

## The determination of credit distribution: A case study of rural credit banks (RCBs) in Java and Sumatera, Indonesia

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### Abstract

The credit distribution is a vital banking intermediation functions in which banks serve as intermediaries for debtors and creditors. Credit distribution to customers is dependent upon internal and external factors. This research is conducted to examine the influence of internal and external factors on credit distribution at Indonesian's rural credit banks in particular rural credit banks in Java and Sumatera. The data used in this study are a financial report of rural credit banks in Java and Sumatera from the period of 2014-2016 accessed from Bank Indonesia's website. Inflation data obtained from the Central Bureau of Statistics. This study applies a panel regression model with the common effect model as the best model. The results of the study show that inflation is the single external factor that influences the distribution of assets in RCBs, while interest rates (Bank Indonesia's certificates) do not affect credit distribution. Meanwhile, internal factors which include operational costs to operating income, third-party funds, capital adequacy ratio, concurrently affect credit distribution in rural credit banks in Indonesia, especially Java and Sumatera.

Keyword: Credit distribution, internal and external factors, panel regression approach

### Introduction

The banking sector is currently an institution that plays an important role in supporting economic growth. Banking as an institution that carries out the principle of intermediation by carrying out activities to save and distribute public money or funds. Without their capital, banks are required to search for other funding sources to be able to channel credit to the community (Baskaya, et. al. 2017). Due to its limited permits, the rural credit banks distribute credit or financing to small and medium enterprises in urban or rural suburbs as their primary focus. Growth in credit distribution and payments from year to year continues to increase. From Indonesian Banking Statistics Data issued by Bank Indonesia 2017 indicate that in 2012 rural credit banks channelled 49,818 billion loans and grew to 59,176 billion in 2013. Credit distribution in 2014 also rose from 68,391 billion to 74,807 billion in 2015. While in the past two years, rural credit banks indicate an increase in credit distribution and continue to increase from where in IDR 81,684 billion in 2016 to IDR 82,868 billion.

One banking groups that exist in Indonesia is the rural credit banks (RCBs). They perform smaller operational activities compared to other commercial banks since they are not permitted to accept deposit accounts, foreign exchange activities, and insurance but in practice are conventional or sharia principles. These means that rural credit banks carry out activities such as third-party fund-collecting, distributing credit, and providing financing based on sharia principles. The existence of RCBs in Indonesia dominated in Java, namely in East Java, West Java and Central Java. From Bank Indonesia data about the Indonesian banking statistics for 2017 show that there are 4,541 RCBs in the Java region, of which there were 3817 in 2016. Also, the second largest number of RCBs is in the Sumatera region with West Sumatera with a higher number of RCBs with a total number of 700. Nevertheless, in the Sumatera region, the development of BPR is not as advanced as in Java. However, the encouraging thing from the performance side of the growth industry is in a better direction.

Furthermore, the presence of RCBs has become a financial and banking institution that provides loan services to micro and small businesses (Anwar, et.al. 2020). Even the services provided are not only in cities and even to remote villages by providing loans in the form of credit (Anwar, et.al. 2019). And this service by providing credit is helpful for micro businesses, small and medium enterprises or limited communities to increase their production and productivity so they can get out of poverty.(Akoijam, 2013) Therefore, government support for RCBs is very important to help small business groups or farmers (Binswanger, et.al. 1993) According to Widarjono, et.al. (2020) in providing services in the

form of credit distribution to the community, micro and small, RCBs must be managed efficiently in order to receive better profit.

The credit distribution carried out by financial institutions is in the context of carrying out the institution's intermediary function and undoubtedly to gain the company's revenue. These will eventually bring economic growth in the region (Duican & Pop, 2015). Research in Spain by Ruz Segovia (2017) and Llorens and Martin-Oliver (2017) claim that credit significantly contributed to accelerating economic growth after the crisis in the 2000s. However, the granting of credit to companies may require profound attention to the company's performance, the addition of regulations and requirements. The soaring level of credit certainly does not happen by itself. Shirota (2013) mentions numerous factors that influence the flow of bank credit in various countries under different conditions and conditions. Changes in each of these conditions require policymakers or regulators to reorganise credit distribution (Ben Naceur, et.al. 2018). Companies' sizes and technological limitations also can affect access to acquire credit from banks (Botello Peñaloza, 2015).

Some studies regarding credit provision in developed countries have found mixed results. Afrifa and Gyapong (2017) study using UK data concluded that the group of companies that had operating cash, annual sales, export rates and access to banks gave higher trade credit compared to a slightly sluggish group of companies. While the Gozgor (2014) study in 24 developing countries said that external factors, in this case, BI interest rate, affect the level of credit distribution either in short or long term. However, not all customers were able to get credit from the banking world, depending on the size and technology. Ben Naceur et al., (2018) uses the US, and European data claimed that the capital ratio has a negative effect on the level of bank loans in Europe and America in distributing credit in addition to consideration of customer behaviour and regulation of the government.

Furthermore, research in several developing countries also concluded mixed results. Imran and Nishat (2013) stated that several macroeconomic variables significantly influence the provision of credit in the long run, except for inflation and the interest rate on the market in private sector credit. While in the short term the level of domestic deposits showed negative credit to the private sector in Pakistan. A study by Elekdag and Han (2015) mentioned that the company's domestic problems possessed a more significant impact compared to external factors in encouraging credit distribution on developing countries in Asia. Baoko, et.al. (2017), who analysed data on Ghana commercial banks found that the amount of money, bank assets, loan interest rates and deposits affect credit distribution to the private sector both short and long term. However, inflation has a positive effect only in the short term. PS and Trivedi (2019), using MSME credit data in Mumbai, India, found that credit was aimed more towards entrepreneurial businesses such as start-up or other innovation businesses. These are in line with Hasan, et.al. (2017) in Poland, who stated that a policy needed in providing credit to prospective SMEs in developing countries.

Research in Indonesia in both Islamic and non-Islamic banking found different results. Damanhur, et. al. (2018), using data from the regional development banks, claimed that inflation and economic growth affects the financing ratio. In addition, the central bank's interest certificate have a negative effect on the financing of Islamic sharia banks in Indonesia. Haryanto and Widyarti (2017) conducted a study at commercial banks listed on the Indonesia Stock Exchange. The result indicated that net interest margin influenced credit distribution positively while bank efficiency had a negative effect and the non-performing loan affected the rest. The capital level and interest rates of the central bank showed a negative influence on credit distribution on banks that went public in Indonesia.

Murdiyanto (2018) who researched commercial banks in Indonesia found all internal bank variables, i.e. third-party funds, capital adequacy ratios and non-performing loans) and external variable banks, namely the interest rate, influenced credit distribution. Nugroho and Alexandri (2018) who analysed private rural credit banks claimed that the performance variable of private rural credit banks such as third-party funds, financing ratios and economic variables affected financing in Indonesia. Selvie, et. al. (2017) who did a study on rural credit banks found third-party funds, and bank capital affects credit distribution while interest rates did not affect credit distribution. Sudarsono (2017) revealed that there were differences in the influence of internal variables in financing or credit distribution on Islamic banks. In the long run, third-party funds, asset quality levels, debt financing ratio and percentage of net profit loss have a positive effect on credit distribution, except the bank's efficiency ratio is negatively related. However, in the short term, bank efficiency remains negatively related but third-party funds, return on assets, capital level, financing ratio, profit sharing rate and financing risk showed the insignificant relationship.

Another study by Hidayat (2018) who tested credit distribution to MSMEs found that the level of capital adequacy, non-performing loans and bank efficiency levels, as well as working capital interest rates, had a negative and significant effect credit distribution. Meanwhile, third-party funds, return on assets, interest, inflation and economic growth indicated a positive effect on credit distribution. Also, the interest rate showed no significant impact on credit distribution. Effendi and Yasmin (2017) who analysed SME financing by private rural credit banks in Indonesia found that third-party funds, deposit return ratios, inflation and industrial production indices had a positive effect on Islamic bank financing to MSMEs. While efficiency ratios, financing rate ratios, sharia interest rates negatively affect the MSMEs funding in Indonesia.

From several studies carried out in various countries including Indonesia indicated different and inconsistent research findings. An example of the results' diversity demonstrated through the influence of inflation and interest rates on credit distribution existed in some studies but did not present in other studies. That is used by several studies to say that there are influences and some that do not affect lending. The same thing also related to internal factors that determined the impact on inconsistent credit distribution. Based on the above, the research is conducted to examine several determinants in distributing credit to the community. This study uses external factors such as interest rates (Bank Indonesia Certificate-SBI) and inflation while the internal elements of this study use third-party funds (TPF), profitability

(ROA), capital adequacy ratio (CAR), and bank efficiency management (BOPO).

### Methods

This study uses data from all RCBS on Java and Sumatra islands which is accessible and published on page www.bi.go.id., the Bank Indonesia website. The analysed data collected from the financial statements of 16 rural credit banks on 16 provinces from 2014 to 2016. The number of rural credit banks then is then multiplied to three years range, i.e. 2014-2016, so that it produces 48 observations. This research model uses panel regression procedures because the data used is period data between time and company. In examining the effect of SBI, inflation, deposits, ROA, CAR and BOPO on credit distribution in Java and Sumatra. Model selection performed by estimating the common effect model, fixed effect model and random effect model. Also, chow test and Hausman test tested. This study uses static panel regression econometric models.

$$PK_{it} = \alpha_{it} + \beta_1 SBI_{it} + \beta_2 Inf_{it} + \beta_3 BOPO_{it} + \beta_4 ROA_{it} + \beta_5 TPF_{it} + \beta_6 CAR_{it} + e_{it}$$

Where:

$PK_{it}$  = rural credit banks' credit distribution at province i for the period t

$\alpha$  = constant

$\beta$  = Coefficient of Regression

$SBI_{it}$  = SBI interest rate at province i for the period of t

$Inf_{it}$  = provincial inflation i in the period t

$BOPO_{it}$  = Operational costs of rural credit banks' operational revenues province i period t

$ROA_{it}$  = Return on Assets' rural credit banks province i period t

$TPF_{it}$  = Third Party Funds rural credit banks province i period t

$CAR_{it}$  = Capital Adequacy Ratio province i period t

$e_{it}$  = residual term for each unit cross section i in the period t

### Results and Discussion

Before discussing the results of the research on the regression results, some classic assumption tests will be discussed. The classic assumption test results can be seen in Table 1 below:

**Table 1.** Classical assumption test results

Indicator	Test	Value	Probability
Normality	Jarque-Berra	3.004	0.222
Heteroscedasticity	Heteroskedasticity White	33.252	0.188
Autocorrelation	Durbin Watson	0.811	-
Multicollinearity:	Correlations all independents	$\leq 0.80$	

Note:  $R_{SBI} = 0.056$   $R_{inflation} = 0.014$   $R_{ROA} = 0.017$   $R_{TPF} = 0.011$   $R_{CAR} = 0.006$   $R_{Operational\ Cost\ on\ operational\ income} = 0.135$

Based on the table of the results of the classic assumption test, the model in this study has been free from classical assumption problems. The results of the data normality test using the Jarque-Berra (JB) test have shown data to be normal. These indicated by the JB value that is not significant 5%. Furthermore, the results of the heteroscedasticity of the data model used in this model study show that heteroscedasticity does not present, nor the data contain homoskedasticity. These can be seen the value of Obs\* R-squared from Heteroskedasticity White 33,252 which is not significant 5%. Similarly, the autocorrelation test and the multicollinearity test both have been as determined.

The results indicate that the best regression model to be used in this study is the panel random effect model (REM) regression (see Table 2 below). The selection of the model can be seen from the two tests carried out, namely the Chow test and the Hausman test. The Chow test results show its value (6.15) which is not significant at the 5 per cent level, meaning that the Common Effect Model is the right model to be used compared to the other models required in panel regression. The results of this study show that SBI interest rates, inflation, return on assets, third-party funds, capital adequacy ratios and efficiency management simultaneously influence credit distribution. These can be seen from the F test value of 9,652 which is significant one per cent. First, the constant value is 89,820, meaning if the value of SBI, Inflation, Deposits, ROA, CAR and BOPO does not change, the intercept value of lending to RCBS is 89,820. Second, the SBI coefficient value is 0.144 means that if the value of SBI rises by 1 per cent, it increases credit distribution by 0.144 per cent. Third, the inflation coefficient of 0.021 is interpreted if inflation rises 1 per cent, credit distribution increases by 0.021 per cent.

Fourth, the coefficient of ROA worth 0.009 is interpreted if ROA rises by 1 per cent, credit distribution increases by 0.009 per cent. Fifth, the TPF coefficient is 0.233, which means that if deposits increase by 1 per cent, credit distribution will increase by 0.233 per cent. Sixth, the CAR coefficient valued at 5,760 is interpreted if CAR rises 1 per cent to increase lending by 5,760 per cent. Finally, the BOPO coefficient value of -28,282 per cent causes a decrease in the credit distribution of 28,282 per cent. Furthermore, from Table 1 above it can also indicate that the ability of the independent variable in explaining credit distribution measured by the coefficient of determination ( $R^2$ ) with a value of 0.733 or 73.3 per cent. It means that variable SBI interest rates can explain the variable dependent variable, namely credit distribution, inflation, return on assets, third-party funds, and capital adequacy ratio and efficiency management significantly.

**Table 2.** Result of panel regression credit distribution at rural credit banks in Java and Sumatera

Variables	Common effect Model
C	11.310***
SBI	0.443***
INFL	5.054***
ROA	0.974
TPF	-1.258**
CAR	-5.888***
BOPO	2.141*
R <sup>2</sup>	0.455
F_Statistic	45.844***
C how test= 6.323	

Note: \*\*\* significance level 1%, \*\* significance level 5%, and \* significance level 10%

So, the model of equality and explanation in this study conducted to examine the effect of SBI, inflation, ROA, TPF, CAR and BOPO on Credit Distribution for rural credit banks specifically in Java and Bali is as follows:

$$PK = 89.820 + 0.144 SBI + 0.021 INFL + 0.009 ROA + 0.233 TPF + 5.760 CAR - 28.282 BOPO$$

There has been previous research which examined SBI, Inflasi, ROA, TPF, CAR dan BOPO variables. This study's finding is by the research conducted by Imran and Nishat (2013), Haryanto and Widyarti (2017) and Selvie et al. (2017) where they concluded that interest rates and inflation did not affect credit distribution to banks. It indicates that credit distribution at rural credit banks during the analysed years excluded as a factor in credit distribution. Nevertheless, this result is different from other studies such as Gozgor (2014); Baoko et al. (2017); Murdiyanto (2018); Nugroho and Alexandi (2018); and Effendi and Yasmin (2017) whom all propose similar findings that interest rates influence credit distribution.

Another finding from this study is how the inflation variable place no effect on credit distribution at rural credit banks. It is also discussed by Imran and Nishat (2013) who claim that inflation does not affect credit distribution. However, this result is not similar from previous research such as Effendi and Yasmin (2017); Nugroho and Alexandi (2018); Utami (2018) and Baoko et al. (2017) which states that inflation affects credit distribution. Return on assets and third-party funds positively and significantly affect credit distribution at the 1 per cent level in Rural Credit Banks in Indonesia. This finding is similar to that of Baoko et al. (2017); Sudarsono (2017); Hidayat (2018) and Waemustafa and Sukri (2015) who concluded that return on assets affects credit distribution. In other words, the banks will be more encouraged to distribute credit if they gain a higher return on asset.

Third party funds positively and significantly affect lending with a level of 5 per cent. This finding is in accordance with the research conducted by Baoko et al. (2017); Sudarsono (2017); Hidayat (2018) and Waemustafa and Sukri (2015); Effendi and Yasmin (2017); Nugroho and Alexandi (2018); and Selvie et al. (2017) who suggest that banks supported by third-party funds indicate better influence on credit distribution. Capital adequacy also affects lending to rural credit banks in Indonesia. This finding is in accordance with Baoko et al. (2017); Selvie et al. (2017); Sudarsono (2017); Hidayat (2018) Ben Naceur et al. (2018) who mention that banks with sufficient funds at least above the minimum limit of 8% are more intense in credit distribution compared to banks whose capital is smaller than 8%. However, this research is not in line with Haryanto and Widyarti (2017) who claims that capital does not affect credit distribution. Efficiency management negatively and significantly influences credit distribution at 10 per cent level in Rural Credit Banks in Indonesia. This finding is by the research conducted by Haryanto and Widyarti (2017), Sudarsono (2017), and Effendi and Yasmin (2017) who explained that management efficiency affects credit distribution. These indicate that rural credit banks in Indonesia, especially in Java and Sumatra, are still able to maintain operating revenues smaller than their operating expenses.

## Conclusions

This study provides the conclusion that all independent variables used in this study can determine the distribution of credit to rural credit banks in Java and Sumatra. However, this research has proven partially that only internal bank variables such as ROA, TPF, CAR and banking efficiency (BOPO) affect credit distribution. Whereas interest rates and inflation do not affect lending to rural credit banks. Future research is suggested to use internal variables used by BI regulations, namely RGEC and several economic factors in testing the behaviour of lending in Indonesia. Di samping itu, Penelitian ini memiliki keterbatasan dari sisi data yang digunakan masih menggunakan periode yang lama, untuk itu perlu dilakukan pembaruan data sampai dengan tahun terkini.

This research has implications for banking practitioners and shareholders to pay attention to inflation and CAR in channeling credit to customers or the public. It is due to these two factors made smoothly and whether the implementation of such credits. High inflation makes customers have the potential to find it difficult to pay installments and installments because they tend to meet their daily needs. Meanwhile, the banking sector also experienced difficulties in channeling credit due to a lack of capital.

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