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Regional Banking Efficiency in Indonesia

Chitra Laksmi Rithamaya¹, Anggraeni^{2*}

^{1,2}, Hayam Wuruk Perbanas Surabaya University

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ABSTRACT

The development of banking industry in Indonesia could bring impact on the economic growth, especially in the face of the financial crisis. This study aims to examine scientifically the efficiency score of regional development banks. Furthermore, it also aims to understand further what factors influence the efficiency performance of regional development bank in Indonesia using the SFA (Stochastic Frontier Analysis) approach. The data used is from 25 Regional Development Banks (BPD) in Indonesia with the financial reporting period of 2011 to 2017. The results obtained are the level of efficiency of BPD in Indonesia does not reach 100%. The highest level of efficiency was at 97.80% in 2016. Then, the variable that affects bank efficiency is liquidity as measured by LDR, and credit risk as measured by NPL. Meanwhile, the variables of bank capital and profitability as well the size of the bank and board of commissioners do not affect the efficiency of banks, especially Regional Development Bank in Indonesia in the period of 2011-2017.

Keywords: Bank Efficiency, LDR, NPL, Stockhastic Frontier Analysis.

JEL Classification Code: D61, C73, E50

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Author correspondence:
E-mail: anggi@perbasnas.ac.id

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1 **INTRODUCTION**

Apart from being a driving force for the Indonesian economy, the banking sector is also expected to be able to have resilience and sustainability as an optimal and efficient agent of change.

The 1997 economic crisis had an impact on the banking industry in Asia, especially the eastern and southeastern regions. Several national private banks experienced the impact of the crisis in the form of operational closures. Bank Indonesia, as the determinant of banking policy, is the guarantor of the liquidity assistance funds, thus having an impact on the Government's State Budget (APBN). In addition to the crisis that hit, the decline in operating profit and the decline in funds originating from third parties and supported by high loans disbursed were conditions that added to the decline in banking (Chaidir, 2015), resulting in the collapse due to the crisis (Andrayani, 2018).

Efficiency is one of the performance parameters that underlies the measure of all organizational performance (Hadad et al., 2011). Efficiency is one of the parameters of banking performance that is commonly used because it is able to display the condition of the bank as a whole, so that efficiency can be an illustration of the level of decline or increase in performance that can trigger bankruptcy (Anam, 2013).

Based on Figure 1, it can be seen that in the 2011-2017 period, the SFA method shows that no Regional Development Bank in Indonesia has achieved a 100 percent efficiency level. The highest level of efficiency every year is in the interval of 93.40 percent to 97.8 percent, while the lowest level of efficiency is on average per year of 84.30 percent. This shows that the level of efficiency in Regional Development Banks is still low. A study conducted by Anggraeni (2016) on BPRS in East Java also showed efficiency below 100 percent.

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Bank performance measurement can use several approaches, one of which is often used earnings. Earnings can be used to determine the efficiency and quality of income as well as assess the condition and profitability of banks in capital and operational activities. Bank profitability can use ROA (Return On Assets) or ROE (Return On Equity) or by using NIM (Net Interest Margin). However, this study uses the Stochastic Frontier Approach (SFA) to measure the efficiency of bank performance.

Credit risk is another factor that is thought to affect banking efficiency. This study uses a Non Performing Loan (NPL) as a credit risk approach. Credit risk management is important for banks because banks are the ones that function as intermediary institutions. Changes in credit risk management can affect the performance of the bank (Cooper et al., 2003). Several studies that examine risk management on bank performance include Abata (2014) which shows that Non-Performing Loans have a significant influence on Return On Assets which are used as bank performance measurements, while research (Mahmud et al., 2016) shows the opposite result. namely Non-Performing loans have no effect on bank performance (Return On Assets) in Bangladesh. The findings of Anggraeni et al. (2020) on Banks in ASEAN found that low loan quality has an impact on

inefficiency which can lead to bank bankruptcy. The Risk Management Certification Agency (BSMR) defines that Non-Performing Loan is a description of the emergence of credit risk where there is a risk of uncollectible receivables against a number of loans.

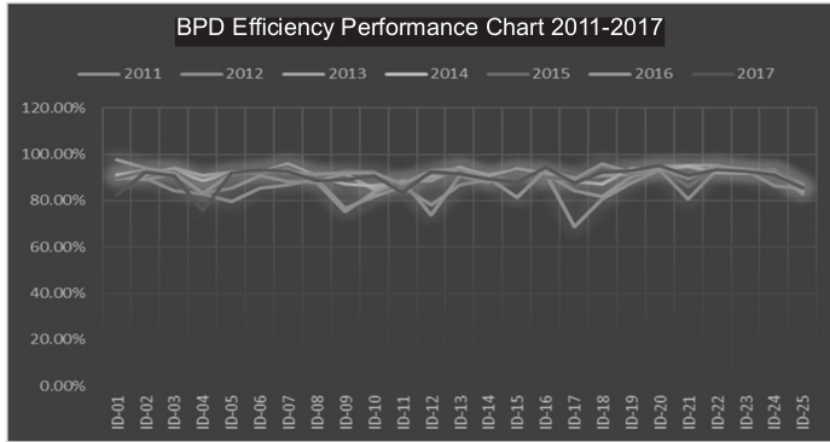


Figure 1
Graph of BPD Efficiency Performance in Indonesia for the period 2011 - 2017

The size of the bank that uses total assets is also able to affect the efficiency of the bank. This study uses total assets (TA) as a bank size approach. Mongid & Muazaroh (2017) use total assets as a bank measure of efficiency, while according to the concept of the Indonesian Banking Architecture (API), which is used as the basis for strengthening the banking structure is to use the amount of own capital instead of using total assets. In this study, the size of the bank also uses total assets.

Financial Services Authority (OJK) Regulation No. 4/POJK.03/2016 concerning the Assessment of the Soundness of Commercial Banks, in order to ensure capital adequacy and reserves to overcome the risks that may arise, banks are required to meet an adequate capital adequacy level (CAR), namely CAR of 8%. The results of Ongore & Kusa's (2013) research show that CAR is very helpful for banks during a financial crisis and has a significant positive effect on banking efficiency. The amount of capital is a bank reserve to overcome

losses as a result of the risks that arise and become the provisions of the regulator regarding the provisions on the minimum capital reserve (Mongid & Muazaroh, 2017)

The supervisory function within the bank also has an important role in efficiency. This supervisory function is held by the board of commissioners who provide supervision and provide advice or recommendations to the board of directors. The board of commissioners does not have direct authority over the company but has the main function of supervising the performance of the board of directors, so the position of the board of commissioners is very important in bridging the interests of the principal in a company. With the increasing number of members of the board of commissioners, the supervision of the board of directors is much better, the input or options that the directors will get will be much more (Sukandar, 2014). However, on the other hand, a large number of commissioners also increases costs so that the impact can reduce bank

efficiency, so further research is needed to prove the effect of the size of the board of commissioners on bank efficiency in Indonesia.

This study takes a sample of banks with local government ownership. The underlying thing is that research conducted by Sutanto (2015) found that until the end of 2013 Regional Development Banks in Indonesia had not yet achieved a good level of efficiency with an efficiency gain of 78.6 percent and interest expense was still the reason Regional Development Banks could not operate effectively. efficient.

Based on this description, the assessment of bank efficiency is very important, where efficiency is able to provide an overview of the performance of a company and is an important factor for acting rationally in minimizing the level of risk faced in dealing with its operating activities (Novius et al., 2016). Therefore, in this study, it is important to scientifically examine the efficiency scores of regional development banks. As well as the factors that affect the efficiency of Regional Development Banks in Indonesia so that they are able to compete globally.

METHODOLOGY

This study uses the intermediation approach based on the relationship between the input and output of bank functions, because the intermediation approach is very suitable to be carried out in efficiency research using a sample of the banking industry (Hadad et al., 2011). This is in line with the main function of the bank as an intermediary institution which is a bridge between parties with excess finances and parties with financial deficits. The efficiency model approach used is SFA (Stochastic Frontier Analysis). The input units used in this study are capital, interest costs, operational costs and third party funds, while the output units are loans disbursed, interest income and non-interest income.

The model used in this study refers to Berger and Mester (1997) with the following equation model:

$$X - EFF^i = \frac{\hat{C}^{min}}{\hat{C}^i} = \frac{\exp[\hat{f}(w_i, y_i)] \times \exp(\ln \hat{u}^{min})}{\exp[\hat{f}(w_i, y_i)] \times \exp(\ln \hat{u}_i)} = \frac{\hat{u}^{min}}{\hat{u}_i}$$

Regression equation model as follows:

$$Eff\ it = \beta_0 + \beta_1LDRit + \beta_2CARit + \beta_3NPLit + \beta_4SIZEit + \beta_5ROEit + \beta_6BOC + \epsilon it$$

Dalam hal ini:

β_0	= Intersept
$\beta_1, \beta_1.. \beta_7$	= the efficient of each variable
i	= refers to the regional development bank
t	= time period
ϵit	= rondon disturbance
Cost Eff	= cost efficiency score/level
LDR	= DPK disbursement for credit
CAR	= minimum capital adequacy ratio
NPL	= non performing loan (bad credit)
Size	= Total Assets (Ln Total Assets)
ROE	= profit after tax divided by own capital
BOC	= board of commidioners (Board of Commisionare)

RESULT AND DISCUSSION

Statistical testing was conducted to determine the effect of each independent variable on the dependent in order to answer the proposed hypothesis. The independent variables in this case are LDR, CAR, NPL, SIZE, ROE and BOC (board of commissioners), while the dependent variable is efficiency. Table 1 below shows the efficiency of regional development banks in Indonesia. While Table 2 is the result of statistical testing using SPSS version 24.

The effect of liquidity (LDR) on the efficiency level of regional development

banks in Indonesia was found to be significant, with a positive coefficient of 0.225 and a t-statistic of 13.485 greater than a t-table of 1.654. Based on these findings, hypothesis 1 is accepted, which means that there is a significant and positive effect between the liquidity ratio and bank efficiency. Thus, liquidity can increase bank efficiency, especially in Regional Development Banks in Indonesia.

The effect of capital (CAR) on the efficiency level of regional development banks in Indonesia was found to be significant, with a negative coefficient of 0.476 and a negative t-statistic of 8.839, which is greater than a t-table of -1.654. Based on these findings, hypothesis 2 is rejected, which means that there is a significant and negative effect between bank capital on bank efficiency. Thus, the increase in bank capital can reduce/unable to increase bank efficiency, especially in Regional Development Banks in Indonesia.

The effect of credit risk (NPL) on the efficiency level of regional development banks in Indonesia was found to be significant, with a negative coefficient of 1.087 and a t-statistic of 4.204 which is

greater than a t-table of 1.654. Based on these findings, hypothesis 3 is accepted, which means that there is a significant and negative effect between credit risk on bank efficiency. Thus reducing credit risk can improve bank efficiency, especially in Regional Development Banks in Indonesia.

The effect of bank size (SIZE) on the efficiency level of Regional Development Banks in Indonesia was found to be insignificant, with a positive coefficient of 0.001 and a t-statistic 0.190 smaller than a t-table of 1.654. Based on these findings, hypothesis 4 is rejected, which means that there is no significant effect between bank size on bank efficiency. Thus, changes in bank size do not have an impact on bank efficiency, especially for Regional Development Banks in Indonesia. The results of this study differ from the previous research conducted by Mongid (2015) which showed that there was a significant effect of bank size on cost efficiency. This is possible because bank policies can be different in dealing with efficiency, and different methods approach in calculating efficiency.

Table 1
Statistical Analysis Results

Variabel	Coefficient	t-statistics	Sig	F-statistics	R	R ²	Adj. R ²	sig	Keterangan
Efisiensi	0.82	15.261	0.0000	32.476	0.733	0.537	0.52	0.0000	Signifikan
LDR	0.225	13.485	0.0000						Signifikan
NPL	-1.087	-4.204	0.0000						Signifikan
SIZE	0.001	0.190	0.8490						Tidak Signifikan
CAR	-0.476	-8.839	0.0000						Signifikan
ROE	-0.167	-4.702	0.0000						Signifikan
BOC	0.003	1.155	0.2500						Tidak Signifikan

t-tabel 1.654
F-tabel 2.183

Source: SPSS output data

The effect of profitability (ROE) on the efficiency level of regional development banks in Indonesia was found to be significant, with a negative coefficient of 0.167 and a negative t-statistic of 4.702, which is

greater than a t-table of -1.654. Based on these findings, hypothesis 5 is rejected, which means that there is a significant and negative effect between profitability and bank efficiency. Thus, the increase in

profitability cannot encourage an increase in bank efficiency, especially in Regional Development Banks in Indonesia.

The effect of the board of commissioners (BOC) on the efficiency level of regional development banks in Indonesia was found to be insignificant, with a positive coefficient of 0.003 and a t-statistic of 2.55 smaller than a t-table of 1.654. Based on these findings, hypothesis 6 is rejected, which means that there is no significant effect between the board of commissioners on bank efficiency. Thus the number of commissioners does not have an impact on bank efficiency, especially in Regional Development Banks in Indonesia.

CONCLUSION

Based on the research results that have been obtained, it can be concluded that: first, the efficiency level of banks with the SMA approach shows that the efficiency level of BPD in Indonesia does not reach 100 percent. The highest level of efficiency was at 97.80 percent in 2016. Second, the variables that affect bank efficiency are liquidity as measured by LDR and credit risk as measured by NPL. While the variables of bank capital, profitability and size of the bank and the board of commissioners have no effect on bank efficiency, especially Regional Development Banks in Indonesia in the 2011-2017 period.

The results of this study can have implications for practitioners, especially for bank managers in relation to policy making in bank efficiency. Bank managers can pay more attention to policies in liquidity, monitor credit quality more so that NPL levels can be suppressed, thereby increasing bank efficiency.

Suggestions that can be submitted in accordance with the research results obtained are first, there are different approaches in estimating bank efficiency so that new perspectives are obtained on

topics related to bank efficiency. Second, research development can be directed at other non-bank financial companies, both from the manufacturing industry or others, so that the efficiency level of banking and other companies can be compared. Third, the next research is expected to be able to form an efficiency model using several parameters so that it can be an early warning system for banking conditions in the future.

This study has several limitations, including first, this study only uses bank internal factors without looking at macro variables, subsequent studies can consider macro variables such as interest rates and inflation. Second, the approach used in estimating efficiency may be different from previous studies, so it is still possible to have different results when the research is carried out on different objects and in different periods. The use of other approaches is also recommended in future research in order to form newer models and be able to accommodate the weaknesses that exist in previous studies.

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