Regional Development Bank Competition: Evidence from Indonesia

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Abstract

Regional development banks are intermediary institutions that can develop the national economy and drive regional development through local government management. This study aims to analyze the effect of competition in regional development banks on efficiency with risk as a moderating variable. This study uses the regression panel data estimation technique based on data from regional development banks in Indonesia for the period 2016-2020, a total of 130 observations. The novelty of this study is that it is still rare to examine using a sample of regional development banks using the Leaner Index model to analyze bank competition. This study finds that competition negatively and significantly affects efficiency at regional development banks in Indonesia. Risk strengthens the impact of competition on efficiency. The unstoppable competition requires banks to make several efficiencies both from the micro and macro sides to survive. Regional development banks are very close to local governments, so they should be able to optimize investments in technology-based products and services and improve credit quality.

Keyword   : efficiency; competition; risk; regional development bank
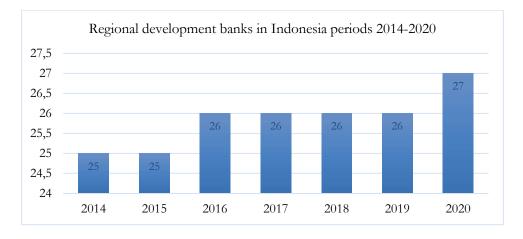**JEL Classification**   : G2, G21, G28
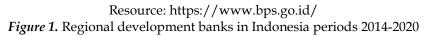
1.   INTRODUCTION

Financial institutions have a vital role in the economic aspects, namely as intermediary institutions between parties who have excess funds and lack funds (Alam et al., 2019; Davis et al., 2020; Faia et al., 2019; González, 2022). The party with extra capital will deposit the funds in the bank then the bank will channel it back to the party who lacks funds in the form of credit. The role of financial institutions, especially banks, will be needed to maintain the survival of Indonesia's economic growth because it has a vital role in financial administration activities, money storage, use of money, money exchange and trading, money control, credit and remittances, and sources of funding.

Local and provincial governments establish and own regional development banks in Indonesia (Trinugroho et al., 2018; Ventouri, 2018). According to the Ministry of Home Affairs, No. 62 of 1999, concerning organizational guidelines and working procedures of

Regional Development Banks Article 2, establishing regional development banks is to develop the economy and drive regional development through regional development banks activities as a bank. In Indonesia, regional development banks should be closer to rural communities and the surrounding Micro, Small and Medium Enterprises.

Like conventional banks, regional development banks maintain business continuity in the future by not limiting their scope in terms of products and operational areas. The evidence of regional development bank branch offices in Indonesia increased by an average of 191 units per year from 2014-2018. As of January 2020, 4,295 regional development banks branch offices are in Indonesia (Otoritas Jasa Keuangan, 2020). Bank Nagari is the first regional development bank to open a branch office outside the region. The government, in this case, the financial services authority and Bank Indonesia policies, have regulated bank performance through the soundness level of the bank in the financial services authority regulation number 14/SEOJK.03/2017 (OJK, 2015).

Regional development banks have existed for a long time (Shin, 2022). Regional development banks, as holders of local finance, which has been provided for in Act No.l3 in 1962 on the principles of provision of Regional Development Banks, work as regional economic development to perform the local economic activity to improve people's lives, provides financing of development finance in the region, raise funds and to implement and save the cash area (holder/cash storage areas) in addition to running the banking business. The role of the regional development banks is stated in Law Number 13 of 1962 concerning the Basic Provisions of Regional Development Banks (State Gazette of 1962 Number 59, Supplement to the State Gazette Number 2490) (in the future referred to as the regional development banks law). However, with the emergence of Law Number 7 of 1992 concerning Banking (State Gazette of 1992 Number 31, Supplement to the State Gazette Number 34721) (in the future referred to as the Banking Law), the existence of the regional development banks law was later abolished. That is because banks carry out bank functions according to the Banking Law, the regional development banks regulations instead the Banking Law.

Resource: https://www.bps.go.id/
Figure 1. Regional development banks in Indonesia periods 2014-2020

Regional development banks must increase profitability to expand optimally (Nguyen, 2018; Safiullah, 2021). Intense competition occurs among regional development banks and other commercial banks, such as conventional banks and Islamic banks (Izzeldin

et al., 2021; Missiame et al., 2021) — the evidence by the increasing number of bank financial institutions listed on the Indonesia Stock Exchange. Data on the number of bank financial institutions from 2016 to 2019 is shown in Figure 1. This shows an increasing trend in the number of financial institutions, making the competition for financial institutions in Indonesia increasingly tight. In addition, in 2020, there was an integration program in the ASEAN financial sector (Nguyen, 2018). This program enables banks with QAB (Qualified ASEAN Bank) qualifications to operate throughout the ASEAN region. This competition makes financial institutions have to evaluate to become competitive financial institutions.

One of the causes of this competition is the level of information technology sophistication and customer trust to save their funds in regional development banks (Liang et al., 2017; Ventouri, 2018). The technology of regional development banks must be more innovative to compete with other commercial banks (Bank Indonesia, 2021). Commercial banks such as Bank Mandiri, Bank Rakyat Indonesia, Bank Negara Indonesia, and others have deposit machines, so customers who want to deposit their funds at the bank do not have to go through a teller. In addition, most customers from regional development banks are still civil servants. Suppose regional development banks can have many customers and more sophisticated technology (Missiame et al., 2021). In that case, regional development banks will be able to cut operational costs so that regional development banks can not only compete with other banks but also be more efficient (Shin, 2022). The aspect of efficiency is also one of the crucial factors that need to consider because it can affect the continuity of the bank's business (Faia et al., 2019; Islam et al., 2020; Trinugroho et al., 2018). One of the goals of banking efficiency is to lower bank lending rates so the public gets the impact of this efficiency. Meanwhile, implementing efficiency does not rule out the existing risks (Djalilov & Piesse, 2019; Ur Rehman et al., 2022).

Many studies have investigated the impact of competition on efficiency and profitability in the banking industry (Izzeldin et al., 2021; Mutarindwa et al., 2021; Safiullah, 2021). The study results indicate that competition triggers efficiency measures in each bank. Competition has an inverse relationship with efficiency and profitability (Amidu & Wolfe, 2013; Islam et al., 2020; Trinugroho et al., 2018). Research on the impact of risk-taking behaviour on bank efficiency and profitability has been conducted in several European countries, the United States, and China (Amidu & Wolfe, 2013; Faia et al., 2019; Islam et al., 2020; Trinugroho et al., 2018). The result is risk affecting efficiency and profitability.

Several studies on efficiency in banks have been carried out, including; Missiame et al. (2021) conducted a study entitled "Level of Competition and Efficiency of Indonesian Banking Intermediation." This study tries to analyze the level of development of the level of competition and banking efficiency and the relationship between them. The methods of the Herfindahl Hirschman Index (HHI), Concentration Ratio (CR), Panzar Rosse Index, and Boone Indicators show that the level of competition in Indonesia's banking sector tends to increase. In addition, the level of banking efficiency has increased, as seen from the trend of the operating costs to operating income ratio (OCOI). Analysis of the relationship between competition and efficiency conducted using the Granger Causality Test method shows that the "Competition-efficiency hypothesis" applies to Indonesian banks with increased competition to encourage banks to operate more efficiently. Ventouri (2018) researched Regional Development Banks' efficiency. The analytical method used in this study is the Stochastic Frontier Analysis (SFA) method, where the variables used consist of inputs (personnel expenses, general administrative costs, and other fees) and SFA output variables (operating income). The average efficiency result of 15 Sharia regional

development banks in 2008-2012 using the parametric method (SFA) was 53.21 per cent, and no Sharia regional development banks were efficient (100 per cent).

The sample tested is only regional development banks intended to see the existence of regional development banks in Indonesia. Regional development banks are fully controlled by the provincial government even though, by law, they follow bank regulations. The amount of local government ownership in regional development banks is increasingly interesting. Regional governments must maintain their existence even though local government banks are less attractive. This can be seen, most of the regional development bank customers are employees of the regional government itself. This research enriches the study of competition, risk, and efficiency of regional development banks in Indonesia.

The novelty of this study is that it is still rare to examine using a sample of regional development banks using the Leaner Index model to analyze bank competition. The urgency of this study is based on the scope of efficiency by considering the risk factors at regional development banks. The importance of this study is to provide an efficient strategy in the management and development of regional development banks to achieve goals in intense competition. Through this research, managers can obtain more detailed information on the administration, evaluation and monitoring of control to monitor management to achieve efficiency. In addition, for the government, the operational efficiency of regional development banks must be continuously improved, and the optimal allocation of financial resources must be. Researchers interested in this topic can include government policy variables and use a broader scope, such as multi-country data.

This paper begins with the research background. Session 2 is a literature review. Sessions 3 to 5 are research methods, results, and conclusions.

2. LITERATURE REVIEW

Efficiency

Efficiency is the organization's ability to maximize output by using specific inputs or minimal inputs to produce specific results (Nguyen, 2018; Safiullah, 2021). In other words, efficiency is the ratio between output and input. Efficiency is one of the performance parameters of a company, both manufacturing and services. The company's efficiency consists of technical, allocative, and cost efficiency (Ur Rehman et al., 2022).

Efficiency in the banking world is one of the performance parameters that are quite popular, and widely used because it is the answer to the difficulties in calculating performance measures, how to get the optimal level of output with the current input level or getting the minimum level of input with the level of the production (Hasnat, 2021). Efficiency indicators can be seen by paying attention to the operating costs to operating income ratio (OCOI) and the percentage of non-performing financing (NPF). In this study, the OCOI is a proxy to measure the level of operational efficiency at regional development banks. The calculation of the OCOI according to SE No.6/23/DPNP dated May 31, 2004, is as follows:

$$OCOI = \frac{Total\ operating\ cost}{Total\ operating\ income} \times 100\% \qquad (3)$$

This ratio measures the level of efficiency and ability of the bank to carry out its operations. The smaller the operating costs to operating income ratio, the more efficiently a bank carries out its business activities.

Competitions

Bank competition is defined as a process of competition between banks in winning business that aims to increase market share and gain greater profits (Faia et al., 2019; Mirzaei & Moore, 2014; Owen & Pereira, 2018). Banking competition is expected to eliminate cost efficiency, provide welfare benefits and assist economic growth (Mirzaei & Moore, 2014). According to the Structured Conduct Performance (SCP) paradigm, market concentration can describe the state of competition in the banking industry, and that competition can be measured by the Lerner Index, which represents market strength (Alam et al., 2019; Mirzaei & Moore, 2014; Yuan et al., 2022). Monopoly power in competition also influences companies or banks in obtaining profits. The amount of output produced by the company to achieve maximum profit is not necessarily the same; one which causes these differences is the company's position in the market (Islam et al., 2020). The Leaner Index function is shown below:

$$LI = \frac{(\frac{TR}{TC})}{TR} \tag{2}$$

Where: TR is Total Revenue, and TC is Total Cost. Total revenue is interest income plus non-operating income, while total cost is interest expense plus non-operating expenses. The Leaner Index is between 0 and 1. A value of 0 indicates a perfectly competitive market and a value close to 1 indicates a strong monopoly power. Monopoly conditions can damage the market (Yuan et al., 2022).

Regional development bank competition can be seen how strong the market monopoly is. The monopoly in question is intense competition in seizing productive resources as bank income such as deposits, savings, and lending. Credit is the bank's biggest asset. The more credit extended, the greater the assets owned by the bank. These assets are obtained from loan interest. Low loan interest makes credit increasingly in demand by the market. On the other hand, high prices are synonymous with conditions that are less efficient. Competition between banks can have a negative impact on the level of soundness through the transmission of efficiency (Islam et al., 2020; Yuan et al., 2022).

H1: competition is negative effect to efficiency.

Risk

The main risks faced by banks include credit risk, management risk, and liquidity risk. However, in normal economic conditions, banks take risks to get their net profit (Davis et al., 2020; Faia et al., 2019). If this is done in an economy in crisis and the risk-taking is too high, the bank will experience insolvency. Thus, when the bank cannot pay its obligations, its equity value is lower than its losses (Tan, 2016). Risk-taking is measured using the inverse of the z-score, which shows the distance between a bank's insolvency (Faia et al., 2019). A z-score value below zero indicates that the bank has a z-score. The z-score function is shown below:

$$ZScore = 6,56X1 + 3,26X2 + 6,72X3 + 1,05X4 \tag{1}$$

Where: X1 is working capital/total assets, X2 is retained earnings/total assets, X3 is EBIT/total assets, and X4 is the Book value of equity/total debt. Furthermore, from the calculation, it meets the decision-making criteria. The following is the cut-off point from the measurement results for decision-making (Faia et al., 2019):

1. Z > 2.99 indicates that the company does not have financial problems.

2. 22 < Z < 2.99 suggests that the company is not optimal in dealing with economic issues.
3. Z < 1.75. The company is experiencing severe financial difficulties.

A small value of the z-score ratio indicates that the bank takes a significant risk. The size of the risks faced by regional development banks is measured by the Z-Score. Trinugroho et al. (2018) said that the higher the risk a bank faces, the stronger the relationship between competition and efficiency. A high Z-score indicates better management by regional development banks. This is intended as one of the bank's strategies to demonstrate an outstanding commitment to protecting customers. Guarantees for these risks make customers trust the bank more.

On the other hand, in competition, there are expenditures in the form of promotions. One example of advertising is raising deposit bank interest rates and lowering lending rates. This is intended so that customers are interested in making savings and loans at the company. With high public trust, banks do not need to raise deposit rates too high or lower loan interest rates too low. As a result, regional development banks will become more efficient in their operations.

H2: risk is a negative effect on efficiency.
H3: risk strengthens the negative relationship between competition and efficiency.

3. RESEARCH METHODS

This study uses the regression panel data estimation technique. The number of regional development banks as samples of this study were 26 banks taken from each province, including Bank Jambi (Jambi), Bank Kalimantan Selatan (Banjarmasin), Bank Kalimantan Timur (Samarinda), Bank Sulawesi Tenggara (Kendari), Bank Daerah Istimewa Yogyakarta (Yogyakarta), Bank Nagari (Padang), Bank Daerah Khusus Ibukota (Jakarta), Bank Lampung (Bandar Lampung), Bank Kalimantan Tengah (Palangka Raya), Bank Aceh (Banda Aceh), Bank Sulawesi Selatan (Makassar), Bank Jawa Barat (Bandung), Bank Kalimantan Barat (Pontianak), Bank Maluku (Ambon), Bank Bengkulu (Kota Bengkulu), Bank Jawa Tengah (Semarang), Bank Jawa Timur (Surabaya), Bank Nusa Tenggara Barat (Mataram), Bank Nusa Tenggara Timur (Kupang), Bank Sulawesi Tengah (Palu), Bank Sulawesi Utara (Manado), Bank Bali (Denpasar), Bank Papua (Jayapura), Bank Riau (Pekanbaru), Bank Sumatera Selatan Bangka Belitung (Palembang), and Bank Sumatera Utara (Medan). All samples have published financial reports in the Bank Indonesia directory until the end of 2020. The data used is secondary data taken from Bank Indonesia accounts (www.bi.go.id) from 2016 to 2020. The research model function is shown below:

$$OCOI = \alpha + \beta_1 LI + \beta_2 ZScore + \beta_3 LI * ZScore + \beta_4 Size + \beta_5 Age + \varepsilon \quad (4)$$

Where: $OCOI_{it}$ is the efficiency of the bank in year t, $Zscore_{it}$ is the risk of the bank in year t, Li_{it} is a competition of bank in year t, $Size_{it}$ is the total assets bank in year t, and Age_{it} is the age of bank in year t.

The model is built based on the hypothesis in previous research. Many studies use measures such as non-performing loans to measure risk. In this study, the Lerner index is used. This is used to see the consistency of the results of existing research hypotheses. The model used looks simply but is rarely used.

4. RESULT AND DISCUSSION

Table 1. shows that competition is still in the healthy category because it is still far from 1. The competition variable is obtained from the Lerner Index (LI) value which ranges from 0 to 1. The smaller the LI value, the more perfect the market and vice versa; the greater the value of the LI, the closer it is to a strong monopoly market, and the more intense the competition. Many companies take risks to run their business. The age of the company is classified as having experience.

Table 1. Descriptive Analysis

Variable	Min.	Max.	Mean	Std. Deviation
Competition	0,01	1,1	0,47	0,21
Risk	0,01	0,58	0,12	0,10
Efficient	0,67	16,35	6,89	2,89
Size	10,97	19,59	16,33	1,44
Age	41,00	62,00	53,81	3,98

Table 2. shows that competition has a negative and significant effect on efficiency. Risk reinforces the negative and significant influence between competition and efficiency.

Table 2. Regression Analysis Results

Variable	Unstandardized Coefficients		t	Sig.
	B	Std. Error		
(Constant)	-3,28	1,27	-1,62	0,05
Competition	-3,49	1,23	-1,71	0,09*
Risk	-2,15	1,08	-1,59	0,01**
Competition*Risk	-0,56	1,56	-2,17	0,09*
Size	0,12	0,15	2,18	0,08*
Age	0,08	0,27	3,19	0,00***
F-stat			5,012	
R-square			0,231	

Source: SPSS data processing
***: level sig. 1%
**: level sig. 5%
*: level sig. 10%

Risk, Competition, and Efficiency

This study uses a ratio model with Multiple Discriminate Analysis (MDA). This model contains several financial ratios used to detect the risk of bankruptcy. The risk of default is closely related to the survival of a company (Alam et al., 2019; Tan, 2016). The smaller the risk indicates that the company can manage risk well. Risk cannot be avoided by every company, both financial and non-financial, so what can be done is to manage that risk appropriately. As a result, the company will be more trusted by the public, who deposit their funds in the bank. High public trust in banks means that banks do not have to increase deposit rates to attract customers to deposit their funds in the bank. Savings on interest on deposits from the bank shows that the bank is experiencing efficiency (Tan, 2016; Yuan et al., 2022). On the other hand, a bank that already has a good reputation does not need to spend a lot of money on promotions, so it is more efficient than spending.

Z-Score is used to see how much risk a company or bank faces. The results of this study follow the research conducted by Trinugroho et al. (2018), which shows that risk strengthens the negative effect of competition on efficiency. In the Z-score measurement,

Regional Development Banks are seen from the side of several components of financial reports that are compiled into one. A high Z-score value indicates that the company can better manage existing risks. Good risk management will show the bank's commitment to protecting the funds that have been deposited by customers in the bank so that customers do not have to worry about their funds (Alam et al., 2019). It can be said that banks that can manage risk have higher trust from the public. This trust reduces promotional costs such as increasing interest rates and outreach to potential customers (Shin, 2022). This results in fewer costs and a more efficient bank.

The leaner index can measure monopoly power. The Leaner Index is a comprehensive measure of market power because it integrates costs with revenues in one action. The Leaner Index is a measure of competition and shows market power as the ratio between the difference between revenue and costs to total revenue. Competition/competition is often associated with market power, even though these two things differ. Competition between banks can occur because of the struggle for productive resources, such as deposits, savings, and credit distribution which are sources of income. Competition between banks can negatively affect the level of soundness through efficiency transmission (Islam et al., 2020; Yuan et al., 2022). High prices are synonymous with less efficient conditions.

This study uses the learner index to see how much competition there is. In addition, it will also be seen how much power the monopoly has. The results of this study follow the research of Yuan et al. (2022), which shows that competition hurts efficiency. High competition results in a struggle for prospective customers, especially those who will make loans or credit. Credit has the most significant portion in the structure of financial statements or can be said to be the largest asset of the bank. This results in banks having to carry out activities to get more customers. The more people borrow funds, the higher the interest income on loans. One of the methods used to increase these customers is an increase in promotion, socialization, CSR, and mergers that must be carried out with large amounts of funding (Mirzaei & Moore, 2014). Thus, the greater the competition, the tighter it will be and the more inefficient the bank operates.

Size, Age, and Efficiency

The bank's size shows the bank's size as measured by the number of assets owned. The results of this study indicate that size has a significant positive effect on inefficiency. The large number of assets owned by the Regional Development Bank will be used to support facilities and services to the broader community, such as ATM facilities (Liang et al., 2017; Martens et al., 2021). The ATM will add the cost of expansion of natural assets such as the construction of branch offices. If the bank has a lot of ATMs, it will add electricity, although customer transactions are still being fulfilled so that banks continue to receive interest paid from credit activities. This research is not in line with Satyagraha (2022) that the effect of firm size on efficiency is because most regional development banks are owned by local governments and have low-interest rates.

Meanwhile, people with excess funds will save their funds in banks with more significant assets. This is because banks with more significant assets will have reserves to guard against the risks that will be faced. This research aligns with Achmad and Hidayat's study (2013), which states that if a company has too many assets, the cost of capital will be too high, so profits will be depressed. On the other hand, if the assets are too low, profitable sales will also be lost.

In the current conditions in Indonesia, Regional Development Banks are less attractive to the general public. One of the efforts to attract these banks is improving information technology, such as developing mobile apps with exclusive features and reliable security (Ur Rehman et al., 2022). These needs can make Regional Development Bank expenditures higher.

Age is the length of time the Regional Development Bank was established. Banks with a longer term will have more experience compared to shorter companies. The expertise gained includes, among others, dealing with the risk of loss (Mutarindwa et al., 2021). Regional development banks with sound risk management experience will be more careful in their operations. This caution can result in a profitable investment not being taken.

Theoretical Implication and Managerial Implication

High competition makes prospective customers struggle, especially those who will make loans or credit. Credit has the most significant portion in the structure of financial statements or can be said to be the largest asset of the bank. Good risk management will show the bank's commitment to protecting the funds deposited by customers so that customers do not have to worry about their funds. It can be said that banks that can manage risk have higher trust from the public. The large number of assets owned by the Regional Development Bank will be used to support facilities and services to the broader community, such as ATM facilities. With an ATM, the public or customers can transact anytime without going to a teller. If the bank has a lot of ATMs, it will cut fixed costs in the form of salaries, electricity, and telephone. This research is helpful for managers and investors in making decisions should consider the risks and existing competition because they can affect efficiency. This research will have implications for managers to obtain more detailed information in the management, evaluation and monitoring of management to achieve efficiency. In addition, for the government, the operational efficiency of regional development banks must be continuously improved, and the optimal allocation of financial resources must be. The demographic closeness of regional development banks is battered by global competition, especially with conventional banks that have consistently taken the object of research away from efficiency. Value creation through investment activities such as promotion does not always lead to good performance (Wijaya, Zunairoh, Eriandani, & Narsa, 2022).

5. CONCLUSION AND FUTURE DIRECTION

Bankruptcy risk, as measured by Z-Score, has a significant adverse effect on the efficiency of the Regional Development Bank. In the Z-score measurement, Regional Development Banks are seen from the side of several components of financial reports that are compiled into one. A high Z-score value indicates that the company can better manage existing risks. Good risk management will show the bank's commitment to protecting the funds deposited by customers in the bank so that customers do not have to worry about their funds. It can be said that banks that can manage risk have higher trust from the public. This results in banks having to carry out activities to get more customers. The more people borrow funds, the higher the interest income on loans. One of the methods used to increase these customers is an increase in promotion, socialization, CSR, and mergers that must be carried out with large amounts of funding. Thus, the greater the competition, the tighter it will be and the more inefficient the bank operates. Competition, as measured by the Learner Index, significantly negatively affects efficiency in Regional Development Banks. High competition results in a struggle for prospective customers, especially those who will make

loans or credit. Credit has the most significant portion in the structure of financial statements or can be said to be the largest asset of the bank. This has resulted in banks carrying out activities to get more customers.

The control variables, namely size and age, have a significant positive effect on the inefficiency of Regional Development Banks. Regional Development Banks are less attractive to the general public. One of the efforts to attract these banks is improving information technology, such as developing mobile apps with exclusive features and reliable security. In addition, the experience gained, including dealing with the risk of loss, makes regional development banks more careful.

Through this research, managers can obtain more detailed information on the management, evaluation and monitoring of control to monitor management to achieve efficiency. In addition, for the government, the operational efficiency of regional development banks must be continuously improved and the optimal allocation of financial resources. Researchers interested in this topic can include government policy variables and use a broader scope, such as multi-country data. This research has limitations. Namely, it only examines one country. This research has not considered each division within the bank, such as the lending and deposit division. This study also has not regarded macroeconomic factors. In addition, future research should compare efficiency with research samples of all banks in Indonesia so that the position of regional development banks in the national competition will be known. Researchers interested in this topic can include government policy variables and use a broader scope, for example, with multi-country data.

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