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The Influence of Efficiency on Interest Rate Loan in Indonesia Banking in regards to The Implementation of Expected Credit Losses

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Abstract

The purpose of this study is to determine the effect of efficiency on loan interest rates at banks listed on the Indonesia Stock Exchange and their impact before and after the implementation of Expected Credit Losses in Indonesia. The analysis method of this research uses panel data regression with a random effect model to see the effect of efficiency on loan interest rates. The sample of this study uses 22 banks listed on the Indonesia Stock Exchange where the source of research data is from the Bloomberg Finance Lab, Diponegoro University. Efficiency has more influence on loan interest rates before the implementation of expected credit losses than after the implementation. In determining loan interest rates, banks tend to prefer to use credit risk compared to efficiency by looking at the potential profit obtained from looking at the comparison of interbank loan interest rates. These results show that loan interest rates are not easily lowered as a consequence of monetary policy. The results of this study also show that expected credit loss can reduce loan interest rates so that banks are more likely to increase credit risk by increasing loan supply.

Keywords: efficiency; loan interest rate; expected credit losses

INTRODUCTION

The implementation of International Financial Reporting Standard (IFRS) 9 which began in early 2020 in Indonesia has caused concern for the banking industry to increase the required loss reserve. This increase was due to a change in the basic estimation of the assessment in accounting from the incurred credit losses (ICL) model to expected credit losses (ECL). This change requires the preparation of an estimated value of future loan losses since the loan was granted. ECL has an impact on bank efficiency through overhead costs in maintaining the profit it wants to achieve. Therefore, banks need to offer competitive loan interest rates through reduced overhead costs in line with the increase in loan loss provisions since the implementation of ECL. As it is known that the determination of the loan interest rate consists of the cost of funds, overhead costs, profit margins, and risk premium estimates. Therefore, banks with good efficiency are expected to reduce loan interest rates through the overhead cost component. Shamshur and Weill (2019) in their paper modeling the cost of credit as an efficiency function using the cost of credit data at the level of companies that get bank loans.

This study uses data for 6 years from 2016 to 2019 which is the period that still uses the ICL model and 2020 is the period of implementing ECL in Indonesia. The results of the study show that efficiency has a positive effect on loan interest rates, but when adding ECL variables it gives different results where efficiency hurts loan interest rates. These results show that there is an opportunity for banks to earn income with a good level of efficiency so that low overhead costs will provide a potential difference in the margin between revenues and costs. These results also show that interest rates are more likely to be

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determined from market prices by looking at profit opportunities from low costs in setting interest rates. Furthermore, when ECL is applied, banks are more likely to maintain profit by considering loan loss provisions.

This paper is described in sections consisting of 1) introduction which explains the background of the research; 2) a literature review that explains the theory and previous research that is used as a reference; 3) research methods that discuss the sample and the analytical tools used; 4) finding and discussion explaining the results found from the analysis that has been done; 5) a conclusion that gives a conclusion from the findings and discussions that have been discussed previously; and limitations and further research which explains the limitations of research data and further research developed from this research.

LITERATURE REVIEW

There have been many studies that examine banking efficiency using either the stochastic frontier model or by using data envelopment analysis, but not many papers have been done to explore the impact of banking efficiency. Some examples of papers to examine the effect of efficiency on other variables such as its effect on finance (Berger and DeYoung, 1997). In addition, there are also studies to examine the impact of efficiency on economic growth (Lucchetti, Papi and B, 2001) and on the transmission of monetary policy (Havranek, Irsova and Lesanovska, 2016). Furthermore, the paper focuses more on the effect of efficiency on the cost of credit borne by companies that get bank credit (Shamshur and Weill, 2019).

This study departs from the existence of four hypotheses from Berger and Young (1997), namely 1) Bad luck hypothesis explains that higher costs arise after non-performing loans occur; 2) Bad management hypothesis explains that low efficiency measures indicate a signal of inexperienced management practice; 3) Skimping hypothesis explains the level of assurance and control affect cost efficiency and; 4) Moral hazard explains the increase in risk behavior because there are other parties who bear it. Four hypotheses from Berger and Young (1997) explain that management makes efforts to cover low efficiency and high asset risk by increasing loan interest rates. However, management still considers the conditions of bank competition. So the market power hypothesis explains that high competition leads to low loan interest rates (Cetorelli, 2004; Claessens and Laeven, 2004; Fungáčová, Shamshur and Weill, 2017). Offer lower loan interest rates to offer larger loans. In contrast, the information hypothesis states that competition causes high loan interest rates to suppress supply (Fungáčová, Shamshur and Weill, 2017).

Banks with high capital and efficiency tend to limit loan allocations to avoid increasing credit risk, whereas banks with low capital and efficiency tend to increase lending to increase credit risk. The reason for banks that have high capital and efficiency is to limit the allocation of funds due to reserves of future profits. On the other hand, banks that have low capital and efficiency will try to maximize their income by increasing loans (Ozili, 2019). In addition, banks have the opportunity to overestimate the loan loss provision when credit risk is low and vice versa, banks try to lower the loan loss provision when credit risk is high (Laeven and Majnoni, 2003; El Sood, 2012; Agénor and Zilberman, 2015; Ozili and Outa , 2017). Furthermore, banks that always have low capital usually have debtor risk information so that they have a loan loss provision and low loan interest rates (Zheng et al., 2019). Based on this, this paper uses the application of ECL as a dummy variable to see if its effect can strengthen or weaken the effect of efficiency on bank loan interest rates.

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This study takes a study similar to that of Shamsur and Will (2019) but uses the independent variable of bank loan interest rates where Shamsur and Weill (2017) uses the company's cost of credit. This study uses Expected Credit Losses to see the impact on the relationship between efficiency and bank loan interest rates in Indonesia.

RESEARCH METHOD

The study used a sample of 23 banks whose research data was taken from the Bloomberg Finance Lab at Diponegoro University. The sample selection used the purposive sample method from the criteria for the use of data in this study. This study uses panel data regression analysis with a random effect model. The selection of the model is based on the results of the Hausman test carried out. The variables used in this study are loan interest rates as the dependent variable, cost efficiency as an independent variable and credit risk, capital adequacy ratio, private credit, and size as a control variable. Besides aiming to analyze the effect of efficiency on loan interest rates, this study also analyzes how efficiency affects loan interest rates in the period before and after the implementation of ECL. The ECL variable used in this study uses a dummy variable which shows the difference between periods before the application of ECL with a value of 0 and after the application of ECL with a value of 1. Therefore, this study uses 3 regression models to answer this hypothesis. The regression model was used to analyze the effect of efficiency and control variables on credit interest rates. In analyzing the effect of efficiency and control variables on loan interest rates, it is formulated as follows:

$$Int\_Loan_{i,t} = \propto + \beta_1 Efficiency_{i,t} + \beta_2 Credit\_Risk_{i,t} + \beta_3 Private\_Credit_{i,t} + \beta_4 CAR_{i,t} + \beta_5 Size_{i,t} + e_{i,t} \quad (1)$$

Further regression analysis to see the effect of efficiency and control variables on credit interest rates by including ECL in the regression model is formulated as follows:

$$Int\_Loan_{i,t} = \propto + \beta_1 Efficiency_{i,t} + \beta_2 Credit\_Risk_{i,t} + \beta_3 Private\_Credit_{i,t} + \beta_4 CAR_{i,t} + \beta_5 Size_{i,t} + \beta_6 ECL_{i,t} + e_{i,t} \quad (2)$$

In looking at the effect of ECL in moderating the relationship between efficiency and loan interest rates, it is formulated as follows

$$:Int\_Loan_{i,t} = \propto + \beta_1 Efficiency_{i,t} + \beta_2 Credit\_Risk_{i,t} + \beta_3 Private\_Credit_{i,t} + \beta_4 CAR_{i,t} + \beta_5 Size_{i,t} + \beta_6 ECL_{i,t} + \beta_7 (Efficiency * ECL) + \beta_8 (Credit\_Risk * ECL) + \beta_9 (CAR * ECL) + e_{i,t} \quad (3)$$

Operational definitions for the variables used in the regression model above are as follows:

Table 1. Variable Operational Definition

Variable	Acronym	Definition
Loan interest rate	Int_Loan	Interest income to the total loan. Source: Bloomberg
Cost efficiency	Efficiency	Cost efficiency score from the stochastic frontier analysis. Source: Own computation

Credit risk	Credit_Risk	Loan loss reserve to total loan. Source: Bloomberg
Capital adequacy ratio	CAR	Total tier 1 and tier 2 capital to risk-weight assets. Source: Bloomberg
Private credit	Private_Credit	Total loan to other banks to total assets. Source: Bloomberg
Size	Size	Log (total asset). Source: Own computation

FINDINGS AND DISCUSSION

This study uses panel data regression analysis with a random effect model. The determination of the random effect model is based on the Hausman test, where the results of the Hausman test show the Chi-Square Statistics value of 3.2298 with a probability of 0.6646.

Table 2. Result

	Dependent Variable: Loan Interest		
	The Impact Efficiency	**The Impact ECL**	**The Impact Efficiency*ECL**
Efficiency	0.041927***	0.028518**	0.027197*
Credit_Risk	0.000583***	0.001100***	0.001542***
CAR	-0.068805***	-0.056190***	-0.058011***
Private_Credit	0.008159	0.003884	0.007888
Size	-0.007552***	-0.007423***	-0.007197***
ECL		-0.00410***	-0,008094
Efficiency X ECL			0.006615
Credit_Risk X ECL			-0.001340***
CAR X ECL			0.017476

*, **, *** show significance at the 10%, 5% and 1% levels

The results in the table above have a significant effect on the efficiency of loan interest rates but the significant effect is reduced when the dummy variable, namely ECL, is included in the regression model. The results of this study are not consistent with the results of the research of Shamshur and Weill (2019) which states that high efficiency provides lower credit costs. The results of this study show high efficiency in increasing loan interest rates. These results indicate that banks maintain interest rates or increase interest rates based on the potential benefits of competitive interbank lending rates. According to the hypothesis of Berger and Young that credit risk increases loan interest rates. However, low efficiency does not increase loan interest rates. These results indicate that low efficiency does not reduce lending rates, but banks maintain high lending rates. Banks maintain high loan interest rates because other banks also offer the same loan interest rates. So that the bank can have higher profit potential. Therefore, the bank

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still has a high net interest income. The application of ECL has a negative effect on loan interest rates which causes banks to lower loan interest rates to increase loan supply, thereby increasing credit risk. These results indicate that banks increase their loan loss provision when credit risk increases.

CONCLUSION

Efficiency has more influence on loan interest rates before the implementation of ECL compared to after the implementation of ECL, while credit risk is more likely to affect loan interest rates, especially when ECL comes into effect. Correspondingly, the implementation of ECL causes a decrease in loan interest rates in order to increase loan supply and in turn will increase credit risk. These results indicate that banks have the opportunity to increase the loan loss provision when credit risk is low and conversely lower the loan loss provision when credit risk is high.

LIMITATION & FURTHER RESEARCH

This study only uses a period of one year in the application of expected credit losses because its implementation has only begun in the 2020 period, so it is hoped that further research can use a longer application period than this study.

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