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Impact of Interest Loan, Growth of Regional Gross Domestic Product, Inflation and Economic Growth on Loans at Credit Union in West Kalimantan, Indonesia

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Abstract

Loans or credits offered by Kopdit credit unions are a potential source of funds that need to be developed, to help accelerate the home industry and the micro and small economies. Therefore, we want to see the impact of several conditions such as the loan interest rate, GDP per capita growth, inflation rate and economic growth. Quite a number of studies have looked at the impact of interest rates, GDP growth, inflation rates and economic growth on loans or credits to banks or banking institutions. We do not look at credit or loans from banks, but on Kopdit credit unions (CU). The results of our research show that simultaneously the loan interest rate, GDP growth, inflation rate and economic growth have a strong enough influence on loans at Credit Union Credit Unions, namely 79.2454%. Partially the variable of loan interest rate, GDP growth per capita, inflation rate affects outstanding loans, while economic growth partially has no effect on outstanding loans.

Keywords: Loan Interest, Income, Inflation, Economic Growth and Loans

Introduction

Economic finance for small and medium businesses is an extremely scarce and costly commodity. Rare when financial services are unable to reach socially deprived individuals. Since financial organizations are unable to reach socially vulnerable individuals, moneylenders take advantage of this state and circumstance. Loan sharks charge very high interest rates, making lending to small and micro enterprises an extremely costly commodity. The truth is that banking institutions are unable to enter the broader population, especially the economically disadvantaged, particularly those residing in rural areas. As a consequence, citizens who are economically disadvantaged and reside in rural areas lack access to bank-provided resources. Banks will only represent those who are economically secure. Apart from serving only the middle and upper classes, banking entities can only represent the population up to the sub-district level, and even then, only some banks such as the People's Credit Bank (BPR) and Bank Rakyat Indonesia can serve the community (BRI).

In addition to banks' narrow geographical scope, banks must meet additional conditions in order to open savings accounts. For instance, the bank mandates a minimum purchase amount. It also needs investments to be kept to a minimal level. It's clear that banks need a minimum sum of savings, as the profit earned on investments must be larger than the monthly administration charge. If the interest earned on the investment is smaller than the monthly operating costs, the existing savings will drop, since the principal of the savings will be utilized to cover the monthly administrative costs. As a result, it's natural for the bank to demand a

minimum level of savings from each client. Including the fact that saving is a prerequisite for being a consumer. You may qualify for a loan since being a new client. Bank BRI charges a monthly administration fee of Rp. 5,500, a fee of Rp. 10,000 on any account of a nominal amount of less than Rp. 2,500,000, and a minimum investment of Rp. 50,000. Taplus needs an administration charge of IDR 11,000 and a minimum initial deposit of IDR 250,000 at the BNI branch. Bank Mandiri charges its customers an administrative fee of IDR 12,500 a month.

Apart from administrative charges, consumers are subject to a 20% levy on savings interest. This circumstance renders it impossible for the lower classes to save money in a fund. Since lower-class households have very little income and the balance is not always set per month, saving in a bank is very difficult. Thus, the presence of a credit union Kopdit is a response to some of the community's economic challenges in obtaining business resources at an acceptable cost and subject to some conditions. This money can be acquired by a loan. Numerous variables affect this loan, the most significant of which are loan interest, revenue, inflation, and economic development. The aim of this analysis is to determine the effect of loan interest rates, GDP per capita rise, inflation, and economic growth on the growth of outstanding loans at Kopdi credit unions in West Kalimantan, Indonesia.

Previous Studies

Apart from examining the effect of loan interest rates, GDP per capita growth, inflation rates, and economic growth on loans at credit union credit unions in Indonesia, more precisely in West Kalimantan, this study also examined the effect of loan interest rates, GDP per capita growth, inflation rates, and economic growth on the development of credit or loans to credit union cooperatives in West Kalimantan.

According to Livingston and Ord (1994), many aspects influence the quantity desired by customers. Taste, the price of an item, and alternative commodities are all examples of these influences. If a product's price is prohibitively high, an individual would suggest limiting their intake. In the other hand, as costs decline, buyers want to raise their intake of these goods. The cost of borrowing (interest cost), which is called the price of the debt in the credit system, is a consideration to weigh when deciding whether or not to borrow. It is heavily affected, in addition to taste and demand rates, by the availability of alternative products, in this case a loan bid from another entity. Loans can be offered by official commercial banks, government departments, or informal entities. In this case, the cheapest option is chosen.

Numerous experiments have been conducted to determine the association between interest rates on loans and credit demand. Reduced interest rates, according to Weller and Radha (2004), potentially raise lending and private spending. According to Weller and Radha's study, interest rates and credit demand have a negative or inverse association. Credit interest rates can be used as a predictor indicator to determine how the private sector reacts to interest rate increases. Huzaynah et al. (2011) discovered that interest rates and inflation had little discernible impact on bank credit demand. Utility refers to a product's capacity to fulfill consumer needs. Commodities that fulfill customer preferences have a higher use benefit. If a loan or credit may be used to satisfy household financial requirements, it is claimed to have utility or usage worth (Saleemi, 2000).

As Amonoo et al. (2003) discovered, there is no correlation between interest rates and credit demand. Similarly, the findings of a study performed by (Maiti et al., 2020) indicate that interest rates have no impact on credit demand in the short and long run. According to Mudida (2003), as an individual's income rises, the market for the majority of commodities increases as well. Small-scale buyers often focus on the same, primarily low-quality goods with low income expectations. Poor product output translates into a low income goal, which results in

low market returns. As a consequence, if revenue is poor, company owners are unable to obtain credit from formal institutions.

Other scholars, including Kao (1999), Maddala and Wu (1999), and Westerlund (2007), examined the connection between GDP per capita and domestic credit in the banking sector using panel results. The study's findings indicate that in Latin American countries, per capita GRDP and domestic credit have a significant long-term relationship. The same research discovered an equal causal association between GRDP per capita and domestic credit. Madagascar Zeller (1994) is another researcher who examined the association between income levels and credit demand using a regression model. The Zeller model presupposes that credit demand is solely determined by internal variables.

According to Zeller's study, the risk of qualifying for credit rises substantially as one's academic age or duration of schooling increases, as one's age increases, and as one's income increases. For low-income individuals that depend heavily on short-term credit. Zeller determines when credit application is seen as a decision-making mechanism that starts with an individual's decision whether or not to apply for credit. Livingston and Ord (1994), who assess the quantity of goods requested by customers based on a variety of criteria. Individual demand is influenced by a variety of variables, including the size of one's profits. If a person's income rises, the demand for credit increases; conversely, if income reduces, the quantity of goods demanded declines as well. Meanwhile, Mpuga (2004) examined credit demand in rural Uganda and discovered that weak rural households are at a disadvantage and are less inclined to seek credit than inhabitants in urban areas.

Credit demand is often affected by other variables, such as the pace of inflation. According to Garoufalis (2017), the inflation rate is negatively related to credit demand. Maiti et al., All., (2020) concluded that the amount of credit required by the private sector in the short run is contingent upon the pace of inflation. In the near term, lower inflation rates stimulate an increase in credit demand. Personally, one would consider the impact of higher inflation when deciding the loan's duration. In Sub-Saharan Africa, Onwe and Olarenwaju (2014) discovered a strong negative association between corporate spending and inflation. Another school of thought holds that inflation has a detrimental effect on bank credit demand; as inflation rises, demand for bank credit decreases, and vice versa. This inverse relationship exists since inflation erodes wages in order to keep up with the costs of living (Aryaningsih, 2008). Another finding is that inflation has a partly negative and substantial impact on bank lending. Boyd et al., 2001; Aryaningsih, 2008; Vazakidis et al., 2011; Du, 2011; Kholisudin, 2012; Tarigan, 2012 (2012). The findings contradict those of Sukarti (2008), Haryati (2009), and Egert (2006), who assert that inflation has a positive and important impact on the volume of credit disbursed in portion.

Gross Regional Domestic Product has an effect on or has the potential to drive credit expansion (Sihombing, 2010; Novembinanto, 2009; Olusanya et al., 2012; Al Daia et al., 2011; Du, 2011; Vazakidis et al., 2011; Yusuf, 2009). However, other studies have discovered the inverse association, with DRB or economic development having little discernible impact on lending growth. (2012) (Mahayoga et al.). Numerous observational studies support the theory that there is a favorable association between economic development (GDP) and credit demand. Kashyap, Stein, and Wilcox (1993) claim that economic growth enhances private agents' capacity to absorb higher levels of debt, allowing them to fund expenditure through credit. Rifai (2007) argued that gross domestic product has a positive and substantial impact on bank credit demand, implying that when GDP rises, bank credit demand increases as well. That as people's incomes rise, demand for products and services rises, allowing business players to expand their operations or create new ones. A loan can be used to fund company expansion or the

establishment of a new business. Aryaningsih's (2008) research in Central Java concluded that as GDP, interest rates, and inflation both move in the same direction, credit demand is significantly affected. However, though interest rates and inflation have little impact on credit demand, income does.

Methods

We use quantitative and associative methods between loan interest rates on credit union Kopdit, GDP per capita growth, inflation, and economic growth with outstanding loans. The research was conducted in West Kalimantan province, with the research object being Kopdi credit unions in all City Districts in West Kalimantan, using panel data with the research period of 2009 - 2019. Data sources for the Ministry of Cooperatives and MSMEs, West Kalimantan Province, Inkopdit, the Office of Cooperatives and MSMEs, BPS, Puskopdit BKCU Kalimantan. The research model used is panel data regression:

$Y = \alpha + \beta 1X1it + \beta 2X2it + \beta 3X3it + \beta 4X4it + Ɛit$ ..... (2)

Where Y : Loans On Kopsit Credit Union
α : Constants
X1 : Loan interest rate on Kopdit Credit Union i year to
X2 : PDRB Perkapita in 2018
X3 : Inflation Rate in 2018
X4 : Economic Growth
i : Credit union
t : Time
β : Estimated Result Parameters
Ɛit : Errorahahha

Result and Discussion

Chow Test

Chow test to determine the Common Effect (OLS) or Fixed Effect model that is most appropriate to use in estimating panel data in research. The criteria in determining the decision are also the same, namely: If the probability (Prob) on the Cross-Section F <0.05, the better model is Fixed effect. If the probability (Prob) on the Cross-Section F> 0.05 then the better model is the Common effect. The results of the Chow test conducted using Eviews 8.8 software can be seen in Table 1 below:

Table 1. Chow test

Redundant Fixed Effects Tests			
Equation: FIXED2			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	398.524105	(18,186)	0.0000
Cross-section Chi-square	768.700248	18	0.0000

Source: Processed Data 2021

From Table 1 it is known that the probability value in F_{counts} at 0.0000. The probability value of F_{counts} less than 0.05 (0.0000 < 0.05). Based on the criteria of model selection because the value of F_{count} is less than 0.05 then the most appropriate model to use is fixed effect, compared to Cammon effect model. The next step after finding the right model based on Chow test is to do Hausman test and finally Langrange Multiplier test.

Hausman Test

To choose the most suitable model between Fixed effect or Random effect model is next in hausman test. The results of the Hausman Test calculation can be seen in Table 2 below:

Table 2. Hausman Test Results

Correlated Random Effects – Hausman Test				
Equation: RANDOM2				
Test cross-section random effects				
Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		0.000000	4	1.0000
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var (Diff.)	Prob.
Log (Loan Interest)	-2.018741	-2.023103	0.000001	0.0000
Log (Gdp Growth Perkapita)	0.787631	0.778219	0.000004	0.0000
Log (Inflation)	-0.016930	-0.015480	0.000000	0.0000
Log (Economic Growth)	0.657056	0.668149	0.000005	0.0000

Source: processed data 2021

Based on the results of Hausman's test calculation in Table 2, the Probability value of *Chi square* is 1.0000. By using the decision criteria, where if the result of calculating the probability value is 0.05 then a better model is Fixed *effect* compared to *Random effect.* If the result of calculating the probability value is 0.05 then a better model is *Random effect* than *Fixed effect.* The probability value *of Chi square* is 1.0000 > 0.05, so the best model is random *effect.*

Langrange Multiplier Test

The next step is to perform the Langrange Multiplier test, to determine the best common effects or random effects model. The results of the Langrange Multiplier test calculation can be seen in Table 3 below:

Table 3. Langrange Multiplier Test

Lagrange multiplier (LM) test for panel data			
Sample: 2009 2019			
Total panel observations: 209			
Probability in ()			
Null (no rand. Effect)	Cross-section	Period	Both
Alternative	One-sided	One-sided	
Breusch-Pagan	976.7759	3.878169	980.6541
	(0.0000)	(0.0489)	(0.0000)
Honda	31.25341	-1.969307	20.70699
	(0.0000)	(0.9755)	(0.0000)
King-Wu	31.25341	-1.969307	17.09853
	(0.0000)	(0.9755)	(0.0000)
GHM	--	--	976.7759
	--	--	(0.0000)

Source: processed data 2021

From Table 3 it is known that the probability value for Both is 0.0000. Based on the decision criteria in the Hausman test, where if the probability value for Both <0.05, then the better model

is the Random effect than the Camon effects. However, if the probability value for Both> 0.05, the better model is the Common effect than the Random effect model. Based on the Hausman test decision-making criteria, the best model is random effects because the probability value for both is smaller than 0.05 (0.0000 <0.05)

Classic Assumption Test

Because in the analysis of the panel data regression model, we only use two classic assumption tests, namely using multicoliearity test and heteroskedastisity test.

Multicoliearity Test

Multicolinearity tests are always performed when regression analysis uses more than one affecting variable. The goal is to see if between multiple variables or all variables affect each other. The results of the multicoliearity test can be seen in Table 4 below:

Table 4. Multicoliearity Test Results

Variance Inflation Factors			
Sample: 1 209			
Included observations: 209			
	Coefficient	Uncentered	Centered
Variable	Variance	VIF	VIF
C	5.919625	668.7430	NA
Log (Loan Interest)	0.550570	522.6834	3.515925
Log (Gdp Growth Perkapita)	5.274930	1610.646	4.389570
Log (Inflation)	0.102492	18.28609	2.811351
Log (Economic Growth)	6.219469	1946.858	4.803850

Source: processed data 2021

From the data from the calculation of the multicollinearity test in Table 4, it is known that the centered VIF value of loan interest is 3.515925, the centered VIF value of GDP per capita growth is 4.389570, the centered VIF value of inflation is 2.811351, and the centered VIF value of economic growth is 4 , 803850. All the independent variable centered VIF values have a value less than 10. The centered VIF value of loan interest is 3.515925 <10, the centered VIF value of GDP per capita growth is 4.389570 <10, centered VIF from the inflai 2.811351 <10 , and the centered VIF value of economic growth is 4.803850 <10. Because the centered VIF value of all independent variables is less than 10, the independent variables in the regression model in the study are not related or multicollinearity does not occur.

Heteroscedasticity Test

Because the data used in this study is panel data, which is closer to the characteristics of cross section data compared to time series data, it is necessary to carry out a heteroscedasticity test. In a good regression model, there should not be an unequal variance of the residuals for all observations. So, it is necessary to identify whether in the regression equation heteroscedasticity problems occur. To see if there is a heteroscedasticity problem, we use the Glejser test, which is to regress the absolute value (AbsRes) with the independent variable, which can be seen in Table 5 below:

Table 5. Heteroscedasticity Test Results Using the Glejser Test

Heteroskedasticity Test: Glejser			
F-statistic	0.172170	Prob. F (4,204)	0.9524
Obs*R-squared	0.703186	Prob. Chi-Square (4)	0.9509

Scaled explained SS	0.871079	Prob. Chi-Square (4)		0.9287
Test Equation:				
Dependent Variable: ARESID				
Method: Least Squares				
Sample: 1 209				
Included observations: 209				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.043227	1.649483	-0.026206	0.9791
Log (Loan Interest)	0.211504	0.503045	0.420448	0.6746
Log (Gdp growth per capita)	0.234144	1.557073	0.150375	0.8806
Log (Inflation)	-0.015659	0.217043	-0.072146	0.9426
Log (Economic Growth)	0.031435	1.690742	0.018593	0.9852
R-squared	0.003365	Mean dependent var		0.986408
Adjusted R-squared	-0.016177	S.D. dependent var		0.914759
S.E. of regression	0.922128	Akaike info criterion		2.699367
Sum squared resid	173.4653	Schwarz criterion		2.779328
Log likelihood	-277.0839	Hannan-Quinn criter.		2.731696
F-statistic	0.172170	Durbin-Watson stat		0.184010
Prob(F-statistic)	0.952449			

Source: processed data 2021

From Table 5, it is known that the Chi square probability value is 0.9509. in accordance with the provisions in the heteroscedasticity test, if the probability value of Chi square> 0.05, it means that there is no heteroscedasticity problem in the model. Thus, because the Chi square probability value is 0.9509> 0.05, it means that there is no heteroscedasticity problem.

Panel Data Regression Analysis with Random Effect Method

The following will show the results of panel data regression calculations using the Cross-section random effects method, which can be seen in Table 6 below:

Table 6. Regression calculation results using the EGLS Panel Method (Cross-section random effects)

Dependent Variable: LOG(PINJAMAN)				
Method: Panel EGLS (Cross-section random effects)				
Sample: 2009 2019				
Periods included: 11				
Cross-sections included: 19				
Total panel (balanced) observations: 209				
Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	28.85237	0.454479	63.48451	0.0000
Log (Loan Interest)	-2.023103	0.124063	-16.30706	0.0000
Log (Gdp Growth Per capita)	0.778219	0.383176	2.030968	0.0436
Log (Inflation)	-0.015480	0.053436	-0.289698	0.7723
Log (Economic Growth)	0.668149	0.416224	1.605266	0.1100
	Effects Specification			
			S.D.	Rho
Cross-section random			0.893641	0.9397
Idiosyncratic random			0.226456	0.0603

	Weighted Statistics		
R-squared	0.796446	Mean dependent var	1.933381
Adjusted R-squared	0.792454	S.D. dependent var	0.525328
S.E. of regression	0.239324	Sum squared resid	11.68435
F-statistic	199.5473	Durbin-Watson stat	1.012020
Prob(F-statistic)	0.000000		
	Unweighted Statistics		
R-squared	0.128474	Mean dependent var	25.37798
Sum squared resid	379.2526	Durbin-Watson stat	0.095731

Source: processed data 2021

From the data in Table 6, the panel data regression equation can be made as follows:

Log (Loan) = 28.85237 - 2.023103 * Log (BP) + 0.778219 * Log (PPDRBP) - 0.015480 * Log (Inf) + 0.668149 * Log (PE)

Where:

BP is the loan interest, PPDRBP is the growth of GDP per capita, Inf is inflation and PE is economic growth. From the regression equation it can be interpreted that if all the independent variables are zero, the amount of the loan at the Credit Union Credit Union is IDR 28.8537. The loan interest coefficient is negative 2.023103, which indicates that the loan interest rate on the credit union Credit Union is negatively correlated. If the loan interest rate increases by 1%, it will reduce outstanding loans by IDR 2.023103, and vice versa if the loan interest rate decreases by 1%, it will increase outstanding loans by the same amount, namely IDR 2.023103, assuming other variables such as GRDP growth per capita. The inflation rate and economic growth have not changed. The value of the GDP per capita growth coefficient is 0.778219, describing that there is a positive relationship between the growth of GDP per capita on loans at Credit Union Cooperative. The inflation coefficient value is negative 0.015480, describing that there is a negative relationship between the inflation rate and outstanding loans at Credit Union Kopdit. Finally, economic growth has a coefficient of 0.668149, which describes that there is a positive relationship between economic growth and outstanding loans at Credit Union Kopdit.

F Test

The F test is used to determine whether the independent variables together have a significant effect on the dependent variable. In this study Ho: variable loan interest (X1), GDP growth per capita (X2), inflation rate (X3), and economic growth (X4) together affect loans at Credit Union Cooperative in West Kalimantan. If F count> F table and probability value <0.05 means that there is influence and the hypothesis is accepted and if F count ≤ F table and probability value> 0.05, then the hypothesis is rejected and accepts the alternative hypothesis. The value of F table can be seen in the statistical F table at df 1 = the number of variables-1 or 5-1 = 4 and df 2 = n-k-1 or 209-4-1 = 204 (k is the number of independent variables). With a significance value of 0.05, the Ftable results are 2.416. Then based on Table 4.12 it is known that the value of Fcount is greater than Ftable (199.5473> 2.416). Thus, it means that loan interest (X1), GDP growth per capita (X2), inflation rate (X3), and economic growth (X4) together have an effect on outstanding loans.

Determination Analysis (Adjusted R Square)

Based on the calculated data in Table 6, it is known that the Adjusted R-squared value is 0.792454 or 79.2454%. Thus it can be said that the variable loan interest (X1), GDP per capita growth (X2), inflation rate (X3) and economic growth (X4) together contribute to the influence

of outstanding loans at Credit Union Cooperative in West Kalimantan (Y) amounting to 0.792454 or 79.2454% and the rest is influenced by other factors not examined.

T test

In this study, it is assumed that the loan interest variable (X1), GDP per capita growth (X2), inflation rate (X3) and economic growth (X4) partially affect outstanding loans at Credit Union Cooperative in West Kalimantan. It is said to have an effect if -t count <-t table or t count> t table and the probability value <0.05. Conversely, it will be said to have no effect if -t count ≥ -t table or t count ≤ t table and the probability value> 0.05. The t table value with a significant level of 0.05 through a two-sided test obtained a t table value of 1.972 or -1.972. Based on the data in table 4:12 it can be said that: The variable loan interest rate (X1) partially affects outstanding loans (Y) at Credit Union Credit Unions in West Kalimantan, because the t-count is smaller than the t table (-16,307 <-1,972). The per capita GRDP growth variable (X2) partially affects the loan (Y) at the Credit Union Cooperative in West Kalimantan, because the t-count value is greater than the t table (2.030> 1.972). The inflation rate variable (X3) partially has no effect on outstanding loans (Y) at Credit Union Credit Unions, because -t count> -t table (-0.289> -1,972). Finally, the economic growth variable (X4) partially has no effect on outstanding loans (Y) at Credit Union Credit Unions in West Kalimantan, because the value of t count <t table (1.605 <1.972).

Conclusion

We find that loan interest rates, GDP growth, inflation and economic growth simultaneously have a strong enough effect of 0.792454 or 79.25%, the remaining 20.75% is influenced by other factors that we do not take into account. The loan interest rate variable (X1) partially affects outstanding loans (Y) at the Credit Union Credit Union in West Kalimantan, because the calculated t value is smaller than the t table (-16,307 <-1,972). The per capita GRDP growth variable (X2) partially affects the loan (Y) at the Credit Union Credit Union in West Kalimantan, because the t-count value is greater than the t table (2.030> 1.972). Inflation rate variable (X3) partially has no effect on outstanding loans (Y) at Credit Union Credit Union, because -t count> -t table (-0.289> -1,972). Finally, the economic growth variable (X4) partially has no effect on outstanding loans (Y) at Kopdit credit unions in West Kalimantan, because the value of t count <t table (1.605 <1.972).

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