

## THE EXISTENCE OF ASYMMETRIC INFORMATION IN CREDIT ANALYSIS OF THE COMMUNITY CREDIT BANK (CCB)

Novita Sulistiowati, [novitahk@staff.gunadarma.ac.id](mailto:novitahk@staff.gunadarma.ac.id), Gunadarma University (Jakarta), Indonesia  
Dharma Tintri [dharmate@staff.gunadarma.ac.id](mailto:dharmate@staff.gunadarma.ac.id), Gunadarma University (Jakarta), Indonesia  
S.S.P. Pandjaitan, [sahala\\_panjaitan@yahoo.com](mailto:sahala_panjaitan@yahoo.com)

### ABSTRACT

Asymmetric information in credit market existence arises when the bank is not able to identify borrower based on the probability of repayment. This situation can cause credit defaults. The high of nonperforming loan in CCB credit market refers to the high of credit defaults which indicate the existence of asymmetric information in CCB credit analysis. This research empirically identifies asymmetric information in CCB credit analysis which the objective is to analyze how the indicators of credit analysis can explain the quality of borrower credit collectability. The hypothesis of the research is the indicators of credit analysis cannot explain the quality of borrower credit collectability. Survey is conducted randomly to 36 of CCB in 6 provinces in Java Island that represent incorporate CCB which member of Indonesian CCB association. Unit analyses of the research are 2.268 borrower bundle credit accounts. Frequency and cross tabulation statistics are used to do descriptive analysis, since binary logistic regression is used to do the verification analysis. Test results showed that less than 20% variation of dependent variables can be explained by 26 independent variables in logistic regression model research. It is stated that the indicators of credit analysis that is used during BPR can only explain less than 20% the quality of borrower credit collectability being good or default. More than 80% variations in the quality of borrower credit collectability can not be precisely described by the indicators of credit analysis in the model. This indicates that the BPR is not able to identify the borrower based on the probability level of credit payments. Analysis of indicators of credit used by the BPR was not able to produce signals that can identify borrowers based on the probability level of credit payments. The results of this study stated that there are asymmetric information on credit analysis of BPR.

### KEYWORDS

Asymmetric information, credit analysis, CCB, quality of borrower credit collectability.

## 1. INTRODUCTION

A Luenberger (1995) state that information related to the uncertainty of information determines the level of uncertainty of an event. Basically, the information can be described by a collection of statements of uncertainty that form the structure of information. Information about the uncertainty of an event can be obtained by doing observations to related value of the variables. Variable observation can produce a signal. Some signals can be incorporated into the framework of information to define structure of information. Baye (2009) explains that the person in possession of information can send signals that indicate his characteristics to the other party. Sending signal is an effort that made by those who have information to reveal their hidden characteristics.

Asymmetric information is a situation that occurs when one party of a transaction has more information than the other party (Jehle and Reny, 2001; Baye, 2009; Pindyck and Rubinfeld, 2009). In credit markets, asymmetric information occurs because borrower has more information about his ability to repay credit than the bank. Every borrower tried to convince the bank that he would repay the credit. Unfortunately, it is very difficult for bank to know whether borrowers will actually repay their credit in asymmetric information condition. Scott (2006) states that there are two types of information are soft information and hard information. Soft information is information that is difficult to quantify (such as characters), otherwise hard information is information that can be quantified (such as financial information). Stiglitz and Weiss (1981, 1992) stated that asymmetric information is marked by the inability of banks to identify borrowers based on the probability level of credit repayments. Banks do not have enough information about the level of borrowers risk and are not able to make direct observations to the borrower's business to repay the credit. To overcome this situation, borrower has to pay high interest rate and give collateral to guarantee bank's income from the credit (Stiglitz and Weiss, 1981, 1992; Jafee dan Stiglitz, 1990). However high interest rates will encourage borrowers to do high-risk business as well and cause the decrement of bank revenues to the increment probability of credit default.

In Indonesian bank credit market, the ability of banks to distribute credit is good enough. Data in 2009 showed that the average ratio Loan to Deposit Ratio (LDR) reached 73.6%. This means that banks are able to deliver 73.6% of deposit funds owned third party in the form of credit. But in the opposite, Indonesian bank

credit market is still marked by high rate of credit default. This is evidenced by the data at the end of 2009 which showed that the average ratio non-performing loan (NPL) reached 7%. This means that 7% of total loans distributed by the bank's are failed to be repaid by borrowers. Thus, do high LDR and high NPL indicate that banks give credit easily without consider the borrower's ability to repay their credit? Or in other words, do banks distribute credit in conditions of asymmetric information?

I do empirical research to answer that question. Object of this research is the problem of asymmetric information in credit analysis of Credit Community Bank (CCB). CCB is Indonesian rural bank that specialist in distributing credit to community in rural area. The credit analysis is applied by CCB as an effort to identify borrowers based on the probability of credit repayments. Basically, the credit analysis is a process to observe the indicators of credit analysis that consists of borrower's character information and borrower's financial information. Observation of those indicators is conducted by CCB and producing signals about borrower's probability to repay the credit. This research uses the quality of borrower credit collectability as the proxy of asymmetric information and uses the indicators of credit analysis as a proxy of the bank's efforts to identify borrower based on his probability level of credit repayments. Thus, asymmetric information was tested by analyzing the ability of the indicators of credit analysis to explain the quality of borrower credit collectability. The quality of borrower credit collectability grouped into good and default credit. Hypothesis of this research is indicators of CCB credit analysis can not explain the quality of borrower credit collectability.

## 2. DATA, ANALYSIS METHOD, RESULT AND DISCUSSION

### 2.1. Data and Analysis Method

The primary data required in this research are the indicators of CCB credit analysis. Primary data was obtained by conducting a survey to all CCB offices located in the 6 provinces in Indonesia which are Banten, DKI Jakarta, West Java, Central Java, Yogyakarta and East Java. The indicators of CCB credit analysis were taken from a sample unit of borrower's credit account files. As many as 2268 borrower's credit account files were collected from the 24 BPR visited.

This study tested asymmetric information by analyzing the ability of the indicators of CCB credit analysis to explain the quality of borrower credit collectability being good or default. Statistic analysis is needed to test whether the probability of occurrence of dependent variables can be predicted by independent variables. In other words, statistic analysis is needed to test whether the probability of borrower credit collectability being good or default can be predicted by independent variables. In this case, dependent variable is binary variable that have value 1 or 0 to present good or default credit.

Hair, Black, Babin, Anderson, and Tatham (2006) and Ghozali (2006) stated that there are 2 statistic analysis methods that can perform the analysis of these tests, namely discriminant analysis and logistic regression. But in this case, discriminant analysis can not be selected as an appropriate statistic analytical tool since discriminant analysis requires the assumption of multivariate normal distribution are met. In this research multivariate normal distribution assumptions can not be fulfilled because the independent variable is a mixture of continuous variables (metrics variables) and categorical variables (non-metric variables). Thus, this research use logistic regression since logistic regression method does not require the assumption of multivariate normal distribution are met.

Econometric model of this research:

$$Y_{D\text{GoodCreditCollectability}} = \beta_0 + \beta_1 X_{\text{BorrowerCharacterInformation}} + \beta_2 X_{\text{BorrowerFinancialInformation}}$$

### 2.2. Result and Discussion

This research hypothesis tests the existence of asymmetric information in CCB credit analysis by using the quality of borrower credit collectability as the proxy of asymmetric information and using credit analysis indicators as a proxy of CCB efforts to identify borrowers based on the probability level of credit repayments. Asymmetric information is tested by analyzing the ability of CCB credit analysis indicators to explain the quality of borrower credit collectability.

Logistic regression provides 3 kinds of measurements that can be equated with  $R^2$  in multiple regression to measure how much variability of borrower's quality credit collectability can be explained by indicators of credit analysis. There are Cox & Snell R Square, Nagelkerke R Square and Pseudo  $R^2$  or  $R^2$ Logit. The logistic

regression calculate that value Cox & Snell R Square = 0.087 and the value of Nagelkerke R Square = 0.184 (table 1). While Pseudo R<sup>2</sup> or R<sup>2</sup>Logit = 0.1422 calculated by the following formula.

$$R_{Logit}^2 = \frac{-2LL_{null} - (-2LL_{model})}{-2LL_{null}} \quad (\text{Hair, et al, 2006})$$

Tabel 1. Cox & Snell R Square and Nagelkerke R Square

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	1099.017 <sup>a</sup>	.087	.184

a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

The results suggest that indicators of CCB credit analysis can only explain less than 20% variations of the quality of borrower credit collectability. More than 80% variations of the quality of borrower credit collectability cannot be precisely described by the indicators of credit analysis in the model.

This result indicates that CCB has no capabilities to identify the borrowers based on the probability of credit repayment. In other words, the indicators of credit analysis used by the CCB were not able to produce signals that can identify borrowers based on their willingness and ability to repay the credit. Consistent with Stiglitz and Weiss (1981) that asymmetric information is marked by the inability of banks to identify borrowers based on the probability level of credit repayments, the results of this research states the existence of asymmetric information in CCB credit analysis.

These results are consistent with Jehle and Reny (2001), Baye (2009), Pindyck and Rubinfeld (2009) that asymmetric information is a situation that occurs when one party to a transaction has more information than the other party. Then Baye (2009) also states that asymmetric information happens in the credit markets because borrower has more information about their ability to repay credit than the bank. While Bebczuk (2003) states that if the banks and borrowers do not have access to the same information then credit agreement approved by both sides in the conditions of asymmetric information.

Based on observations, collection of borrower data conducted by CCB officers for credit analysis is not always producing complete data. This was proven by the occurrence of missing data on 12.13% of the total sample obtained. In addition, the verification data through the administrative requirements has not performed optimally. This supported with data survey that show the average of borrower credit document completion ratio is only 0.50. This means the average CCB borrower only meet 50% of document needed in the process of credit analysis. As much as 37.60% of borrowers only meet less than 50% of credit document requirement. Descriptive analysis also shows that borrowers are able to submit credit document requirement less than 50% having worst quality of borrower credit collectability than borrowers who can submit more than 50% credit document requirement. It means that completeness of borrower data collection and completeness of credit document requirement can help CCB to identify the borrower based on the probability level of credit repayments.

### 3. CONCLUSION

Results of this research suggest that indicators of CCB credit analysis cannot explain variations of the quality of borrower credit collectability. It means that the quality of borrower credit collectability could be described by the indicators of credit analysis that not present in the CCB credit analysis model. Consistent with Spence (1973) that in this case a weak signal cannot distinguish between borrowers based on the probability level of credit payments, the result indicates that indicators of CCB credit analysis produce weak signals that are not able to identify borrowers based on the probability level of credit repayment. In other word, results of this research shows that indicator of credit analysis cannot explain the quality of borrower credit collectability. It proves the existence of asymmetric information in CCB credit analysis. In operational level, completeness of borrower data collection and completeness of credit document requirement can help CCB to identify the borrower based on the probability level of credit repayments. Finally it will help CCB to reduce credit default that can effect to bank revenues from credit.

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