

## THE EFFICIENCY OF ISLAMIC RURAL BANKS (BPRS) IN SOUTH SULAWESI

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### Abstract

*This study aims to determine the efficiency level of Islamic Rural Banks (BPRS) in South Sulawesi and determine what influences it. The study population is the BPRS in South Sulawesi registered with the Financial Services Authority (OJK). The study sample used the purposive sampling method and obtained 7 BPRS in South Sulawesi. The data source comes from the quarterly financial reports of the BPRS. The analysis technique is two stages – data envelopment analysis (DEA). The results of the first stage, using DEA, found that the average efficiency of the BPRS Indo Timur, Dana Moneter, Surya Sejati, Investama Mega Bakti and Harta Insan Karimah Makassar was 1, Niaga Madani was 0.829, while Gowata was 0.993. The second stage, using Tobit regression, found that fixed assets, operating costs, and operating income showed significant results in the alpha value. Meanwhile, total savings, profit-sharing financing, and productive assets showed no significant results on the alpha value. The first stage concludes that the BPRS in South Sulawesi is not included in the efficient level. In the second stage, the variables of fixed assets, operating costs, and operating income partially affect the efficiency value of the BPRS.*

**Keywords:** BPRS, DEA, Efficiency, Tobit Regression

### INTRODUCTION

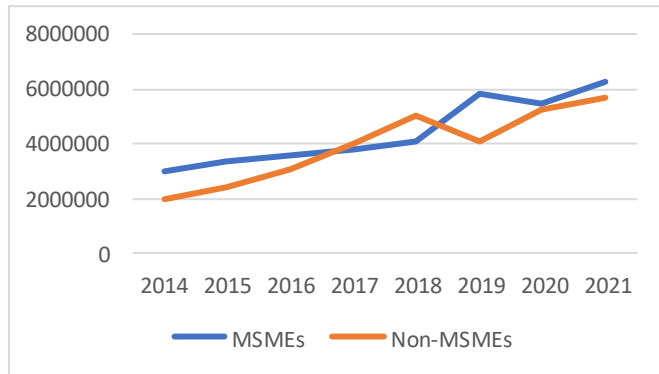
Micro, Small, and Medium Enterprises (MSMEs) are a part of the national economy that are self-reliant and have great potential to improve people's welfare. MSMEs have a fundamental role in people's lives, namely as a source of income and a means of developing both the skills and potential they have (Naufal & Firdaus, 2018, Miranti et al., 2022). The existence of MSMEs strongly influences the economic growth of a country. The significant contribution of MSMEs to GDP, which is 61.97%, proves that more than half of Indonesia's economic activities are supported by MSMEs (BKPM, 2021). However, on the other hand, MSMEs are still experiencing obstacles in developing their activities. One of the biggest problems faced by MSMEs is capital, both the fulfillment of working capital and investment capital (Ilham & Yanti, 2015). In order to create MSMEs that continue to progress and continue to develop, one of them is by helping to fulfill credit or financing obligations in the form of delaying principal installments and interest subsidies carried out by financial institutions, especially banks (BPS, 2021).

Ilyas (2015) said that the primary function of banking itself is as an institution that collects funds from the public in the form of savings and distributes them back to the community in the form of credit or financing. This function is usually known as the financial intermediation function. The financial intermediation function is carried out to increase the community's standard of living, whose implementation is implemented to increase economic growth, development equality, and national stability. Concerning improving people's living standards, Law No. 21 of 2008 states that "Islamic Rural Banks are Islamic banks which in their activities do not facilitate services on the payment line, but efficiently BPRS has a strategic role in improving people's living standards"

In providing financing, both for urban and rural areas, the role of BPRS is quite significant for the growth of MSMEs. The existence of a BPRS has a purpose, namely as a

provider of banking services and products for the economically weak and SMEs (Almas, 2018). That is what makes BPRS have a significant market share dominance over MSMEs. Sharia Banking Statistics show that BPRS financing is more dominantly channeled to the MSMEs sector (Figure 1).

**Figure 1**  
**Graph of BPRS Financing Based on Funding Classes for 2014-2021**  
**(in a million rupiah)**



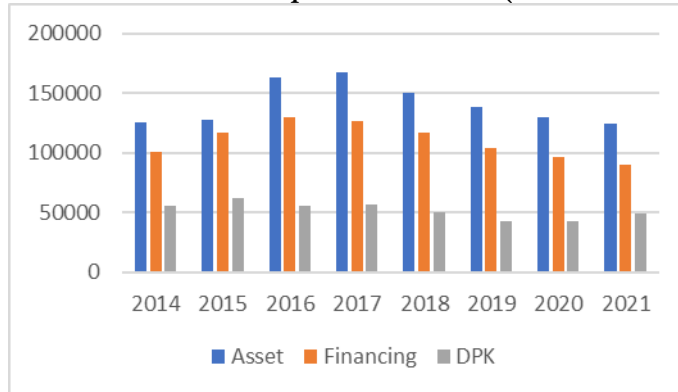
Source: Sharia Banking Statistics, processed data (2022)

From Figure 1, it can be seen that over the past eight years, financing from BPRS has been more dominant in the MSME sector and has continually increased than in the non-MSME sector. The graph shows that in 2021 the enormous amount of financing in the MSME sector is IDR 6.273.086.000.000, or the growth of financing in the MSME sector will increase by around 14% from the previous year. The success of BPRS in providing services to MSMEs is because MSMEs have advantages, namely the location of the BPRS, which is quite close to the people, easy service methods, and fast processes, and also prioritizes a personal approach to the surrounding community (Naufal & Firdaus, 2018).

As an object of research, South Sulawesi has several advantages, such as tourist attractions, many industries, trades, and MSMEs. The number of MSME actors in South Sulawesi is 1.2 million out of 8.9 million people (Diskominfo, 2021). The structure of Indonesia's economic growth partially on Sulawesi Island is in fourth place with a GDP of 6.66%. However, in 2020 the province of South Sulawesi will experience a stretch of economic growth of -0.70% (BPS, 2021). As a result, almost all business lines are paralyzed, causing people's income to fall so that public spending is also reduced (Kusnandar, 2021). That is because the Gross Regional Domestic Product (GRDP) growth in South Sulawesi has contracted in four consecutive quarters from the second quarter of 2020 to the first quarter of 2021 (Kusnandar, 2021). According to Malik Faisal, the Head of the South Sulawesi Cooperative and MSME Service, most of the MSME development is still hampered by access to capital from the banking sector (Alamsyah, 2021). Let us look at the performance and soundness of banks at BPRS in South Sulawesi. It shows that they have carried out the bank intermediation function but experienced a relative decline in assets owned by third-party fund management and distribution in the form of financing. In the last few years, BPRS in South Sulawesi experienced a yearly decline in assets and financing, while Third Party Funds (DPK) began to increase in 2021 (Figure 2).

**Figure 2**

**Diagram of the Growth of Assets, Financing, and Third Party Funds (DPK) of BPRS in South Sulawesi for the period 2014-2021 (In Millions of Rupiah)**



Source: Sharia Banking Statistics, processed data (2022)

Based on Figure 2, it can be concluded that the BPRS in South Sulawesi has decreased in assets and financing each year, while Third Party Funds (DPK) have begun to increase in 2021. After knowing the importance of financing to develop and strengthen the MSME sector in South Sulawesi, especially financing from BPRS, it is necessary to implement a performance measurement and analyze the factors that influence its performance. Thus, it is expected to find a solution to the problem regarding the shortcomings of the BPRS in implementing its intermediation function. A measurement that can show the performance of a healthy, transparent, competent, and prudent bank and can maintain its stability is the efficiency measurement (Nugroho et al., 2019).

Efficiency in banking is used as a measure of bank performance to determine whether the bank is experiencing good performance or not. If a bank has maximum efficiency, then the bank is experiencing good performance and shows the bank is experiencing growth. However, on the contrary, if the efficiency is not maximal, it shows the bank is experiencing poor performance, which causes a decline in the bank (Hidayah et al., 2020).

Berger and Mester (Haris and Hastuti (2013), efficiency in the banking industry can be seen from two perspectives, namely a micro perspective and a macro perspective. Meanwhile, Kost and Rosenwig in Sari et al. (2018) said that there are three factors a company can be said to be efficient, namely 1) If with significant inputs it can produce greater output; 2) If with fewer inputs can produce the same output; 3) If the same input can produce a more significant number of outputs.

Several studies on the efficiency of Islamic banking, including the BPRS, have been conducted in Indonesia. A study conducted by (Ramadan & Muhtarom, 2017; Sakti & Mohamad, 2018; Fiafifah & Darwanto, 2019) stated that Islamic banking in Indonesia is efficient. However, some researchers have a different opinion, namely expressed by (Naufal & Firdaus, 2018; Khairunnisa & Khasanah, 2018; Khusnah et al., 2020; Pantas et al., 2021), that Islamic banking in Indonesia is at an inefficiency level. Many Islamic banking companies have fluctuating efficiency levels, so they are inconsistent. This study aims to examine the efficiency of the BPRS in South Sulawesi and analyze the factors that influence it.

Based on the description above, the research problem is formulated, namely, whether Islamic Rural Banks (BPRS) in South Sulawesi are included in the level of

efficiency and whether total savings, fixed assets, operating costs, profit sharing financing, productive assets, and operating income have a partial effect on the level of efficiency of Islamic Rural Banks (BPRS) in South Sulawesi. The aim is to determine the efficiency level of the BPRS in South Sulawesi and what factors influence the efficiency value.

## RESEARCH METHODS

### Research Approach

This research is included in quantitative research (Sugiyono, 2017) using a non-parametric method. Two stages - Data Envelopment Analysis (DEA) (Setyono et al., 2021; Lan et al., 2022; Jin et al., 2022; Rodrigues et al., 2021).

### Population and Sample

The population in this study is the Islamic Rural Banks (BPRS) in South Sulawesi, registered with the Financial Services Authority (OJK). The sampling technique used is the purposive sampling technique. The criteria determined for sampling are BPRS registered with OJK and having complete quarterly financial reports from 2014 quarter I to 2021 quarter IV. From the results of the determination of the sample, it was found that seven BPRS met (Table 1).

Table 1.

#### Research Sample

No.	BPRS name
1.	PT BPRS Indo Timur
2.	PT BPRS Dana Moneter
3.	PT BPRS Surya Sejati
4.	PT BPRS Niaga Madani
5.	PT BPRS Gowata
6.	PT BPRS Investama Mega Bakti
7.	PT BPRS Harta Insan Karimah Makassar

Source: www.ojk.go.id

### Variable Assessment

In the first stage to measure the efficiency level of the BPRS, the assessment of the input variables in this study is the resources owned by the BPRS, which come from the financial statements in the form of total savings, fixed assets, and operational costs. In contrast, the assessment of the output variable is the income of the BPRS from its operational activities originating from the financial statements in profit-sharing financing, productive assets, and operating income. In the second stage, to analyze the factors that affect the efficiency value, the dependent variable assessment is the value of the efficiency level between 0-1. In contrast, the independent variable is the same variable used for the input and output variables.

### Data Analysis Technique

Data analysis consists of two stages. The first stage is to calculate the efficiency level of the BPRS. The non-parametric frontier approach is used with statistical test measurements; the non-parametric method is Data Envelopment Analysis (DEA). The research variables include input variables consisting of total savings, fixed assets, and operational costs, while the output variables consist of profit-sharing financing, productive assets, and operating income.

According to Coelli et al. 2005 in Binuko et al. (2015), calculating efficiency using DEA is done by ratifying all outputs to all inputs. This study uses three input variables and three output variables, so the efficiency equation is written as follows:

$$\text{Efficiency BPRS} = \frac{\sum_{k=1}^3 \mu_k Y_{k0}}{\sum_{i=1}^3 v_i X_{i0}}$$

Information:

- $Y_{k0}$  : the number of outputs (k0) produced ( $o_1, o_2$  and  $o_3$ )
- $X_{i0}$  : the number of inputs (i0) used ( $i_1, i_2$  and  $i_3$ )
- $\mu_k$  : weight of output (k) produced by BPRS
- $V_i$  : weight of input (i) given by BPRS
- k : counted from 1 to 3
- i : counted from 1 to 3

Non-parametric DEA method model that will be applied for this research is the Variable Return to Scale (VRS) model developed by Banker, Charnes, and Cooper (BCC model) in 1984, which is the development of the previous CCR model. The results of the efficient value using DEA are weights that range from zero to one. The efficient Economic Activity Unit (UKE) has a value of 1, while a value less than one indicates inefficiency. The essence of DEA is to assign weights or scales to each UKE input and output. The weights are:

1. No negative value
2. It is universal, meaning that each UKE in the sample must be able to use the same set of weights to evaluate the ratio, and the ratio cannot be more than 1.

The second stage of this study namely analyzing the factors that influence the efficiency value using Tobit regression (Liang et al., 2021). James Tobin was the first to introduce Tobit regression in 1958. The variable used in the Tobit regression is the dependent variable, namely the efficiency score between 0-1, which comes from the results in the first stage. In contrast, the independent variables in the form of input and output variables are used in the first stage.

For example, ( $y_i, x_i$ ) are the values of the independent variable (X) and the dependent variable (Y) for a sample of size n, so the Tobit regression model equation according to Tobin 1958 (Naufal & Firdaus, 2018) is as follows:

$$y_i^* = \beta_0 + \beta_1 X_i + \varepsilon_i$$

Where  $y_i = y_i^*$ , if  $y_i^* < 1$   
 $y_i = 1$ , if  $y_i^* = 1$

Information:

- $y_i^*$  = value of the actual response variable
- $y_i$  = change from  $y_i^*$
- $\beta_0$  = estimation parameter
- $\beta_1$  = coefficient
- $x_i$  = independent variable
- $\varepsilon_i$  = error term where  $\varepsilon_i \sim N(0, \sigma^2)$

If it is written in the Tobit regression model, then the estimated regression model by including six independent variables in this study will obtain the initial model, namely:

$$\text{Efficiency} = \beta_0 + \beta_1 \text{Total Savings} + \beta_2 \text{Fixed Assets} + \beta_3 \text{Operation Costs} + \beta_4 \text{Profit Sharing Financing} + \beta_5 \text{Productive Assets} + \beta_6 \text{Operating Income} + \varepsilon_i$$

## RESULTS AND DISCUSSION

### RESULT

This sub-chapter will show several things, including descriptive research data statistics (Table 2). The aim is to make it easier for researchers and readers to conduct further analysis. Furthermore, Table 3 shows the efficiency value of BPRS in South Sulawesi during the study period.

**Table 2.**

**Research Data Descriptive Statistics (In Thousands of Rupiah)**

Variable	N	Min	Max	Mean
Total Savings	224	624.629	36.745.482	7.715.370
Fixed assets	224	57.060	5.168.223	1.359.770
Operating costs	224	90.284	9.160.318	1.545.553
Profit-Sharing Financing	224	0	15.591.689	1.618.355
Productive Assets	224	1.329.456	75.150.157	19.312.390
Operating Income	224	35.337	12.595.079	2.230.842

Source: Field research, processed data (2022)

The descriptive statistics above describe or describe data. Based on Table 2, the value of N shows the number of samples used in the study, which is 224 data. The data is obtained from the income statement, balance sheet, and reports on the quality of productive assets at the BPRS in South Sulawesi during the period 2014 first quarter to 2021 fourth quarter.

The input variable, namely the total savings variable of BPRS with a minimum value of IDR 624.629 thousand owned by Surya Sejati BPRS in the third quarter of 2020, which means that in that period, depositors of savings accounts, deposits, and current accounts at the BPRS are said to below. Meanwhile, the maximum value of IDR 36.745.482 thousand was owned by a BPRS Dana Moneter in the first quarter of 2016. The average value of the overall total savings of BPRS is IDR 7.715.370 thousand.

The fixed Assets variable shows a minimum value of IDR 57.060 thousand owned by BPRS Indo Timur in the second quarter of 2020. That means the fixed assets owned by BPRS Indo Timur in the form of land, buildings, vehicles, buildings, and others were the lowest. Meanwhile, the maximum value of IDR 5.168.223 thousand was owned by BPRS Dana Moneter in the first quarter of 2019. The average value of the overall fixed assets of BPRS is IDR 1.359.770 thousand.

The operational cost variable shows a minimum value of IDR 90.284 thousand owned by BPRS gowata in the first quarter of 2017, which means that the costs incurred for the company's operational activities are the lowest. Meanwhile, the maximum value of IDR 9.160.318 thousand was owned by BPRS Niaga Madani in the fourth quarter of 2014. The average value of the overall operational costs of BPRS is IDR 1.545.553 thousand.

As for the output variable, namely the profit-sharing financing variable showing the minimum value of IDR 0 is owned by BPRS Indo Timur from the first quarter of 2020 to the fourth quarter of 2021, BPRS Dana Moneter from the first quarter of 2014 to the

fourth quarter of 2021, BPRS Surya Sejati from the second quarter of 2018 to the fourth quarter of 2021, BPRS Niaga Madani from the first quarter of 2014 to the fourth quarter of 2021, BPRS Gowata from the first quarter of 2015 to the fourth quarter of 2021 and BPRS Harta Insan Karimah Makassar from the first quarter of 2014 to the fourth quarter of 2021. That means that profit-sharing financing (mudharabah and musyarakah) is not disbursed by the BPRS. Meanwhile, the maximum value of IDR 15.591.689 thousand was owned by BPRS Investama Mega Bakti in the third quarter of 2014. The average value of the overall profit-sharing financing of BPRS is IDR 1.618.355 thousand.

The productive assets variable shows BPRS Gowata owned a minimum value of IDR 1.329.456 thousand in the second quarter of 2016, which means that investments (both in rupiah and foreign currencies), loans disbursed, securities, and placements with other banks are at least amount in that period. Meanwhile, the maximum value of IDR 75.150.157 thousand was owned by BPRS Dana Moneter in the fourth quarter of 2017. The average value of the overall productive assets of the BPRS is IDR 19.312.390 thousand.

The operational Income variable shows BPRS Harta Insan Karimah Makassar owned a minimum value of IDR 35.337 thousand in the first quarter of 2017. That means that the income from direct bank operations is the lowest obtained. Meanwhile, the maximum value of IDR 12.595.079 thousand was owned by BPRS Dana Moneter in the fourth quarter of 2016. The average value of the overall operating income of the BPRS is IDR 2.230.842 thousand. The above explanation shows that BPRS Dana Moneter has the highest scores of other BPRS, while BPRS Gowata owns the lowest value.

In the first stage, the researcher used DEAP 2.1 software to measure the level of efficiency. It was found that the results of measuring the average efficiency at 7 BPRS in South Sulawesi during the period 2014 first quarter to 2021 fourth quarter (Table 3). The approach used in data processing is the intermediation approach in input orientation which assumes Variable Return to Scale (VRS). The following will display the average results of the efficiency of the BPRS from each quarter per year.

**Table 3.**  
**BPRS Efficiency Value in South Sulawesi Period 2014-2021**

BPRS name	Year							
	2014	2015	2016	2017	2018	2019	2020	2021
Indo Timur	1	1	1	1	1	1	1	1
Dana Moneter	1	1	1	1	1	1	1	1
Surya Sejati	1	1	1	1	1	1	1	1
Niaga Madani	1	0.502	0.730	0.773	0.794	0.882	0.951	1
Gowata	1	1	1	1	1	1	0.950	1
Investama Mega Bakti	1	1	1	1	1	1	1	1
Harta Insan Karimah Makassar	1	1	1	1	1	1	1	1

Source: Results of data processing DEAP 2.1 (2022)

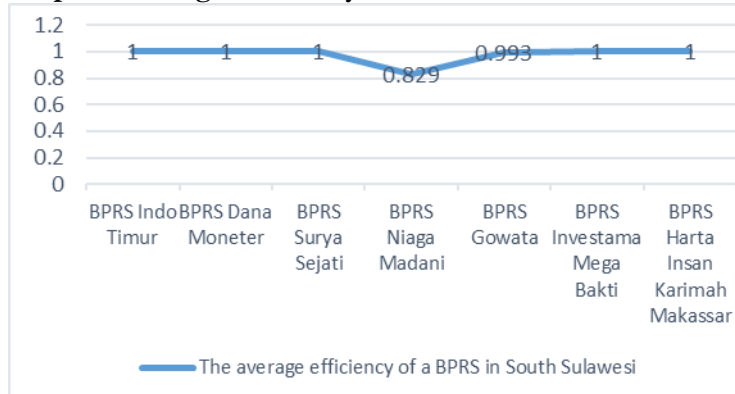
Table 3 shows that most of the BPRS in South Sulawesi from 2014 to 2021 have reached the efficient level, although BPRS are still experiencing inefficiency. The BPRS that experienced efficiency consistently received a score of 1 from 2014 to 2021, namely BPRS Indo Timur, BPRS Dana Moneter, BPRS Surya Sejati, BPRS Investama Mega Bakti, and BPRS Harta Insan Karimah Makassar. Meanwhile, BPRS Niaga Madani 2014 entered the efficient level, then in 2015, it experienced inefficiency until 2020 and returned to the

efficiency level again in 2021. Meanwhile, BPRS Gowata, from 2014 to 2021, only experienced inefficiency once, namely in 2020.

Furthermore, it will display a graph of the achievement of the average efficiency value of each BPRS during the 2014-2021 period. The average efficiency value of each BPRS will be shown in Figure 3 as follows.

**Figure 3.**

**Graph of Average Efficiency Value of Each BPRS in South Sulawesi Period 2014-2021**



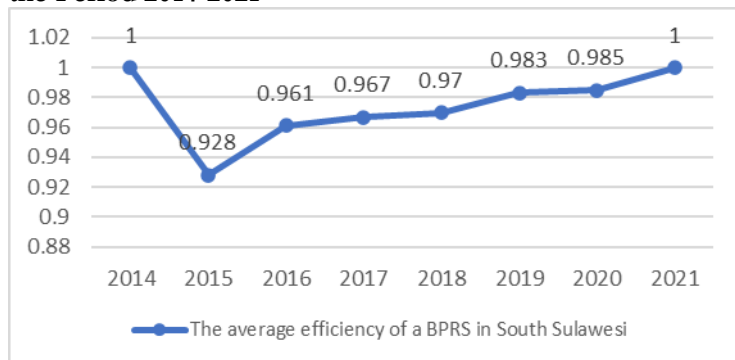
Source: Processed data (2022)

Based on Figure 3 above, it can be seen that there are five BPRS that consistently achieve an efficiency value of 1 (one), namely the BPRS Indo Timur, BPRS Dana Moneter, BPRS Surya Sejati, BPRS Investama Mega Bakti, and BPRS Harta Insan Karimah Makassar. Next, BPRS Niaga Madani obtained an average efficiency value of 0.829. Meanwhile, BPRS Gowata got an average efficient value of 0.993. Based on these results, the overall development of the efficiency level of BPRS in South Sulawesi has reached an average level of efficiency.

The following will display a graph of the average efficiency value of all BPRS in South Sulawesi from 2014 to 2021. The average efficiency value of all BPRS will be shown in Figure 4 as follows.

**Figure 4.**

**Graph of the Average Efficiency Value of All BPRS in South Sulawesi Each Year During the Period 2014-2021**



Source: Processed data (2022)

Figure 4 shows that the overall efficiency of the BPRS in South Sulawesi is fluctuating. During the research period, BPRS experienced efficiency in 2014 and 2021. Meanwhile, from 2015 to 2020, overall, BPRS in South Sulawesi experienced inefficiency. Based on the measurement results, it was found that the average value of all BPRS for eight years almost reached 1, which is 0.97.



The second stage analyses what factors have influenced the efficiency value of a BPRS in South Sulawesi. This factor analysis uses Tobit regression with the test tool used is Eviews 10 software. In this Tobit Regression, the efficiency value from the first stage will be the dependent variable, while the independent variables come from the input and output variables. In preparing the initial Tobit regression model, it is estimated that all or six independent variables are involved, namely total savings, fixed assets, operating costs, profit sharing financing, earning assets, and operating income. The results of the Tobit regression model are shown in Table 4.

**Table 4.**  
**Tobit Regression Model Test Results**

Variable	Coefficient	Std.Error	z-Statistics	Prob.
C	0.990984	0.008576	115.5503	0.0000
Total Savings	3.205137425543385	1.912720913809418	0.167570	0.8669
Fixed assets	-1.784574106848921	8.301218169384779	-2.149774	0.0316
Operating costs	-3.491399012106878	8.616977469256664	-4.051768	0.0001
Profit-S. Financing	-6.27016514783848	3.115647037804733	-0.201248	0.8405
Productive Assets	1.42795909419924	1.381559900125352	1.033585	0.3013
Operating Income	1.477105348893915	7.069944192162842	2.089274	0.0367

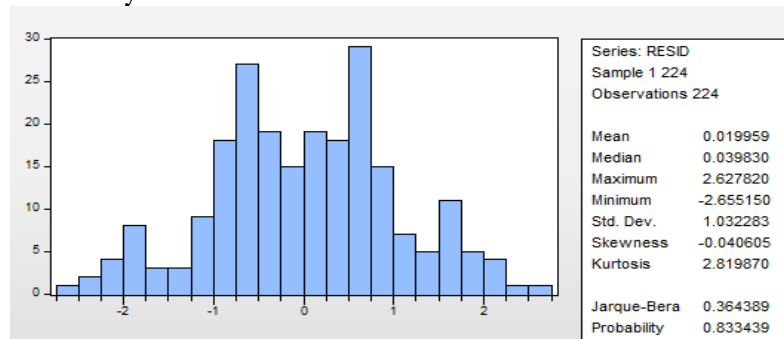
Source: Field research, processed data (2022)

Based on Table 4, the results of the Tobit regression analysis above, the estimation of the equation or the initial Tobit regression model can be arranged as follows:

$$\text{Efficiency value}^* = 0.990984 + 3.205137425543385 \text{ Total Savings} - 1.784574106848921 \text{ Fixed Assets} - 3.491399012106878 \text{ Operating Costs} - 6.27016514783848 \text{ Profit Sharing Financing} + 1.42795909419924 \text{ Productive Assets} + 1.477105348893915 \text{ Operating Income}.$$

Testing the assumptions of the Tobit regression model requires several assumptions, namely the assumption of normality and residual homogeneity. In this study, the residuals were normal (Figure 5) and homogeneous (Table 5). Furthermore, the feasibility test of the model was carried out using the likelihood ratio test (Table 6) and the wald test (Table 7) as parameter significance tests.

**Figure 5.**  
**Normality Test Results**



Source: Field research, processed data (2022)

Based on Figure 5, the probability value of the normality test results of  $0.833439 >$  a significance level of 0.05 or with the test criteria, the Jarque-Bera value is  $0.364389 \leq X^2 = 5,9915$ . Thus, the decision was taken;  $H_0$  was rejected, meaning that the residuals were normally distributed.

**Table 5.**  
**Heteroscedasticity Test Results**

Method	df	Value	Probability
Bartlett	6	10131.53	0.0000
Levene	(6,1561)	307.3686	0.0000
Brown-Forsythe	(6,1561)	126.0624	0.0000

Source: Field research, processed data (2022)

The results of the heteroscedasticity test above show the Barlett value = 0.0000  $\leq$   $X^2 = 12.5916$ . From these results, a decision was taken; namely,  $H_0$  was accepted, meaning there was no heteroscedasticity.

The hypothesis test conducted in this research is that there is an efficiency measurement using DEA in the first stage, and the second stage is a partial effect test using the Wald test. Based on Table 3, the results of the BPRS efficiency measurement in South Sulawesi using the DEA method show that the average overall efficiency value of the BPRS during the 2014-2021 period is 0.97. Because the efficiency value is less than 1, a decision is taken; namely,  $H_0$  is accepted, which means that the BPRS in South Sulawesi is not included in the efficiency level (inefficiency) (Miranti et al., 2022).

**Table 6.**  
**Likelihood Ratio Test Results**

	Value	Probability
<b>Likelihood Ratio</b>	40.13339	0.0000

Source: Field research, processed data (2022)

In Table 6, the results of the likelihood test show the probability value = 0.0000 < 0.05 significance level. Therefore, it was decided that  $H_0$  was rejected, meaning that the Tobit regression model was feasible or could be used. Next is the partial parameter significance testing using the wald test. Wald's test can use statistical tests or from the probability value.

**Table 7.**  
**Wald Test Results**

Variable	Wald	Probability	$X^2 (\alpha;1)$	Conclusion
Total Savings	0.028080	0.8669	3.84	$H_2$ rejected
Fixed assets	4.621527	0.0316	3.84	$H_3$ accepted
Operating costs	16.41682	0.0001	3.84	$H_4$ accepted
Profit-Sharing Financing	0.040501	0.8405	3.84	$H_5$ rejected
Productive Assets	1.068297	0.3013	3.84	$H_6$ rejected
Operating Income	4.365068	0.0367	3.84	$H_7$ accepted

Source: Field research, processed data (2022)

Based on Table 7, three of the six variables have a significant effect at a significance level of 0.05. Partial testing in more detail will be explained as follows.

### Effect of Total Savings on The Value of Efficiency

Based on Table 7, the results show that the total savings variable seen from the probability value shows that the results are not significant to the alpha value (0.8669 > 0.05). Meanwhile, when viewed from statistical tests, the value of wald = 0.028080 <  $X^2 = 3.84$ . So the decision taken is that  $H_2$  is rejected. So it can be concluded that the total savings variable partially does not significantly affect the efficiency value.

### **Effect of Fixed Assets on The Value of Efficiency**

Based on Table 7, the results show that the fixed asset variable from the probability value shows significant results to the alpha value ( $0.0316 < 0.05$ ). Meanwhile, when viewed from statistical tests, the wald value =  $4.621527 > X^2 = 3.84$ . So the decision taken is that  $H_3$  is accepted. Then it can be concluded that partially fixed asset variables significantly influence the efficiency value.

### **Effect of Operational Costs on The Value of Efficiency**

Based on Table 7, the results show that the operational cost variable seen from the probability value shows significant results to the alpha value ( $0.0001 < 0.05$ ). Meanwhile, when viewed from the statistical test, the wald value =  $16,41682 > X^2 = 3.84$ . So that the decision taken is  $H_4$  is accepted. Then it can be concluded that partially the operational cost variable has a significant effect on the efficiency value.

### **Effect of Profit-Sharing Financing on The Value of Efficiency**

Based on Table 7, the results show that the profit-sharing financing variable seen from the probability value shows that the results are not significant to the alpha value ( $0.8405 > 0.05$ ). Meanwhile, when viewed from statistical tests, the wald value =  $0.040501 < X^2 = 3.84$ . So the decision taken is  $H_5$  is rejected. So it can be concluded that the profit-sharing financing variable partially does not significantly affect the efficiency value.

### **Effect of Productive Assets on The Value of Efficiency**

Based on Table 7, the results show that the productive asset variable seen from the probability value shows that the result is not significant to the alpha value ( $0.3013 > 0.05$ ). Meanwhile, when viewed from statistical tests, the wald value =  $1.068297 < X^2 = 3.84$ . So the decision taken is  $H_6$  is rejected. So it can be concluded that the productive asset variable partially does not significantly affect the efficiency value.

### **Effect of Operating Income on The Value of Efficiency**

Based on Table 7, the results show that the operating income variable seen from the probability value shows significant results to the alpha value ( $0.0367 < 0.05$ ). Meanwhile, when viewed from statistical tests, the wald value =  $4.365068 > X^2 = 3.84$ . So the decision taken is that  $H_7$  is accepted. So it can be concluded that the partially operating income variable significantly influences the efficiency value.

## **DISCUSSION**

### **First Stage: The efficiency of Islamic Rural Banks in South Sulawesi**

From the results of the efficiency analysis of Islamic Rural Banks (BPRS) in South Sulawesi using the Data Envelopment Analysis (DEA) method, it is known that during the eight years of the research period, five BPRS achieved an average efficiency value of 1 (one), namely BPRS Indo Timur, BPRS Dana Moneter, BPRS Surya Sejati, BPRS Investama Mega Bakti, and BPRS Harta Insan Karimah Makassar. The five BPRS have an efficiency value of 1 consistently during the study period. Meanwhile, BPRS Niaga Madani and BPRS Gowata are still fluctuating, so the average efficiency value has not yet reached the efficiency value. Based on the measurement results, the average value of the overall efficiency of the BPRS in South Sulawesi for eight years is 0.97. So it is concluded that the BPRS in South Sulawesi is still at the level of inefficiency because the efficiency value is  $< 1$ .

On the other hand, the inefficiency in the 2 BPRS was due to inputs and outputs that were less than optimal. That is under the statement from Naufal and Firdaus (2018)

that inefficiency is due to excessive inputs that are not on target, and the output produced is still not maximized and has not reached the target. Inefficiency occurs in input variables (total savings, fixed assets, operating costs) and output variables (profit-sharing financing, productive assets, and operating income). The following explains the causes of inefficiency.

The number sees the inefficiency in the total savings as an input to the BPRS of deposit inputs more than the desired target. For example, the inefficiency of total savings occurred at BPRS Niaga Madani in the fourth quarter of 2020, where the achievement realization was IDR. 7.295.808 thousand, while the savings target should be IDR. 4.249.023 thousand. That shows that the role of total savings as input is excessive or exceeds the target, meaning that total savings are not yet maximized in their distribution. The BPRS will most likely not produce optimal output for total deposits that are not distributed optimally, meaning that the BPRS is said to have not optimally carried out its intermediation function (Khusnah et al., 2020). So the solution that can be done is to allocate the total excess savings to productive financing. That can be done by increasing the number of financing distributions such as *mudharabah*, *musyarakah*, *istishna*, *ijarah* financing, and other financings. In addition, it was increasing management costs on savings funds such as savings deposits, providing banking services and services supported by IT (information technology) to maintain savings at a reasonable level of profit-sharing to increase BPRS profits. For banks to remain competitive, an increase in management costs must also be accompanied by an increase in the quality of banking services (Naufal & Firdaus, 2018, Khusnah et al., 2020)

Input variable of fixed assets is due to the fixed asset target being more than required or the use of fixed assets being less than optimal. For example, the inefficiency of fixed assets occurred at BPRS Gowata in the third quarter of 2020, where the achievement of Fixed Assets was IDR 1.178.893 thousand, while the fixed asset target should have been IDR. 594.921 thousand. The solution is that fixed assets owned by the BPRS must be used to the maximum. If it cannot maximize, it can be channeled to other fields, such as financing (Khusnah et al., 2020). The acquisition of fixed assets must be consistent with their maximum use to increase the income of the BPRS and achieve efficiency.

The inefficiency in operating costs as input to a BPRS is because the total costs incurred are higher than required. For example, the inefficiency at BPRS Niaga Madani in the fourth quarter of 2020, where achieving operational costs was IDR. 3.915.599 thousand, while the target needed was IDR. 2.498.183 thousand. As for the high operating costs, one of which is because many workers are employed. Quality human resources do not match the rise of Islamic banks in Indonesia, so the development of the banking sector is slow (Gunawan et al., 2017). The need for a sharia workforce is increasing, but the provision of human resources is not balanced with a good understanding of Islamic banks (Khusnah et al., 2020). Therefore, BPRS needs to recruit human resources who have the potential to use modern technology and understand Islamic banking.

The inefficiency in the profit-sharing financing, productive assets, and operating income as output at the BPRS are because the output obtained is minimal or does not meet the target and does not match the input issued. First, profit-sharing financing has a relationship with efficiency through the margin obtained from the distribution of financing. However, significant financing does not bear high margins because it is necessary to consider the amount of non-performing financing the bank has (Aulia, 2021). Second, productive assets have a relationship with efficiency due to the income from all assets owned by banks, both in rupiah and foreign currencies (Aulia, 2021). Third, operating

income is closely related to efficiency regarding bank profits, which will lead to increased profitability and bank performance, leading to efficiency (Aulia, 2021). The solution that can be done is to increase financing by developing innovative products and service fees for input deposits (administrative fees, safe deposit boxes, and others) (Naufal & Firdaus, 2018). This solution will later drive an increase in operating profit and revenue sharing.

In general, to obtain an efficient level, the BPRS is obliged to increase the output variable so that the BPRS can increase income. In contrast, the input variable must be reduced to reduce the costs incurred by the BPRS. The link between increasing output and suppressing input will boost bank efficiency and soundness. Excess input will only cause BPRS to experience inefficiency. Thus the management of the BPRS needs to comply with the prohibition on wasting assets and not excessively stated in the letter Al-Furqon verse 67:

وَالَّذِينَ إِذَا أَنْفَقُوا لَمْ يُسْرِفُوا وَلَمْ يَقْتُرُوا وَكَانَ بَيْنَ ذَلِكَ قَوَامًا

Meaning: "And those who when they spend (wealth) they are not excessive, and are not (also) stingy, and are (the spending) in the middle of that." (Surat al-Furqon: 67)

Based on verse 67 of Surah al-Furqon explains that being stingy and extravagant are different from being frugal. As for saving, what is meant is carrying out the principle of prudence by caring for future needs. Being frugal will be able to use the resources appropriately and still have advantages to be stored and used later. Implementing frugal habits is crucial because it not only maintains an efficient life but can also protect the life to come. To Allah belongs everything in the world and the heavens, so humans should draw closer to Allah. The way to get closer to Allah is if we are given more sustenance, then it can be used for good things, one of which is giving in charity (Khusnah et al., 2020).

BPRS strives to utilize its funds properly to prevent BPRS inefficiency due to low output values from the explanation above. The low output value is caused by the inability of the BPRS to use its funds to the fullest.

## **Second Stage: Factors Affecting the Efficiency Level of Islamic Rural Banks in South Sulawesi**

### **The Effect of Total Savings on the Efficiency Value of BPRS in South Sulawesi**

The number of third-party funds or the total savings collected, whether large or small, is primarily determined by the Funding product. If the savings product offered is more attractive, it will influence people to save, demand or deposit until sufficient funds are available for lending activities (financing). The size of the margin obtained will determine the level of profitability. Therefore, maximizing total savings or third-party funds is crucial in increasing profitability (Fitri, 2016). Judging from the theory that the total savings positively influence the efficiency value, namely, if the total savings increase, it will increase profitability and encourage efficiency levels. Table 7 shows that the total savings variable does not significantly affect the efficiency value. That can be due to the inappropriate allocation of resources. The total savings owned by the BPRS are not optimal in their management. This study does not align with the research results (Sari & Tanjung, 2020), which say that total savings affect efficiency values. BPRS in South Sulawesi, on average, has considerable total savings but is not disbursed in financing. If the bank has high total savings but is not maximally distributed in the financing, then the efficiency approach will get poor results and vice versa (Sari & Tanjung, 2020).

### **Effect of Fixed Assets on the Efficiency Value of BPRS in South Sulawesi**

The fixed asset variable has a significant influence on the efficiency value. That is based on Table 7. The effect of the variable fixed assets on the efficiency value of the BPRS is negative, which means that every one rupiah increase in fixed assets will reduce the chances of the BPRS experiencing financial efficiency. That proves that the total assets owned by banks are not necessarily more efficient than banks with small total assets because an increase in total assets can result in high operational costs (Miranti et al., 2022). High operational costs but not accompanied by high income will cause inefficiency. That is due to the higher operational costs, the lower the profit and vice versa (Sintia Z, 2018), as happened to BPRS Niaga Madani, which had high input operating costs but a low output of operating income. This study supports the results of research conducted by (Khairunnisa & Khasanah, 2018), (Fadilah & Yuliafitri, 2018), and (Fauzi & Daud, 2020), saying that assets or total assets have a significant effect on the level of efficiency.

### **The Effect of Operational Costs on the Efficiency Value of a BPRS in South Sulawesi**

Operational costs are several costs that directly affect the company's activities; it can be said that operating costs are economic resources spent to maintain and continue to generate income (Hidayah et al., 2020). Based on Table 7, operational cost variables significantly affect the efficiency value. The effect of the operational cost variable on the efficiency of the BPRS is negative, which means that every one rupiah increase in operating income will reduce the chances of the BPRS experiencing financial efficiency. Harahap (2011:204) in Faisal (2021) reveals that costs are all charged to products and services sold to earn income. That means that the greater the costs incurred by the company to produce goods and services, the smaller the income earned by the company and vice versa. This study supports the results of research conducted by (Miranti et al., 2022) and (Lutfiana, 2015), which say that operational cost variables influence efficiency.

### **The Effect of Profit-Sharing Financing on the Efficiency Value of BPRS in South Sulawesi**

Profit-sharing financing (musyarakah and mudharabah), channeled to certain businesses and managed by the mudharib, will ultimately generate profits that will later be divided according to the initial agreement. Profits from banks and capital returns will increase Islamic banks' profits (Taslim, 2021). The higher the profit-sharing financing, the higher the company's profitability and efficiency. The profit-sharing financing variable did not significantly affect the efficiency value in this study. That is based on Table 7. This study is not in line with the research results (Sari & Tanjung, 2020). The research of Sari and Tanjung (2020) revealed that the amount of financing significantly influences the efficiency score. The statement shows that the profit is influenced by income from the financing. Meanwhile, on average, BPRS in South Sulawesi has not disbursed financing, both musyarakah, and mudharabah, but has reached an efficiency value of 1, so it is estimated that profit-sharing financing will not affect the efficiency value.

### **Effect of Productive Assets on the Efficiency Value of BPRS in South Sulawesi**

Productive assets include financing/credit, marketable securities, placements with other banks, and investments/investments. Most of the productive assets in financial institutions are used in loans distributed to the public. The high level of collectibility or

return on productive assets of a bank can meet the bank's capital needs obtained from the bank's operating profits. However, on the contrary, if the bank experiences continuous losses, then there is a possibility that the capital owned will be eroded little by little (Chatarine & Lestari, 2014). The productive asset variable does not significantly affect the efficiency value. That is based on Table 7. This study does not align with the research results (Mudzakir, 2019), which say that it significantly affects efficiency. For this reason, it is estimated that productive assets do not affect the efficiency value of BPRS in South Sulawesi. That is because Islamic banks have been unable to maximize their overall productive assets.

### **The Effect of Operating Income on the Efficiency Value of a BPRS in South Sulawesi**

The operating income variable has a significant effect on the efficiency value. That is based on Table 7. The effect of the operating income variable on the efficiency of the BPRS is positive, which means that every one rupiah increase in operating income will increase the chances of the BPRS experiencing financial efficiency. The increase in the efficiency value of banking operations will be in line with the high operating income. That is because it can illustrate that the input costs used by the bank can obtain maximum income or output but remain optimal. The higher the operating income, the better and the increase in the bank's operational efficiency value. This study supports the results of research conducted by (Miranti et al., 2022) and (Lutfiana, 2015), which say that this operating income variable influences efficiency.

### **CONCLUSION**

Based on the research and discussion results, it is known that the efficiency value produced by the BPRS in South Sulawesi during the research period has averaged efficiency. However, there are still two BPRS that are inefficient, so the BPRS in South Sulawesi is not included in the efficient level. The BPRS that experienced efficiency consistently during the research period were the BPRS Indo Timur, BPRS Dana Moneter, BPRS Surya Sejati, BPRS Investama Mega Bakti, and BPRS Harta Insan Karimah Makassar. Of the six variables applied in this study, three partial variables significantly influence the efficiency value, namely fixed assets, operating income, and operating costs. In contrast, the other three variables do not significantly affect the efficiency value, namely total savings, profit-sharing financing, and productive assets.

There are several suggestions that researchers can give. The BPRS in South Sulawesi is expected to maintain and increase efficiency by suppressing the input variables and increasing the output variables. The purpose of suppressing the input variable here is to provide banking services and services supported by IT (Information Technology) to maintain and increase deposit funds and reduce operational costs. They are more efficient and handle operational management to operate more effectively. For further researchers, it is necessary to re-examine, add or replace the input and output variables and the factors that affect the efficiency value of BPRS and other banks to obtain more representative results.

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