

## Costs and Operational Revenue, Loan to Deposit Ratio Against Return on Assets: A Case Study in Indonesia

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Received: January 15, 2021 Revised: March 21, 2021 Accepted: April 01, 2021

### Abstract

This study aims to examine the effect of Operating Costs and Income, Loan to Deposit Ratio on the Return on Asset (ROA) of Public-Private Foreign Exchange Banks listed on the Indonesia Stock Exchange (IDX) during the 2015–2018 period. This study is a quantitative study using financial reports of Public-Private Foreign Exchange Banks listed on the IDX as a data source. This study's population is 25 Public-Private Foreign Exchange Banks listed on the IDX. This study uses purposive sampling to determine the sample to produce 21 banking companies. Data was analyzed using multiple linear regression methods and descriptive statistics. The *F* Test calculation results state that all the variables of free operating expenses, operating income, and the loan to deposit ratio simultaneously and significantly affect the return on assets (ROA) variable in Public-Private Foreign Exchange Banks listed on the IDX. This study's results indicate that simultaneously Operational Costs, Operational Income, and Loan to Deposit Ratio have a significant effect on ROA. Operational Costs and Operational Income have a significant negative impact on Return on Assets. The third hypothesis shows that the Loan to Deposit Ratio has a positive and insignificant effect on Return on Assets.

**Keywords:** Operating Costs, Income, Loan to Deposit Ratio, Return on Asset

**JEL Classification Code:** G00, G10, G2, G29

### 1. Introduction

Banking has a significant role in improving the national economy (Islam & Khan, 2019). Banks play several roles as financial intermediaries. First, they repackage the deposits received from investors into loans that are provided to firms.

In this way, small deposits by individual investors can be consolidated and channeled in the form of large loans to firms (Disemadi, 2019). Banks play an important role in the financial system and the economy. As a key component of the financial system, banks allocate funds from savers to borrowers in an efficient manner. They provide specialized financial services, which reduce the cost of obtaining information about both savings and borrowing opportunities. These financial services help to make the overall economy more efficient.

Foreign Exchange National Private Commercial Bank is a bank that mostly comes from and is owned by private parties (Kebede & Tegegne, 2018). National foreign exchange private commercial banks have obtained a letter of appointment from Bank Indonesia so that they can carry out banking business activities in the form of foreign currency and can conduct transactions between countries. The deed of the founders shows ownership by the private sector so that the distribution of profits is also for the private sector. Therefore, profitability must always be maintained so that financial performance is good; it is required to utilize all available resources so that there are no errors in performing its implementation. The very rapid development in the

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banking world and the high level of complexity can affect the performance of a bank. The high complexity of banking businesses can increase the risks faced by banks in Indonesia. Banks are financial institutions whose main activity is to collect funds from the public and channel these funds back to the public (Acerete et al., 2015; Wahyudi, 2016).

One of the indicators to assess banking financial performance is Return on Assets (ROA). According to BI Circular No. 3 / 30DP NP dated December 14, 2001, the ratio of profit can measure the Return on Asset (ROA) ratio before tax to total assets (total assets). The greater the ROA, the better the financial performance because the return rate (Return) is getting bigger (Faisal et al., 2018).

Another indicator in assessing financial performance is by comparing operating costs and operating Income (Burkhardt & Wheeler, 2013). This ratio is used to measure the level of efficiency and ability of the Bank in carrying out its operational activities in one current period (Sarita et al., 2012). Operational efficiency is primarily a metric that measures the efficiency of profit earned as a function of operating costs. The greater the operational efficiency, the more profitable a firm or investment is. This is because the entity is able to generate greater income or returns for the same or lower cost than an alternative. In financial markets, operational efficiency occurs when transaction costs and fees are reduced. Bank carries out operational efficiency to find out whether the Bank in its operations related to the main business of the Bank is carried out correctly (following the expectations of management and shareholders). It is used to show whether the Bank has used all of its production factors appropriately and effectively (Kusumaningrum & Mawardi, 2011). The smaller the total operational costs of the Bank compared to the entire operating income obtained indicates that the Bank can manage its operations well. The more efficient the Bank runs its operations, the more it will positively affect the profits that the Bank gets. This is supported by Yanti (2015) who concluded that a higher ratio of Operating Costs to Operational Income decreases ROA. On the contrary, a lower ratio of Operational Costs to Operating Income impacts increases ROA. Thus the relationship between Operational Cost Per Operating Income and ROA is negative; that is, the smaller the Operating Cost Per Operating Income, the ROA will increase because the Bank can reduce its operational costs (Yanti et al., 2015).

The loan-deposit ratio (LDR) is a ratio between the banks' total loans and total deposits. The ratio is generally expressed in percentage terms. If the ratio is lower than one, the bank relied on its own deposits to make loans to its customers, without any outside borrowing. The LDR is used to assess a bank's liquidity by comparing a bank's total loans to its total deposits for the same period. The LDR is expressed as a percentage. If the ratio is too high, it means that the bank may not have enough liquidity to cover any unforeseen

fund requirements (Gerali et al., 2010). Thus, the LDR of a bank will affect the Bank's performance. Madjid (2013) examined the effects of Third-Party Funds (DPK), Loan to Deposit Ratio (LDR), and Operational Cost of Operating Income (BOPO) on Return on Assets (ROA). The results obtained indicated that TPF does not significantly affect ROA. LDR and BOPO significantly influence ROA. Setiadi (2010) explained a significant positive relationship between LDR and ROA. LDR provides a positive contribution to a bank's ROA. This means that the bank is very concerned and is very superior in managing LDR. The management LDR is a mainstay in increasing Return on Assets (Setiadi, 2010).

Tahir and Mushtaq (2016) revealed a significant positive link of profitability and firm size with dividend payout whereas government ownership is negatively associated with dividend payout. Investment opportunities, liquidity, and managerial ownership showed an insignificant relationship with dividend payout. This Suggests that dividend payout policy is dependent on business strategies including both investment and financing decisions. Financial managers should consider these factors while formulating the dividend policy of the firm.

## 2. Literature Review

### 2.1. Financial Statements

Financial statements are written records that convey the business activities and the financial performance of a company. The contents of a financial statement are a collection of the standard reports; including the balance sheet, income statement, statement of cash flow, and statement of retained earnings. (Maryanti, 2016). In general, the purpose of making a bank's financial statements is to provide financial information about the number of assets and types of assets owned; Provide financial details about the types of liabilities both short and long term; Provide financial information about the amount of capital and types of bank capital at a particular time; Provide financial information about business results that are reflected in the amount of Income (Return) earned and the sources of the Bank's Income; Provide financial details about the costs incurred and the types of expenses incurred in a certain period; Provide information about changes that occur in assets, liabilities, and capital of a bank.

### 2.2. Bank

Although banks do many things, their primary role is to take in funds—called deposits—from those with money, pool them, and lend them to those who need funds. Banks are intermediaries between depositors (who lend money to the bank) and borrowers (to whom the bank lends money)

(Wiwoho, 2014). As a key component of the financial system, banks allocate funds from savers to borrowers in an efficient manner. They provide specialized financial services, which reduce the cost of obtaining information about both savings and borrowing opportunities (Madjid, 2013). Banks are a critical intermediary in what is called the payment system, which helps the economy exchange goods and services for money or other financial assets. Banks take customer deposits in return for paying customers an annual interest payment. The bank then uses the majority of these deposits to lend to other customers for a variety of loans. The difference between the two interest rates is effectively the profit margin for banks.

### 2.3. Operating Costs and Income

The operating ratio shows the efficiency of a company's management by comparing the total operating expense (OPEX) of a company to net sales. The operating ratio shows how efficient a company's management is at keeping costs low while generating revenue or sales. Operational costs are costs associated with bank business activities, namely interest costs, other foreign exchange costs, labor costs, depreciation, and additional costs; Operating income is all income that is a direct result of bank business activities that are received, such as interest, fees and commissions, other foreign exchange income and other Income (Hidayat, 2017). Efficiency issues are related to cost control issues.

Operational efficiency means that the costs incurred to generate profits are less than the profits derived from the use of these assets. Banks that are unable to improve their level of business efficiency will lose their competitiveness in mobilizing public funds and channeling these funds in the form of business capital. In the banking industry, the efficiency ratio has a specific meaning. For banks, the efficiency ratio is non-interest expenses/revenue. This shows how well the bank's managers control their overhead expenses. Generally, calculating the operating efficiency ratio for banks is by dividing operational expenses by the sum of net interest income and non-interest or fee income. Efficiency ratios allow analysts to assess the performance of commercial and investment banks. (Sumarlin, 2016).

### 2.4. Return on Assets (ROA)

In determining the soundness level of a bank, Bank Indonesia is more concerned with assessing the amount of ROA because Bank Indonesia as a banking supervisor prioritizes the profitability value of a bank as measured by assets whose funds are mostly derived from public savings (Prasetyo & Darmayanti, 2015). ROA measures how much money a company earns by putting its assets to use. In other words, ROA is an indicator of how efficient or profitable a

company is relative to its assets or the resources it owns or controls. The first key measure is the Return on Assets ratio, also known as ROA. It's the most commonly used benchmark for bank profitability since it measures the company's return on investment in a format that is easily comparable with other institutions. ROA is a ratio of net income produced by total assets during a period of time. In other words, it measures how efficiently a company can manage its assets to produce profits (Ichsani & Suhardi, 2015).

## 3. Research Methods and Materials

### 3.1. Types of Research

This research is quantitative research using financial reports of Public-Private Foreign Exchange Banks listed on the Indonesia Stock Exchange as a data source (Iskandar, 2017). Quantitative analysis is carried out using numbers and statistical processing. Quantitative research methods emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques.

### 3.2. Population and Sample

This study's population is Public-Private Foreign Exchange Banks listed on the Indonesia Stock Exchange for 2015–2018, namely 25 banks listed on the Indonesia Stock Exchange. The sample was taken by using purposive sampling technique with the following criteria: Public-Private Foreign Exchange Banks that issued audit financial reports in 2015–2018 and listed on the Indonesia Stock Exchange; The financial statements are reports with an annual period (ending December 31); Public-Private Foreign Exchange Banks have a positive profit during the 2015–2018 research period. After selecting samples with the above considerations or criteria, 25 banks were obtained.

### 3.3. Operational Definition of Variables

In this study, there is one dependent variable (dependent) and two independent variables (independent) as follows:

### 3.4. Dependent / Bound Variable (Y)

This research discusses the performance of Public-Private Foreign Exchange Banks on the IDX in 2015–2018 by measuring the level of bank profits, which is proxied by the Rentability Ratio, namely Return on Assets (ROA) as the dependent variable, which can be formulated as follows:

$$ROA = \frac{\text{NET PROFIT}}{\text{TOTAL ASSETS}} \times 100\%$$

### 3.5. Independent / Independent Variable (X)

This study’s independent variable is the Bank’s financial ratios prepared by the Bank and regularly reported to Bank Indonesia and published. The economic rates that are the independent variables in this study are financial ratios, which consist of two aspects, namely:

### 3.6. Operating Expenses / Operating Income

The comparison between operating costs and operating income can be formulated as follows:

$$BOPO = \frac{\text{OPERATIONAL EXPENSES}}{\text{OPERATIONAL INCOME}} \times 100\%$$

### 3.7. Loan Deposit Ratio (LDR)

The ratio between the total amount of credit extended by the Bank and the funds received by the Bank is formulated as follows:

$$LDR = \frac{\text{THIRD-PARTY CREDIT TOTAL}}{\text{THIRD-PARTY FUNDING TOTAL}} \times 100\%$$

### 3.8. Data Analysis Method

Data analysis was using multiple regression (multiple regression) to test the effect of independent variables on the dependent variable. The hypothesis in this study was tested using SPSS 16 for windows.

Multiple linear regression (MLR), also known simply as multiple regression, is a statistical technique that uses several explanatory variables to predict the outcome of a response variable. Multiple linear regression is a model for predicting the value of one dependent variable based

on two or more independent variables. The multiple linear regression equation is formulated as follows:

$$Y = a + b_1X_1 + b_2X_2 + e$$

Information:

- Y = Profitability Return on Assets
- a = Constant
- b<sub>1</sub>, b<sub>2</sub> = Regression coefficient
- X<sub>1</sub> = Variable Operating Expenses Operating Income
- X<sub>2</sub> = Variable Loan to Deposit Ratio
- e = Confounding variable (error)

## 4. Results and Discussion

### 4.1. Multiple Linear Regression Analysis

The data used is on an interval or ratio scale, then the results of multiple linear regression analysis are obtained as in Table 1 as follows:

Based on the results of the Multiple Linear Regression analysis in Table 1, the following equation can be obtained:

$$Y = 152.251 - 0.015 X_1 + 0.009 X_2$$

The regression equation can be explained as follows:  
 1) The constant value is (152.251). It shows that if there is no influence from the independent or continuous variables, then the value of the ROA is 152.251%.  
 2) The value of Operational Costs to Operating Income is (-0.015), indicating that if other independent variables do not increase, operational costs to Operational Income increase by Rp. 1.00, and the value of ROA will decrease by Rp. 0.015%.  
 3) The value of ROA is (0.009), indicating that if the other independent variables do not increase, the ROA increases by Rp. 1.00, and the value of ROA will increase by 0.009%.

**Table 1:** Multiple Linear Regression Analysis

Dependent Variable Y = Profitability (Return on Assets)						
Variable	Unstandardized Coefficients		Standardized Coefficients	T Count	T Table	Sig.
	Reg. Coeff	Std. Error	Beta			
(Constant)	152.251	66.676		2.283	2.119	0.025
Operating Expenses Operating Income (X <sub>1</sub> )	-0.015	0.006	-0.261	-2.420	2.119	0.018
Loan to Deposit Ratio (X <sub>2</sub> )	0.009	0.006	0.160	1.482	2.119	0.142
R-Square = 0.084			F-count = 3.646			
Adjusted R-Square = 0.061			F-table = 3.52			
Durbin-Watson = 1.469			Sig F = 0.031			

From the multiple linear regression equation above, it can be explained that the constant value is (152.251). This indicates that if the independent variables are assumed to be consistent or equal to zero, the dependent variable ROA is 152.251%. Then, for the sign and its significance, the ratio of operating expenses to operating income has a negative and significant direction. Simultaneously, LDR has a positive and meaningful direction. Thus, the analysis of the independent variable's effect on the dependent variable that has been carried out is only LDR, which is not following the proposed hypothesis (both the direction of the sign and its significance).

#### **4.2. The Simultaneous Influence of Operating Expenses, Operating Income, and Loan to Deposit Ratio (LDR) on Return on Assets (ROA)**

From the research results, it is found that all the independent variables of the ratio of operating expenses to operating Income and the Ratio of LDR have a significant effect on the dependent variable ROA. The results of the  $F$  test show that the value of  $F$ -count = 3.646 >  $F$ -table = 3.52, then it is stated that  $H_0$  is rejected and the probability value (sig) = 0.031 < alpha value = 0.05, it is significant.

The study results show that the operating expense variable simultaneously with operating Income and LDR have a significant effect on ROAs. The operational efficiency ratio is the most common measure used to calculate the balance between managing costs and operating income. This ratio is used to measure the level of efficiency and ability of the Bank in carrying out its operational activities in one current period. The Bank carries out an operational efficiency assessment to determine whether the Bank in its operations related to the main business of the Bank is carried out correctly (following the expectations of the management and shareholders) and is used to show whether the Bank has used all its production factors appropriately and effectively.

Vo (2019) studied the relationship between export performance and stock return of Vietnamese fishery companies. The findings indicated that export intensity and export growth have a significant and positive relationship with stock returns. However, export market coverage has not a significant relationship with the stock return at the 0.05 level. Profitability, financial leverage, and exchange rate have a positive relationship, while interest rate and GDP have no relation to stock return at the 0.05 significance level. The findings implied that investors should consider the export intensity instead of export growth and export market coverage as selecting stock of fishery exports firms to invest; managers should increase the export intensity to increase the company's stock price or firm market value.

LDR is the ratio between the total amount of credit provided by the Bank and the funds received by the Bank,

so that the higher the loan to deposit balance, the higher the Bank's profit (assuming the Bank can channel its credit effectively); with an increase in bank profits, the bank's performance also improves (Jha & Hui, 2012). Thus, the size of the bank's LDR will affect the Bank's performance.

#### **4.3. Partial Influence of Operating Expenses Cost of Operating Income to Return on Assets**

The first hypothesis states that the ratio of operating expenses to operating income has a significant and negative effect on ROA. The research result shows that the ratio has a negative and significant effect on the ROA ratio so that the hypothesis can be accepted. As the result of the  $t$  value is  $-2.420 < t$  table 2.119 and the significance value is  $0.018 < \alpha$  0.05.

This study found that operating income has a negative and significant effect on the development of ROA in Indonesian banks. This is following the researchers' framework, where the ratio of operating costs is the ratio between operating expenses and operating income. This means that the lower operating expenses and higher the operating income, the more efficient the Bank's performance is in controlling its operational costs. With the existence of cost efficiency, the Bank's profits will be even greater. On the other hand, the increasing ratio reflects a bank's inability to reduce operating costs and increase its operating income, which can cause losses because banks are less efficient in managing their business.

Dang and Tran (2019) investigated the impact of accrual anomaly on the stock return ratio of listed firms in Vietnam. Data were collected from listed firms for the period from 2008 to 2018. The results showed impacting the stock return, not growth determinant. Two determinants of accounting distortion and growth contribute to the explanation of the impact of accrual anomaly on profit and future stock return ratio. Experimental evidence confirmed an abnormal existence of accrual in the Vietnam stock market. Aggregate accrual is negatively correlated with future operating profit and future stock return. However, after considering the factors contributing to the impact of future profitability and return on stock returns, the study results showed that accounting distortion can account for low sustainability of income that is not growth.

Achieving a high level of efficiency is the hope of each Bank because achieving efficiency means that management has succeeded in efficiently using its resources. The high ratio of operating expenses to operating income indicates that banks have not been able to utilize their resources efficiently or have not efficiently carried out their operational activities, resulting in decreased profitability. The smaller the ratio of operating expenses to operating income, the more efficient the Bank is in carrying out its business activities so that the

opportunity to obtain higher profits will be higher. The ratio of operating expenses to operating income shows that the management of a commercial bank has been able to optimize its operational activities to reach an efficient level. These findings support the research results of Sudiyatno et al. (2017) and Faisal et al. (2018) who showed that operating expenses to operating income has a significant and adverse effect on ROA.

This study indicates that banking companies use the ratio of operating expenses to operating income to measure efficiency in carrying out their operations to provide the results expected by the Bank. If the value of operating expenses increases in operating income, the ROA ratio will decrease. Of course, it will affect the banks' revenue.

#### 4.4. Effect of Partial Loan to Deposit Ratio on Return on Assets

The second hypothesis states that LDR positively and significantly affects ROA. The research results show that LDR has a positive but not significant impact on ROA, so the hypothesis that LDR has a positive and significant impact on ROA cannot be accepted because the significance value is more significant than alpha 0,05. The results of the partial test (*t*-test) between the variable LDR and the variable ROA show the *t* value of  $1.482 < t$  table 2.119 and a significance value of  $0.142 > 0.05$  and this means that LDR has no significant and positive effect on the ROA of the Public-Private Foreign Exchange Banks.

This study found that LDR has a negative and significant effect on ROA in Indonesian banks. This is not following the researcher's framework, where an increase in LDR means an increase in the interest income earned by the Bank. An increase in LDR means that profitability increases, indicating more significant profit growth. This study's results are not in accordance with the fact that an increased LDR should increase the growth of ROA. This condition shows that the higher the loan to deposit balance, the riskier the Bank's liquidity is. If the percentage of lending to third-party funds is between 80%–110%, the Bank can have the right profitability level. However, this can reduce the ROA of commercial banks going public if loans are disbursed in return. The results of this study are supported by the research of Hidayat (2017) whose research results found that the LDR has a significant effect on increasing ROA and rejects the research results that LDR has no significant effect on ROA (Sudiyatno et al., 2017).

Loan to Deposit Ratio (LDR) states the ability of banks to repay the withdrawals made by depositors relying on the advantage of the loan given as a source of liquidity. However, it must be supported by the management's ability to manage effectively and efficiently, so that able to pay its debts and make a profit.

## 5. Conclusion

This study concludes all the variables of free operating expenses, operating income, and the loan to deposit ratio simultaneously and significantly affect ROA variable in Public-Private Foreign Exchange Banks listed on the IDX. Meanwhile, the *t*-test calculation results show that the variable operating expenses to operating income partially have a significant and adverse effect on the ROA variable in Public-Private Foreign Exchange Banks listed on the IDX. The lower the ratio of operating expenses to operating income, it can be said that the operational activities carried out by the Bank are more efficient. If all the activities carried out by the bank run efficiently, then the profits will be even more significant, which will improve the Bank's financial performance. The *t*-test calculation results state that the independent variable LDR partially has a positive and insignificant effect on the ROA variable in Public-Private Foreign Exchange Banks listed on the IDX. Thus, the level of liquidity of a bank affects the financial performance of the Bank. The more optimal the Bank's liquidity level is, the bigger the third-party funds channeled in the form of credit. The bigger the performance, the bigger the profit that will be obtained. So that the Bank's financial performance will increase.

Recommendation for banking companies is that banks should maintain the stability between income and fees so that the Bank can get the maximum profit by increasing the revenue obtained from interest income on lending and interest on savings, current accounts, and deposits. Then bank management needs to reduce operating costs by validating every expense that the Bank wants to incur, for example, avoiding the cost of estimating losses that are too large, so that these sources of funding can have a positive impact on the company's ability to generate optimal profits. Furthermore, banking companies are expected to manage funds originating from loans in the form of debt (liabilities) by expanding the distribution of customer funds in the form of credit. Bank management should continue to supervise the provision of credit. And for investors, it is expected that in determining investment decisions, they must consider companies that can generate a high ROA when carrying out their activities.

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