Determinants of efficiency of Indonesian Islamic rural banks

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CHRONICLE	ABSTRACT
	The purpose of the study is to evaluate the efficiency of Islamic Rural Banks (BPRS) and analyze the factors that determine them using a two-stage approach to Data Envelopment Analysis (DEA). DEA in this study focuses on the production, intermediation, and inefficiency causes. This research was done on BPRS across Indonesia. The data were taken from a financial report for the 2013-2021 period. The source of the data was a publication from the Financial Services Authority of Indonesia. The data were analyzed using the non-parametric approach with a two-stage DEA method. The input variables were personnel costs, fixed assets, and third-party funds. The result shows that Revenue Sharing, ROA, and Growth have a significant positive effect on DEA. BOPO and inflation have a positive but insignificant effect on DEA. While NPF and FDR have negative but insignificant effects on DEA. Then CAR has a negative and not significant effect on DEA. It also shows that the variables of Revenue Sharing, NPF, ROA, CAR, FDR, BOPO growth, and inflation have a simultaneous effect on DEA.

1. Introduction

The number of Sharia Rural Banks (BPRS) in the last 10 years has increased by 20%. In 2018 the number of BPRS in Indonesia reached 164 BPRS throughout Indonesia. The three provinces with the highest number of BPRS are West Java Province with 28 BPRS, East Java Province with 28 BPRS, and Central Java Province with 26 BPRS. BPRS exists as an intermediary institution, playing a role in raising funds and channeling public funds. Funds are collected in the form of savings and time deposits while the distribution of funds is carried out through financing (Nuriyah et al., 2018). The performance of the BPRS has shown good results, this is the achievement of the development of Islamic microfinance institutions in Indonesia. This performance is, of course, inseparable from the role played by regulators, BPRS administrators, and the growing business conditions of the community.

In line with the increase in the number of BPRS, the financial performance of BPRS has also increased. BPRS financial performance can be seen from several indicators including the number of BPRS assets, Third Party Funds, Total Financing, and also financial ratios such as the Capital Adequacy Ratio (CAR), Return on Assets (ROA), Non-Performing Financing (NPF), and Financing to Deposit Ratio (FDR). BPRS assets in Indonesia in the last ten years have increased very rapidly. In 2019, total assets currently reach 13.758 billion rupiahs, distribution of funds reached 9.943 billion rupiahs, 8.731 billion rupiahs in DPK, and 262 billion rupiahs in profit and loss. The ratio of operating costs to operating income (BOPO) is

relatively high. In 2019 the ratio of BOPO BPRS reached 84.12%. The value of BOPO can reflect the efficiency of the company's operations well. The hope is that the lower the BOPO value, the more efficient the company is. Under these conditions, the assessment of bank efficiency is very important, because efficiency is a description of the performance of a company as well as a factor that must be considered by banks to act rationally in minimizing the level of risk faced. Efficiency also provides an overview of how much the bank's ability to optimize all of its resources and provide greater benefits to the community as its customers, both as funding customers and financing customers (Najib et al., 2021; Endri, 2018).

The measurement of banking efficiency currently plays an important role in the banking world because the Indonesian economy experienced economic instability in the late 2019 and early 2020 periods due to the emergence of the Covid-19 pandemic, which required banking companies to be selective in extending credit to customers. Based on data reported by Bank Indonesia, it was stated that during the first quarter of 2020 there was a credit slowdown due to the outbreak. The impact of Covid 19 can be seen in the quality of assets and the increase in the average NPL value of banks in Indonesia of around 0.2% -0.3%. In addition, Covid-19 also has an impact on decreasing economic growth, which indicates that Indonesia's economic conditions are not yet stable. The unstable condition of the Indonesian economy during the hope of the Covid-19 pandemic caused banks to be required to be more selective in extending credit to customers to reduce the possibility of increasing the bank's NPL value.

According to Abidin and Endri (2009) efficiency is one indicator to measure success in managing the company. There are three approaches to measuring banking efficiency. First, is the ratio approach which calculates the ratio of the output to the input used. The second is a regression approach that measures efficiency by using the output level model as a function of a certain input level. Third, is the frontier approach which consists of a parametric approach and a non-parametric approach. The parametric approach includes the Stochastic Frontier Approach (SFA), Thick Frontier Approach (TFA), and the Distribution Free Approach (DFA), while the non-parametric approach uses Data Envelopment Analysis (DEA) (Abidin et al., 2021; Endri et al., 2010). According to Wang and Lu (2014), measuring efficiency using a parametric or non-parametric approach is the right choice for banks because of the method's ability to incorporate various inputs and outputs into the analysis. Parametric and non-parametric efficiency measurement analysis is more flexible and can cover a wider range of variables than other analytical tools. The parametric efficiency approach requires precise information on input prices and sufficient samples as well as recognition of the correct functional form of the one-sided error structure and constraint. While the non-parametric efficiency approach does not need a lot of information, samples, or other assumptions (Lutfi & Suyatno, 2019). However, in general, the two approaches do not give results that are not too different in terms of identifying the determinants of bank technical efficiency (Casu et al., 2004). This study applies a non-parametric efficiency approach developed from population findings and observations and evaluates the relative efficiency of the observed units.

2. Literature Review

2.1. Bank Efficiency and Data Envelopment Analysis

Efficiency is the comparison between the output produced and the input a company uses in production activities. Efficiency can be interpreted as usability which emphasizes sacrifice to obtain results. According to Farrell (1957) efficiency is divided into two components, namely technical efficiency (Technical Efficiency-TE) and allocative efficiency (Allocative Efficiency-AE). Technical efficiency is the ability of a company to use its inputs to produce maximum output. The technical efficiency shows the company's ability to produce in the isoquant frontier line. Allocative efficiency is the ability of a company to use input at a fixed price level and production technology. The company can produce by optimizing its inputs, with its price structure and production technology. The combination of these two efficiencies is called economic efficiency (EE) or also called total efficiency. This means that the products produced by a company, both technically and economically, are efficient.

Pastor (2002) argues that the advantages of using the two-stage DEA procedure are; (i) easy to apply, (ii) allows for entering many variables simultaneously, without increasing the number of units being measured, and (iii) no need for orientation of the influence of each variable, (iv) can use some or all variables together to be part of the unit being analyzed. The level of efficiency in corporate entities is not only influenced by internal variables, but also by external variables. As a business entity that is part of the national financial system, the financial performance of Islamic banking, especially BPRS, may be influenced by internal and external variables. Several studies related to the level of efficiency of Islamic banking and the efficiency of BPRS using the DEA method include Badruzaman (2020) that found that the production efficiency of Islamic banks is not much different from the production efficiency of conventional banks. This research is supported by Abidin and Endri (2009) that found that 24 banks are not yet efficient, and the level of efficiency of BUS is much higher than that of UUS. While the second stage of testing with the Tobit regression shows that the asset factor of the type of BUS or UUS, net operating income, and quality of financing has a positive but insignificant impact. while the CAR ratio has a negative and insignificant effect. While the study conducted by Harahap and Nasihin (2014) showed that bank branch variables, NPF, and CAR have a negative and significant effect on the level of efficiency. While the variables total assets, ROA, and

ROE have a positive and significant effect. Dong et al., (2014) found that personnel costs are the biggest cause of inefficiency, while in terms of output, total financing must be increased to achieve efficiency. In the second stage, the Tobit regression analysis is carried out to determine the variables that affect efficiency. The external variable that affects efficiency is inflation.

2.2 Determinants of Bank Efficiency

The determinants of bank efficiency can be grouped into two groups of factors, namely internal and external (Bahraini et al., 2021). Internal factors are bank specific that can be controlled by management to improve company performance, including efficiency in managing capital, liquidity, and costs. External factors also determine bank efficiency, especially macroeconomic variables, including interest rates and inflation. The instability of macroeconomic variables can cause the performance of the banking sector to decline (Endri et al., 2020a). From those factors here are variables that affect bank efficiency seen from internal and external aspects. The increase in revenue sharing will increase the operating income of Islamic banks, therefore the relationship between the results to efficiency is positive. The higher the profit sharing, the more efficient. The results of a study on the efficiency of Islamic banking in Indonesia conducted by Endri et al., (2010) show that the effect of profit sharing on efficiency is positive.

Non-Performing Financing (NPF) is the percentage of non-performing financing compared to total financing. A high level of NPF is a reflection of low quality of management, on the other hand, a low level of NPF describes the quality of good financing management. Previous studies conducted by Lema (2017), Harahap and Nashihin (2014), and Naufal and Firdaus (2017) found a negative influence between NPF and efficiency levels. Return on Asset (ROA) is the percentage between the level of income and total assets. ROA shows the ability to manage the set that a company has to generate revenue. The higher the percentage of ROA, the better the company's performance. Previous studies conducted by Naufal and Firdaus (2017), and Endri (2018) showed a positive influence between ROA and efficiency levels. Capital Adequacy Ratio (CAR) is showing the bank's ability to face the risk of unexpected losses. The higher the ratio of capital adequacy to assets, the lower the level of risk faced by the bank. The ratio of capital to total assets illustrates the relationship between the level of efficiency and the level of risk to be taken by the bank. CAR is also considered as one of the factors that can affect the level of bank efficiency. Studies conducted by Naufal and Firdaus (2017), and Sunaryo et al. (2020) prove that CAR has a significant effect on banking efficiency. Financing to Deposit Ratio (FDR) is the percentage of total funds provided in the form of financing compared to total third-party funds owned by banks. The FDR level shows a bank's ability to channel third-party funds in the form of financing. The higher the FDR, the higher the financing provided will affect the high margin income or revenue sharing obtained by the bank, it will have an impact on efficiency. The results of a study conducted by Nuriyah et al. (2018) show that FDR has a significant effect on efficiency. Operating Expenses Operating Income (BOPO) is a comparison between operating outcome and operating income. The lower the BOPO value generated, the more efficient the company will be, and vice versa.

One of the important determinants of saving is the uncertainty factor which is often proxied by the inflation rate. In developing countries, inflation can suppress the saving rate because of the incentive to spend on durable goods, which will lower the saving rate. Inflation will encourage people to change nominal assets into real assets. In banking operations, the inflation rate affects the increase in operational cost components, such as employee salaries or personnel costs. High inflation has an impact on reducing economic efficiency, including the efficiency of the banking sector. In extreme cases where inflation is very high, confidence in financial institutions and banks will decline. Economic growth is measured by GDP growth (Gross Domestic Product). Increased economic growth is reflected in an increase in income, which in theory will cause public savings to also increase. In other words, if growth increases, the amount of savings or public funds (third-party funds) stored in the bank will also increase. Increasing TPF will have implications for banking efficiency. The greater the third-party funds managed by the bank, the higher the cost of funds to be paid. As a result, the level of bank efficiency will also be affected due to the increase in the cost of funds that must be spent by the bank.

2.3 Sharia Review

According to Law No. 21 of 2008 concerning Sharia Banking article 1 paragraph 9, a BPRS Bank is a Sharia Bank that in its activities does not provide services in payment traffic. BPRS exists as an intermediary institution, playing a role in raising funds and channeling public funds. Funds are collected in the form of savings and time deposits, while the distribution of funds is carried out through financing (Sukmana et al., 2020) In terms of service, BPRS is superior to other microfinance institutions due to its wide reach, product facilities, and closer relationships with the public in recognizing the character of its customers and customers' businesses. In article 1 of Law Number 21 of 2018, it is explained that BPRS is a sharia bank that in its business activities does not provide payment traffic services. Some of the operational activities that are prohibited are: 1) Carry out activities that are against the principles of sharia, 2) Receive deposits in the form of demand deposits and participate in payment traffic activities, 3) Conduct foreign exchange activities, except for exchanging foreign currency with the permission of Bank Indonesia, 4) Conducting insurance activities, except as a marketing agent for sharia insurance products, 5) Conduct equity participation, unless the institution is established to DEA with the difficulties of the BPRS, 6) Doing other business outside of business activities that have been regulated by law.

The main task of a BPRS is to provide funding facilities to meet the needs of parties experiencing unit deficits. Funding facility in the form of financing that is managed based on the principle of profit sharing or sale and purchase based on sharia without *Maysir, Gharar*, and *Usury*. The design of BPRS financial products and services is designed with simple and easy terms to make them easily accessible to the public. BPRS products consist of the distribution of funds in the form of financing and collection of funds in the form of savings and deposits. Financing products to serve working capital needs, provision of production equipment, and investment needs. The financing agreement is made by buying and selling transactions with *Murabahah* or by sharing the proceeds with *Mudharabah* and *Musharaka*. Meanwhile, fundraising is designed in the form of savings and deposits. Collecting funds in the form of Savings with a *Wadiah* or *Mudharabah* agreement, and raising funds in the form of deposits with a *Mudharabah* agreement (Ma'ani et al., 2021).

Management of a BPRS must be in the form of a legal entity in the form of a Limited Liability Company (PT) and business management must obtain a license from the OJK. In addition, operational management is also regulated by OJK regulations, starting from the aspects of establishment licensing, capitalization, and ownership to reporting. The regulations that have been established include rules that must be fulfilled by any BPRS, including the boundaries of the operational area of the office, both branch offices, and cash offices. BPRS Branch Offices can only be opened in the same province, while cash offices are only allowed in regencies/municipalities. The boundaries of business management are also determined the management of business activities is required to apply sharia principles and prudential principles (Endri et al., 2020b).

3. Methodology

The object of research is Islamic Rural Banks (BPRS) throughout Indonesia. The data taken is financial report data for the period 2013-2021, which is sourced from the published reports of the Indonesia Financial Services Authority. The data used is secondary data, so data retrieval will be carried out through data providers related to financial institutions. The provider of financial report data is OJK. The required data can be obtained from www.ojk.go.id and macro variable data can be obtained from www.bi.go.id.

3.1 Data Envelopment Analysis

The dependent variable in this study is DEA. DEA efficiency is a method that drinks input or maximizes output. DEA is a model built from several inputs and outputs. The DEA approach is based on VRS with an output orientation and is reflected in the following ratio (Charnes et al., 1978).

$$DEA = h_s = \frac{\sum_{i=1}^{m} u_{is} y_{is}}{\sum_{j=1}^{n} u_{js} y_{js}}$$

(1)

where:
h_s: Technique efficiency
u: Output i and j
y: Input i and j

With the DEA calculation method, a bank can achieve efficiency if it can no longer increase output or reduce input without increasing other inputs or reducing other output, and a bank is said to be efficient if it has an efficiency score of one or 100 percent (Chen & Yeh 2000; Vincova. 2005).

3.2 Independent Variables

The independent variables of this research include Revenue Sharing, NPF, ROA, CAR, FDR, BOPO, Economic Growth, and Inflation.

$$\text{Revenue Sharing} = (\text{Sales} - \text{cost of goods sold}) \times \text{ratio} \tag{2}$$

$$\text{NPF} = \frac{\text{Non-Performing Loans}}{\text{Total Loans}} \times 100\% \tag{3}$$

$$\text{ROA} = \frac{\text{Net Profit before tax}}{\text{Total Assets}} \times 100\% \tag{4}$$

$$\text{CAR} = \frac{\text{Total Equity}}{\text{Total Assets}} \times 100\% \tag{5}$$

$$\text{FDR} = \frac{\text{Financing}}{\text{Third-Party Fund}} \times 100\% \tag{6}$$

$$\text{BOPO (Cost to income ratio)} = \frac{\text{Operating Cost}}{\text{Operating Income}} \times 100\% \tag{7}$$

Economic Growth= GDP data obtained from the Central Bank of Indonesia   (8)

Inflation= Consumer price index from Central Bank of Indonesia   (9)

while the equation to analyze the variables is:

$$y_i^* = \text{ß}x_i^` + se_i \qquad (10)$$

where :

$$y_i = y_i^* \text{ If } y_i^* > 0$$

$$y_i = y_i^* \text{ If } y_i^* \leq 0$$

The Tobit regression formula is as follows:

$$DEA = \beta_1 \text{ economic growth} + \beta_2 \text{ inflation} + \beta_3 \text{ Revenue sharing} + \beta_4 \text{ NPF} + \beta_5 \text{ ROA} + \beta_6 \text{ CAR} + \beta_7 \text{ FDR} + \text{BOPO} + \varepsilon \qquad (11)$$

where:

EFT: DEA score

β: coefficient

ε: error term

4. Results and Discussion

In 2013, the efficiency category of BPRS is shown in table 1, based on the measurement results of DEA using the Output Oriented approach, it is known that 51 BPRS in Indonesia have efficient bank input and output scales while the remaining 113 banks do not yet have an efficient level of company input and output comparisons. While in 2014, 62 BPRS in Indonesia had efficient bank input and output scales, while the rest were 102 banks that did not yet have an efficient company input and output ratio level. In 2015, 69 Islamic rural banks in Indonesia had efficient bank input and output scales, while the remaining 95 banks did not yet have an efficient company input and output ratio level. In 2016, 69 BPRS in Indonesia had efficient bank input and output scales, while the remaining 95 banks did not yet have an efficient company input and output ratio level. In 2017, 50 BPRS in Indonesia had efficient bank input and output scales, while the rest were 114 banks that did not yet have an efficient company input and output ratio level. In 2018, 57 BPRS in Indonesia had efficient bank input and output scales, while the rest were 107 banks that did not yet have an efficient company input and output ratio level. In 2019, 55 BPRS in Indonesia had efficient bank input and output scales, while the rest were 109 banks that did not yet have an efficient company input and output ratio level. In 2020, 71 BPRS in Indonesia had efficient bank input and output scales, while the rest were 93 banks that did not yet have an efficient company input and output ratio level. In 2021, 56 BPRS in Indonesia had efficient bank input and output scales, while the rest were 108 banks that did not yet have an efficient company input and output ratio level. To show the review of BPRS efficiency in Indonesia from 2013 to 2021, here is Table 1:

Table 1
The efficiency of BPRS in Indonesia in the year 2013-2021

Year	Amount of BPRS		Efficiency Means
	Efficient	Inefficient	
2013	51	113	0.811
2014	62	102	0.78
2015	69	95	0.857
2016	69	95	0.781
2017	50	114	0.823
2018	57	107	0.823
2019	55	109	0.779
2020	71	93	0.857
2021	56	108	0.823
Mean from 2013-2021	60	104	

Based on the data above, it can be seen that in 2013 51 companies were efficient, while the inefficient companies were 113 so the average efficiency of the company was 0.811. In 2014, 62 companies were efficient, while 102 companies were inefficient, so the average efficiency of the companies was 0.78. In 2013, 69 companies were efficient, while the inefficient companies were 95 so the average efficiency of the company was 0.857. Next in 2016, 69 companies were efficient, while

the inefficient companies were 95 so the average efficiency of the company was 0.781. In 2017, there were 50 efficient companies while 114 companies were inefficient, so the average efficiency of the company was 0.823. In 2018, there were 57 efficient companies while 107 inefficient companies, so the average efficiency of the company was 0.823. In 2019, there were 55 efficient companies, while 109 inefficient companies. This means that the average efficiency of the company was 0.779. In 2020, there were 71 efficient companies while 93 companies were the opposite, so the average efficiency of the company was 0.857. Finally, in 2021, there were 56 efficient companies while 104 companies were inefficient, which means that the average efficiency of the company was 0.823. So that the average efficiency of companies from 2013-2021 was 60 and the inefficient companies in 2013-2021 were 108.

Tobit Regression Test Results; Influence of Internal and External Factors on the Efficiency of BPRS in Indonesia

DEA = 2.766596 + 05E-07 (Revenue Sharing) -7.187337 (NPF) + 0.529460 (ROA) + -0.396011 (CAR) -1.215066 (FDR) + 0.548131 (BOPO) + 22.62347 (Growth) + 1.146143 (Inflation) + 0.719688

The regression equation above can be explained as follows:

1. The constant is 2.766596; which means that if Revenue Sharing, NPF, ROA, CAR, FDR, BOPO, Growth, and Inflation are 0, then DEA is the value is 2.766596 or if the DEA variable is not influenced by other variables, the value is positive 2.766596.
2. The regression coefficient for the Profit Sharing variable is 1.05E-07; This means that if the Revenue Sharing variable increases by 1%, then the DEA will increase by 1.05E-07. The coefficient is positive, meaning that if Revenue Sharing increases, DEA BPRS will be more efficient
3. The regression coefficient for the NPF variable is -7.187337; This means that if the NPF has increased by 1%, then the DEA will increase by -7.187337. The coefficient is negative, meaning that an increase in the NPF ratio causes the efficiency of the DEA BPRS to decrease.
4. The regression coefficient for the ROA variable is 0.529460; This means that if the ROA variable increases by 1%, then DEA will increase by 0.529460. The coefficient is positive, meaning that if the ROA ratio increases, the efficiency of the BPRS is better.
5. The regression coefficient for the CAR variable is 0.396011; This means that if the CAR variable has increased by 1%, then the DEA will increase by 0.396011. The coefficient is positive, meaning that if the CAR ratio increases, the efficiency of the BPRS will increase.
6. The regression coefficient of the FDR variable is -1.215066; This means that if the FDR variable has increased by 1%, then DEA will increase by -1.215066. The coefficient is negative, meaning that if the FDR ratio increases it will cause the efficiency of DEA BPRS to decrease.
7. The regression coefficient for the BOPO variable is 0.548131; This means that if the BOPO variable has increased by 1%, then the DEA will increase by 0.548131. The coefficient is positive, meaning that if the BOPO ratio increases, the efficiency of the DEA BPRS will increase.
8. The growth variable regression coefficient is 22.62347; This means that if the growth variable has increased by 1%, then the DEA will increase by 22.62347. The coefficient is positive, meaning that if the growth of the BPRS has increased, it will have an impact on improving the efficiency of the DEA.
9. The regression coefficient for the inflation variable was 1.146143; This means that if the inflation variable has increased by 1%, then the DEA will increase by 1.146143. The coefficient is positive, meaning that if the inflation rate is affected, the BPRS will become more efficient.

Based on the results of descriptive statistical tests, the Revenue Sharing variable has a mean value of 1548919, a median value of 900067.5, a maximum value of 56417611, and a minimum value of 7945,000, a value of Std. Dev. of 2251116, the Skewness value of 10.60921, and the Kurtosis value of 241.5355. The NPF variable has a mean value of 0.023971, a median value of 0.018500, a maximum value of 0.158900, a minimum value of -0.052000, and a value of Std. Dev. of 0.020655, the Skewness value of 0.936618, and the Kurtosis value of 5.118367. The ROA variable has a mean value of 0.029039, a median value of 0.024100, a maximum value of 0.742300, a minimum value of -0.111500, and a value of Std. Dev. of 0.034992, the Skewness value of 9.801047, and the Kurtosis value of 176.7180.

The CAR variable has a mean value of 0.198844, a median value of 0.173200, a maximum value of 21.57000, a minimum value of 0.012840, and a value of Std. Dev. amounted to 0.564516, the Skewness value was 36.82770 and the Kurtosis value was 1393.570. The FDR variable has a mean value of 0.821182, a median value of 0.841500, a maximum value of 2.580900, a minimum value of 0.034200, and a value of Std. Dev. of 0.153980, the Skewness value of 0.528900, and the Kurtosis value of 17.99418. The BOPO variable has a mean value of 0.828865, a median value of 0.853500, a maximum value of 1.519200, a minimum value of 0.000000, and a value of Std. Dev. of 0.161002, the Skewness value of -0.515870, and the Kurtosis value of 7.916624. The company growth variable has a mean value of 0.053989, a median value of 0.050700, a maximum value of 0.065000, a minimum value of 0.047900, and a value of Std. Dev. of 0.005793, the Skewness value of 0.871738, and the Kurtosis value of 2.158133. The inflation variable has a mean value of 0.045189, a median value of 0.036100, a maximum value of 0.083900, a minimum value of 0.027200, and a value of Std. Dev. of 0.021069, the Skewness value of 1.190116, and the Kurtosis value of 2.621920. The DEA variable has a mean value of 0.655827, a

median value of 1.000000, a maximum value of 1.000000, a minimum value of 0.000000, and a value of Std. Dev. of 0.475259, the Skewness value of -0.655977, and the Kurtosis value of 1.430305.

The t-test statistical test (partial) shows that the effect of Revenue Sharing, NPF, ROA, CAR, FDR, BOPO, Growth, and Inflation on DEA is partially affected. Based on the table above, it can be described as follows, namely:

1. The revenue sharing variable has a significant value (Sig.) Of 0.0006 on the Coefficients table with a value of α (degree of significance) 0.05 which means 0.0006 <0.05 or there is a significant effect and the t-test shows 3.417935> t table (1.961582). This means that Revenue sharing has a positive and significant effect on the DEA.
2. The NPF variable has a significance value (Sig.) 0.0072 on the Coefficients table with a value of α (degree of significance) 0.05 which means 0.0072 <0.05 or there is a significant effect and the t-test shows 2.688633 <t table (1.961582). This means that NPF has a negative and significant effect on DEA.
3. The ROA variable has a significance value (Sig.) 0.0398 on the Coefficients table with a value of α (degree of significance) 0.05 which means 0.0398 <0.05 or there is a significant effect and the t-test shows 3.332159> t table (1.961582). This means that ROA has a positive and significant effect on DEA.
4. The CAR variable has a significance value (Sig.) Of 0.4755 in the Coefficients table with a value of α (degree of significance) 0.05 which means 0.4755> 0.05 or there is a significant effect and the t-test shows -0.713604 <t table (1.961582). This means that CAR has a negative and insignificant effect on the DEA.
5. The FDR variable has a significance value (Sig.) 0.0014 on the Coefficients table with a value of α (degree of significance) 0.05 which means 0.0014 <0.05 or there is a significant effect and the t-test shows -3.189465 <t table (1.961582). This means that FDR has a negative and significant effect on DEA.
6. The BOPO variable has a significance value (Sig.) 0.1151 on the Coefficients table with a value of α (degree of significance) 0.05 which means 0.1151> 0.05 or there is a significant effect and the t test shows 1.575666 <t table (1.961582). This means that BOPO has a positive and insignificant effect on DEA.
7. The growth variable has a significance value (Sig.) Of 0.0190 on the Coefficients table with a value of α (degree of significance) 0.05 which means 0.0190 <0.05 or there is a significant effect and the t-test shows 2.345207> t table (1.961582). This means that growth has a positive and significant effect on the DEA.
8. The Inflation variable has a significant value (Sig.) Of 0.6688 in the Coefficients table with a value of α (degree of significance) 0.05 which means 0.6688> 0.05 or there is a significant effect and the t-test shows 0.427821 <t table (1.961582). This means that inflation has a positive and insignificant effect on the DEA.

The results of the LR statistical test show the calculated LR statistical value of 38.59231 and the significance value of 0.000006 where this result is greater than the LR table (1.882611) at n of 1476 so that Ho is rejected which can be concluded that Revenue Sharing, NPF, ROA, CAR, FDR, BOPO, Growth, and inflation on the DEA are simultaneously influential. Based on the results of the research, the R^2 (R Square) figure was 0.220308 or (22.0308%). This shows that the percentage of the contribution of the influence of the independent variables consisting of Revenue Sharing, NPF, ROA, CAR, FDR, OEOI, Growth, and Inflation on the dependent variable DEA is 22.0308%. Or the variation of the independent variables consisting of Revenue sharing, NPF, ROA, CAR, FDR, OEOI, Growth, and Inflation can explain 22.0308% of the variation in the dependent variable (DEA). Meanwhile, the remaining 77.9692% is influenced or explained by other variables not included in this research model.

5. Conclusions

This research is aimed to find out the partial and stimulant effects of Revenue Sharing, NPF, ROA, CAR, FDR, BOPO, Growth, and Inflation on DEA. By using the two stages of DEA, the researchers have revealed that Revenue sharing, ROA, BOPO, Growth, and Inflation significantly have a positive effect on DEA. Meanwhile, the NPF, CAR, and FDR have a negative and significant effect on DEA. As a result, all variables have simultaneously influenced DEA. This research uses population data of BPRS and financial reports of BPRS in Indonesia in 2013 - 2021 which are available in the financial reports published by the Financial Services Authority (OJK) on site www.ojk.go.id, to calculate the level of efficiency using the DEA. Future research is expected to further develop the variables, and the research period and also looks for other company samples so that they can be compared with this research. Furthermore, for academics, this research is expected to provide scientific contributions to academics in exploring the efficiency of BPRS in Indonesia. For practitioners, this research is expected to provide information and solutions for practitioners in managing BPRS.

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