Credit Demand Factors on Commercial Banks in Indonesia on The Period 2001 - 2010

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Abstract

The research aims to know the factors that affect demand for working capital and investment loan on commercial banks in Indonesia on the period 2001 -2010. The dependent variable in this research is demand of bank credit, and the independent variables are interest rate, inflation, Capital Adequacy Ratio (CAR), and Operational Cost Ratio (OCR).Data used in this research are secondary data obtained from Indonesian Bank on the period 2001 -2010, which used multiple linear regression analysis method. The results shows that CAR has significant affects on credit demand. Interest rate, Inflation, and OCR have no significant affect on credit demand.

Keywords :Credit Demand, Interest Rate, Inflation, CAR, OCR

1 Introduction

The implementation of national development programs during this stay focused on the high of economic growth, also the dynamic and good national stability. Therefore, Indonesian Bank as the monetary authority plays an active role in supporting the creation of a conducive business climate to increase investment, by controlling the rate of inflation, realistic exchange rates, a good balance of payments condition, and attempting to influence the development of interest rates within reasonable limits in order to encourage efficient investment activities.

To achieve these targets, needed facilities and infrastructure, especially adequate financial support. This is where banks have an important role because the Indonesian banking functions are collect and intermediary of funds in society, while the aim is to support the implementation of national development in order to enhance equitable economic growth and national stability towards improving the welfare.

As most developing countries, the main source of investment financing in Indonesia is still dominated by distribution of bank credit. Thus, it's fair if the slowdown in the distribution of bank credit in Indonesia after crisis in 1997 has been blamed as one cause of slow economic recovery compared to other Asia countries which also has crisis, such as South Korea and Thailand. Although the macro economy in recent years has improved, reflected by the controlled rate of inflation, stable exchange rate, and declining interest rates, but the amount of loans banks have not quite been the driving force of economic growth to return to pre-crisis levels, means that the banks intermediary function is still not recover or there's banking disintermediation.

Based on the description above, inspired the writers to do research about factors affecting the credit demand of bank. This study aims to identify factors that affect the credit demand in commercial banks in Indonesia in the period 2001-2010. Issues that will be considered in this research is factors that affects the credit demand in bank. From the exposure to the objectives and the problem can be formulated in the research framework and the research hypothesis as follows1.

The hypothesis in this research are:

H1 : Interest rates affect demand of bank credit.

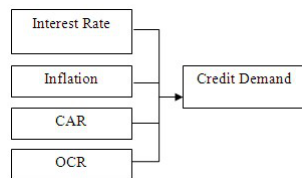**H2** : Rate of inflation affect demand of bank credit.

Figure 1: Reseach Framework

H3 : Capital Adequacy Ratio (CAR) affect demand of bank credit.

H4 : Operational Cost Ratio (OCR) affect demand of bank credit.

2 Literature Review

2.1 Definition of Bank and Its Functions

According to *Regulations No. 7 in 1992* [Ban,]about banking as amended by *Regulations No. 10 in 1998*[Ban,], bank is a business entity which collects funds from public in the form of savings and distribute it to public in the form of credit or other forms in order to improve people standard of living. According to *Banking Basic Regulations No. 10 in 1998* [Ban,]the type of banking functions consist of:

1. Commercial Bank

   Commercial Bank is bank that conducting business on the basis of conventional and islamic principles in their actions based on service in payment traffic.

2. Rural Credit Bank (BPR)

   Rural Credit Bank is bank that conducting business based on conventional or Islamic principles.

2.2 Credit

2.2.1 Definition of Credit

The word "credit" derives from the Greek "Credere" which means "trust" because the basis of credit is trust. Credit is the ability to execute a purchase or a loan with a promise of payment would be deferred on an agreed time period (Muljono, 1993). Meanwhile, according to the Regulations of the Republic of Indonesia in 1998 Pasal 1; credit is the provision of money or bills can be equated with that, based on the agreement between banks and other parties who require the borrower to pay off the debt after a period with interest.

2.2.2 The Purpose of Credit

The purpose of credit consist of two main functions which are interrelated with credit,they are: (Sinungan, 1995).

1. *Profitability*, is aim to gain profit from credit from collecting interest.

2. *Safety*, is the security of achievement or facilities provided should really be achieved without significant obstacles.

Giving credit is mean to make a profit, banks are only allowed to continue the public savings to its customers in the form of credit if the customer who will receive the credit is able and willing to pay of the loans that had received. From the factor of willingness and ability, so summed up a security and profit element (*profitability*) from a credit.

2.2.3 Credit Function

The function of bank credit in economic life and commerce are as follows.

1. Improving the efficiency of capital or money, the owners of capital can directly lend their money to entrepreneurs who need to increase production or to increase their business, besides also can save money on financial institutions.

2. Increasing the usability of an item, ie with getting the credit the entrepreneur can process raw materials into finished goods, so the efficiency of goods are increased.

3. Increasing the circulation of money, ie credit that distribute through the current account can create a new payment such as checks, giro slips and draft, it will increase the circulation of money.

2.2.4 Types of Credit

According to the types of credits funded, consists of working capital loans, investment loans, and consumer loans.

1. Working capital loans Credit which given by the bank to the debtor to meet its working capital. The criteria of working capital is capital requirements that expire within one business cycle, if it is seen in a company's balance sheet will be in cash plus receivables then plus with inventory both finished goods inventory, material inventory in process, raw material inventory. If talking about the net working capital needs to be reduced witth the current liabilitiesnya.

2. Investment Loans Credit issued by banks for the purchase of capital goods that is not discharged within one business cycle, means that

the process of spending cash money and back into cash money will take a long time after through some cycles. (Mulyono, 1993).

The following data 1is the number of working capital loans and investment loans which give to public in 2001-2010.

Table 1: Total of Working Capital Loan and Investment Loan

Year	Working Capital Loan	Investment Loan	Total Loans
2001	39,798	21,685	61,483
2002	51,680	26,119	77,799
2003	62,598	28,435	91,033
2004	76,852	34,399	111,251
2005	93,178	38,257	131,435
2006	112,863	41,803	154,666
2007	138,569	46,130	184,699
2008	199,155	70,367	269,522
2009	234,573	97,817	332,390
2010	284,637	90,873	375,510

Source: Bank Indonesia

2.2.5 Credit Policy

Setting the credit policy, there are 3 basic principles that must be considered: (Mulyono, 1993)

1. Liquidity Principle A principle that requires bank to continue maintain its liquidity level, because an illiquid bank will be very severe consequences of the loss of trust from its customers or public.

2. Solvability Principle Banks main business is receiving funds deposits from public and disbursed in the form of credit.

3. Profitability Principle As with any business activities will always expect to gain profit, either to sustain their existence and need to develop themselves.

2.3 Theories About Interest Rates

According to the classical theory, savings is a function of interest rates. The higher of interest rate, the higher of the public's willingness to save. This means that at the higher interest rate the public are encouraged to reduce spending for consumption to increase savings. Investment is also a function of interest rates. The higher of interest rate, then the desire to invest also become smaller, because the rate of return and use of funds will be higher. (Nopirin, 1995).

2.4 Definition of Inflation

There are much definition of inflation but until now hasn't yet obtain a standard definition that agreed by all economists. The definition of inflation according to some authors is basically the same among other things:

1. Inflation is the tendency of prices to increase in general and continuous (Boediono, 2001).

2. Inflation is the increase in general prices of goods continously, it does not mean that prices of various goods increase the same percentage (Nopirin, 2000).

2.5 Capital Adequacy Ratio (CAR)

Sufficient or a lot of capital become very important because bank capital could serve to facilitate the operations of a bank. The level of capital adequacy in the banking company is represented on Capital Adequacy Ratio (CAR) which is part of the prudential ratio. Capital Adequacy Ratio (CAR) is compliance with minimum capital ratio that has to be owned by bank.

According to SK Dir. BI No. 26/20/KEP/DIR/29th May, 1993 (Suseno and Piter Abdullah, 2003), In Indonesia the number of minimum capital that must be present is regulated by BI, which is 8% of Risk Weighted Assets. CAR is expected to correlate positively with credit supply. To calculate CAR use this formula (Bank Indonesia, 2006):

$$CAR = \frac{Equity}{RiskWeightedAssets} x 100\%$$

2.6 Operational Cost Ratio (OCR)

Operaional Cost Ratio (OCR) aims to measure the ability of operating income to cover operating costs. The increasing ratio reflects a lack of bank's ability in reducing operational cost and increase operational income which can make losses because bank is less efficient in managing its business[Ban,]. Bank Indonesia has set the best rates for OCR is below 90%, because if the ratio exceeds 90% until nearly 100% then the bank can be categorized not efficient in its operations. To calculate OCR used this formula:

$$OCR = \frac{TotalOperationCost}{TotalOperationIncome} x 100\%$$

2.7 Previous Research

Some previous research, including: Research that conducted by Rifai [Rifai, 2007], concluded that GDP has positive and significant impact on credit demand in banks. The inflation has negative impact on credit demand in banks. In simultaneously, GDP, interest rates, inflation and the economic crisis (dummy variable) has significant effect on the demand of bank credit in commercial banks in Central Java.

The research that conducted by Aryaningsih [Aryaningsih, 2008], concluded that the interest

rates, inflation has no effect on the demand for partial credit, while income has a significant effect. The contribution of interest rates, inflation and income to changes in credit demand is 37.8%, while other variables has contribute 62.2%.

The research that conducted by Arisandi [Arisandi, 2008], concluded that the Third Party Funds are the most dominant variable affecting the level of credit. Second, partially the Third Party Funds, CAR, and ROA has a positive and significant impact on credit supply except NPL. Third, simultaneously the Third Party Funds, CAR, NPL and ROA has a real and significant impact to credit supply.

3 Research Method

The type of data used are secondary data obtained from the website of Indonesia Bank for the period 2001-2010. The sample was obtained from the commercial banks in Indonesia. The sample selection is done by using purposive sampling technique.

The variables used in this research consisted of the dependent variable and independent variables. The dependent variable used is bank credit demand (Y). The independent variable used are Interest Rate (X1), Inflation (X2), CAR (X3), and OCR (X4).

Data analysis technique of hypothesis test use multiple linear regression using SPSS version 13.0. The steps conducted in the hypotheses test, including: Statistics Descriptive Test, Classical Assumption Test (Multicollinearity Test, Heteroscedasticity Test, and Normality Test), Hypotheses Test (T test and F test).

4 Results and Discussion

Based on the data of Credit Growth, Interest Rate, Inflation Rate, CAR, and OCR which obtained from Indonesia Bank in this research can be explained that in the initial period research the value of CAR is quite high in 2001 and reached a maximum height in 2006 about 21,20% and slowly decrease, this may effect the decreasing of bank's ability in lending credit as a result of reduced levels of capital. On the other hand the initial period the value of OCR shows a gradual decline, after 2004 the OCR experience significant increase, it explains the stability of income owned banks and the reduced levels of nonperforming loans that ultimately improve the performance of bank.

Interest rate is the number of money that are paid from the fund has used as fringe benefits. The changes in interest rates represents a change in the demand for money (credit). The increase in interest rates lead to lower aggregate demand/investment outcome. Conversely, the decline in interest rates will lead to increased aggregate demand. The results showed that the interest rate owned banks at the initial period in 2001 to 2010 experienced fluctuations and tendency to declining on 2 last year.

Inflation is the change in prices tends to increase, with no offset change people's purchasing power increases. In fact a rare condition where high inflation causes a specific output, so that the output levels change from time to time following the change in the expected inflation rate. Could have been the condition, that the increase in high inflation even lower level of output.

Inflation that can be observed as a reference for conduct the research is inflation measured by the price index which calculated per month / per year based on price search that can be paid in units of rupiahs by producers and consumers. Inflation that used as a variable in this research observed monthly data, starting from January 2001 to December 2010.

Credit demand is a demand for money in the form of credit by the society which measured in rupiahs. This type of credit can be classified in three, working capital loans, investment loans, and consumer loans. Average number of credit demand starting from the initial period are increase continued until 2010, and very high credit growth in 2008 is 45.92%.

4.1 Statistics Descriptive Test

The result of statistics descriptive test is known that the highest inflation rate is 13.33 with the lowest score 4.90. For interest rates the lowest values is 12.03 and the highest value is 18.18. For the variable CAR the highest value is 21.71 and the lowest value is 13.81. Variable OCR has the lowest value 75.73 and the highest value 104.07. The table of statistics descriptive test can be seen in appendix 14.

4.2 Classical Assumption Test

4.2.1 Multicollinearity test

Multicollinearity test used to determine whether the regression models found a correlation between independent variables. The results2 can be seen from the *Tolerance Value* and *Variance Inflation Factor (VIF)* indicated in the table below.

Table 2: Result of Multicollinearity Test

Variable	Tolerance	VIF
Interest Rate	0,264	3,792
Inflation Rate	0,326	3,066
CAR	0,392	2,549
COR	0,336	2,980

Source: Data are processed.

A model of regression which free from multicollinearity is the independent variable has *Tolerance* more than 0.1 (> 0.1) and all independent

variables have *VIF* less than 10 (Ghozali, 2001). From the calculation2, *Tolerence* and *VIF* values indicate that there is no serious multicollinearity in the regression model.

4.2.2 Heteroscedasticity Test

Heteroscedasticity test used to determine whether the regression model has the same variance (homoskedastisitas) from the residual one to another observation. Heteroscedasticity test results shown in the picture 2.
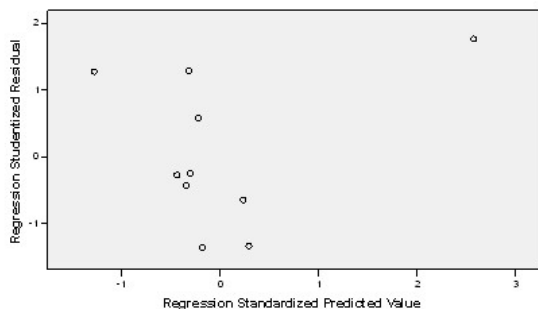

Figure 2: Heteroscedasticity Test of Factors That Effect Credit Demand

Test of heteroscedasticity can be seen through the scatterplots graph2. Scatterplots Graph show the point spread randomly either above or below the Y axis so that it can be concluded that there is no heteroscedasticity in regression models.

4.2.3 Normality Test

Normality test used to determine whether the data has a normal distribution. To test the normality of data can use normal probability graph. Here are the results of normality test using the normal probability graph3.
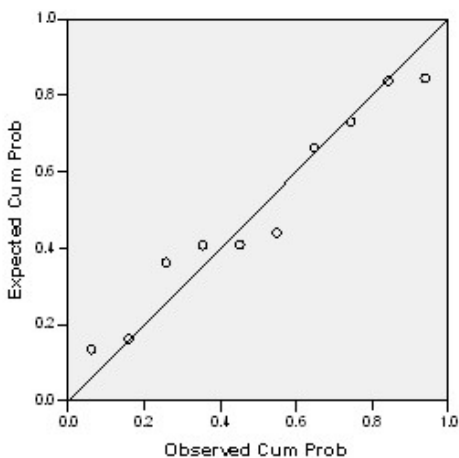

Figure 3: Normality Test of Factors That Effect Credit Demand

Based on the results of normality test 3with normal probability graph shows that the dependent variable have normal distribution. This is indicated by plots that spread around the diagonal line and follow the direction of the diagonal line.

4.3 Hypothesis Test

Hypothesis test in this research conducted by multiple linear regression models which conducted partially and simultaneously. The multiple linear regression partially performed by using T test, and the simultaneously by using the F Test. Table of partially statistics test of factors that effect the credit demand can be seen in appendix 25.

Based on the partially statistics test to variables used in this research explain that the interest rate has no significant effect on bank credit demand. It can be seen from the significant value higher than 0.05 that is 0.181. Interest rate are not effect bank credit demand because of the opportunity to open a new businesses and supported by creativity and a high level of public consumption, so that no matter how high interest rate of credit demand is not a problem, and credit growth continously rise.

Inflation rate also has no significant effect to demand of bank credit. It can be seen from the significant value higher than 0.05 that is 0.067. Inflation rate does not effect the demand of bank credit because no matter how high inflation if people in are need of capital then they will apply for credit to bank without having affected by the high and low of inflation. So the high and low of inflation will not affect the demand of bank credit. The results of this research support the research that conducted by Cagan (1956), stated that the rising of inflation will lead to money circulating increasingly, this can reduce credit demand, so it changes the ussual payment practices of society. The research conducted by Modigliani (in Dornbush, 1987) mentioned in the conditions of rising inflation occures the decreasing of credit demand, because it allows the alternative cost.

Capital Adequacy Ratio (CAR) has significant effect on the demand of bank credit. It can be seen from the significant value less than 0.05 that is 0.033. Capital Adequacy Ratio (CAR) affect the demand of bank credit because the decrease of CAR showed reduced levels of bank capital and thus affects the ability of banks in lending credit to the public, and vice versa. The higher of CAR owned the higher of ability of its banks in lending credit to public.

Operational Cost Ratio (OCR) has no significant of bank credit demand. It can be seen from the significant value higher than 0.05 that is 0.055. Operational Cost Ratio (OCR) has no affect to credit demand because the changes value of OCR reflects the ability of banks in reducing operational cost and increase operational income. High or low of the expenditures operational cost to bank's operational activities do not affect the demand of bank credit by public.

Statistical test simultaneously of multiple linear regression is using F test. Table 3below is shown the result of statistic test of factors that effect the demand of bank credit .

Table 3: The Results of Simultaneously Hypotheses Test

Model	F	Sig.
Regresion	2,664	0,156

Source: Data processed.

Based on the simultaneously statistical tests of variables that used in this research show that interest rate, inflation, Capital Adequacy Ratio (CAR), and Operational Cost Ratio (OCR) have no significant effect to bank credit demand in Indonesia. It is showed from the significant value higher than 0.05 that is 0,156 with a value of F = 2,664. It means simultaneously interest rates, inflation, Capital Adequacy Ratio (CAR), and Operational Cost Ratio (OCR) have no effect to demand of bank credit.

Conclusion

Based on the results of data analysis in this research, the factors that effect the demand of bank credit can be summarized as follows.

1. The partially test results showed that Capital Adequacy Ratio (CAR) have a significant effect on demand of bank credit, while other variables which consist of interest rates, inflation, and Operational Cost Ratio (OCR) have no significant effect to demand of bank credit.

2. The simultaneously test results showed that the four independent variables which consist of interest rates, inflation, Capital Adequacy Ratio (CAR), and Operational Cost Ratio (OCR) have no significant effect to demand of bank credit.

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Appendix

Tabel 4: Descriptive Statistics

	Credit Growth	Real Interest Rate Loans	Inflation Rate	CAR	OCR
Mean	22,06	14,95	8,73	18,15	92,23
Std. Deviation	9,20	2,05	3,21	2,91	7,60
Variance	84,70	4,18	10,29	8,45	57,77
Minimum	12,97	12:03	4,90	13,81	75,73
Maximum	45,92	18,18	13,33	21,71	104,07
Sum	220,63	149,46	87,33	181,51	922,28

Source: Data processed

Tabel 5: The Results of Partially Hypotheses Test

Model	Beta	t	Sig.
Constant	133,893	3,121	0,026
Lending Rates	3,442	1,554	0,181
Inflation Rate	2,957	2,329	0,067
CAR	-3,724	-2,914	0,033
COR	-1,317	-2,494	0,055

Source: Data processed