excess Third Party Funds (DPK) of 759,968,202,000, an efficiency of Project Value of 732,383,600,545 will be achieved by lowering Slack Movement of 27,584,601,455.

Inefficiency of 2021

There will be 1 BPRK in 2021 with an average inefficiency of 0.998. Table 14 shows strategies for maximizing efficiency from BPRK and BPRS.

Table 14. Value of Original Value and Projected Value of BKK Karangmalang Tahun 2021

Variable	Original Value	Radial Movement	Slack Movement	Projected Value
Output 1	508.225.478.000	11.116.619.078	0.000	519.342.097.078
Output 2	89.976.635.000	1.968.094.912	0.000	91.944.729.912
Input 1	786.192.660.000	0.000	-87.558.065.220	698.634.594.780
Input 2	687.186.824.000	0.000	-105.667.840.064	581.518.983.936
Input 3	63.994.995.000	0.000	0.000	63.994.995.000

Source: Results of DEA data processing

According to Table 14, only one BPRK sample the BKK Karangmalang experimented with inefficiency during the 2021 period. A deficit of two outputs and an excess of two inputs lead to inefficiency. With a project value of 519,342,097,078, there is a lack of Radial Movement in the Total Credit output of 11,116,619,078 that needs to be filled in order to operate efficiently. Despite a 1,968,094,912 shortfall in the variable Total Revenue, efficiency was attained with a project value of 91,944,729,912. Since the project value is 698,634,594,780, it is required to reduce the slack movement of 87,558,065,220 in order to make the Total Asset input efficient, which has an excess of 786,192,660,000. The Third Party Funds (DPK) variable has a surplus of 687,186,824,000, but with a project value of 581,518,983,936, it must minimize the slack movement of 105,667,840,064 to achieve efficiency.

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

Reduce less productive assets or double offices using a leasing system in order to manage total assets at the highest degree of efficiency for BPRK and BPRS. Conduct financing in a way that third-party funds are directed, increasing total credit and total income while enhancing workforce quality and human resource development through targeted and frequent training. Additionally, BPRK and BPRS can work with organizations dedicated to advancing the sharia economy, particularly sharia banking.

Table 15. Reference Banks for Inefficient BPRK and BPRS

No	Bank Name	Year			
		2018	2019	2020	2021
1	BPR BKK Karangmalang	BKK Bapas 69, BKK Purwodadi, BPR Surya Yudhakencana	BKK Bapas 69, BKK Purwodadi, BPR Surya Yudhakencana	BKK Bapas 69, BKK Purwodadi, BPR Surya Yudhakencana	BKK Bapas 69, BKK Purwodadi, BPR Purwokerto, BPR Surya Yudhakencana
2	BPR BKK Purwokerto	BKK Bapas 69, BKK Purwodadi, BPR Surya Yudhakencana	BKK Bapas 69, BKK Purwodadi, BPR Surya Yudhakencana	BKK Bapas 69, BKK Purwodadi, BPR Surya Yudhakencana	-
3	BPRS Sukowati Sragen	BPRS Artha Surya Barokah, BPRS Buana Mitra Perwira, BPRS Harta Insan Karimah Surakarta	-	-	BPRS Artha Surya Barokah, BPRS Buana Mitra Perwira, BPRS Harta Insan Karimah Surakarta
4	BPRS Suriyah	BPRS Artha Surya Barokah, BPRS Buana Mitra Perwira, BPRS Harta Insan Karimah Surakarta	BPRS Artha Surya Barokah, BPRS Buana Mitra Perwira, BPRS Harta Insan Karimah Surakarta, BPRS Sukowati Sragen	-	BPRS Artha Surya Barokah, BPRS Buana Mitra Perwira, BPRS Harta Insan Karimah Surakarta

Source: Data processed

Based on Table 15, the possibility for increasing input and output variables needs to be examined in an effort to raise the efficiency value and ultimately reach perfect efficiency. Conventional BPRs for the years 2018–2021 mention BKK Bapas 69, BKK Purwodadi, and BPR Surya Yudhakencana. In the meantime, BPRS Artha Surya Barokah, BPRS Buana Mitra Perwira, and BPRS Harta Insan Karimah are mentioned in the Sharia Rural Banks for 2018–2021.

IMPLICATIONS

Out of the 10 samples, only 3 BPRK and 3 BPRS were found to have an efficient level, according to the study's findings. While BPRK and BPRS demonstrate that the influence of input and output factors on inefficiency. Therefore, BPRK and BPRS should be allowed to boost public financing because they are intermediary financial institutions, which will affect bank revenues or bank profits.

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

CONCLUSION

The Conventional BPRs that attained an efficiency level of 1,000, or 100%, and did so during the 2018 - 2021 research period include BPR BKK BAPAS 69, BPR BKK Purwodadi, and BPR Surya Yudhakencana, according to the results of assessing the efficiency level for the Conventional BPR sample group. The BPRK with the efficiency level that is closest to perfect is BPR BKK Purwokerto, with a 0.965 score, while BPR Karangmalang has the lowest efficiency with an average score of 0.930. Three BPRS, namely BPRS Artha Surya Barokah, BPRS Buana Mitra, and BPRS Harta Insan Karimah, exhibit 100% effectiveness in the 2019 - 2021 sample group of Sharia BPRs. The average efficiency rating for BPRS Suriyah is close to the level of 0.982, and the average efficiency rating for BPRS Sukowati Sragen is the lowest at 0.965.

REFERENCES

- Adilho, N., & Setyowati, E. (2014). Analisis Perbandingan Efisiensi Antara BPR Konvensional Dan BPR Syariah Di Surakarta Dengan Menggunakan Metode Data Envelopment Analysis (DEA) Periode April 2011 - Maret 2013. 129-143.
- Akbar, R. I., & Wuryani, E. (2018). Analisis Perbandingan Efisiensi Bank Umum Syariah Dan Bank Umum Konvensional Dengan Menggunakan Metode Data Envelopment Analysis.
- Almas, B. (2018). Analisis Efisiensi BPR Konvensional dan BPR Syariah di Provinsi Jawa Timur. 169-184.
- Amirillah, A. (2014). Efisiensi Perbankan syariah di Indonesia. JEJAK, 2, 142-150.
- Arisatul, A. C. (2013). Teori Efisiensi Dalam Ekonomi Islam. 1, 167-182.
- Chollisni, A., & Aminuddin. (2015). Melihat Tingkat Efisiensi Bus Di Indonesia Dengan Metode DEA. Jurnal Islaminomic, 6, 16-33.
- Damayanti, U. R. (2018, Juli - Desember). Analisis Tingkat Efisiensi Kinerja Lembaga Keuangan Mikro Syariah Dengan Pendekatan Data Envelopment Analysis. Tansiq, 1, 121-137.
- Fauzi, M. (2018). Efisiensi bank pembiayaan rakyat syariah (BPRS) di provinsi Jawa Tengah. Jurnal Ekonomi & Keuangan Islam, 4, 31-40.
- Hidayah, N. (2016). Studi komparatif tingkat efisiensi perbankan konvensional dan perbankan syariah di Indonesia. Jurnal Ekonomi & Keuangan Islam, 2, 28-37. Retrieved from <http://journal.uui.ac.id/index.php/jeki>
- Hidayah, U., Alfie, A. A., & Ayuningtyas, R. D. (2020, Desember). Analisis Efisiensi Bank Pembiayaan Rakyat Syariah (BPRS) Wilayah Jawa Tengah dan DIY Dengan Metode Data Envelopment Analysis (DEA) Periode 2016-2018. IHTIYATH, 4, 1-13.
- Kuangan, O. J. (2022). Jakarta: Otoritas Jasa Keuangan.
- Kismawadi, E. R. (2018). Evaluasi Tingkat Efisiensi Bank Pembiayaan Rakyat Syariah Di Provinsi Aceh Dengan Metode Data Envelopment Analysis. EBIS, 3, 1-32.
- Meriyati, & Hermanto, A. (2021). Sosialisasi Sejarah Bank Perkreditan Rakyat (BPR) Dan Bank Perkreditan Rakyat Syariah (BPRS) Kepada Alumni Pondok Al-Iman Yang berada Di Palembang. Jurnal Pengabdian Masyarakat, 1, 44-52.

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

- Naufal, F. M., & Firdaus, A. (2017). Analisis Efisiensi Bank Pembiayaan Rakyat Syariah (BPRS) Wilayah Jabodetabek Dengan Pendekatan Two Stage Data Envelopment Analysis (DEA). *EQUILIBRIUM*, 5, 196-220.
- Ni'mah, F., & Laila, N. (2022, Maret). Apakah Bank Syariah di Indonesia Tergolong Efisien? *Jurnal Ekonomi Syariah Teori dan Terapan*, 9, 182-191. doi:DOI: 10.20473/vol9iss2022pp182-191
- Novandra, R. (2014). Analisis Perbandingan Efisiensi Perbankan Syariah dan Konvensional di Indonesia. *Jurnal Ekonomi dan Pembangunan*, 22, 183-193.
- Nugraha, & Wahyu, B. (2013). Analisis Efisiensi Perbankan Menggunakan Metode Non Parametrik Data Envelopment Analysis. *Jurnal Ilmu Manajemen*, 1, 272-284.
- Nurullasari, H., Yusroni, N., & Astuti, E. B. (2018). Analisis Laporan Keuangan dalam Menilai kesehatan Kinerja Keuangan Perusahaan Pada PT. Bank Perkreditan Rakyat (BPR) Jateng Tahun 2013-2017. *AKSES*, 13, 16-21.
- Ramadhan, A., Purnomo, D., Muhtarom, M., & Chuzaimah. (2017). Mengukur Tingkat Efisiensi Bank Pembiayaan Syariah dengan Menggunakan Data Envelopment Analysis (DEA). *CAKRAWALA Jurnal Studi Islam*, 12, 113-119.
- Rifki, A. (2015). Efisiensi Kinerja Bank Umum Syariah Di Indonesia Menggunakan Data Envelopment Analysis. *EDAJ*. Retrieved from <http://journal.unnes.ac.id/sju/index.php/edaj>
- Rosyadi, I. (2017). Komparasi Efisiensi Perbankan Syariah Dan Perbankan Konvensional Di Indonesia. *Riset Akuntansi dan Keuangan Indonesia*, 2, 60-74.
- Sari, L. P., & Tanjung, H. (2020, April). Efisiensi Di Bank Syariah: Studi Empiris Pada Unit Usaha Syariah Bank Pembangunan Daerah Di Indonesia. *Jurnal Akuntansi dan Keuangan Islam*, 8, 5-20.
- Septianti, H., & Widiharih, T. (2010). Analisis Efisiensi Bank Perkreditan Rakyat Di Kota Semarang Dengan Pendekatan Data Envelopment Analysis. *Media Statistika*, 3, 41-48.
- Septianto, H., & Widiharsih, T. (2010). Analisis Efisiensi Bank Perkreditan Rakyat. *Media Statistika*, 3, 41-48.
- Setyono, F., Yusuffia, N., Ilmundhita, S., & Mujib, A. (2021). Analisis Efisiensi Perbankan Syariah Pada Masa Pandemi Covid-19 Menggunakan Data Envelopment Analysis (DEA). *I-FINANCE*, 07, 11-30.
- Usanti, D. T., & Shomad, P. A. (2016). Hukum Perbankan. *KENCANA*.
- Yunia, D. I., & Kadir, D. A. (2014). Prinsip Dasar Ekonomi Islam Perspektif Maqashid Al-Syariah. *KENCANA*.